INFORMATION HANDOUT

For Contract No. 06-0N9904
At 06-Fre,Mad-Old 41-33.1/33.4,0.0/0.3

Identified by
Project ID 0612000114

PERMITS

United States Army Corps of Engineers

Non-Reporting Nationwide 404

State of California – California Natural Resources Agency

Central Valley Flood protection board Permit No. 16582-1 EO

WATER QUALITY

California Regional Water Quality Control Board

Central Valley Region,
Board Order No. 2003-00170WQ
NPDES Permit No. CAS _____

AGREEMENTS

California Department of Fish and Wildlife

Notification No. 1600-2015-0028-R4

MATERIALS INFORMATION

Revised Foundation Reports

Water Source Information

Revised Hydraulic Reports

Alternative in line terminal system

Alternative flared terminal system

Maximum applied water allowance calculation

Asbestos and lead-containing paint survey report

PERMITS

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

November 16, 2015

Regulatory Division (SPK-2015-00244)

California Department of Transportation, District 6
Attn: Mr. Anand Kapoor
2015 E. Shields Ave., Suite 100
Fresno, California 93726

Dear Mr. Kapoor

We are responding to your July 6, 2015, request for a Department of the Army Nationwide Permit (NWP) verification for the State Route (SR) 41 San Joaquin River Bridge Scour & Seismic Retrofit (06-0N990) project. The approximately 2.75-acre project site is located at the intersection of SR 41 and the San Joaquin River, Latitude 36.8763°, Longitude -119.7920°, Madera County, California.

Based on the information you provided to this office, the San Joaquin River bridge scour & seismic retrofit project involves the construction of a scour and seismic retrofit to the State Route 41 San Joaquin River bridge, in accordance with the *SR 41 Scour and Seismic Retrofit San Joaquin River Bridge Number 42-0112, EA # 06-0N990* plans, dated July 2015. The specific activities that require the discharge of dredged or fill material in waters of the United States are the excavation of soil and the installation of sheet pilings with concrete caps around the bridge pier footings. These activities will result in approximately 0.001 acre of permanent and 0.48 acre of temporary impact to the San Joaquin River.

We understand that the State of California, Department of Transportation (Caltrans) is the National Environmental Policy Act (NEPA) lead Federal agency for this project, and as such, will ensure the authorized work complies with the National Environmental Policy Act, the Endangered Species Act, the National Historic Preservation Act, and any other applicable federal laws.

We have determined activities in waters of the U.S. associated with the project are authorized by Nationwide Permit Number (NWP) 14, Linear Transportation Projects. However, this authorization is denied without prejudice until water quality certification under Section 401 of the Clean Water Act has been issued or waived for the activities requiring a permit from this office. Once you receive water quality certification or waiver thereof, the activities are authorized and the work may proceed subject to the any conditions of water quality certification, all terms and conditions of the NWP, applicable regional conditions, and project-specific special conditions. Information about the NWP and regional conditions are available on our website at *www.spk.usace.army.mil/Missions/Regulatory/Permitting/NationwidePermits.aspx*. In addition, your work must comply with the following special conditions:

1. This Corps permit does not authorize you to take an endangered species, in particular the Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), or designated critical habitat. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (e.g., an Endangered Species Act Section 10 permit, or a Biological Opinion under Endangered Species Act Section 7, with "incidental take" provisions with which you must comply). The enclosed Fish and Wildlife Service Biological Opinion (#08ESMF00-2014-F-0262, dated October 3, 2014), contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with "incidental take" of the attached Biological Opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The U. S. Fish and Wildlife Service is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the Endangered Species Act. You must comply with all conditions of this Biological Opinion.

2. You shall notify this office of any proposed modifications to the project, including revisions to any of the work plans or documents cited in this authorization, for review and approval prior to construction work associated with the proposed modification(s).

3. If any of the above conditions are violated or unauthorized activities occur, you shall stop work immediately and notify this office. You shall provide us with a detailed description of the unauthorized activity(s), photo documentation, and any measures taken to remedy the violation.

Within 30 days after completion of the authorized work, you must sign the enclosed Compliance Certification and return it to this office.

This verification is valid until March 18, 2017, when the existing NWPs are scheduled to be modified, reissued, or revoked. Furthermore, if you commence or are under contract to commence this activity before the date the NWP is modified, reissued, or revoked, you will have 12 months from the date of the modification, reissuance or revocation to complete the activity under the present terms and conditions. Failure to comply with the general and regional conditions of this NWP, or the project-specific special conditions of this authorization, may result in the suspension or revocation of your authorization.

We would appreciate your feedback on this permit action including your interaction with our staff. At your earliest convenience, please tell us how we are doing by completing the Corps' Regulatory Program national customer service survey found on our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx.*

Please refer to identification number SPK-2015-00244 in any correspondence concerning this project. If you have any questions, please contact Jason Deters at our California South Branch Office, 1325 J Street, Room 1350, Sacramento, California 95814-2922, by email at *Jason.Deters@usace.army.mil*, or telephone at 916-557-7152.

Sincerely,

for

Kathleen A. Dadey
Chief, California Delta Branch
Regulatory Division

Enclosures

cc: (w/o encls)

Mr. Thomas Leeman, United States Fish and Wildlife Service, Endangered Species Division, thomas_leeman@fws.gov
Ms. Leana Rosetti, Wetlands Office, Environmental Protection Agency, Region 9, rosetti.leana@epa.gov
Ms. Elizabeth Lee, California Regional Water Quality Control Board, Central Valley Region, Fresno Branch Office, emlee@waterboards.ca.gov

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) 574-0685 FAX: (916) 574-0682

April 6, 2016

California Department of Transportation (Caltrans)
2015 East Shields Avenue
Fresno, California 93726

Subject: Permit No. 16582-1 EO

Enclosed is your approved Central Valley Flood Protection Board Encroachment Permit No. 16582-1 EO.

Under General Condition Four (4) of the permit, you are required to accomplish the work under direction and supervision of the Department of Water Resources; therefore, you must advise the Department by contacting the Board at (916) 574-0609, and by sending the enclosed postcard to the Department at least ten days prior to starting your project.

Please note that this permit grants the work proposed and constructed in your project description. This permit, in addition to the twelve (12) standard conditions, includes special conditions, which may place limitations on or require modifications to your project. You are advised to read all conditions prior to starting the project. Commencing any work under this permit shall constitute an acceptance of the provisions of the permit and an agreement to perform accordingly. This permit does not relieve you from the responsibility for obtaining authorization from any State, local, or federal agencies for your proposed project.

Please refer to your permit number when communicating with this office. For further information, contact Minh Chieng at (916) 574-2646 or by e-mail at Minh.Chieng@water.ca.gov.

Sincerely,

Gary Lemon, Chief
Permitting Section
Central Valley Flood Protection Board

Enclosure

STATE OF CALIFORNIA
THE RESOURCES AGENCY

THE CENTRAL VALLEY FLOOD PROTECTION BOARD

PERMIT NO. 16582-1 EO

This Permit is issued to:

California Department of Transportation (Caltrans)
2015 East Shields Avenue
Fresno, California 93726

To authorize the existing Old Route 41 Bridge across the San Joaquin River (Lanes Bridge); to construct scour and seismic retrofits and to upgrade the bridge rails.

The project is located in the San Joaquin River Designated Floodway where Route 41 crosses the San Joaquin River within the City of Fresno. (Section 21, T12S, R20E, MDB&M, San Joaquin River, Fresno/Madera County).

NOTE: Special Conditions have been incorporated herein which may place limitations on and/or require modification of your proposed project as described above.

(SEAL)

Dated: APR 06 2016

Executive Officer

GENERAL CONDITIONS:

ONE: This permit is issued under the provisions of Sections 8700 – 8723 of the Water Code.

TWO: Only work described in the subject application is authorized hereby.

THREE: This permit does not grant a right to use or construct works on land owned by the Sacramento and San Joaquin Drainage District or on any other land.

FOUR: The approved work shall be accomplished under the direction and supervision of the State Department of Water Resources, and the permittee shall conform to all requirements of the Department and The Central Valley Flood Protection Board.

FIVE: Unless the work herein contemplated shall have been commenced within one year after issuance of this permit, the Board reserves the right to change any conditions in this permit as may be consistent with current flood control standards and policies of The Central Valley Flood Protection

Board.

SIX: This permit shall remain in effect until revoked. In the event any conditions in this permit are not complied with, it may be revoked on 15 days' notice.

SEVEN: It is understood and agreed to by the permittee that the start of any work under this permit shall constitute an acceptance of the conditions in this permit and an agreement to perform work in accordance therewith.

EIGHT: This permit does not establish any precedent with respect to any other application received by The Central Valley Flood Protection Board.

NINE: The permittee shall, when required by law, secure the written order or consent from all other public agencies having jurisdiction.

TEN: The permittee is responsible for all personal liability and property damage which may arise out of failure on the permittee's part to perform the obligations under this permit. If any claim of liability is made against the State of California, or any departments thereof, the United States of America, a local district or other maintaining agencies and the officers, agents or employees thereof, the permittee shall defend and shall hold each of them harmless from each claim.

ELEVEN: The permittee shall exercise reasonable care to operate and maintain any work authorized herein to preclude injury to or damage to any works necessary to any plan of flood control adopted by the Board or the Legislature, or interfere with the successful execution, functioning or operation of any plan of flood control adopted by the Board or the Legislature.

TWELVE: Should any of the work not conform to the conditions of this permit, the permittee, upon order of The Central Valley Flood Protection Board, shall in the manner prescribed by the Board be responsible for the cost and expense to remove, alter, relocate, or reconstruct all or any part of the work herein approved.

SPECIAL CONDITIONS FOR PERMIT NO. 16582-1 EO

LIABILITY AND INDEMNIFICATION

THIRTEEN: The permittee shall defend, indemnify, and hold the Central Valley Flood Protection Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State"), safe and harmless, of and from all claims and damages related to the Board's approval of this permit, including but not limited to claims filed pursuant to the California Environmental Quality Act. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

FOURTEEN: The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the Central Valley Flood Protection Board and the "State," safe and harmless, of and from all claims and damages arising from the project undertaken pursuant to this permit, all to the extent allowed by law. The State expressly reserves the right to supplement or take over its defense, in its sole discretion.

FIFTEEN: The Central Valley Flood Protection Board and Department of Water Resources shall not be held liable for any damages to the permitted encroachment(s) resulting from releases of water from reservoirs, flood fight, operation, maintenance, inspection, or emergency repair.

AGENCY CONDITIONS

SIXTEEN: All work approved by this permit shall be in accordance with the submitted drawings and specifications dated June 3, 2015 except as modified by special permit conditions herein. No further work, other than that approved by this permit, shall be done in the area without prior approval of the

Central Valley Flood Protection Board.

SEVENTEEN: The letter from the Department of the Army (U.S. Army Corps of Engineers, Sacramento District) dated February 17, 2016 is attached to this permit as Exhibit A in reference to this project.

EIGHTEEN: No construction work of any kind shall be done during the flood season from November 1 to July 15 without prior approval of the Central Valley Flood Protection Board.

NINETEEN: The permittee shall be responsible for repair of any damages to the San Joaquin River Designated Floodway and other flood control facilities due to construction, operation, or maintenance of the proposed project.

TWENTY: If the permitted encroachment(s) result in any adverse hydraulic impact or scouring the permittee shall provide appropriate mitigation acceptable to the Board.

PRE-CONSTRUCTION

TWENTY-ONE: Upon receipt of a signed copy of the issued permit, the permittee shall contact the Central Valley Flood Protection Board by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

CONSTRUCTION

TWENTY-TWO: All cleared trees and brush shall be completely removed from the San Joaquin River Designated Floodway, and downed trees or brush shall not remain in the San Joaquin River Designated Floodway during the flood season from November 1 to July 15.

TWENTY-THREE: Backfill material for excavations shall be placed in 4- to 6-inch layers and compacted to at least the density of the adjacent, firm, undisturbed material.

TWENTY-FOUR: Temporary stockpiled material, equipment, and temporary buildings shall not remain in the San Joaquin River Designated Floodway during the flood season from November 1 to July 15.

POST-CONSTRUCTION

TWENTY-FIVE: All debris generated by this project shall be disposed of outside the San Joaquin River Designated Floodway.

TWENTY-SIX: The work area shall be restored to the condition that existed prior to start of work.

TWENTY-SEVEN: If the bridge is damaged to the extent that it may impair the channel or floodway capacity, it shall be repaired or removed prior to the next flood season.

TWENTY-EIGHT: In the event existing revetment on the San Joaquin River Designated Floodway is disturbed or displaced, it shall be restored to its original condition upon completion of the proposed project.

TWENTY-NINE: Temporary construction access ramps shall be removed from the San Joaquin River Designated Floodway during the flood season from November 1 through July 15, and after completion of the project.

OPERATIONS AND MAINTENANCE

THIRTY: The permittee shall maintain the permitted encroachment(s) and the project works within the utilized area in the manner required and as requested by the authorized representative of the Central Valley Flood Protection Board, Department of Water Resources, or any other agency responsible for maintenance and shall, at all times, allow officials from these agencies to access the channel, banks, the floodway, and any adjacent areas as necessary for flood control, including by providing access to any gates for inspections and levee patrols.

THIRTY-ONE: The permitted encroachments shall not interfere with operation and maintenance of the flood control project. If the permitted encroachments are determined by any agency responsible for operation or maintenance of the flood control project to interfere, the permittee shall be required, at permittee's cost and expense, to modify or remove the permitted encroachments under direction of the Central Valley Flood Protection Board or Department of Water Resources. If the permittee does not comply, the Central Valley Flood Protection Board may modify or remove the encroachments at the permittee's expense.

THIRTY-TWO: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside the San Joaquin River Designated Floodway to maintain the design flow capacity and flowage area.

PROJECT ABANDONMENT / CHANGE IN PLAN OF FLOOD CONTROL

THIRTY-THREE: The permittee may be required, at permittee's cost and expense, to remove, alter, relocate, or reconstruct all or any part of the permitted encroachment(s) if in the discretion of the Central Valley Flood Protection Board the removal, alteration, relocation, or reconstruction is necessary as part of or in conjunction with any present or future flood control plan or project or if the Project is not maintained or is damaged by any cause. If the permittee does not comply, or in the event of an emergency, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

THIRTY-FOUR: If the project, or any portion thereof, is to be abandoned in the future, the permittee or successor shall abandon the project under direction of the Central Valley Flood Protection Board at the permittee's or successor's cost and expense.

END OF CONDITIONS

Exhibit A

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

Flood Protection and Navigation Section (16582-1)

FEB 17 2016

Ms. Leslie M. Gallagher, Executive Officer
Central Valley Flood Protection Board
3310 El Camino Avenue, Room 151
Sacramento, CA 95821

Dear Ms. Gallagher:

We have reviewed permit application number 16582-1 submitted by Caltrans. This project includes authorizing the existing Old Route 41 (Lanes Bridge), providing scour and seismic retrofits, and upgrading the bridge rails. The project is located on the San Joaquin River at Old Route 41 within the City of Fresno, at 36.876333°N 119.792194°W NAD83, Fresno and Madera County, CA.

The District Engineer has no comments or recommendations regarding flood control because the proposed work does not affect a federally constructed project.

A Section 10 and/or Section 404 permit (SPK-2015-244) has been issued for this work.

A copy of this letter is being furnished to Mr. Don Rasmussen, Chief, Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite 200, Sacramento, CA 95821.

Sincerely,

Ryan Larson, P.E.
Chief, Flood Protection and Navigation Section

WATER QUALITY

Central Valley Regional Water Quality Control Board

7 October 2015

Javier Almaguer
California Department of Transportation
855 M Street, Suite 200
Fresno, CA 93721-2716

CLEAN WATER ACT §401 TECHNICALLY CONDITIONED WATER QUALITY CERTIFICATION FOR DISCHARGE OF DREDGED AND/OR FILL MATERIALS FOR THE SAN JOAQUIN RIVER BRIDGE SCOUR AND SEISMIC RETROFIT PROJECT, WDID#5B10CR00079, FRESNO COUNTY

This Order responds to the 11 March 2015 application and the 6 July 2015 amended application submitted by California Department of Transportation (Applicant) for the Water Quality Certification of a bridge maintenance project permanently impacting 0.001 acres of waters of the United States.

This Order serves as certification of the subject Project permitted by the United States Army Corps of Engineers' Nationwide Permit 14 under § 401 of the Clean Water Act, and a Waste Discharge Requirement under the Porter-Cologne Water Quality Control Act and State Water Resources Control Board Order 2003-0017-DWQ.

WATER QUALITY CERTIFICATION STANDARD CONDITIONS:

1. This Certification is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to § 13330 of the California Water Code and § 3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This Certification is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR § 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial certification action shall be conditioned upon total payment of the full fee required under 23 CCR § 3860.

4. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under State law and § 401 (d) of the federal Clean Water Act. The applicability of any State law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with this Certification.

WATER QUALITY CERTIFICATION GENERAL CONDITIONS:

1. Certification is valid for the duration of the San Joaquin Bridge Scour and Seismic Retrofit Project (Project) described in the attached "Project Information Sheet." This Certification is no longer valid if the Project (as summarized in the "Project Information Sheet" and described in the water

quality certification application) is modified, or coverage under the project permit issued by the U.S. Army Corps of Engineers pursuant to § 404 of the Clean Water Act has expired.

2. The Applicant shall provide a Notice of Completion (NOC) no later than 30 days after the Project completion. The NOC shall demonstrate that the Project has been carried out in accordance with the Project description in the Certification and in any approved amendments. The NOC shall include a map of the Project location(s), including final boundaries of any on-site restoration area(s), if appropriate, and representative pre and post construction photographs. Each photograph shall include a descriptive title, date taken, photographic site, and photographic orientation.

3. All reports, notices, or other documents required by this Certification or requested by the Central Valley Water Board shall be signed by a person described below or by a duly authorized representative of that person.

   a. For a corporation: by a responsible corporate officer such as (1) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; (2) any other person who performs similar policy or decision-making functions for the corporation; or (3) the manager of one or more manufacturing, production, or operating facilities if *authority* to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official.

4. Any person signing a document under General Condition No. 3 shall make the following certification, whether written or implied:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

ADDITIONAL TECHNICALLY CONDITIONED CERTIFICATION CONDITIONS:

In addition to the standard and general conditions above, the Applicant shall satisfy the following:

1. The Applicant shall notify the Central Valley Water Board in writing **seven days** prior to beginning any in-water activities.

2. Except for activities permitted by the U.S. Army Corps of Engineers under § 404 of the Clean Water Act, soil, silt, or other organic materials shall not be placed where such materials could pass into surface water or surface water drainage courses.

3. All areas disturbed by Project activities shall be protected from washout or erosion.

4. The Applicant shall maintain a copy of this Certification and supporting documentation (Project Information Sheet) at the Project site during construction for review by site personnel and agencies. All personnel (employees, contractors, and subcontractors) performing work on the

proposed Project shall be adequately informed and trained regarding the conditions of this Certification.

5. An effective combination of erosion and sediment control Best Management Practices (BMPs) shall be implemented and adequately working during all phases of construction.

6. All temporarily affected areas shall be restored to pre-construction contours and conditions upon completion of construction activities.

7. The Applicant shall perform surface water sampling: 1) when performing any in-water work; 2) in the event that Project activities result in any materials reaching surface waters or; 3) when any activities result in the creation of a visible plume in surface waters. Pollutants shall be analyzed using the analytical methods described in 40 Code of Federal Regulations Part 136; where no methods are specified for a given pollutant, the method shall be approved by Central Valley Water Board staff. The following monitoring shall be conducted immediately upstream out of the influence of the Project and approximately 300 feet downstream of the active work area. Sampling results shall be submitted to this office by the first day of the second month following sampling. The sampling frequency and monitoring locations may be modified for certain projects with written permission from the Central Valley Water Board Executive Officer.

Parameter	Unit	Type of Sample	Frequency of Sample
Turbidity	NTU	Grab	Every 4 hours during in-water work
Settleable Material	ml/L	Grab	Same as above
pH	Standard units	Grab	Daily during concrete activity
Visible construction related pollutants	Observation	Visible Inspections	Continuous throughout the construction period

8. Activities shall not cause in surface waters:

   (a) where natural turbidity is less than 1 Nephelometric Turbidity Units (NTUs), controllable factors shall not cause downstream turbidity to exceed 2 NTUs;
   (b) where natural turbidity is between 1 and 5 NTUs, increases exceeding 1 NTU;
   (c) where natural turbidity is between 5 and 50 NTUs, increases exceeding 20 percent;
   (d) where natural turbidity is between 50 and 100 NTUs, increases exceeding 10 NTUs;
   (e) where natural turbidity is greater than 100 NTUs, increases exceeding 10 percent.

   In determining compliance with the above limits, appropriate averaging periods may be applied provided that beneficial uses will be fully protected. Averaging periods may only be used with prior permission of the Central Valley Water Board Executive Officer.

9. Activities shall not cause settleable material to exceed 0.1 ml/L in surface waters as measured in surface waters downstream from the Project.

10. Activities shall not cause the pH in surface waters to be depressed below 6.5 nor raised above 8.5.

11. The discharge of petroleum products or other excavated materials to surface water is prohibited. Activities shall not cause visible oil, grease, or foam in the work area or downstream. The Applicant shall notify the Central Valley Water Board immediately of any spill of petroleum products or other organic or earthen materials.

12. Prior to arrival at the project site and prior to leaving the project site, construction equipment that may contain invasive plants and/or seeds shall be cleaned to reduce the spreading of noxious weeds.

13. The Applicant shall notify the Central Valley Water Board immediately if any of the above conditions are violated, along with a description of measures it is taking to remedy the violation.

14. The Applicant shall comply with all California Department of Fish and Game Code § 1600 requirements for the Project.

15. The Applicant must obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activities issued by the State Water Resources Control Board for any project disturbing an area of one acre or greater.

16. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions as provided for under State law and § 401 (d) of the federal Clean Water Act. The applicability of any State law authorizing remedies, penalties, process, or sanctions for the violation or threatened violation constitutes a limitation necessary to ensure compliance with this Certification.

17. If the Applicant or a duly authorized representative of the Applicant fails or refuses to furnish technical or monitoring reports, as required under this Certification, or falsifies any information provided in the monitoring reports, the Applicant will be subject to civil liability, for each day of violation, or criminal liability.

18. In response to a suspected violation of any condition of this Certification, the Central Valley Water Board may require the Applicant to furnish, under penalty of perjury, any technical or monitoring reports the Central Valley Water Board deems appropriate, provided that the burden, including cost of the reports, shall be in reasonable relationship to the need for the reports and the benefits to be obtained from them.

19. The Applicant shall allow staff of the Central Valley Water Board, or an authorized representative(s), upon the presentation of credentials and other documents, as may be required by law, to enter the Project premises for inspection, including taking photographs and securing copies of project-related records, for the purpose of assuring compliance with this Certification and determining the ecological success of the Project.

CENTRAL VALLEY WATER BOARD CONTACT PERSON:

Debra Mahnke, Water Resource Control Engineer
1685 E Street
Fresno, CA 93706
(559) 445-6281
debra.mahnke@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby issue an order certifying that the proposed discharge from the California Department of Transportation San Joaquin Bridge Scour and Seismic Retrofit Project, WDID 5B10CR00079, will comply with the applicable provisions of § 301 ("Effluent Limitations"), § 302 ("Water Quality Related Effluent Limitations"), § 303 ("Water Quality Standards and Implementation Plans"), § 306 ("National Standards of Performance"), and § 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Resources Control Board Water Quality Order No. 2003-0017 DWQ "Statewide General Waste Discharge Requirements For Dredged Or Fill Discharges That Have Received State Water Quality Certification."

Except insofar as may be modified by any preceding conditions, all certification actions are contingent on (a) the discharge being limited to and all proposed mitigation being completed in strict compliance with the Applicant's project description, the attached "Project Information Sheet," and the Applicant's water quality certification application; and (b) compliance with all applicable requirements of the Central Valley Water Board's *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011.

Any person aggrieved by this action may petition the State Water Resources Control Board to review the action in accordance with California Water Code § 13320 and California Code of Regulations, title 23, § 2050 and following. The State Water Resources Control Board must receive the petition by 5:00 p.m., 30 days after the date of this action, except that if the thirtieth day following the date of this action falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Resources Control Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

Clay L. Rodgers
for Pamela C. Creedon
Executive Officer

Enclosure: Water Quality Order No. 2003-0017 DWQ
Attachment: Project Information Sheet

cc: Jason Brush, Supervisor, Wetlands Regulatory Office, U.S. Environmental Protection Agency, Region 9, San Francisco (email)
Kate Dadey, Sacramento South Branch Chief, Regulatory Unit, Department of the Army, Corps of Engineers, Sacramento
Bill Orme, Water Quality Certification Unit Chief, Division of Water Quality, State Water Resources Control Board, Sacramento (email)
Jeffrey Single, Regional Manager, San Joaquin Valley-Southern Sierra Region, California Department of Fish and Wildlife, Fresno

PROJECT INFORMATION SHEET

Application Date: 11 March 2015

Applicant: California Department of Transportation

Applicant Representatives: Javier Almaguer, Central Region Biology Branch Chief

Project Name: San Joaquin Bridge Scour and Seismic Retrofit Project

Application Number: WDID 5B10CR00079

Type of Project: Bridge maintenance project

Project Location: San Joaquin River Bridge at SR 41
Section 12, Township 12 South, Range 20 East, MDB&M.
Latitude: 36.87623° and Longitude: -119.79204°

Project Duration: The Project is tentatively scheduled to begin in March 2016 and be completed in November of 2018. The schedule may be adjusted to avoid or minimize environmental impacts.

County: Fresno

Receiving Water: San Joaquin River, San Joaquin River Hydrologic Basin, San Joaquin Valley Floor Hydrologic Unit #545.30, Berenda Creek HA

Water Body Type: River

Designated Beneficial Uses: The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins*, Fourth Edition, revised October 2011 (Basin Plan), has designated beneficial uses for surface and ground waters within the region. Beneficial uses that could be impacted by the project include, but are not limited to: Municipal and Domestic Water Supply (MUN); Agricultural Supply (AGR); Industrial Supply (IND); Hydropower Generation (POW); Groundwater Recharge (GWR); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Warm Freshwater Habitat (WARM); Cold Freshwater Habitat (COLD); Preservation of Biological Habitats of Special Significance (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Wildlife Habitat (WILD). A comprehensive and specific list of the beneficial uses applicable for the project area can be found at http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/index.shtml.

Project Description: The Project consists of seismic retrofitting of the bridge and adding scour protection to the bridge footings.

Preliminary Water Quality Concerns: Construction activities may impact surface waters with increased turbidity and settleable matter.

Proposed Mitigation to Address Concerns: The contractor will follow best management practices during construction. Equipment parking, project access, equipment maintenance, and other project-related activities would occur within temporary construction easements. Designated staging areas for equipment storage, vehicle parking, and other project related activities will be pre-approved by a Caltrans Regional Biologist. Dust control measures would be implemented as part of this project.

Fill/Excavation Area: Approximately 0.001 acres (22 linear feet) of un-vegetated streambed will be permanently impacted by placement of approximately 454 cubic yards of concrete. The Project will

also temporarily impact 0.12 acres (49 linear feet) of un-vegetated streambed and riparian area that will be restored to original condition.

Dredge Volume: None

U.S. Army Corps of Engineers Permit Number: Nationwide Permit 14

Department of Fish and Wildlife Streambed Alteration Agreement: The Applicant applied for a Streambed Alteration Agreement on 9 February 2015.

Status of CEQA Compliance: The California Department of Transportation approved a Mitigated Negative Declaration on 6 October 2014 and issued a Notice of Determination (State Clearinghouse Number SCH 2013101075).

As a Responsible Agency under California Environmental Quality Act (CEQA), the Central Valley Water Board reviewed the Mitigated Negative Declaration and found that the Project impacts to water quality were adequately addressed. Mitigation for impacts to water quality is discussed in the "Proposed Mitigation to Address Concerns" section above and the "Compensatory Mitigation" section below.

Compensatory Mitigation: The applicant will pay in-lieu fees to mitigate for 0.001 acres of impacts to waters of the United States. Temporarily impacted areas will be restored to pre-Project condition.

Application Fee Provided: Total fees of $959 have been submitted as required by 23 CCR §3833(b)(3)(A) and by 23 CCR §2200(e).

STATE WATER RESOURCES CONTROL BOARD

WATER QUALITY ORDER NO. 2003 - 0017 - DWQ

STATEWIDE GENERAL WASTE DISCHARGE REQUIREMENTS FOR DREDGED OR FILL DISCHARGES THAT HAVE RECEIVED STATE WATER QUALITY CERTIFICATION (GENERAL WDRs)

The State Water Resources Control Board (SWRCB) finds that:

1. Discharges eligible for coverage under these General WDRs are discharges of dredged or fill material that have received State Water Quality Certification (Certification) pursuant to federal Clean Water Act (CWA) section 401.

2. Discharges of dredged or fill material are commonly associated with port development, stream channelization, utility crossing land development, transportation water resource, and flood control projects. Other activities, such as land clearing, may also involve discharges of dredged or fill materials (e.g., soil) into waters of the United States.

3. CWA section 404 establishes a permit program under which the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the United States.

4. CWA section 401 requires every applicant for a federal permit or license for an activity that may result in a discharge of pollutants to a water of the United States (including permits under section 404) to obtain Certification that the proposed activity will comply with State water quality standards. In California, Certifications are issued by the Regional Water Quality Control Boards (RWQCB) or for multi-Region discharges, the SWRCB, in accordance with the requirements of California Code of Regulations (CCR) section 3830 et seq. The SWRCB's water quality regulations do not authorize the SWRCB or RWQCBs to waive certification, and therefore, these General WDRs do not apply to any discharge authorized by federal license or permit that was issued based on a determination by the issuing agency that certification has been waived. Certifications are issued by the RWQCB or SWRCB before the ACOE may issue CWA section 404 permits. Any conditions set forth in a Certification become conditions of the federal permit or license if and when it is ultimately issued.

5. Article 4, of Chapter 4 of Division 7 of the California Water Code (CWC), commencing with section 13260(a), requires that any person discharging or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the State,[1] file a report of waste discharge (ROWD). Pursuant to Article 4, the RWQCBs are required to prescribe waste discharge requirements (WDRs) for any proposed or existing discharge unless WDRs are waived pursuant to CWC section 13269. These General WDRs fulfill the requirements of Article 4 for proposed dredge or fill discharges to waters of the United States that are regulated under the State's CWA section 401 authority.

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[1] "Waters of the State" as defined in CWC Section 13050(e)

6. These General WDRs require compliance with all conditions of Certification orders to ensure that water quality standards are met.

7. The U.S. Supreme Court decision of *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159 (2001) (the *SWANCC* decision) called into question the extent to which certain "isolated" waters are subject to federal jurisdiction. The SWRCB believes that a Certification is a valid and enforceable order of the SWRCB or RWQCBs irrespective of whether the water body in question is subsequently determined not to be federally jurisdictional. Nonetheless, it is the intent of the SWRCB that all Certification conditions be incorporated into these General WDRs and enforceable hereunder even if the federal permit is subsequently deemed invalid because the water is not deemed subject to federal jurisdiction.

8. The beneficial uses for the waters of the State include, but are not limited to, domestic and municipal supply, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources.

9. Projects covered by these General WDRs shall be assessed a fee pursuant to Title 23, CCR section 3833.

10. These General WDRs are exempt from the California Environmental Quality Act (CEQA) because (a) they are not a "project" within the meaning of CEQA, since a "project" results in a direct or indirect physical change in the environment (Title 14, CCR section 15378); and (b) the term "project" does not mean each separate governmental approval (Title 14, CCR section 15378(c)). These WDRs do not authorize any specific project. They recognize that dredge and fill discharges that need a federal license or permit must be regulated under CWA section 401 Certification, pursuant to CWA section 401 and Title 23, CCR section 3855, et seq. Certification and issuance of waste discharge requirements are overlapping regulatory processes, which are both administered by the SWRCB and RWQCBs. Each project subject to Certification requires independent compliance with CEQA and is regulated through the Certification process in the context of its specific characteristics. Any effects on the environment will therefore be as a result of the certification process, not from these General WDRs. (Title 14, CCR section 15061(b)(3)).

11. Potential dischargers and other known interested parties have been notified of the intent to adopt these General WDRs by public hearing notice.

12. All comments pertaining to the proposed discharges have been heard and considered at the November 4, 2003 SWRCB Workshop Session.

13. The RWQCBs retain discretion to impose individual or General WDRs or waivers of WDRs in lieu of these General WDRs whenever they deem it appropriate. Furthermore, these General WDRs are not intended to supersede any existing WDRs or waivers of WDRs issued by a RWQCB.

IT IS HEREBY ORDERED that WDRs are issued to all persons proposing to discharge dredged or fill material to waters of the United States where such discharge is also subject to the water quality certification requirements of CWA section 401 of the federal Clean Water Act (Title 33 United States Code section 1341), and such certification has been issued by the applicable RWQCB or the SWRCB, unless the applicable RWQCB notifies the applicant that its discharge will be regulated through WDRs or waivers of WDRs issued by the RWQCB. In order to meet the provisions contained in Division 7 of CWC and regulations adopted thereunder, dischargers shall comply with the following:

1. Dischargers shall implement all the terms and conditions of the applicable CWA section 401 Certification issued for the discharge. This provision shall apply irrespective of whether the federal license or permit for which the Certification was obtained is subsequently deemed invalid because the water body subject to the discharge has been deemed outside of federal jurisdiction.

2. Dischargers are prohibited from discharging dredged of fill material to waters of the United States without first obtaining Certification from the applicable RWQCB or SWRCB.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 19, 2003.

AYE: Arthur G. Baggett, Jr.
Peter S. Silva
Richard Katz
Gary M. Carlton
Nancy H. Sutley

NO: None.

ABSENT: None.

ABSTAIN: None.

Debbie Irvin
Clerk to the Board

AGREEMENTS

Notice of Determination

To:
Office of Planning and Research
For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street
Sacramento, CA 95814

From:
Department of Fish and Wildlife
Central Region
1234 East Shaw Avenue
Fresno, California 93710
Contact: Laura Peterson-Diaz
Phone: (559) 243-4017, ext. 225

Lead Agency:
California Department of Transportation
855 M Street, Suite 200, Fresno, CA 93721
Contact: David Johnson
Phone: (559) 445-6260

SUBJECT: ***Filing of Notice of Determination pursuant to Public Resources Code section 21108***

State Clearinghouse Number: 2013101075

Project Title: San Joaquin River Bridge Scour and Seismic Retrofit Project (Streambed Alteration Agreement No. 1600-2015-0028-R4)

Project Location (include county): The Project is located along old State Route (SR) 41 from post miles (PM) 33.3-33.4 in Fresno County and from PM 0.0-0.2 in Madera County where it crosses the San Joaquin River approximately 1.4 miles north of the Friant road exit on SR 41., California; Section 21, Township 12 South, Range 20 East, USGS 7.5 Minute Quad Map North Fresno, MDB & M; Latitude 36°52'34.8"N, Longitude 119° 47'31.9"W.

Project Description: The California Department of Fish and Wildlife (CDFW) has executed Streambed Alteration Agreement number 1600-2015-0028-R4, pursuant to section 1602 of the Fish and Game Code to the project Applicant, California Department of Transportation (Caltrans).

The Project involves upgrading the two bridges on the old SR 41 crossing the San Joaquin River. The southern of the pair (bridge #42-0112), the San Joaquin River Bridge also known as Lane's Bridge, will require scour and seismic retrofit, and also an upgrade to the bridge rails. The northern of the pair (bridge #41-0040), the San Joaquin River Overflow Bridge, will undergo an upgrade to the bridge rails and will not require scour or seismic retrofit work.

This is to advise that CDFW, acting as a Responsible Agency, approved the above described project on 2/1/16 and has made the following determinations regarding the project pursuant to California Code of Regulations section 15096, subdivision (i):

1. The project will not have a significant effect on the environment. This determination is limited to effects within CDFW's permitting jurisdiction as a Responsible Agency.
2. CDFW considered the mitigated negative declaration prepared by the Lead Agency for this project pursuant to California Code of Regulations section 15096, subdivision (f).
3. Mitigation measures were made a condition of CDFW's approval of the project.
4. A mitigation reporting or monitoring plan was adopted by CDFW for this project.
5. A statement of overriding considerations was not adopted by CDFW for this project.
6. Findings were not made by CDFW pursuant to California Code of Regulations section 15091.

The mitigated negative declaration prepared for the project is available to the general public at the office location listed above for the Lead.

Signature _____ *Date:* 2/1/16

Julie Vance, Regional Manager

Date Received for filing at OPR: _____

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4593
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

February 2, 2016

Javier Almaguer
California Department of Transportation
855 M Street, Suite 200
Fresno, California 93721

Subject: Final Lake or Streambed Alteration Agreement
Notification No. 1600-2015-0028-R4
San Joaquin River – Fresno and Madera Counties

Dear Mr. Almaguer:

Enclosed is the Final Streambed Alteration Agreement (Agreement) for the San Joaquin River Bridge Scour & Seismic Retrofit (Project). Before the California Department of Fish and Wildlife (Department) may issue an Agreement, it must comply with the California Environmental Quality Act (CEQA). In this case, the Department, acting as a responsible agency, filed a notice of determination (NOD) within five working days of signing the Agreement. The NOD was based on information contained in the Mitigated Negative Declaration that the lead agency prepared for the Project.

Pursuant to CEQA Guidelines sections 15075(g) and 15094(g), filing of a NOD starts a 30-day statute of limitations during which a party may challenge the filing agency's approval of the Project. You may begin your project before the 30-day period expires if you have obtained all necessary local, state, and federal permits or other authorizations. However, if you elect to do so, it will be at your own risk.

If you have any questions regarding this matter, please contact Laura Peterson-Diaz, Environmental Scientist, at (559) 243-4014 extension 225 or laura.peterson-diaz@wildlife.ca.gov.

Sincerely,

Julie A. Vance
Regional Manager

Enclosure

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
REGION 4 - CENTRAL REGION
1234 EAST SHAW AVENUE
FRESNO, CALIFORNIA 93710

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2015-0028-R4
SAN JOAQUIN RIVER – FRESNO AND MADERA COUNTIES

CALIFORNIA DEPARTMENT OF TRANSPORTATION
CALTRANS DISTRICT 6
JAVIER ALMAGUER
855 M STREET, SUITE 200
FRESNO, CALIFORNIA 93721

SAN JOAQUIN RIVER BRIDGE SCOUR & SEISMIC RETROFIT (PROJECT)

This Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and California Department of Transportation (referred to as Permittee), represented by Javier Almaguer.

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, Permittee notified CDFW on March 2, 2015, that Permittee intends to complete the Project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the Project could substantially adversely affect existing fish or wildlife resources and has included Protective Measures in this Agreement necessary to protect those resources.

WHEREAS, Permittee has reviewed this Agreement and accepts its terms and conditions, including the Protective Measures to protect fish and wildlife resources.

NOW THEREFORE, Permittee agrees to complete the Project in accordance with this Agreement.

PROJECT LOCATION

The Project will occur along old State Route (SR) 41 from post miles (PM) 33.1-33.4 in Fresno County and from PM 0.0-0.3 in Madera County where it crosses the San Joaquin River approximately 1.4 miles north of the Friant road exit on SR 41., California; Section 21, Township 12 South, Range 20 East, USGS 7.5 Minute Quad Map North Fresno, MDB & M; Latitude 36°52'34.8"N, Longitude 119° 47'31.9"W (Figure 1).

PROJECT DESCRIPTION

Caltrans will upgrade the two bridges on the old SR 41 crossing the San Joaquin River. The southern of the pair (bridge #42-0112), the San Joaquin River Bridge (also known as Lane's Bridge) will require scour and seismic retrofit, and also an upgrade to the bridge rails. The northern of the pair (bridge #41-0040), the San Joaquin River Overflow Bridge, will only undergo an upgrade to the bridge rails and will not require scour or seismic retrofit work.

San Joaquin River Overflow Bridge - Railing Upgrade

The existing concrete railings will be demolished using jackhammers and cutting saws so that the majority of the debris falls inward toward the bridge deck. Netting with protective covers will be temporarily attached underneath the bridge deck to catch any debris that falls outward. Approximately 400 linear feet and 41 cubic yards of material will be removed from the San Joaquin River Overflow Bridge. The railing will be replaced with concrete and metal pipe railings that will be attached to the bridge with drill and bond dowels. Forms will then be set up for the cast-in-place railing, using 41 cubic yards of concrete with the metal pipe railing coming out of the top.

San Joaquin River Bridge - Railing Upgrade

The existing concrete railings will be demolished using jackhammers and cutting saws so that the majority of the debris falls inward toward the bridge deck. Netting with protective covers will be temporarily attached underneath the bridge deck to catch any debris that falls outward. Approximately 1,500 linear feet and 302 cubic yards of material will be removed from the San Joaquin River Bridge. The railing will be replaced with concrete and metal pipe railings which will be attached to the bridge with drill and bond dowels. Forms will then be set up for the cast-in-place railing which will have the metal pipe railing coming out of the top and approximately 302 cubic yards of concrete will be poured into the forms to create the new rails.

San Joaquin River Bridge - Seismic Retrofit

Expansion hinges with four galvanized steel pipe extenders will be added to all four expansion joints to prevent excessive movement of the bridge during a seismic event. Each pipe extender will be 6.625 inches in diameter and 15 feet long designed to prevent lateral movement with specific and limited extensions of the pipes in the event of earth quake. The pipe extenders will be attached to the bridge with cast-in-place concrete bolsters that are 1.5 feet by 2.5 feet by 9.25 feet and each will be composed of approximately 24.5 cubic yards of concrete and will be attached to the bridge with drill and bond dowels.

San Joaquin River Bridge - Scour Retrofit

This bridge has two abutments and eleven piers. The scour retrofit includes additional reinforcement at seven of the piers (#5 through #11). To maintain the structural integrity of the bridge during construction, the piers will be worked on in two phases. During

Phase 1, scour retrofit will occur at piers #6, #8, and #10. Once Phase 1 is complete, Phase 2 scour retrofit will occur at piers #5, #7, #9, and #11. To accomplish the scour mitigation, the existing rock slope protection (boulders placed for erosion control) to the northwest and southeast of the San Joaquin River Bridge will be temporarily removed and stockpiled offsite, and a ramp will be cut and graded for construction access to the riverbed. Work at each of the piers will include excavating the bottom of the grade beam, drilling two holes for the Cast in Drilled Hole (CIDH) piles, placing the rebar in the hole, pouring the CIDH pile, placing drill and bond dowels into the existing footing and pier walls, placing rebar cage that will interlock with the rebar extending above the CIDH piles, pour the grade beam concrete, and back fill as required.

- CIDH Piles: Two 48-inch diameter CIDH piles will be added per pier, one at each end of the footing. The process of installing each CIDH pile entails drilling a 4-foot diameter hole approximately 50 feet deep into the ground using a rock drill rig with recirculating drilling fluid. During the construction of the CIDH piles there will be a high probability of the ground water seepage during drilling. If this occurs, thickening slurry will be added to the drilling fluid as the drilling advances to form slurry. The slurry will be circulated and the "dirty" slurry in the hole will be pumped out and "clean" slurry will be reintroduced. The "dirty" slurry will be run through sealed pipes to settlement tanks (baker tanks) where the drill cuttings settle out and the "clean" slurry is reused by using return pipes back to the drill hole. The sediment and cut material left in the baker tanks will be disposed of at a proper offsite facility. Steel casing will be used as needed to prevent the sides of the hole from collapsing as the drilling advances. After the hole is drilled to the needed depth, a cage of reinforced steel will be placed in the hole with the top portion extending above the edge of the hole. Approximately 23.2 cubic yards of concrete will then be poured in the hole to form each pile foundation for a total of approximately 325 cubic yards of concrete for all 14 piles.

- Grade Beam: Each pier will have a footing approximately 25 feet long, 2.75 feet wide and 3 feet thick. The CIDH piles will be attached to the existing footing with the grade beam that will extend around both sides of the existing footing and will incorporate the top of the new piles. Each grade beam will be 39 feet long, 11 feet wide and 4.25 feet thick. The amount of excavation required at each pier varies according to ground elevations at the specific location; details are included in Table 1 below. The entire grade beam will be poured at the same time so that the end product will structurally be one unit. To prepare for this, drill and bond dowels as well as rebar will be placed all around the existing footing and the top of the new CIDH piles. Approximately 46 cubic yards of concrete will be poured for each grade beam for a total of 323 cubic yards of concrete for all 7 piers. The area around the piles and the grade beams will be back filled from the native soil stock-pile when each pier is completed.

Table 1 Excavation and Fill for the Grade Beams

Pier No.	Excavation Area (SQFT)	Excavation Volume (CY)	Backfill Area (SQFT)	Backfill Volume (CY)	Haul Away Volume (CY)
5	880.5	178	880.5	140.7	37.2
6	935.4	259.3	935.4	222.1	37.2
7	773.2	148.9	773.2	111.7	37.2
8	602.4	76.4	602.4	39.2	37.2
9	478.4	33.2	478.4	0	33.2
10	785.9	160.2	785.9	122.9	37.2
11	967	318.2	967	281	37.2
Totals:	**5422.8**	**1174.2**	**5422.8**	**917.6**	**256.4**

Water Diversions and Dewatering

- Two separate Water Diversions will be required for the scour retrofit of the San Joaquin River Bridge ; one at Pier 8 during Stage 1 the first year and one at Pier 9 during Stage 2 the second year. Based on hydraulic calculations a maximum river flow rate of 1,500 cubic feet per second is anticipated and the following plans are based on that calculation.

- Fish exclusion and dewatering will be done according to the following sequence:

  1. Install temporary exclusion material consisting of 0.25 inch stretched mesh.

  2. As many fish as possible will be removed using a combination of seining, baited minnow traps, dip net, and/or hand removal. Fish will be handled with extreme care to minimize stress by implementing the following:

     - Keep fish in cool, shaded, aerated water and protect them from excessive noise, excessive handling, temperature variation, jostling, or overcrowding while they are in captivity during relocation activities, remove only when ready to release the fish.
     - Segregate young-of-the-year salmonids into separate containers from older salmonids and other potential aquatic predators.
     - Relocate fish as soon as possible to a location at least 1,000 feet downstream of the project area that has suitable habitat conditions.

  3. Install the K-rail barrier cofferdam water diversion (see details below).

  4. Gradually dewater the work area using pumps with screens that comply with the Juvenile Fish Screen Criteria for Pump Intakes developed by the National Marine Fisheries Service.

  5. As the water level drops, any remaining fish will be removed as soon as they are revealed.

- Cofferdams consisting of 8,000 pound K-rails barriers will be installed to divert water flow. These will be constructed by placing two 20-foot long K-rails side-by-side to form a 4-foot wide foundation and a third K-rail on top with sandbags filling the space in the middle. The K-rail barrier will stand 5 feet tall. The K-rail will be placed using heavy equipment such as a backhoe or an excavator. The K-rail barrier will be covered with plastic sheeting that will be anchored with additional sand bags placed by hand at a slope of 2 to 1. The diversion barriers will be installed starting from the upstream end and working toward the downstream end, and will be dismantled in the reverse sequence.

- Stage 1 Diversion: K-rails barriers will be installed to divert the water away from Pier 8 and Pier 10 by directing the flow between two K-rail barriers with a minimum separation width of 32 feet at the toe of the sandbags. The southern barrier will be located on the north side of the sandbar located between Pier 8 and Pier 9. The vegetation on the sandbar will be left intact and will be separated from the work area with orange Environmentally Sensitive Area fencing. The northern barrier will be north of Pier 9, to ensure the water does not encroach into the Pier 10 work area. The K-rail barrier near pier 8 will be 150 feet long and the k-rail barrier near pier 10 will be 130 feet long. Approximately 3,000 square feet of the plastic sheeting will go over the K-rails near pier 8 and 2600 square feet of the plastic sheeting will go over the K-rails near pier 10. Approximately 140 cubic yards of sandbags will be used to reinforce the berm near pier 8 and 120 cubic yards of sandbags will be used to reinforce the berm near pier 10.

- Stage 2 Diversion: K-rail barrier will be installed a minimum of 18 feet south of Pier 9 to divert flowing water away Pier 9 to be to provide the required work space. The diversion for Stage 2 will be 195 feet long and will require approximately 3,900 square feet of the plastic sheeting and180 cubic yards of sandbags to be used as reinforcement.

- Following construction of both phases, the access to the northwest and southeast of the San Joaquin River Bridge will be restored to the previous grade and the rock slope protection boulders will be replaced in its original location.

- All work will be done during daylight hours.

- Equipment to be used will include: backhoe, bobcat excavator, construction ladder truck, jackhammer/vibrator machine, concrete trucks, haul trucks, and water truck.

- A total of 3 Fremont cottonwoods, 2 valley oaks, 6 white alders, and 2 California sycamores with trunks of four inches in diameter at breast height (DBH) but less than 24 inches DBH will be removed. Willows and other vegetation less than 4 inches DBH will need to be trimmed to allow access, but the roots will be left intact to help facilitate regrowth. No elderberry bushes will be trimmed or removed for this Project, but ground-disturbing Project activity will be required within 100 feet of an elderberry shrub.

PROJECT IMPACTS

The Total project footprint will be approximately 2.6 acres, of which 0.245 acres will be excavated and 0.148 acres of willow vegetation will be cut for access resulting in 0.380 acres and 139 linear feet of temporary impacts. Installation of the CIDH pilings and the grade beams will result in 0.026 acres of permanent impacts along 48 linear feet of the San Joaquin River. Approximately 1,174.2 cubic yards of soil will be excavated and 1,015.5 cubic yards of concrete will be poured.

Other potential impacts related to disturbance during Project implementation include but are not limited to those resulting from noise and vibration, fugitive dust, vegetation removal, species could be trampled or crushed during initial earthwork activities or if an individual moves into the work area, erosion caused during excavation activities at the piers, petroleum spills from heavy equipment, materials spills from pouring wet concrete, introduction of fill material, sedimentation and turbidity, and surface water contact with construction-related materials including the water diversion.

This Agreement is intended to avoid, minimize, and mitigate adverse impacts to the fish and wildlife resources that occupy the Project area and the adjacent habitat. Absent implementation of the Protective Measures required by this Agreement, the Federally threatened valley elderberry longhorn beetle (*Desmocarpus californicus dimorphus*), the State threatened Swainson's hawk (*Buteo swainsoni*), the Federally and State threatened spring run Chinook salmon (*Oncorhynchus tshawytscha*), the Federally threatened Central Valley steelhead (*Oncorhrynchus mykiss*), and the State species of special concern fall run Chinook salmon, Western pond turtle (*Actinemys marmorata*), Western spadefoot (*Spea hammondii*), pallid bat (*Antrozous pallidus),* Western mastiff bat (*Eumops perotis californicus*), and tricolored blackbird (*Agelaius tricolor*), as well as other birds, mammals, fish, reptiles, amphibians, invertebrates, and plants that compose the local ecosystem could potentially be impacted.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative Protective Measure described below.

1.1 Documentation at Project Site. Permittee shall make this Agreement, any extensions and amendments to this Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the Project site at all times and shall be presented to CDFW personnel or personnel from another State, Federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of this Agreement and any extensions and amendments to this Agreement to all persons who will be working on the Project at the Project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a Protective Measure in this Agreement might conflict with a provision imposed on the Project by another local, State, or Federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees that CDFW personnel may enter the Project site at any time to verify compliance with this Agreement.

1.5 Legal Obligations. This Agreement does not exempt Permittee from complying with all other applicable local, State, and Federal law, or other legal obligations.

1.6 Unauthorized Take. This Agreement does not authorize the "take" (defined in Fish and Game Code Section 86 as to hunt, pursue, catch, capture, or kill; or attempt to hunt, pursue, catch, capture, or kill) of State- or Federally-listed threatened or endangered species. Any such take shall require separate permitting as may be required.

1.7 Property Not Owned by Permittee. To the extent that the Protective Measures of this Agreement provide for activities that require Permittee to enter on another owner's property, they are agreed to with the understanding that Permittee possesses the legal right to so enter.

1.8 Work Schedule. Permittee shall submit a work schedule to CDFW prior to beginning any activities covered by this Agreement. Permittee shall also notify CDFW upon the completion of the activities covered by this Agreement.

1.9 Training. Prior to starting any activity within the stream bed or bank, all employees, contractors, and visitors who will be present during Project activities shall receive training from a qualified individual on the contents of this Agreement, the resources at stake, and the legal consequences of noncompliance.

2 Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each Protective Measure listed below.

2.1 Construction/Work Hours. All work activities shall be confined to daylight hours. For purposes of this Agreement, "daylight hours" are defined as that daytime period between sunrise and sunset.

2.2 Flagging/Fencing. Prior to activity within the CDFW jurisdictional area, Permittee shall identify the limits of the required access routes and encroachment. These "work area" limits shall be identified with brightly-colored flagging/fencing. Work completed under this Agreement shall be limited to this defined area only. Flagging/fencing shall be maintained in good repair for the duration of the Project. All CDFW jurisdictional areas beyond the identified work area limits shall be considered Environmentally Sensitive Areas (ESA) and shall not be disturbed.

2.3 Listed and Other Special Status Species.

(a) This Agreement does not allow for the take of any State-listed or Federally-listed threatened or endangered species. Liability for any take of such listed species remains the separate responsibility of Permittee for the duration of the Project.

(b) Permittee affirms that no take of listed species shall occur as a result of this Project and will take prudent measures to ensure that all take is avoided. Permittee acknowledges and fully understands that it does not have State incidental take authority. If any State-listed or Federally-listed threatened or endangered species occur within the proposed work area or could be impacted by the work proposed, and thus taken as a result of Project activities, Permittee is responsible for obtaining and complying with required State and Federally threatened and endangered species permits or other written authorization before proceeding with this Project.

(c) Permittee shall immediately notify CDFW of the discovery of any such threatened or endangered species prior to and/or during Project implementation.

(d) Pre-activity surveys for sensitive status species shall be conducted by a qualified biologist within 30 days prior to commencement of the Project. Surveys shall be conducted on the Project site and all access routes to avoid and minimize incidental take, confirm previous observations, identify any areas potentially occupied by listed or sensitive species, and clearly mark all resources to be avoided by Project activities. If any State- or Federally-listed threatened or endangered animal species are found or could be impacted by the work proposed the Permittee shall notify CDFW of the discovery prior to commencement of any activity. An amended Agreement and/or a 2081(b) State Incidental Take Permit may be necessary and a new CEQA analysis may need to be conducted, before work can begin. All fully protected species shall be completely avoided.

(e) Valley Elderberry Longhorn Beetle: Permittee shall implement and adhere to the terms and conditions related to the valley elderberry longhorn beetle in the Biological Opinion for the San Joaquin River Bridge Scour and Seismic Retrofit Project (2014-F+0262) for the Project pursuant to the Federal Endangered Species Act, including installation of an environmentally sensitive area 20 feet from the dripline of the shrubs or at the greatest distance feasible (but not closer than the shrubs' driplines).

(f) Swainson's Hawk: No Project-related activities shall be completed from March 1 through August 31 unless a qualified biologist conducts Swainson's hawk nesting surveys following the survey methodology developed by the Swainson's Hawk Technical Advisory Committee (http://www.dfg.ca.gov/wildlife/nongame/docs/swain_proto.pdf) prior to commencing Project-related activities. Additional pre-Project surveys for

active nests within a ½-mile radius of the Project site shall be conducted by a qualified biologist no more than 10 days prior to the start of Project activities and during the appropriate time of day to maximize detectability. A minimum no disturbance buffer of ½ mile shall be delineated around active nests until the breeding season has ended or until a qualified biologist has determined and CDFW has confirmed in writing that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Alternately, Permittee may apply for and acquire an Incidental Take Permit for Swainson's hawk prior to initiating Project activities, in which case an Agreement amendment may be warranted.

(g) Chinook Salmon and Central Valley Steelhead: For Project activities that will require dewatering or diverting of water from the work area, Permittee shall complete all ground disturbance to install diversions and complete dewatering outside of the October 15 to June 15 breeding period for listed and sensitive status salmonids. If Project activities are completed between October 15 and June 15, Permittee shall wait to remove dewatering and diversion infrastructure, and to complete any restoration of the temporarily-disturbed portion to the work area to pre-activity conditions, until after June 15 and before October 15.

(h) Western Pond Turtle and Western Spadefoot: Individuals of these species discovered at each site immediately prior to or during Project activities shall be allowed to move out of the area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat immediately upstream or downstream from the Project site where it was found, and outside the influence of each Project site.

(i) Bat Species: Bats shall not be disturbed without specific notice to and consultation with CDFW. Pre-construction surveys shall be conducted by a qualified biologist to determine if bat species are roosting on-site or near Project work areas. If surveys confirm that bats are present, Permittee shall submit a Bat Exclusion Plan to CDFW for review and approval prior to its implementation. The Plan shall be submitted for CDFW written approval a minimum of 30 days in advance of its proposed implementation. If initial surveys had a negative result, Permittee shall conduct a follow-up bat preconstruction survey within seven (7) days prior to the construction start date, to determine whether bats have moved into or adjacent to the Project area. If bats are detected, the process defined above shall be followed, to develop a Bat Exclusion Plan.

(j) Tricolored Blackbird: If Project activity will occur during the breeding season of the species (February 15 through September 15), no more than two weeks in advance of Project activity, a qualified biologist who is experienced surveying for nesting tricolor blackbirds shall survey all areas of suitable breeding habitat for tricolored blackbird within the Project work area and a 250-foot buffer of the site. If a nesting colony is found, no activity shall occur within a 250-foot buffer of the colony until a qualified biologist determines and

CDFW confirms that all chicks have fledged and are no longer reliant on the nest site.

2.4 Fish and Wildlife.

(a) If any fish or wildlife is encountered during the course of Project activities, said fish or wildlife shall be allowed to leave the Project area unharmed.

(b) Pursuant to FGC Sections 3503 and 3503.5, it is unlawful to take, possess, or destroy the nest or eggs of any bird or bird-of-prey. To protect nesting birds, no Project activity shall be completed from March 1 through August 31 unless the following Avian Nesting Surveys are completed by a qualified biologist within 30 days prior to commencing Project activities.

Separate avian survey and avoidance requirements are listed above for Swainson's hawk and tricolored blackbird, due to their special status listings and different nesting ecology (see Avoidance and Minimization Measures 2.3(f) and (j)).

Raptors: Survey for nesting activity of raptors within a 500-foot radius of the site. Surveys shall be conducted at appropriate nesting times and concentrate on trees with the potential to support raptor nests. If any active nests are observed, these nests and nest trees shall be designated an ESA and protected with a minimum 500-foot buffer until young have fledged and are no longer reliant on the nest site or parental care.

Other Avian Species: Survey for nesting activity within a 250-foot radius of the defined work area. If any nesting activity is found, Permittee shall designate nests and nest substrate (trees, shrubs, ground, or burrows) as an ESA protected with a minimum 250-foot buffer until the young have fledged and are no longer reliant upon the nest or parental care for survival.

Swallows: If work cannot be avoided during the avian nesting season, the Permittee shall develop a Swallow Exclusion Plan for advance approval by CDFW prior to implementation. The plan shall include methods to prevent swallows from initiating nesting on the existing bridge prior to starting Project activity, and shall include maintenance of any screen or netting used to prevent swallows from accessing bridge structures suitable for nesting. If swallow nesting has already begun on the existing bridge structure, avoidance shall occur until fledging has been completed according to "Other Avian Species", above.

CDFW may consider variances from these buffers when there is a compelling biological or ecological reason to do so, such as when the Project area would be concealed from a nest site by topography.

2.5 Vegetation.

(a) Removal and trimming of vegetation shall be limited to the minimal amount necessary to complete the Project.

(b) Prior to vegetation removal, trees to be removed shall be clearly marked and identified, to prevent the unintentional removal of trees and to minimize tree removal to the maximum extent possible.

(c) Vegetation or material removed from the Project site shall be disposed of at an appropriate and legal off-site location where the material cannot enter the stream channel. No such material shall be stockpiled in the streambed, banks, or channel, except that native vegetation removed from the channel may be chipped and the chips used as mulch for disturbed soil sites in or near the Project area.

(d) All disturbed invasive, exotic plant species shall be removed from the Project site. Any Vinca, Cape or German ivy, Castor bean, Arundo, or other exotic plant species shall be bagged and appropriately disposed of in a landfill. Exotic species shall not be used in mulching, composting, or otherwise placed in or around the Project site.

(e) Heavy equipment and other machinery shall be inspected for the presence of undesirable species and cleaned prior to on-site use to reduce the risk of introducing exotic plant species into the Project site.

2.6 Vehicles and Equipment.

(a) Vehicles and heavy equipment shall only be operated within naturally dry portions of the stream or in areas that have been dewatered following the diversion of flows.

(b) Any equipment or vehicles driven and/or operated in or adjacent to the stream shall be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic and terrestrial life.

(c) Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream, shall be positioned over drip-pans. Vehicles shall be moved away from the stream prior to refueling and lubrication.

2.7 Fill/Spoil.

(a) Spoil storage sites shall not be located within the stream, or where spoil will be washed into the stream. Rock, gravel, and/or other materials shall not be imported into or moved within the bed or banks of the stream, except as otherwise addressed in this Agreement.

(b) Fill shall be limited to the minimal amount necessary to accomplish the agreed activities. Excess fill material shall be moved off-site at Project completion.

(c) Permittee shall cover temporary spoil piles with plastic sheeting or visquine when rainy or windy conditions could erode loose soils, in order to prevent loose soil from moving into the channel.

2.8 Erosion.

(a) No work shall occur during or within 24 hours following significant rainfall events, defined as ¼ inch or more of rain in a 24-hour period.

(b) All disturbed soils within the Project site shall be stabilized to reduce erosion potential, both during and following Project implementation. Temporary erosion control devices, such as straw bales, silt fencing, and sand bags, may be used, as appropriate, to prevent siltation of the stream. To minimize the risk of ensnaring and strangling wildlife, coir rolls, erosion control mats or blankets, straw or fiber wattles, or similar erosion control products shall be composed entirely of natural-fiber, biodegradable materials. Permittee shall not use "photodegradable" or other plastic erosion control materials.

(c) Permittee's ability to minimize siltation shall be the subject of preconstruction planning and feature implementation. Precautions to minimize siltation may require that the work site be isolated so that silt or other deleterious materials are not allowed to pass to downstream reaches. The placement of any structure or materials in the stream for this purpose, not included in the original Project description, shall be coordinated with CDFW. If it is determined that silt levels resulting from Project-related activities constitute a threat to aquatic life, activities associated with the siltation shall be halted until effective CDFW-approved control devices are installed, or abatement procedures are initiated.

2.9 Pollution.

(a) Permittee and all contractors shall be subject to the water pollution regulations found in Fish and Game Code sections 5650 and 12015.

(b) The Permittee shall install the necessary containment structures to control the placement of wet concrete and to prevent it from entering into the channel outside of those structures. No concrete shall be poured below the top of bank if the 5-day weather forecast indicates any chance of rain. At all times when the Permittee is pouring or working with wet concrete there shall be a designated monitor to inspect the containment structures and ensure that no concrete or other debris enters into the channel outside of those structures. Poured concrete shall be isolated from surface waters and allowed to dry/cure for a minimum of 30 days or until the pH as tested with tap water does not exceed 9.5. Any rain water that comes into contact with the concrete

structures shall be contained and isolated from stream flows; the water pH shall be tested, and water shall be removed from the site and disposed of lawfully if the pH exceeds 9.5. Permittee shall submit to CDFW the methods and results of all pH testing, including measurements that demonstrate a pH at or below 9.5 as tested prior to removing the containment structures.

(c) Raw cement, concrete or washings thereof, asphalt, drilling fluids or lubricants, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to fish or wildlife resulting from or disturbed by Project-related activities, shall be prevented from contaminating the soil and/or entering the "Waters of the State".

(d) An Emergency Response Plan shall be prepared and submitted to CDFW for approval prior to the start of Project activities, and kept on-site during all phases of the Project. The Plan shall identify the actions that shall be taken in the event of a spill of petroleum products, concrete, contaminated soil, or other material harmful to fish, plants, or aquatic life. Emergency response materials shall be kept at the site and readily available to allow rapid containment and cleanup of any spilled material. In the event that a spill occurs, all Project activities shall immediately cease until cleanup of the spilled materials is completed. CDFW shall be notified immediately by Permittee of any spills and shall be consulted regarding cleanup procedures.

(e) All Project-generated debris, building materials, and rubbish shall be removed from the stream and from areas where such materials could be washed into the stream.

2.10 Structures. Permittee shall confirm that all structures and installed features are designed (i.e., size and alignment), constructed, and maintained such that they will not fail, will accommodate high flows, and will not cause long- term changes in water flows that adversely modify the existing upstream or downstream channel bed/bank contours, increase sediment deposition, or cause significant new erosion.

2.11 Work Site Dewatering. All Project activity shall be performed in the absence of surface water in the Project work area. Diversion of water flow shall be implemented according to the following.

(a) Permittee shall ensure that the dam or barrier installed upstream of the Project work area shall be pumped around the work area at a rate that is sufficient to prevent flooding above the banks or the dam/barrier.

(b) Check dams, cofferdams, or other barriers shall not be made of silt, sand and gravel, or other substances subject to erosion unless first enclosed by sheet piling, sandbags, or other protective material. The enclosure and supportive material shall be removed when the work is completed and removal shall normally proceed from downstream in an upstream direction.

(c) If it is necessary to dewater the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting CDFW and National Oceanic and Atmospheric Administration-Fisheries criteria to prevent entrainment or impingement of small fish: (http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_ScreenCriteria.asp).

(d) When any dam or other artificial obstruction is being constructed, maintained, or placed in operation, Permittee shall allow sufficient water at all times to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code §5937.

(e) Permittee shall divert flow in a manner that prevents turbidity, siltation, or pollution and provides flows to downstream reaches. Flows to downstream reaches shall be provided during all times that the natural flow would have supported aquatic life. Said flows shall be sufficient quality and quantity, and of appropriate temperature to support fish and other aquatic life both above and below the diversion. Normal flow shall be restored to the affected stream immediately upon completion of work at that location.

(f) At the downstream end of the diversion were water re-enters the channel, energy dissipation devices shall be employed to prevent erosion, scour, or other impacts.

2.12 Fish Rescue.

(a) If fish are present in the work site and dewatering is necessary following installation of the water diversion, Permittee shall ensure that all necessary State and Federal authorizations are acquired and that fish rescue is completed by a qualified fisheries biologist.

(b) Prior to any fish rescue activity that could result in rescue and relocation of federally listed salmonids, Permittee shall provide CDFW with a copy of a Biological Opinion or Habitat Conservation Plan that addresses the take resulting from Project activities.

(c) Fish rescue shall occur prior to dewatering each work area. Rescued fish shall be moved to the nearest appropriate site outside of the work area. A record shall be maintained of all fish rescued and moved. The record shall include, at a minimum, the date of capture and relocation, the method of capture, location of relocation in relation to the Project site, and the number and type of fish captured and relocated. The record shall be provided to CDFW within two (2) weeks of each fish rescue activity.

3 Compensatory Measures

To compensate for adverse impacts to fish and wildlife resources identified above that cannot be avoided or minimized, Permittee shall implement each Protective Measure listed below.

3.1 Revegetation and Restoration.

(a) Permittee shall submit a Restoration Plan for on-site habitat restoration to compensate for permanent impacts to habitats. Permittee shall submit the plan to CDFW for approval prior to starting Project activity. The plan shall describe all activities related to the restoration work within the 4.782-acre area identified on the left bank of the river, both upstream and downstream of the bridge. The Plan shall include native plantings of tree and shrub species that are present within the area surrounding the Project site, and shall include the number per species and spacing/location of plantings such that allowing for 75% successful establishment of those plantings, the resulting percent cover of the canopy is consistent with nearby areas of mature, healthy riparian habitat. Understory planting or seeding with native species shall also be included in the Plan. The Plan shall include tree and shrub monitoring for a minimum of five years, and shall include a maximum of three (3) consecutive years when supplemental watering may be utilized followed by a minimum of additional two (2) years without such assistance. The Plan shall include requirements for annual monitoring, performance criteria, remedial actions in the event that plantings are not successful and annual reporting to CDFW. The Plan shall be submitted to CDFW for review and approval at least 30 days prior to the start of Project activity, and implementation of the Plan shall commence no later than one (1) year following the completion of Project construction activities.

(b) Any exposed slopes or exposed areas created by Project activities shall be seeded (with weed-free straw or mulch) with a blend of a minimum of three (3) locally native grass species. One (1) or two (2) sterile non-native perennial grass species may be added to the seed mix provided that amount does not exceed 25 percent of the total seed mix by count. Locally native wildflower and/or shrub seeds may also be included in the seed mix. The seeding shall be completed as soon as possible, but no later than November 15 of the year construction ends or as otherwise approved in writing by CDFW. A seed mixture shall be submitted to CDFW for approval prior to application.

(c) Where suitable vegetation cannot be reasonably expected to become established, non-erodible materials shall be used for such stabilization. Any installation of non-erodible materials not described in the original Project description shall be coordinated with CDFW. Coordination may include the negotiation of additional Protective Measures for this activity.

4 Reporting Measures

Permittee shall meet each reporting requirement described below.

4.1 Obligations of Permittee.

(a) Permittee shall have primary responsibility for monitoring compliance with all Protective Measures in this Agreement. Protective Measures shall be implemented within the time periods indicated in this Agreement and the reporting described below.

(b) Permittee (or Permittee's designee) shall ensure the implementation of the Protective Measures of this Agreement, and shall monitor the effectiveness of the Protective Measures.

4.2 Reports. Permittee shall submit the following Reports to CDFW:

- Construction/work schedule, submitted to CDFW prior to Project commencement (Administrative Measure 1.8).

- Pre-activity survey results, submitted to CDFW at least one (1) week prior to the start of Project activities (Avoidance and Minimization Measure 2.3(d)).

- Results of nesting Swainson's Hawk surveys, if ground disturbing activities are scheduled during their nesting season, submitted to CDFW at least one (1) week prior to the start of Project activities (Avoidance and Minimization Measure 2.3(f)).

- Results of bat surveys submitted to CDFW at least 30 days prior to commencement of Project activities. If bats are present, a Bat Exclusion Plan submitted to CDFW for review and approval a minimum of 30 days in advance of proposed exclusion activities. If the initial survey results were negative, the follow-up survey report submitted to CDFW within one week of survey completion (Avoidance and Minimization Measure 2.3(i)).

- Results of surveys for nesting birds, if any work is scheduled during the avian nesting season, submitted to CDFW at least one (1) week prior to the start of Project activities (Avoidance and Minimization Measure 2.4(b)).

- Swallow Exclusion Plan, if any work is scheduled during the swallow nesting period, submitted to CDFW at least one (1) week prior to implementation (Avoidance and Minimization Measure 2.4(b)).

- Methods and results of pH testing, if not waiting 30 days for concrete to cure, submitted to CDFW within one (1) week of testing (Avoidance and Minimization Measure 2.9(b)).

- An Emergency Response Plan, submitted to CDFW at least two (2) weeks prior to the start of Project activities (Avoidance and Minimization Measure 2.9(d)).

- Fish Rescue Record, submitted within two (2) weeks of completing fish rescue activity (Avoidance and Minimization Measure 2.12).

- A Restoration Plan, submitted to CDFW for written approval at least 30 days prior to the start of Project (Compensatory Measure 3.1(a)).

- A seed mixture to be used to control erosion, submitted to CDFW for written approval prior to application (Compensatory Measure 3.1(b)).

- A Final Project Report to be submitted within 30 days after the Project is completed. The final report shall summarize the Project and address the implementation of each Protective Measure included in this Agreement. Before, during, and after photo documentation of the Project site shall be included in the report.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be in writing and any communication or documentation shall be delivered to the address below by U.S. mail, fax, or email, or to such other address as Permittee or CDFW specifies by written notice to the other. Permittee shall submit all schedules, survey results, reports, and/or plans required by this Agreement in hard copy to the address below; Permittee may also submit those materials electronically by email to the CDFW contact identified below (or subsequent contact) **and** to R4LSA@wildlife.ca.gov.

To Permittee:

California Department of Transportation (Caltrans)
David Johnson
855 M Street, Suite 200
Fresno, California 93721
(559) 445-6260
Fax: (559) 445-6260
david.m.johnson@dot.ca.gov

To CDFW:

California Department of Fish and Wildlife
Region 4 - Central Region
1234 East Shaw Avenue
Fresno, California 93710
Attn: Lake and Streambed Alteration Program – Laura Peterson-Diaz
Notification No. 1600-2015-0028-R4
Phone: (559) 243-4017 extension 225
Fax: (559) 243-4020
laura.peterson-diaz@wildlife.ca.gov

LIABILITY

Permittee shall be solely liable for any violations of this Agreement, whether committed by Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the Project or any activity related to it that this Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require Permittee to proceed with the Project. The decision to proceed with the Project is Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety this Agreement if it determines that Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with this Agreement.

Before CDFW suspends or revokes this Agreement, it shall provide Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide Permittee an opportunity to correct any deficiency before CDFW suspends or revokes this Agreement, and include instructions to Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in this Agreement precludes CDFW from pursuing an enforcement action against Permittee instead of, or in addition to, suspending or revoking this Agreement.

Nothing in this Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from obtaining any other permits or authorizations that might be required under other Federal, State, or local laws or regulations before beginning the Project or an activity related to it.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in the FGC including, but not limited to, FGC sections 2050 *et seq*. (threatened and endangered species), 3503 (bird nests and eggs), 3503.5 (birds of prey), 5650 (water pollution), 5652 (refuse disposal into water), 5901 (fish passage), 5937 (sufficient water for fish), and 5948 (obstruction of stream).

Nothing in this Agreement authorizes Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend this Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

Permittee may amend this Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and Permittee. To request an amendment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's fee schedule at the time of the request (see Cal. Code Regs., Title 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of this Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of this Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's fee schedule at the time of the request (see Cal. Code Regs., Title 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605(b), Permittee may request one (1) extension of this Agreement, provided the request is made prior to the expiration of this Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's fee schedule at the time of the request (see Cal. Code Regs., Title 14, § 699.5). CDFW shall process the extension request in accordance with FGC 1605(b) through (e).

If Permittee fails to submit a request to extend this Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the Project this Agreement covers (FGC, § 1605, subd. (f)).

EFFECTIVE DATE

This Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after Permittee's signature; 2) after CDFW complies with all applicable requirements under the California Environmental Quality Act (CEQA); and 3) after payment of the applicable FGC section 711.4 filing fee listed at http://www.wildlife.ca.gov/habcon/ceqa/ceqa_changes.html.

TERM

This Agreement shall remain in effect for four (4) years beginning on the date signed by CDFW, unless it is terminated or extended before then. All provisions in this Agreement shall remain in force throughout its term. Permittee shall remain responsible for implementing any provisions specified herein to protect fish and wildlife resources after this Agreement expires or is terminated, as FGC section 1605(a)(2) requires.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) COMPLIANCE

In approving this Agreement, CDFW is independently required to assess the applicability of CEQA. The features of this Agreement shall be considered as part of the overall Project description.

Permittee's concurrence signature on this Agreement serves as confirmation to CDFW that the activities conducted under the terms of this Agreement are consistent with the Project as described in the CEQA Mitigated Negative Declaration (MND) prepared by California Department of Transportation as the Lead Agency for the San Joaquin River Bridge Scour and Seismic Retrofit Project, approved on October 7, 2014 (State Clearinghouse No. 2013101075). A copy of the MND was provided to CDFW by Permittee.

CDFW, as a CEQA Responsible Agency, shall submit a Notice of Determination to the State Clearinghouse upon signing this Agreement.

EXHIBITS

The document listed below is included as an exhibit to this Agreement and is incorporated herein by reference.

Figure 1. Project Location USGS Quad Map.

AUTHORITY

If the person signing this Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the Project described herein. If Permittee begins or completes a Project different from the Project this Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all the provisions of this Agreement.

FOR CALIFORNIA DEPARTMENT OF TRANSPORTATION

Javier Almaguer — Date: 1/25/2016

Javier Almaguer
Branch Chief – Caltrans Central Region Biology South

FOR CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

Julie Vance — Date: 2/1/16

Julie Vance
Regional Manager - Central Region

Prepared by: Laura Peterson-Diaz
Environmental Scientist

Figure 1

Exhibit A

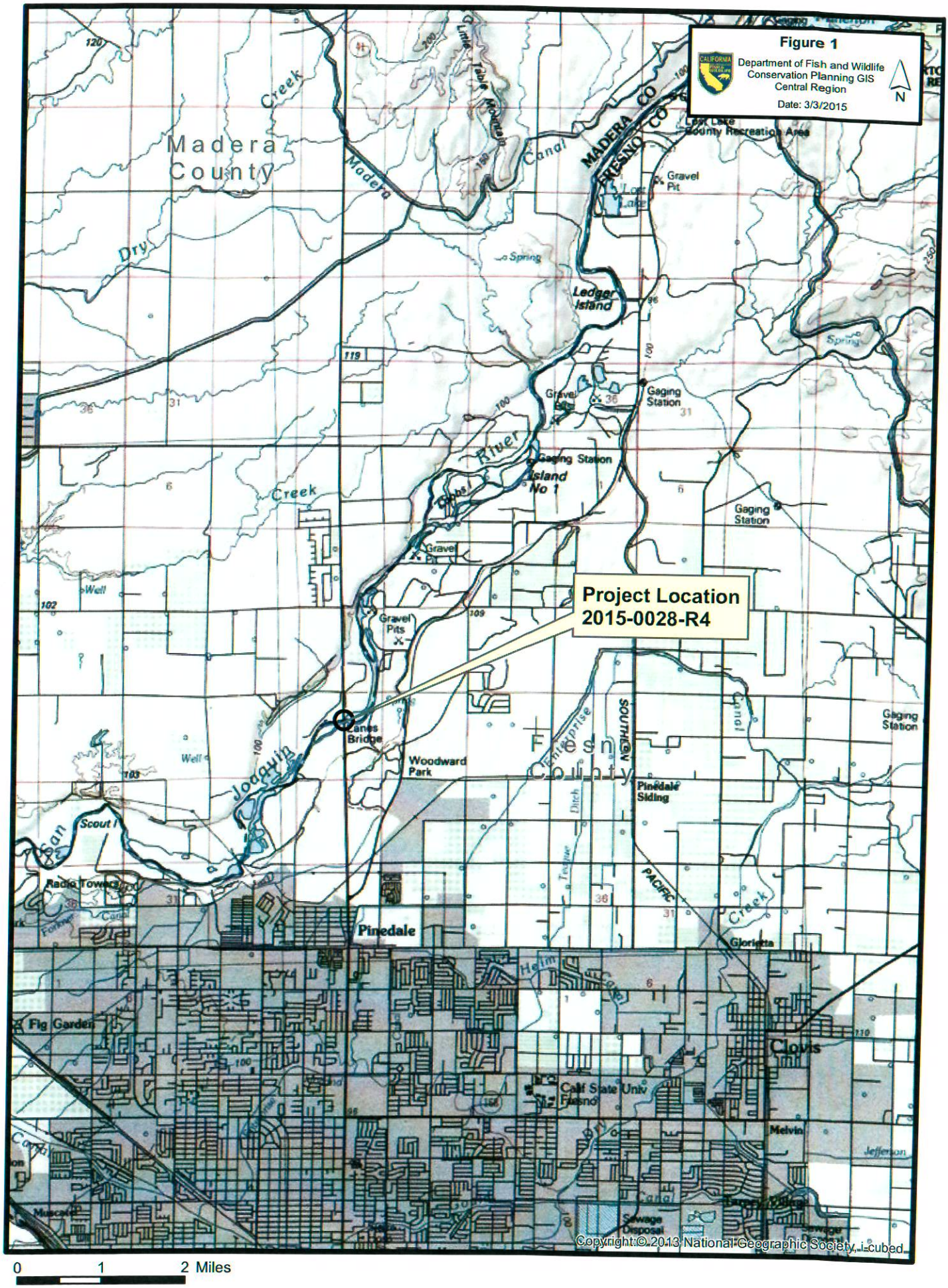


Figure 1
Department of Fish and Wildlife
Conservation Planning GIS
Central Region
Date: 3/3/2015
N
Project Location
2015-0028-R4
Madera County
Fresno County
Dry Creek
Madera Canal
Little Table Mountain
MADERA CO
FRESNO CO
Lost Lake County Recreation Area
Gravel Pit
Spring
Ledger Island
Gaging Station
San Joaquin River
Chowchilla Bypass Canal
Island No 1
Gravel Pits
Well
Janes Bridge
Woodward Park
Southern Pacific Enterprise Canal
Pinedale Siding
Scout Island
Radio Towers
Pinedale
Gloriosa
Fig Garden
Clovis
Calif State Univ Fresno
Melvin
Jefferson
Sewage Disposal
Copyright © 2013 National Geographic Society, i-cubed
0
1
2 Miles

MATERIALS INFORMATION

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Serious drought
Help Save Water!

To: MR. RICHARD MELKO
Branch Chief
Bridge Design Branch 9
Office of Bridge Design West

Date: November 17, 2015

Attention: Evan Franciliso

File: 06-FRE-041U (PM 33.3)
EA 06-0N9901
E-FIS 0612000114
San Joaquin River Br Scour

From: SUNNY YANG
Transportation Engineer
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

RIFAAT NASHED RN
Engineering Geologist
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

HOOSHMAND NIKOUI
Chief, Branch A
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

CHRIS RISDEN
Chief, Branch B
Office of Geotechnical Design – West
Geotechnical Services
Division of Engineering Services

Subject : REVISED FOUNDATION REPORT FOR SAN JOAQUIN RIVER BRIDGE UPGRADE

This Foundation Report (FR) supersedes our previous FR dated June 10, 2015 due to changes in structure loads. The FR provides final foundation recommendations for the existing San Joaquin River Bridge (Bridge Number 42-0112). This bridge is on the original Route 41, PM 33.3, east to the realigned Route 41. It is located at the border of Madera County and Fresno County.

1. SCOPE OF WORK

The project proposes to retrofit the bridge for scour and seismic concerns, and upgrade bridge railings. Considering there is sufficient subsurface soil information from the adjacent bridge No. 42-0400L/R on the new Route 41 alignment, no new field exploration or laboratory testing was conducted.

The following tasks were performed for the preparation of this FR:

- Review of as-built plans and bridge inspection (BIRIS) reports.
- Study of geology maps and geology files.
- Development of foundation scour mitigation alternatives.
- Re-evaluation of the bearing capacity of pile foundations before and after retrofit.

2. PROJECT DESCRIPTION

The existing bridge was constructed in 1941. It is a 750 feet long, 14-span continuous CIP/RC hunched T-girder on RC column bents and RC pier walls with caps. The end spans (Spans 1 and 14) are 15 feet long and are cantilevered without abutments. The other spans are 60 feet long. All are founded on steel HP 12x53 piles.

The vertical datum used in this report is NGVD29 datum. The elevations shown in as-built plans were based on the NGVD29 datum. At this site, the NAVD88 elevation is about 2.47 feet higher than the NGVD29 elevation.

3. EXCEPTION TO POLICY

There is no known exception to Department policy relating to the investigation of the structure.

4. SITE GEOLOGY AND SUBSURFACE CONDITIONS

4.1 Site Geology

The project area is located in the San Joaquin Valley, which comprises the southern two – thirds of the Centeral Valley of California. The San Joaquin Valley is a sediment -filled depression, that is bounded to the west by the California Coast Ranges and to the east by the Sierra Nevada. The Valley occupies a trough created by tectonic forces. The trough is filled with marine sediments overlain by continental sediments. The San Joaquin River begins high in the Sierra Nevada and descends onto the valley floor, where it takes a northerly flow path toward the Sacramento-San Joaquin Delta. The lower part of the river is a meandering stream flowing over Cenozoic alluvial deposits, which together comprise flat floor of the Central Valley.

Based on the Geologic Map of USGS, Fresno 1:250,000 sheet (see attached Geologic Map), the project site is predominately underlain by recent alluvial fan deposited from streams emerging from highlands surrounding the Great Valley. The alluvial sediments include relatively coarse – grained deposits along river channels and alluvial fans on the margin of the valley and composed of interbedded sands, silt and clays capped by surficial sandy coarse gravels and cobbles. The alluvial fan deposits are surrounded to the south by Pleistocene non-marine sedimentary deposits.

The Great Valley Fault is an active fault and located within 48.1 miles to the west of the project. The other active fault in the area is the San Andreas Fault (Creeping section) located approximately 72.0 miles to the west of the site.

4.2 Subsurface Conditions

Based on borings B-1 through B-11 conducted in 1993 (see attached LOTBs) for the adjacent new San Joaquin River Bridge (Bridge Number 42-0400L/R), subsurface soils at the bridge site consist of a top layer of medium dense to very dense sandy gravels and cobbles with thickness varying from 15 feet to more than 30 feet. This is underlain by interlayers of mostly dense to very dense sand, silty sand/sandy silt, and clayey silt/silty clay, to a maximum depth of 87 feet.

According to the Foundation Report for San Joaquin River Bridge (Materials File, May 31, 1994), both the gravel and cobbles were found to be relatively well rounded and are hard to very hard. Cobbles up to 10 inches in diameter, median diameter estimated at 6 inches, were noted during drilling operations.

4.3 Groundwater

The 1993 borings encountered groundwater at approximately 253.2 to 254.4 feet elevation, about 3 to 5 feet below the channel bottom (see attached LOTBs).

5. SCOUR EVALUATION

The channel profile at the bridge location has been taken in 1940, 1972, 1992, 1997, 2001, 2004, 2006, and 2012 (see attached channel profiles). It shows that there was significant channel degradation from 1940 to 1997, with a maximum reduction of 14 feet at Pier 5. Since then, the channel profile has been fairly stable or even increased locally.

According to the BIRIS reports, channel degradation was first noticed in 1959. The sheet pile cofferdam installed during bridge construction at Pier 10 was exposed by 2 feet. In 1983, the sheet pile at Pier 6 was exposed by 7.5 feet. In 1987, scour holes were observed at Piers 9, 10, and 12. A channel profile taken in 1992 indicated a degradation of 4 feet at Pier 10 since 1972. In 2006, the pile caps at Piers 8, 9, and 10 were exposed, and a scoured trench of 50’x10’x4’ in size was observed in the upstream channel bed.

Aggregate mining near the bridge by Fresno County has further worsened the scour problem. Mining was first reported in 1978 and had been going on for years on both upstream and downstream sides. It is unclear from the BIRIS reports whether the County has stopped mining operation.

The bridge was classified as scour critical in 2001. It was estimated that the bridge could become unstable if the scour reaches 243.4 feet elevation. The proposed retrofit alternatives included constructing a sheet pile check dam downstream from the bridge, or constructing sheet pile

encasements around Piers 4 through 11. The check dam option was dropped before the current project was initiated. The sheet pile encasement option was the only option when this project started, but later was rejected due to constructability concerns (more details in Section 9 below).

The Final Hydraulic Report dated March 27, 2015 calculated 5 feet of degradation scour, 4 feet of contraction scour, and 9.8 feet (12 feet at Pier 11) of local scour at Piers 5 through 11, assuming 25 years for the remainder of the bridge service life. The maximum scour elevation (NAVD88 datum) is 236 feet (234 feet at Pier 12). It is noted that these scour depths are conservative estimates; the actual scours will likely be much less.

6. CORROSION EVALUATION

Corrosion samples were collected near ground surface adjacent to Bent 8 and 10. The corrosion test results are shown in Table 1. According to current Caltrans Corrosion Guidelines (2010), a soil is considered corrosive for structural elements if one or more of the following conditions exist: pH is 5.5 or less, chloride concentration is 500 ppm or greater, sulfate concentration is 2000 ppm or greater. Resistivity is not considered for structural elements. The soil at the project site is considered non-corrosive. Note that the sample at Bent 8 satisfies all the non-corrosion requirements except that the pH value is slightly lower than 5.5. This is because during sample collection a large quantity of organic material (grass roots) was gathered. Such organic material is not expected around the proposed new foundations.

Table 1. Soil Corrosion Test Summary

Location	Corrosion Lab #	Sample Depth (ft)	Min. Resistivity (ohm-cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
Bent 8	CR20150123	0 – 1	8986	5.45	12.5	13.7
Bent 10	CR20150124	0 – 1	12682	6.17	-	-

7. SEISMIC RECOMMENDATIONS

Please refer to the Memo from Hossain Salimi of our office to your Branch, dated March 12, 2015 for the final seismic design recommendations. The following is a brief summary of the proposed seismic design parameters:

Controlling Fault = San Andreas Fault (116 km from project site)
Maximum Moment Magnitude, Mw = 7.9
Peak Ground Acceleration = 0.21 g
Surface Rupture Potential = None
Liquefaction Potential = No

For clarification or additional information on seismic design aspects of the project, please consult

with Hossain Salimi at (916) 227-7147.

8. AS-BUILT FOUNDATION DATA

According to the as-built plans, the bridge is founded on 12-inch driven steel H piles. There are 16 piles at each bent. The as-built plans indicate that the bottoms of pile caps vary from 251.3 to 253.1 feet elevation (see attached channel profiles). The estimated pile length was 33 feet, which corresponds to pile tips at approximately 218.3 to 220.1 feet elevation. The bridge has been in service for 74 years without any foundation related problems except scour. No foundation settlement has ever been observed. The bridge is located in a region of low seismicity.

9. FOUNDATION RECOMMENDATIONS

The Final Hydraulic Report recommended scour mitigation at Piers 5 through 11. Structure Design has provided updated structure loads, as shown in Table 2. Table 2 also shows back calculated vertical nominal capacities of the existing H piles under different scour conditions. Calculations show that the piles cannot provide required nominal vertical capacity even if there is 5 feet of soil cover above the pile cap. When maximum scour is reached, the piles will not be able to carry even the service load. It is also noted that when exposed, the H piles will become more vulnerable to corrosion and buckling.

Table 2. Vertical loads and Vertical Capacities of Existing H Piles

Service Limit State load (kips)	Factored Strength Limit State load (kips)	Required nominal capacity at Strength Limit State per pile (kips)	Nominal capacity with 5' soil cover above pile cap (kips)	Nominal capacity with no soil cover above pile cap (kips)	Nominal capacity at max. scour (kips)
1227/pier or 77/pile	1864/pier or 117/pile	166	155	125	66

To mitigate the potential deep scour hazard on pile foundations, a number of alternatives have been proposed. The initial idea of installing a sheet pile enclosure around the pile caps has been rejected due to the presence of dense to very dense cobbles at the site that can make pile driving extremely difficult. According to District 6 Structure Construction staff who worked on the adjacent new San Joaquin bridge No. 42-0400 in 2000, even driving sheet piles for temporary cofferdams was very time consuming and costly.

In view of that, three more alternatives have been proposed. Alternative 1 is to install a secant pile wall around each pile cap to a depth below the maximum scour, combined with two 3-foot-diameter CIDH piles to provide additional vertical/lateral capacities. Alternative 2 is to install two 4-foot-diameter CIDH piles at each pier to provide all the vertical and lateral foundation

capacities (see attached General Plans). The idea here is to let scour occur and assume the existing piles will fail and the loads will be completly transferred to the CIDH piles. Alternative 3 is to place concrete block revetment in the river channel around the piers to prevent scour, combined with new H piles to provide additional vertical/lateral capacities. Among these three alternatives, Alternative 2 is the cheapest and easiest to construct. Alternative 1 is too costly. Alternative 3 is expensive and also prohibited by environmental constraints. Thus, Alternative 2 was chosen as the final recommendation.

The computer program SHAFT2012 was used to calculate nominal vertical bearing capacity for the CIDH piles. The computational methods in this program conform to the 1999 FHWA recommendations for drilled shafts (O'Neil and Reese 1999). Skin friction and a portion of end bearing were counted in pile resistance calculations.

Table 3 provides a summary of foundation design recommendations for the piers. Table 4 is the pile data table. The computed settlement under service load is less than one inch.

Table 3. Foundation Design Recommendations

Support Location	Pile Type	Cut-off Elevation (ft)	Service-I Limit State Load per Support (kips)	Total Permissible Support Settlement (in)	Required Factored Nominal Resistance (kips)				Design Tip Elevation (ft)	Specified Tip Elevation (ft)
					Strength Limit		Extreme Event			
					Comp. (φ=0.7)	Tension (φ=0.7)	Comp. (φ=1)	Tension (φ=1)		
Piers 5 – 11	48" CIDH	251.3-253.1	614 per pile	1	1331	0	N/A	N/A	199.5 (a) 213.5 (c)	199.5

Notes: 1) Design tip elevations are controlled by: (a) Compression (Strength Limit) and (c) Settlement, respectively.
2) The CIDH specified tip elevations shall not be raised.
3) The design tip elevations for Lateral Load shall be provided by Structure Design and shall be included in the Pile Data Table in Structure Plans.

Table 4. Pile Data Table

Support No.	Pile Type	Nominal Resistance (kips)		Cutoff Elevation (ft)	Design Tip Elevations (ft)	Specified Tip Elevation (ft)
		Compression	Tension			
Piers 5 – 11	48" CIDH	1331	0	251.3 – 253.1	199.5 (a) 213.5 (c)	199.5

Notes: 1) Design tip elevations are controlled by: (a) Compression (Strength Limit) and (c) Settlement, respectively.
2) The CIDH specified tip elevations shall not be raised.
3) The design tip elevations for Lateral Load shall be provided by Structure Design and shall be included in the Pile Data Table in Structure Plans.

10. CONSTRUCTION CONSIDERATIONS

All CIDH piles shall be constructed in accordance with Caltrans Specifications and "Guidelines for CIDH Piles Cast in Wet Conditions." Drilling of the CIDH piles, placement of rebar cage, and concrete pour shall be completed in a continuous operation. Prior to placement of concrete, the interior surface of the shaft including the bottom should be cleaned of residue from drilling operations. Difficult pile installation is anticipated due to the presence of cobbles, gravels and groundwater. Shaft construction will be under wet conditions using slurry fluid. Temporary casing may also be needed to prevent caving. Before pouring concrete, the bottom of the shaft must be cleaned of all debris thoroughly.

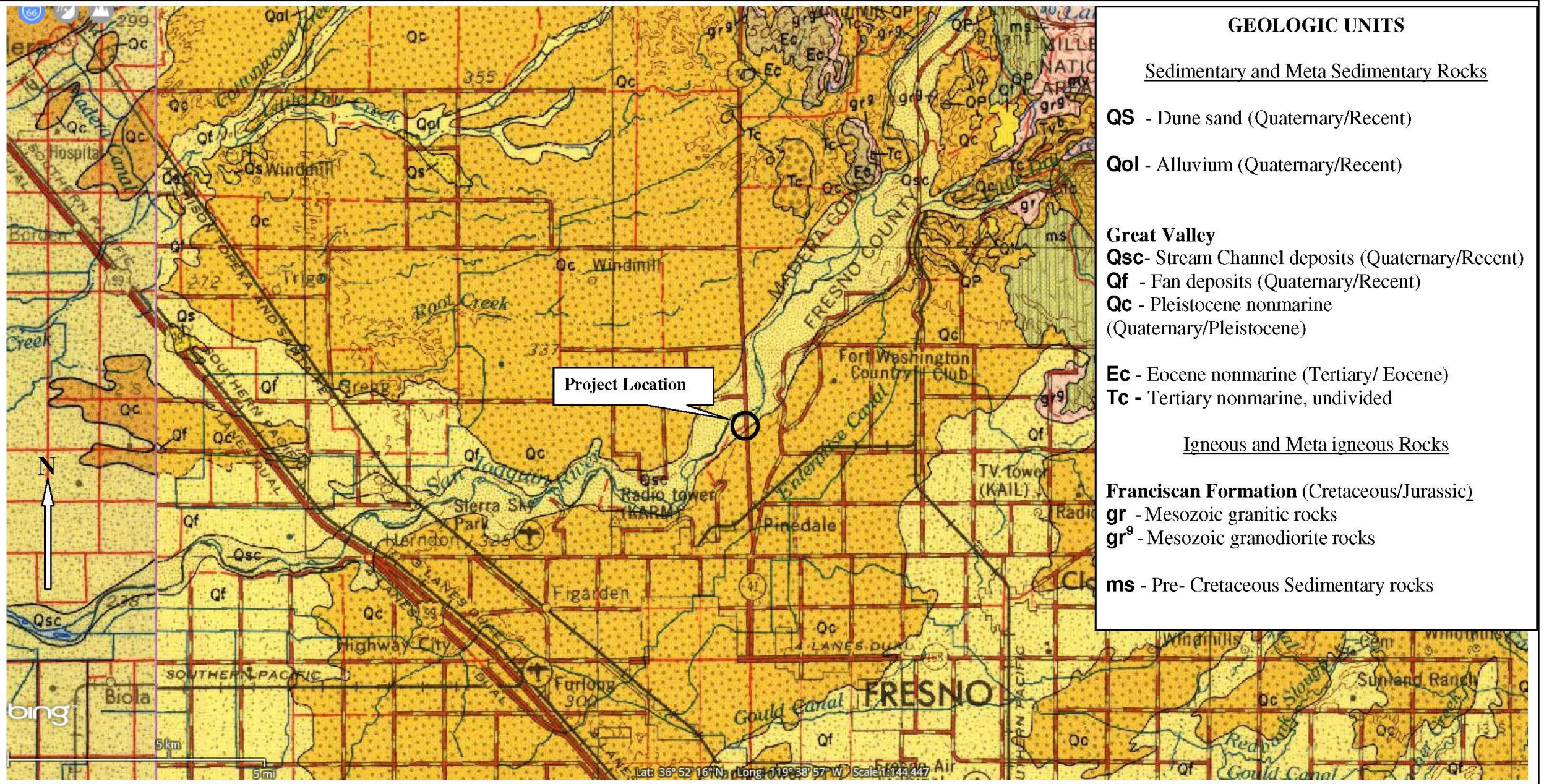
For river diversion, cofferdams may be needed. If sheet pile is used to construct the cofferdams, extremely difficult pile driving is anticipated.

11. DISCLAIMER AND CONTACT INFORMATION

The recommendations contained in this report are based on specific project information regarding structure type, location, and design loads that have been provided by the Office of Structure Design West. If any conceptual changes are made during final project design, the Office of Geotechnical Design West, Design Branch A should review those changes to determine if these foundation recommendations are still applicable. Any questions regarding the above recommendations should be directed to the attention of Hooshmand Nikoui at (510) 286-4811.

c: TJPokrywka, HNikoui, CRisden, Daily File

SYang/mm



Not to Scale

GEOLOGIC UNITS

Sedimentary and Meta Sedimentary Rocks

QS - Dune sand (Quaternary/Recent)

Qol - Alluvium (Quaternary/Recent)

Great Valley
Qsc- Stream Channel deposits (Quaternary/Recent)
Qf - Fan deposits (Quaternary/Recent)
Qc - Pleistocene nonmarine (Quaternary/Pleistocene)

Ec - Eocene nonmarine (Tertiary/ Eocene)
Tc - Tertiary nonmarine, undivided

Igneous and Meta igneous Rocks

Franciscan Formation (Cretaceous/Jurassic)
gr - Mesozoic granitic rocks
gr^{9} - Mesozoic granodiorite rocks

ms - Pre- Cretaceous Sedimentary rocks

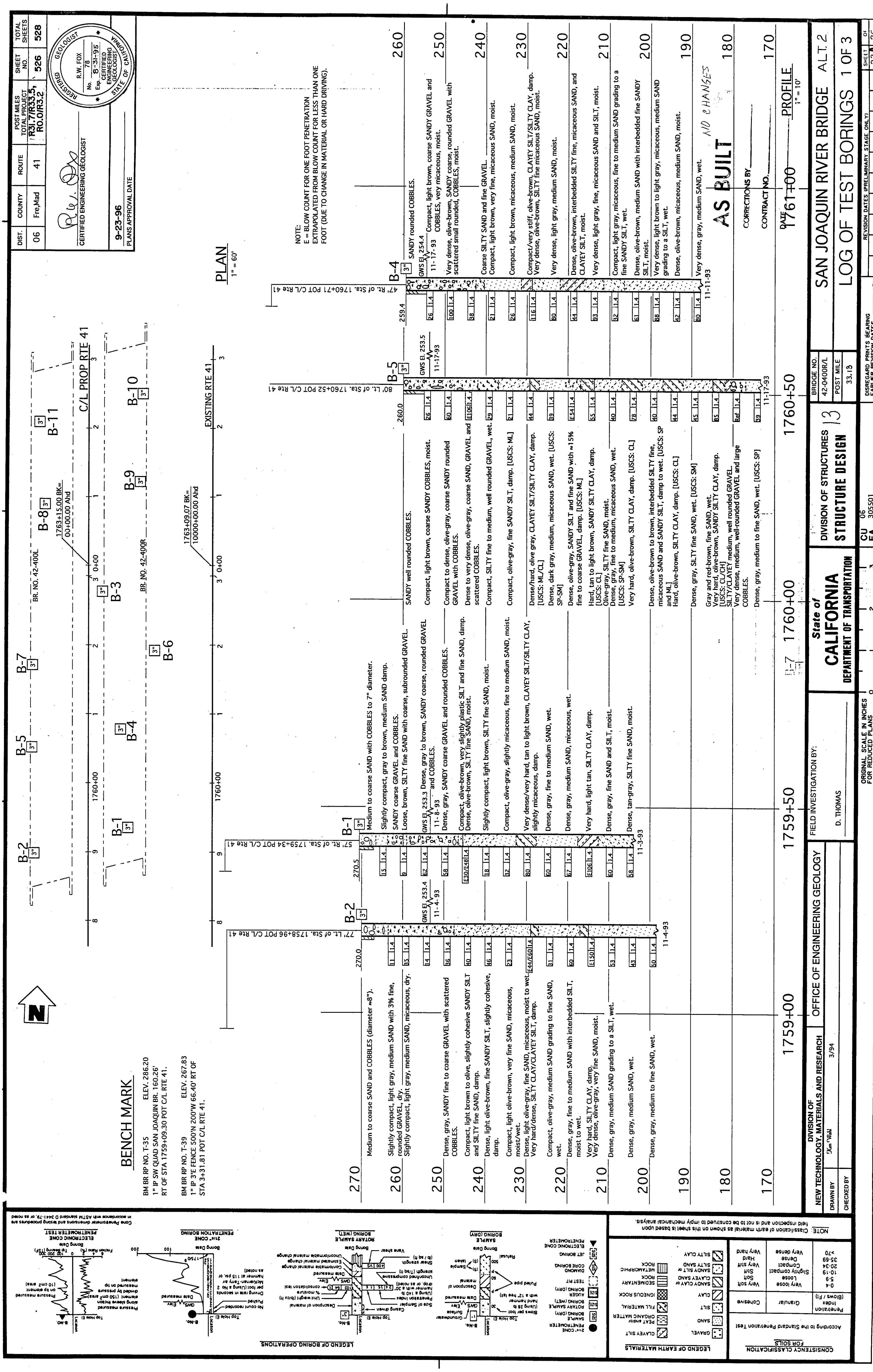
Source:
USGS, 1960, Geologic Map of California, Fresno Sheet. Scale 1:250,000

Engineering Service Center
DIVISION OF ENGINEERING SERVICES
OFFICE OF GEOTECHNICAL SERVICES
GEOTECHNICAL DESIGN BRANCH (WEST) – BRANCH B

GEOLOGY MAP

04- FRE - 41	EA 06-0N9901
PM 33.34	March 2015

San Joaquin River Bridge


SAN JOAQUIN RIVER BRIDGE
ALT. 2
LOG OF TEST BORINGS 1 OF 3
PROFILE
PLAN
BENCH MARK
AS BUILT
State of CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF STRUCTURES
STRUCTURE DESIGN
OFFICE OF ENGINEERING GEOLOGY
LEGEND OF BORING OPERATIONS
LEGEND OF EARTH MATERIALS

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability."

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre,Mad	41	R3I.7/R33.5, R0.0/R3.2	502	528

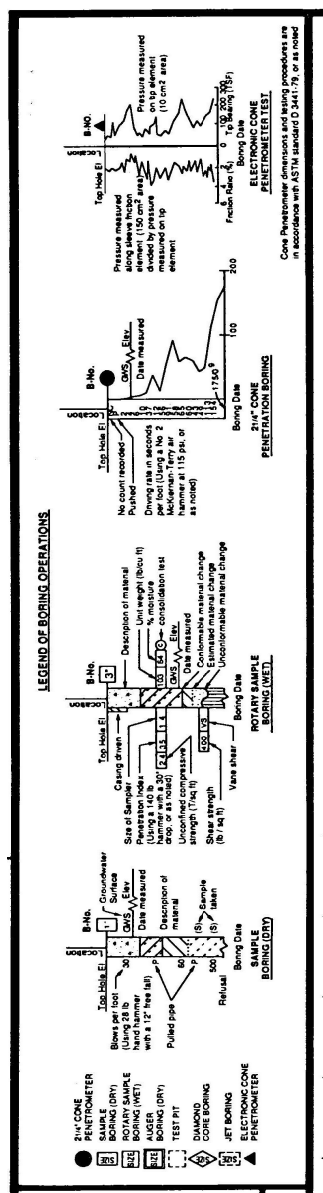
CERTIFIED ENGINEERING GEOLOGIST

REGISTERED GEOLOGIST — R.W. FOX — No. 78 — Exp. 8-31-95 — CERTIFIED ENGINEERING GEOLOGIST — STATE OF CALIFORNIA

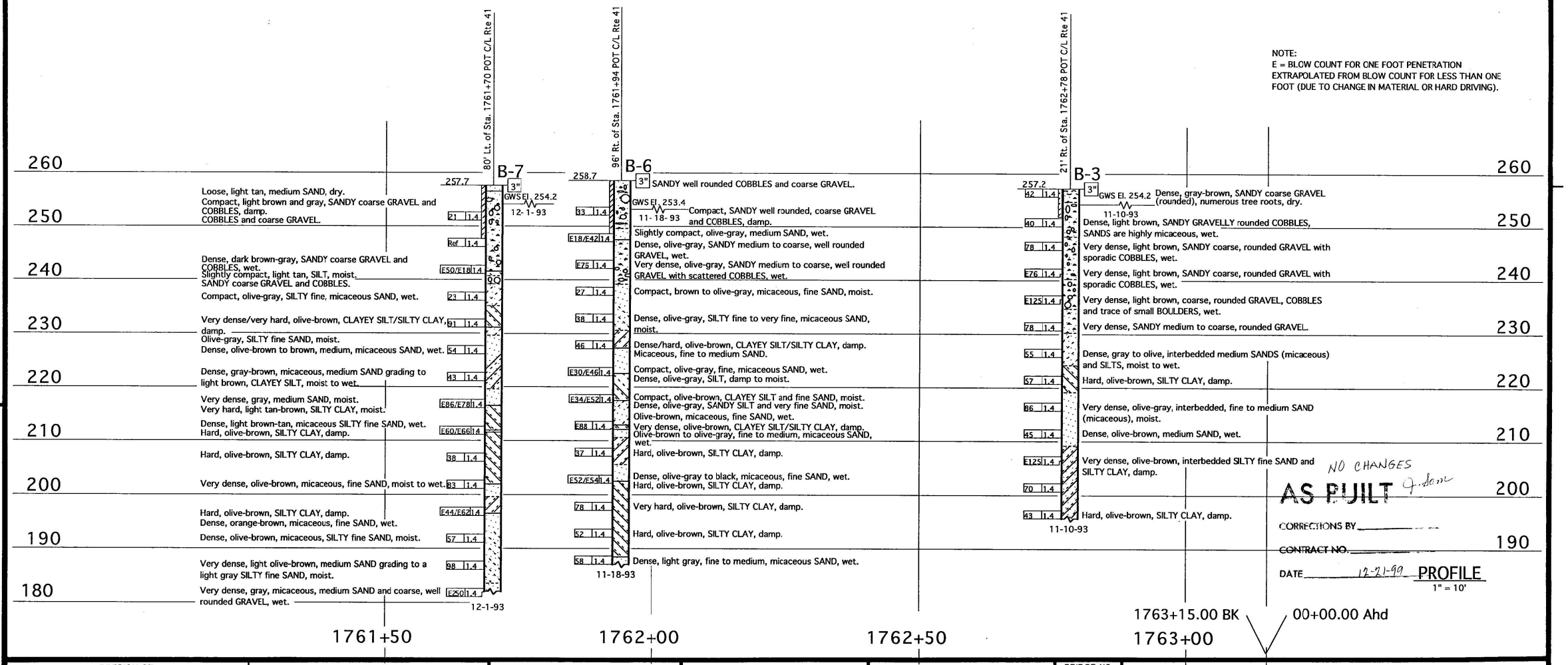
9-23-96
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

FOR PLAN VIEW, SEE "LOG OF TEST BORINGS", SHEET 1 OF 3.



NOTE:
E = BLOW COUNT FOR ONE FOOT PENETRATION EXTRAPOLATED FROM BLOW COUNT FOR LESS THAN ONE FOOT (DUE TO CHANGE IN MATERIAL OR HARD DRIVING).



NO CHANGES
AS BUILT J. Jones
CORRECTIONS BY
CONTRACT NO.
DATE 12-21-99

PROFILE
1" = 10'

DIVISION OF NEW TECHNOLOGY, MATERIALS AND RESEARCH	OFFICE OF ENGINEERING GEOLOGY
DRAWN BY Ken Wall 3/94	
CHECKED BY	

FIELD INVESTIGATION BY: D. THOMAS

State of CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN 13

BRIDGE NO.	
42-0400R/L	SAN JOAQUIN RIVER BRIDGE ALT. 1
POST MILE	LOG OF TEST BORINGS 2 OF 3
33.13	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 06
EA 305501

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET	OF
23	24

TL 6051 REV 392

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre,Mad	41	R3I.7/R33.5, R0.0/R3.2	503	528

CERTIFIED ENGINEERING GEOLOGIST

REGISTERED GEOLOGIST — R.W. FOX — No. 78 — Exp. 8-31-95 — CERTIFIED ENGINEERING GEOLOGIST — STATE OF CALIFORNIA

9-23-96
PLANS APPROVAL DATE

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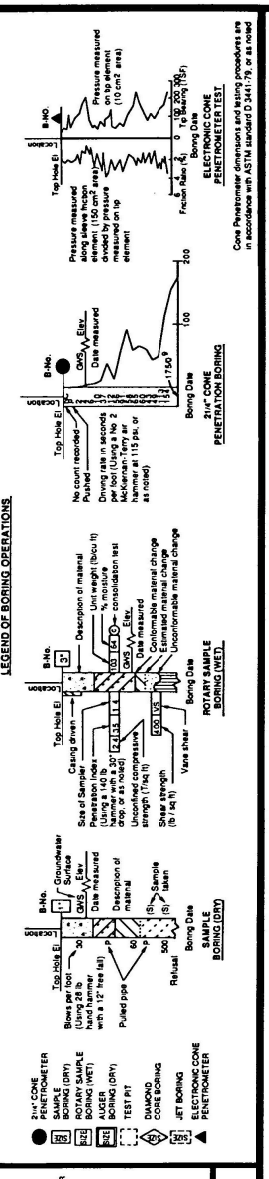
FOR PLAN VIEW, SEE "LOG OF TEST BORINGS", SHEET 1 OF 3.

LEGEND OF BORING OPERATIONS



LEGEND OF EARTH MATERIALS

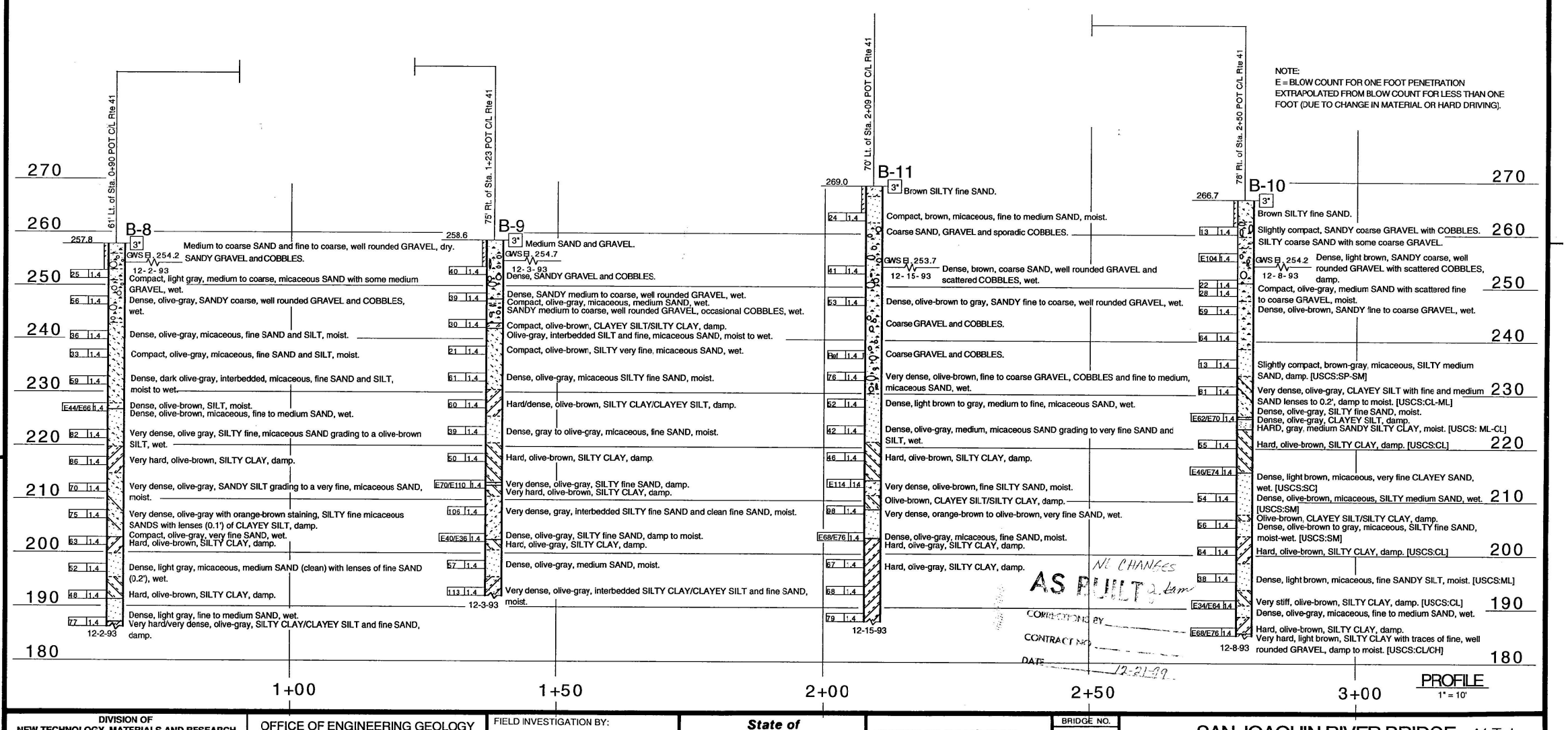
GRAVEL · SAND · SILT · CLAY · SANDY CLAY or CLAYEY SAND · SILTY SAND or SILTY CLAY · CLAYEY SILT · PEAT, and/or ORGANIC MATTER · FILL MATERIAL · IGNEOUS ROCK · SEDIMENTARY ROCK · METAMORPHIC ROCK

CONSISTENCY CLASSIFICATION FOR SOILS

According to the Standard Penetration Test

Penetration Index (Blows / Ft)	Granular	Cohesive
0-4	Very loose	Very soft
5-9	Loose	Soft
10-19	Slightly compact	Medium stiff
20-34	Compact	Stiff
35-69	Dense	Hard
>70	Very dense	Very hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



NOTE:
E = BLOW COUNT FOR ONE FOOT PENETRATION
EXTRAPOLATED FROM BLOW COUNT FOR LESS THAN ONE FOOT (DUE TO CHANGE IN MATERIAL OR HARD DRIVING).

NO CHANGES
AS BUILT
COMPLETED BY
CONTRACT NO.
DATE 12-21-99

DIVISION OF NEW TECHNOLOGY, MATERIALS AND RESEARCH	OFFICE OF ENGINEERING GEOLOGY	FIELD INVESTIGATION BY:	State of CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES STRUCTURE DESIGN 13	BRIDGE NO. 42-0400R/L	SAN JOAQUIN RIVER BRIDGE ALT. 1
DRAWN BY Jim Wald 3/94		D. THOMAS			POST MILE 33.13	LOG OF TEST BORINGS 3 OF 3
CHECKED BY						

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

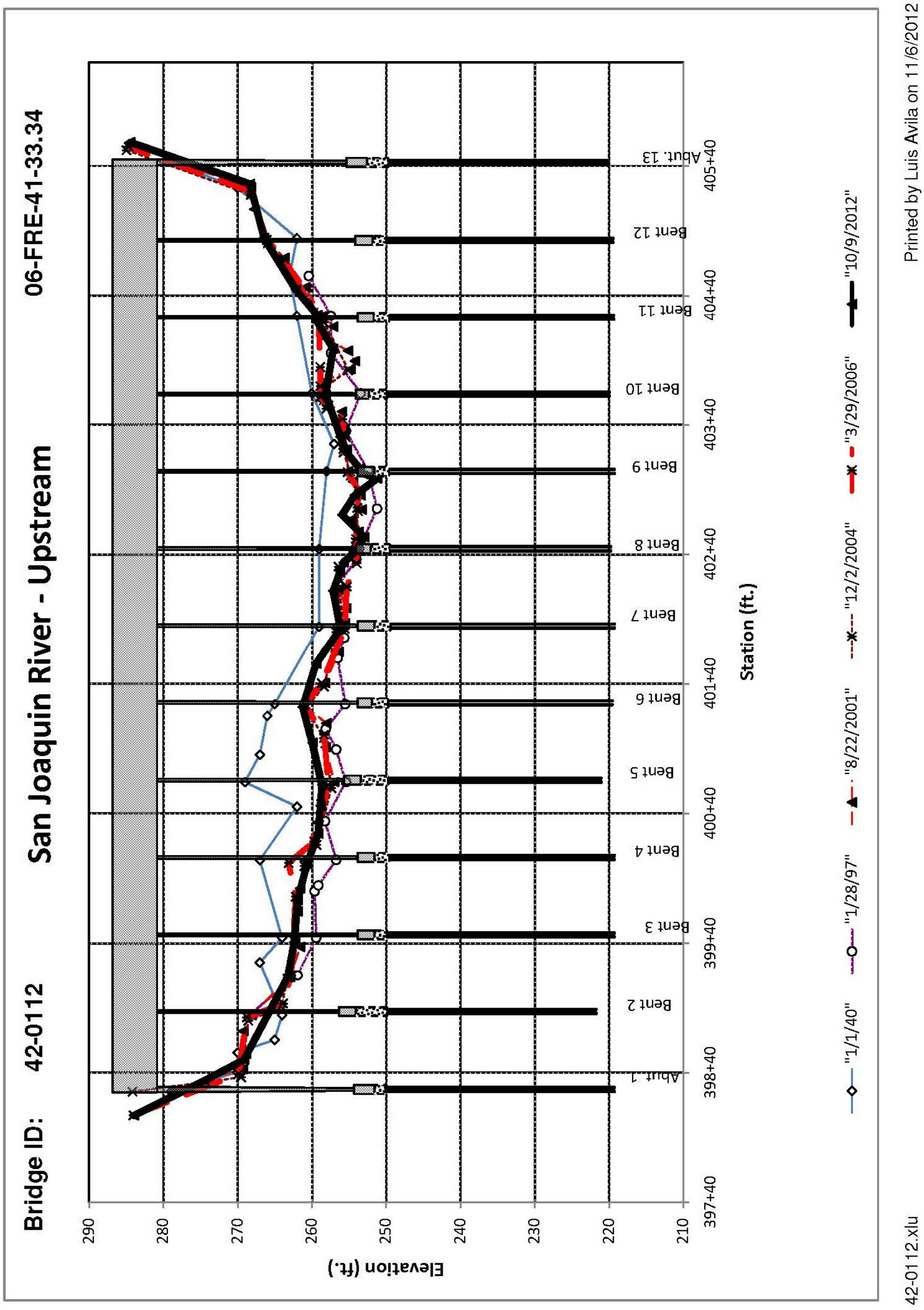
CU 06
EA 305501

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 24 OF 24

TL 6051 REV. 2/92 93 27505


06-FRE-41-33.34
San Joaquin River - Upstream
Bridge ID: 42-0112
Elevation (ft.)
290
280
270
260
250
240
230
220
210
Station (ft.)
397+40
398+40
399+40
400+40
401+40
402+40
403+40
404+40
405+40
Abut. 1
Bent 2
Bent 3
Bent 4
Bent 5
Bent 6
Bent 7
Bent 8
Bent 9
Bent 10
Bent 11
Bent 12
Abut. 13
"1/1/40"
"1/28/97"
"8/22/2001"
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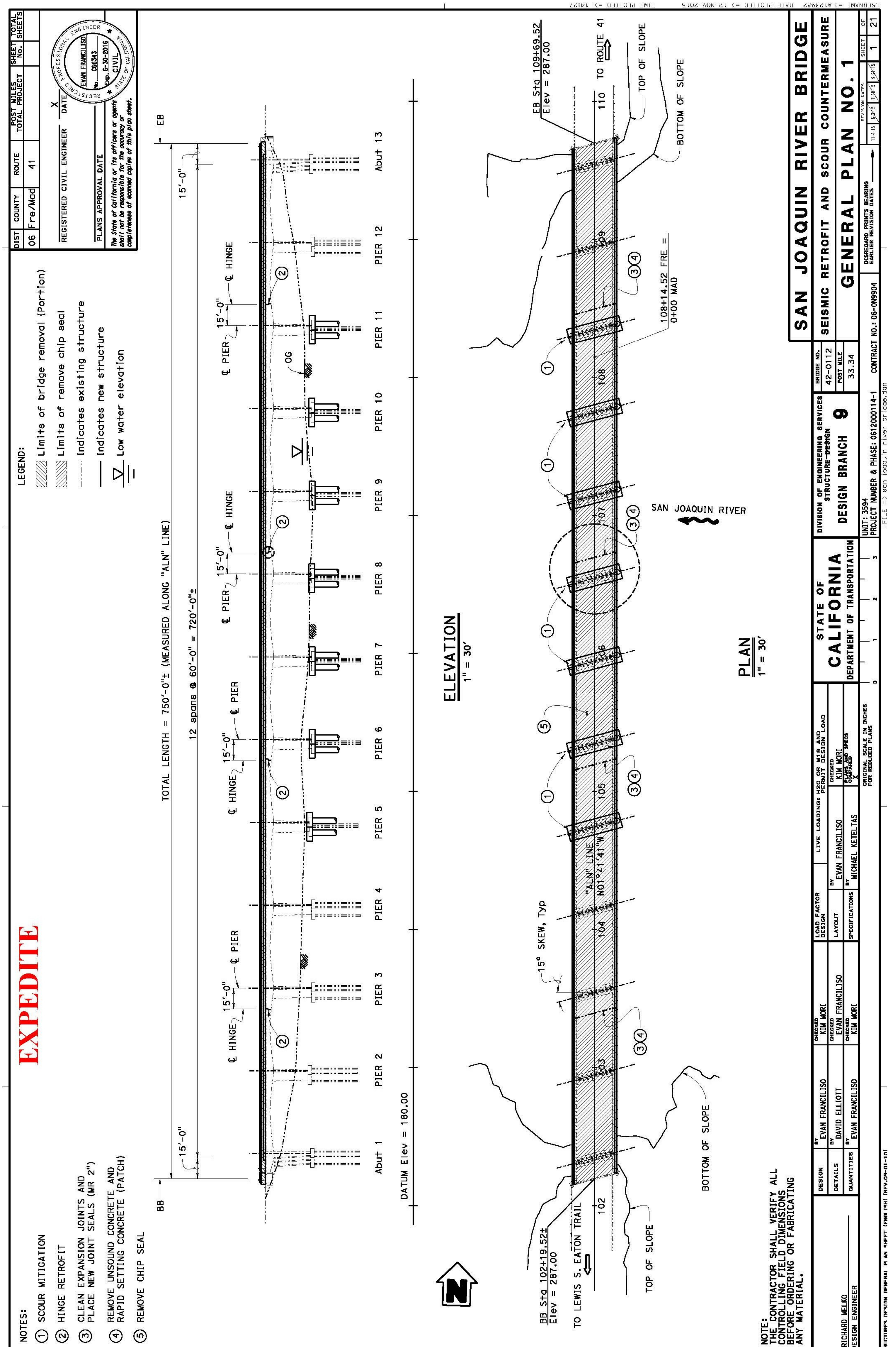
"3/29/2006"
"10/9/2012"
Printed by Luis Avila on 11/6/2012
42-0112.xlu


EXPEDITE
NOTES:
1 SCOUR MITIGATION
2 HINGE RETROFIT
3 CLEAN EXPANSION JOINTS AND PLACE NEW JOINT SEALS (MR 2")
4 REMOVE UNSOUND CONCRETE AND RAPID SETTING CONCRETE (PATCH)
5 REMOVE CHIP SEAL
LEGEND:
Limits of bridge removal (Portion)
Limits of remove chip seal
Indicates existing structure
Indicates new structure
Low water elevation
TOTAL LENGTH = 750'-0"± (MEASURED ALONG "ALN" LINE)
12 spans @ 60'-0" = 720'-0"±
DATUM Elev = 180.00
Abut 1
PIER 2
PIER 3
PIER 4
PIER 5
PIER 6
PIER 7
PIER 8
PIER 9
PIER 10
PIER 11
PIER 12
Abut 13
ELEVATION
1" = 30'
PLAN
1" = 30'
SAN JOAQUIN RIVER
BB Sta 102+19.52±
Elev = 287.00
EB Sta 109+69.52
Elev = 287.00
TO LEWIS S. EATON TRAIL
TO ROUTE 41
TOP OF SLOPE
BOTTOM OF SLOPE
15° SKEW, Typ
"ALN" LINE
N01°41'41"W
108+14.52 FRE =
0+00 MAD
NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DESIGN BRANCH 9
BRIDGE NO. 42-0112
POST MILE 33.34
SAN JOAQUIN RIVER BRIDGE
SEISMIC RETROFIT AND SCOUR COUNTERMEASURE
GENERAL PLAN NO. 1
UNIT: 3594
PROJECT NUMBER & PHASE: 0612000114-1
CONTRACT NO.: 06-0N9904

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability."

Vehicular Traffic

1. ___New alignment. No traffic at the site.
2. ___Traffic will be detoured away from the site.
3. _X_Traffic will be carried on the structure. Stage construction will required.
4. ___Traffic will pass under the structure on _____ (Name of St. or Hwy.)
   - A. ___No falsework allowed over traffic.
   - B. ___Falsework opening(s) required:

	Temporary Vertical Clearance	Width of Traffic Opening
_____ Bnd	_____	_____
_____ Bnd	_____	_____
_____ Two-way	_____	_____

   - C. ___Temporary traffic lane reduction needed for footing excavation.

Pedestrian Traffic

Falsework opening required on _____ (Name of St.)

Location	Height	Width
_____	_____	_____

Railroad Traffic

Falsework opening required over _____ (Name of RR)

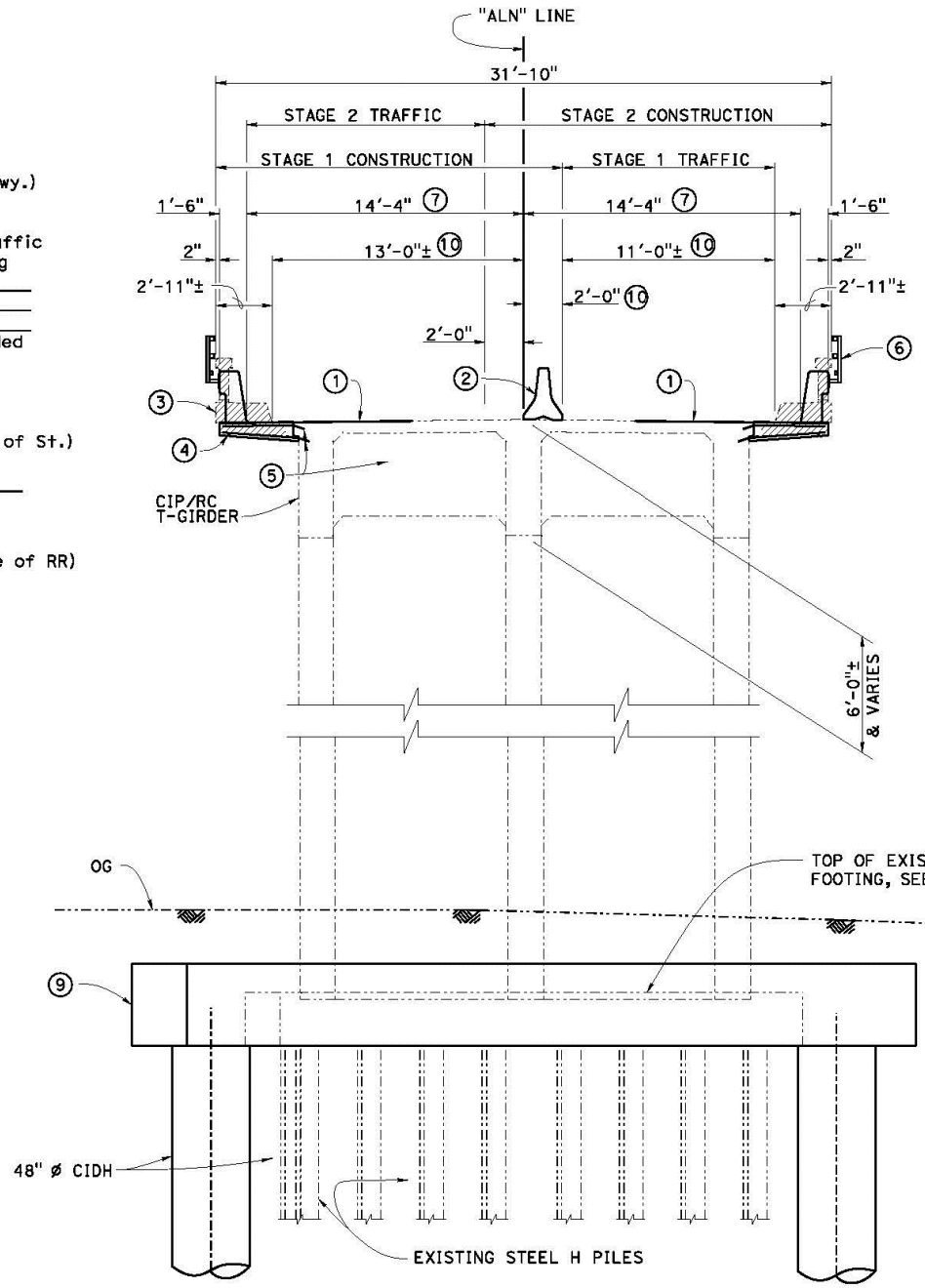
Vertical Clearance	Horizontal Clear Width
_____	_____

LEGEND:

- Limits of bridge removal (Portion)
- Indicates existing structure
- Indicates new structure

NOTES:

1. Carbon fiber reinforced polymer strip, length = 10'-0" @ 12"
2. Temporary railing (Type K), see "ROADWAY PLANS"
3. Remove existing bridge railing, curb and overhang
4. Concrete overhang
5. Drill and bond dowel
6. Concrete barrier (Type 732 Modified)
7. Prepare concrete bridge deck surface, furnish and place ¾" polyester concrete overlay
8. Hinge retrofit, pipe seat extender with concrete bolsters
9. Scour mitigation
10. Remove chip seal



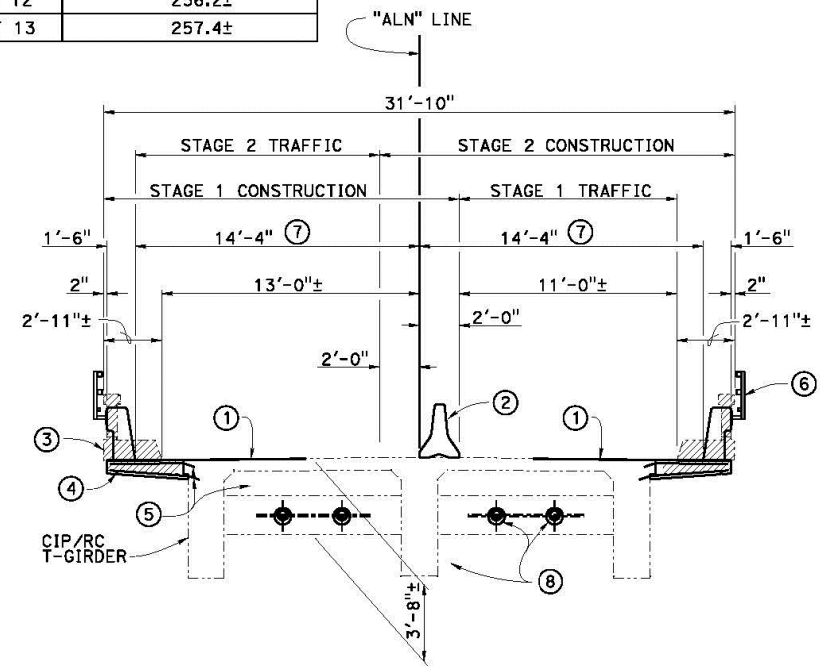
TYPICAL SECTION @ PIERS

1/4" = 1'-0"

NOTE: Move Temporary Railing (Type K) 2 feet to the left for Stage 2 Construction.

TABLE 1

LOCATION	APPROXIMATE TOP OF EXISTING FOOTING ELEVATION (Ft) (NAVD88)
ABUT 1	256.4±
PIER 2	258.4±
PIER 3	255.9±
PIER 4	255.9±
PIER 5	257.7±
PIER 6	255.9±
PIER 7	255.9±
PIER 8	256.1±
PIER 9	255.9±
PIER 10	256.1±
PIER 11	255.9±
PIER 12	256.2±
ABUT 13	257.4±



TYPICAL SECTION @ HINGE

1/4" = 1'-0"

NOTE: Move Temporary Railing (Type K) 2 feet to the left for Stage 2 Construction.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre/Mad	41			

REGISTERED CIVIL ENGINEER _____ DATE X

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — EVAN FRANCILISO — No. C66343 — Exp. 6-30-2016 — CIVIL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of scanned copies of this plan sheet.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

RICHARD MELKO
DESIGN ENGINEER

	BY	CHECKED
DESIGN	EVAN FRANCILISO	KIM MORI
DETAILS	DAVID ELLIOTT	EVAN FRANCILISO
QUANTITIES	EVAN FRANCILISO	KIM MORI

LOAD FACTOR DESIGN — LIVE LOADING: H20 OR M18 AND PERMIT DESIGN LOAD

	BY	CHECKED
LAYOUT	EVAN FRANCILISO	KIM MORI
SPECIFICATIONS	MICHAEL KETELTAS	PLANS AND SPECS COMPARED X

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE ~~DESIGN~~
DESIGN BRANCH 9

BRIDGE NO. 42-0112
POST MILE 33.34

SAN JOAQUIN RIVER BRIDGE

SEISMIC RETROFIT AND SCOUR COUNTERMEASURE

GENERAL PLAN NO. 2

UNIT: 3594
PROJECT NUMBER & PHASE: 0612000114-1
CONTRACT NO.: 06-0N9904

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
3-30-15	5-21-15	9-29-15	11-6-15	2	21

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

FILE => san joaquin river bridge.dgn

TIME PLOTTED => 14:27
DATE PLOTTED => 17-NOV-2015
USERNAME => s197080

Dahir, Khalid@DOT

From: Conrad Braganza <Conrad.Braganza@fresno.gov>
Sent: Friday, January 29, 2016 10:24 AM
To: Bud Tickel; Jawhar, Thaer F@DOT
Cc: Eshete, Getachew@DOT; Dahir, Khalid@DOT
Subject: RE: San Joaquin River and overflow bridge 0N9901 in Madera county and City of Fresno
Attachments: Water Truck and Op Station.jpg; Extraction Well Water-Commercial-App-Revised.pdf

Categories: Red Category

Hello Jawhar,

The City of Fresno's Wastewater Treatment Plant has a non-potable fill station set up for commercial customers (see attached picture).

We would be able to meet your expected water demand of 60,000 gallons.

There's a brief application to complete (attached). You can submit this at any time and I will issue a badge that will provide access to the fill station site.

Thanks,

Conrad Braganza
Wastewater Reclamation Coordinator
City of Fresno, Department of Public Utilities
Wastewater Management Division
(559) 621-5134
Conrad.Braganza@Fresno.Gov

Recycled Water - Making Every Drop Count

From: Bud Tickel
Sent: Friday, January 29, 2016 10:12 AM
To: Jawhar, Thaer F@DOT; Conrad Braganza
Cc: Eshete, Getachew@DOT; Dahir, Khalid@DOT
Subject: RE: San Joaquin River and overflow bridge 0N9901 in Madera county and City of Fresno

Hello Jawhar;

I have included Conrad Braganza, Reclamation Coordinator for the City of Fresno. He will assist you with your request.

Best Regards,

State of California – Department of Transportation Division of Engineering Services
Structure Design Services

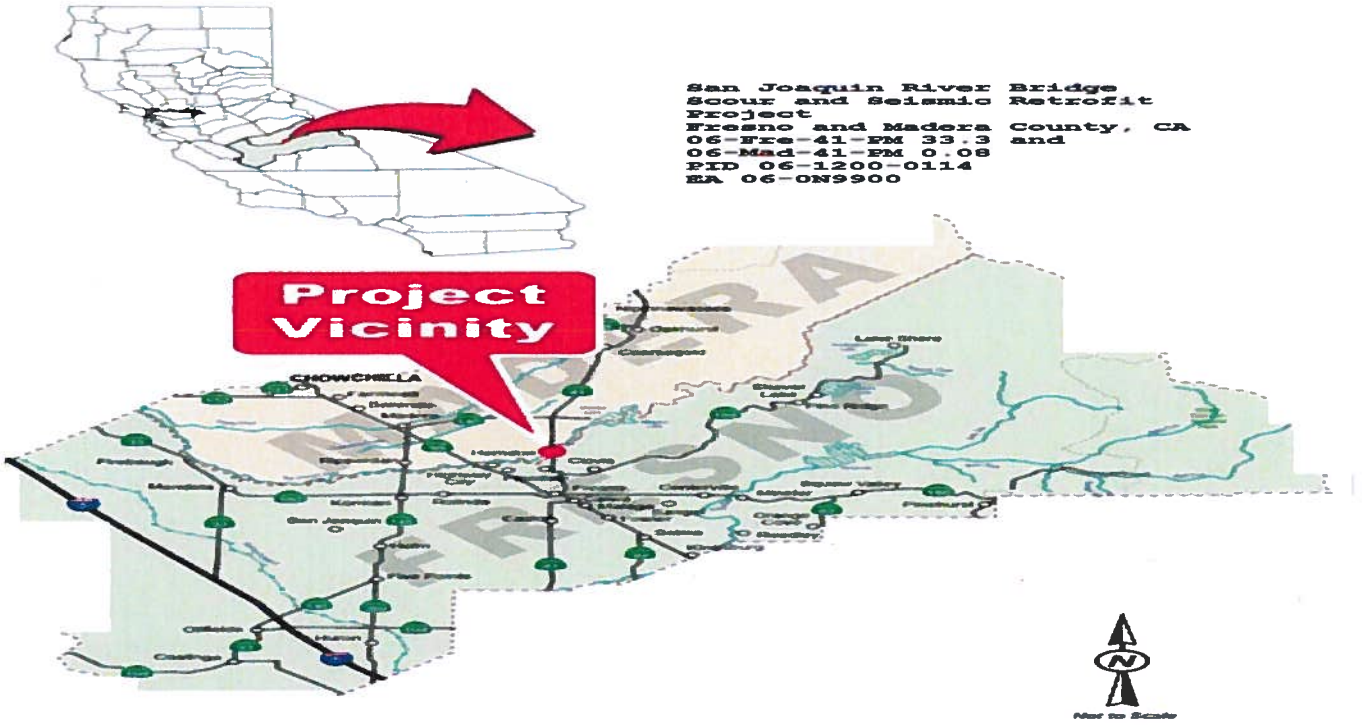
REVISED
FINAL HYDRAULIC REPORT

San Joaquin River Bridge

Bridge No. 42 - 0112Y
06 – FRE – 41 – PM 33.34
EA No. 06-0N9901
EFIS No. 0612000114

Prepared by:

Genaro M. Doria, PE
Structure Hydraulics and Hydrology
June 12, 2015


San Joaquin River Bridge
Scour and Seismic Retrofit
Project
Fresno and Madera County, CA
06-Fre-41-PM 33.3 and
06-Mad-41-PM 0.08
PID 06-1200-0114
EA 06-0N9900
Project Vicinity
CHOWCHILLA
MADERA
FRESNO
Not to Scale


Map
Traffic
06-Mad-41 PM 0.08 BR# 41-0040
San Joaquin River Overflow
1. Upgrade bridge railing.
06-Fre-41 PM 33.3 BR# 42-0112
San Joaquin River Bridge
1. Scour mitigation.
2. Seismic retrofit.
3. Upgrade bridge railing.

General:

The San Joaquin River Bridge (Br. No. 42-0112Y) is located approximately 10 miles north of the City of Fresno on State Route 41 in Fresno County. This 1941 structure, also referred to as Lanes Bridge, is 12 spans with 2 end overhangs, 750' long, and 31.5' in width. This report refers to pier 1 and pier 13 as abutment 1 and abutment 13.

According to maintenance records and design recommendations, this structure does not meet the current design and safety standards. Steel pipe seat extenders installed for seismic retrofit, bridge rail upgrades, and supplemental pile installation for scour are required to bring the bridge up to safety standards.

A previous 7/1/2001, work recommendation had three different alternatives to mitigate scour issues. Alternative 1 was to install a check dam downstream to control the bed elevation, Alternative 2 was to do a foundation retrofit with supplemental piles and Alternative 3 was to install outrigger bents. Later, Alternative 4 to install sheet piles around the footings to top of footings was the preferred alternative. This proposed sheet piling would be installed from piers 4 to 11. Recent Geotechnical findings state that the sheet pile alternative will not work due to the driving ability. The size of the cobbles below grade and the soil hardness make this alternative not viable. A recent type selection meeting (6/4/15) concluded that two four foot diameter piles will be used at each end of the existing footings. The piles will be tied together by placing a one foot concrete mat over the existing footing and drill and bond dowels into the existing footing. This alternative is viable and will not impact the existing hydraulics.

This report makes extensive reference to the (1) Federal Emergency Management Agency, Flood Insurance Study (Number 06019CV001C and 06019CV002C), dated 2014, (2) As-Built plans, (3) Bridge Inspection Records dating from 1941 to present (4) San Joaquin River Basin comprehensive study, dated 1999.

All elevations given are referenced to the data provided by Structures Design and Preliminary Investigations-North, using the NAVD 88 Vertical Datum and NAD 83 State Plane Coordinates Horizontal Datum.

Basin:

The Lanes Bridge basin area starts 11.5 miles downstream of the Friant Dam and covers about 1,700 square miles. The basin elevations range from 250 feet at the site to over 10,000 feet in the Sierra Nevada Mountains. The watershed includes high mountain ranges, forested terrain and agricultural land. Land near the project site is almost exclusively to agricultural uses. There is also plenty of storage area (deep and shallow ponds) in the basin reach upstream of the project site. According to FEMA, the San Joaquin River Levees do not hold the 100-year discharge in many locations.

The San Joaquin River originates in the Sierra Nevada mountain range and flows westerly to the San Joaquin Valley. Runoff is predominately in the form of snow above the 5,000 foot elevations. Severe flooding generally occurs with prolonged heavy rainfall with moderate duration, snowmelt runoff, and saturated ground conditions. Most of the seasonal flows generally occur during the months of October through April. Average annual precipitation ranges from 10 to 70 inches from the Lower San Joaquin Valley bridge site to the Upper Sierra Nevada headwaters. The average annual precipitation at the bridge site is near 15 inches.

Streambed:

The natural channel bed material consists of alluvium ranging from medium coarse sand to silty sand with well rounded cobbles up to 7 inches. At deeper elevations (20-30 feet), the materials are described as dense medium sand. A structure foundations report will determine whether the proposed foundations will sit on scour resistant material. A scourable channel bed material will be used for scour calculations until it is determined in the Foundation Report how deep the proposed 4 foot diameter piles will be.

At the bridge site, the slope is fairly flat to mild with a gradient of approximately 0.0019 ft/ft. The potential for channel migration exists for piers 5 through 11. Previous recommendation was to place sheet piling from piers 4 through 11. New hydraulic analysis implies only piers 5 through 11 need scour protection. Pier 4 is buried with just over 7 feet of cover and is protected against lateral migration by mature trees on the upstream side.

Discharge:

The San Joaquin River Basin is the largest basin in the San Joaquin Valley. The Millerton Lake (Friant Dam) 50-year and 100-year frequency Dam releases are near 33,000 cfs and 70,000 cfs, respectively. According to the FEMA flood insurance study, the 50-year and 100-year flows at Little Dry Creek five miles upstream of the bridge site are 34,300 cfs and 74,300 cfs. Between the bridge site and Little Dry Creek there are several deep and shallow ponds for storage as well as low levees. At Gravelly Ford, 35 miles downstream of the bridge site the calculated 50-year and 100-year flows are 32,500 cfs and 64,000 cfs. Therefore, the 50-year and 100-year discharge rates that will be used at the project site are near 33,000 cfs and 70,000 cfs, respectively.

Hydraulic Analysis:

The channel hydraulics was modeled using the Surface-Water Modeling System (SRH-2Dimensional) program, version 12.0. A terrain surface was made utilizing

survey data, LiDar and Bathymetry data provided by Preliminary Investigations-North Survey group.

Several different roughness coefficients were used based on the particular areas. Areas varied from grassy overbanks, tree orchards, trailer/mobile home residencies, heavy tree lined banks, paved roadway, and gravelly channel sections. A manning's roughness coefficient of 0.037 was used in the main channel reach and 0.04 in the overbank areas was used as part of the parameters in the hydraulic analysis. A starting water surface elevation (Base Flood Elevation) approximately 3500 feet downstream of 271 feet (Q100) and 266 feet (Q50) was used from the Federal Emergency Management Agency, Flood Insurance Study (report 06019CV002C, page 90P) flood profile.

For the 50-year and 100-year event, the proposed structure retrofit has approximate water surface elevations of 272.0 feet and 277.10 feet, respectively. The calculated existing water surface elevations before the proposed pile placement is 277.19 feet for 100-year discharge. Total water surface elevation change is negligible. The Lanes Bridge structure has a minimum of 5.5 feet freeboard in the 100-year discharge.

Scour Analysis:

Scour was estimated utilizing the methods set forth in the FHWA HEC-18, "Evaluating Scour at Bridges." All scour elevations are based on the 100-year discharge.

Based on a comparison of historical channel cross-sections taken at the existing Route 41 structure, the channel has been stable. A five foot channel degradation value will be added to total potential scour. A 25 year life expectancy of the structure will be assumed. Contraction scour changes from the overbank areas to the main channel areas. Table 2 will show the values for every pier. For the 100-year flows, the average velocity at the proposed structure was calculated at 8.2 feet per second.

The local pier scour calculated for the proposed structure retrofit is shown on Table 2. The existing channel thalweg elevation is near 254.9 feet. Lateral channel migration was included to calculate the local pier scour for piers 5 through 11. Office of Structure Ratings performed a stability analysis and concluded that the substructure piers are stable to an elevation of 243.4 feet.

Structure Hydraulics does not have any abutment scour concerns due to the abutments being located up in high ground. Structure Foundations and Geology will need to be consulted on the design and elevations of the proposed piles.

Drift:

According to the Maintenance Records there is a history of drift/debris problems. The proposed pile alternative should not increase the existing drift/debris scour.

Summary Tables:

Table 1:

Hydrologic Summary for San Joaquin River Bridge, 42-0112Y			
Drainage Area: 1700 mi^2			
Frequency	**Design Flood**	**Base Flood**	**Channel Capacity**
	50-year	100-year	N/A
Discharge	33,000 cfs	70,000 cfs	N/A
Water Surface Elevation at Bridge	272.0 ft	277.10 ft	N/A
Flood plain data are based upon information available when the plans were prepared and are shown to meet federal requirements. The accuracy of said information is not warranted by the State and interested or affected parties should make their own investigation.			
Minimum Soffit Elevation	283.0 ft		
Local Pier Scour Depth* Scour Depth at Abutments*	See table 2 N/A		
Local Pier Scour Elevation Abutment Scour Elevation	See table 2 N/A		

* Pending Geotechnical Foundation Report recommendations.

Table 2:

Bent #	Existing Ground Elevation at Pier Feet	Top of Ftg. Elev. Feet	Contraction Scour Feet	Degradation Feet	Local Pier Scour Feet	Total Potential Scour Feet	Potential Scour Elevation Feet
Abut. 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	271.2	258.3	4	5	4.3	13.3	257.9
3	264.4	255.8	4	5	5.4	14.4	250.0
4	262.5	255.8	4	5	5.9	14.9	247.6
5	260.9*	257.6	4	5	8.0	17.0	237.9*
6	262.9*	255.8	4	5	8.0	17.0	237.9*
7	258.9*	255.8	4	5	8.0	17.0	237.9*
8	255.6*	256.0	4	5	8.0	17.0	237.9*
9	254.9*	255.8	4	5	8.0	17.0	237.9*
10	259.6*	256.0	4	5	12.5	21.5	233.4*
11	261.4*	255.8	4	5	10.0	19.0	236.4*
12	267	256.1	4	5	9.5	18.5	248.5
Abut. 13	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Recommended potential scour elevation for proposed pile design. Lateral thalweg migration taken into account.

Figure 1: Looking at velocity vectors through structures

Figure 2: Looking at velocity vectors through structures

Figure 3: Looking at water depths through reach at project site

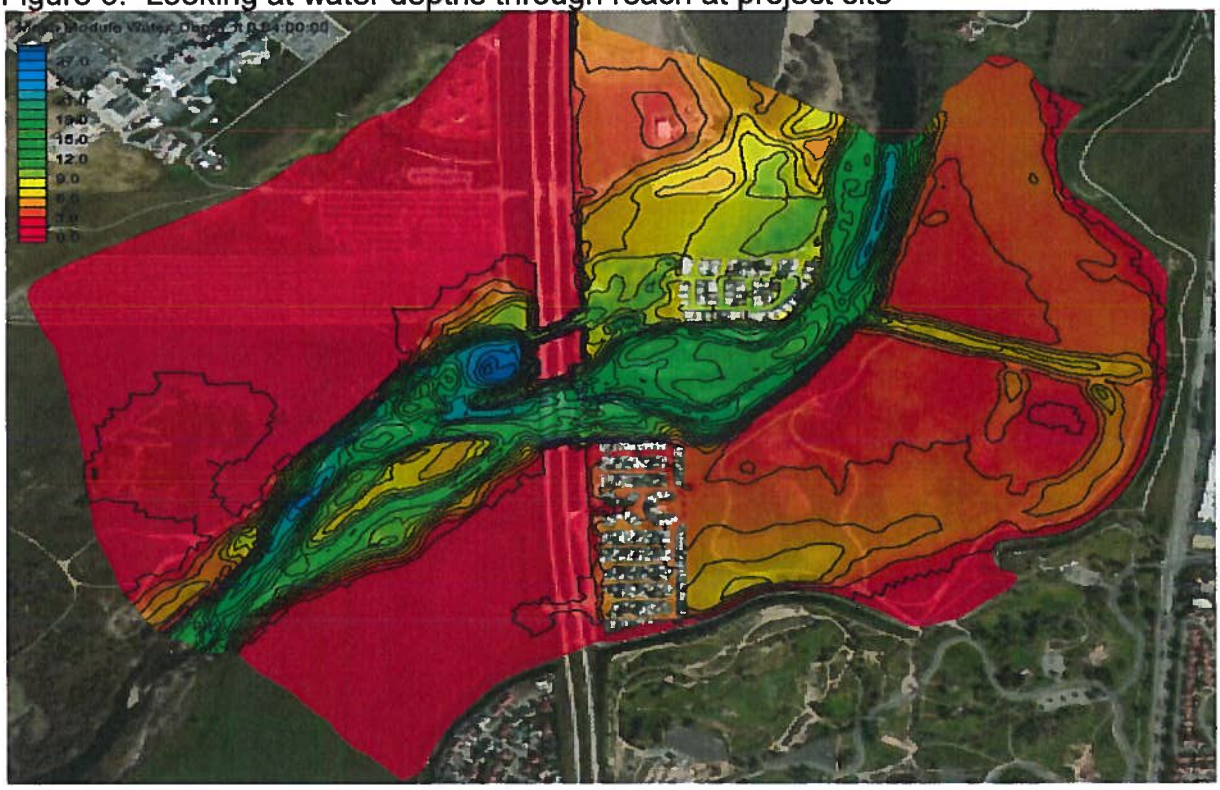
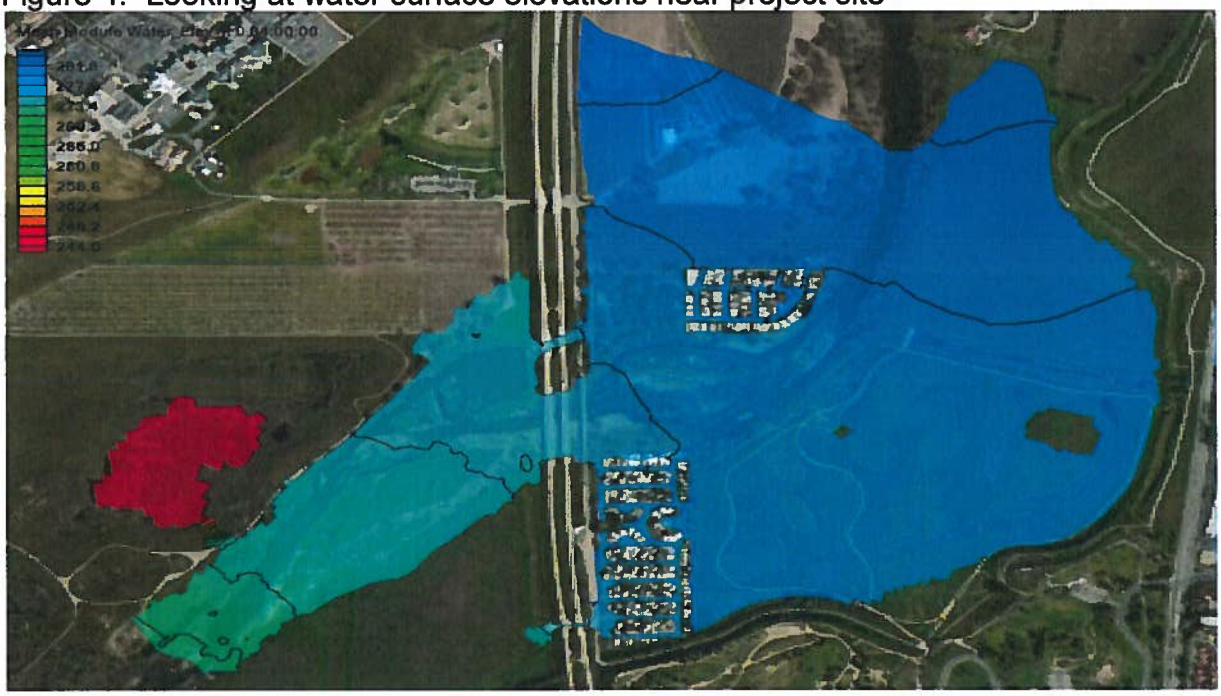
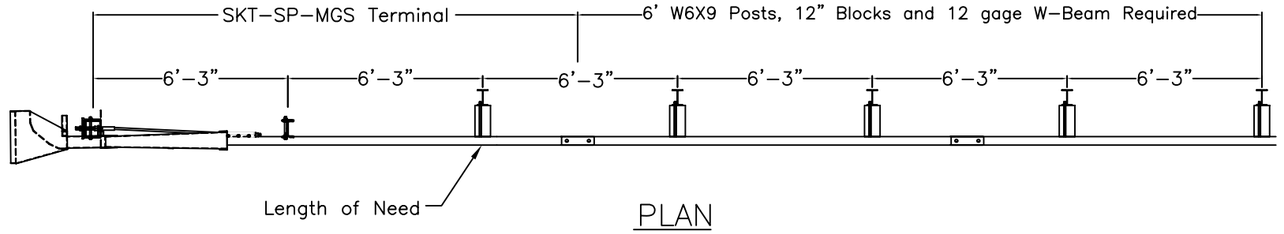
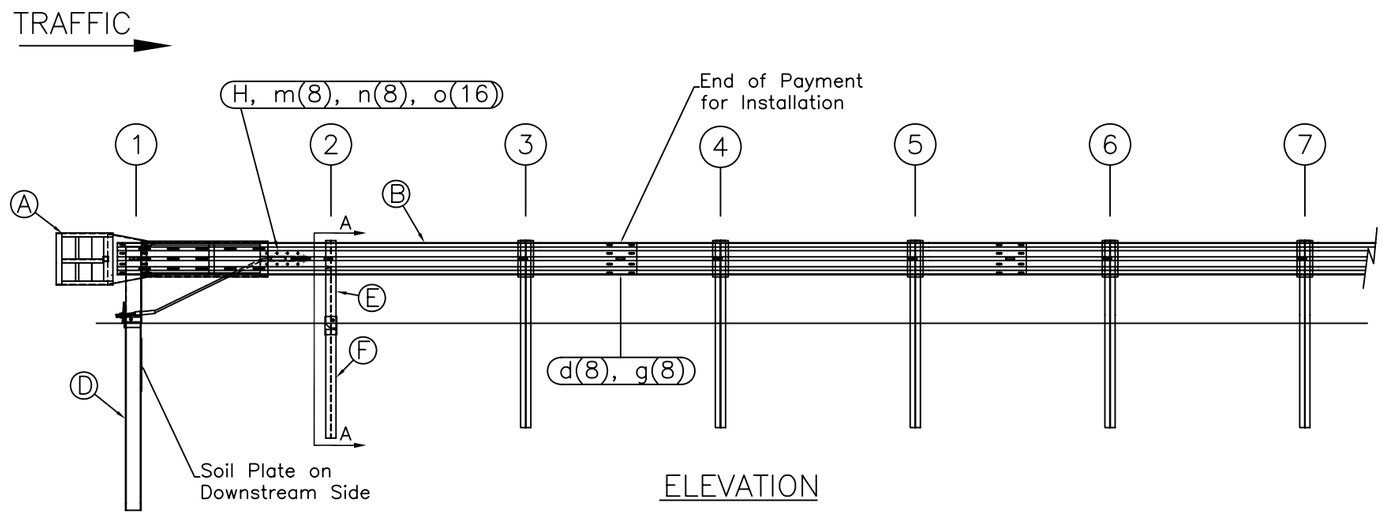


Figure 4: Looking at water surface elevations near project site

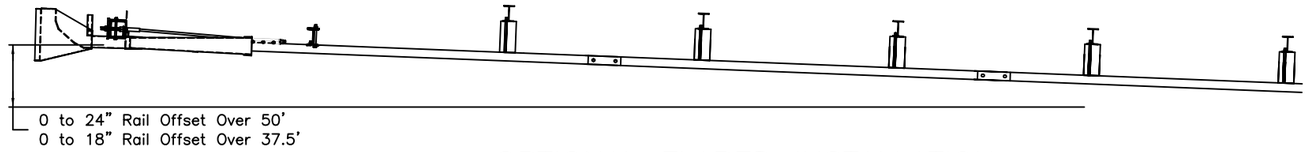




PLAN



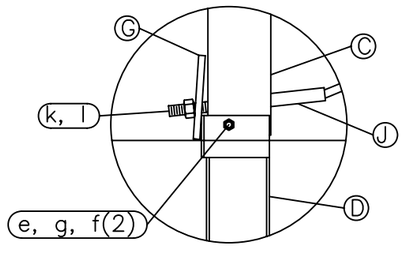
ELEVATION



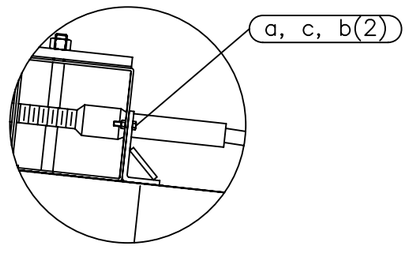
OPTIONAL FLARED INSTALLATION
25:1 maximum flare rate

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	S3000
B	1	W–BEAM GUARDRAIL END SECTION, 12 Ga.	MGS–SF1303
C	1	FIRST POST TOP (6X6X$\frac{1}{8}$" Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	SB58A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

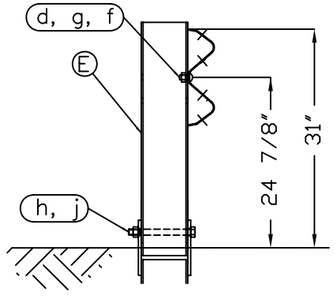
GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
3. The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. A site evaluation should be considered if there is less than 25' between the outlet side of the terminal and any adjacent driving lane.
6. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.



Post #1 Connection Detail



Impact Head Connection Detail

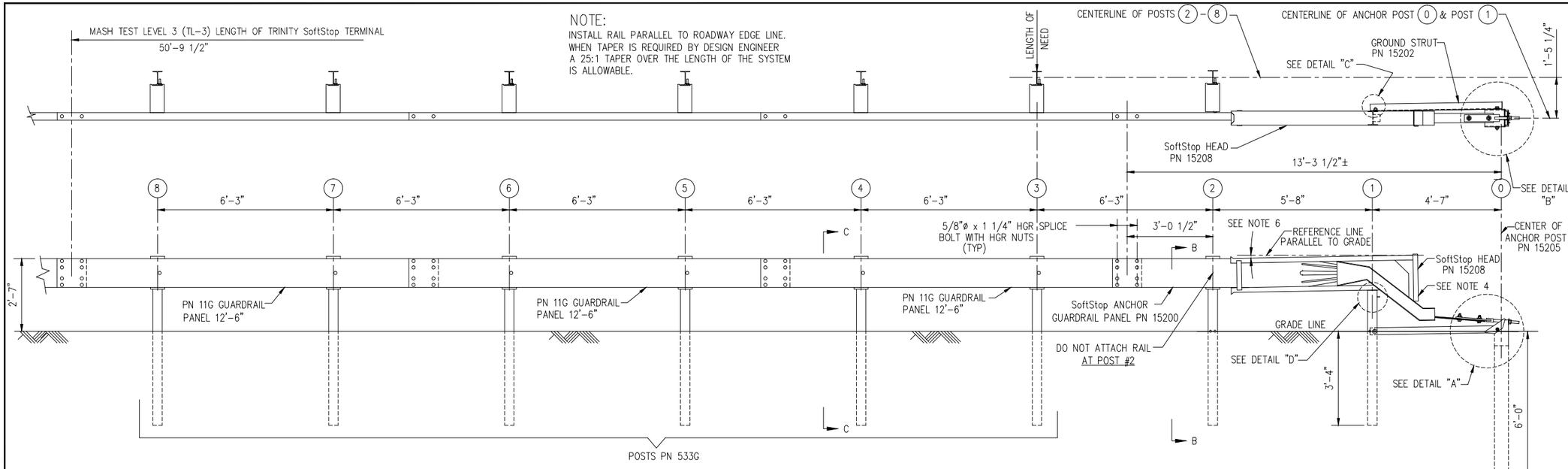


SECTION A–A
Post #2

Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0721

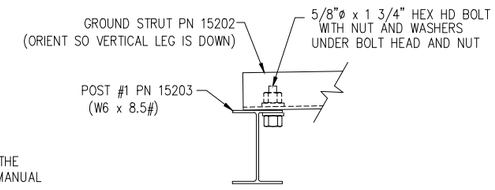
SKT-SP-MGS Terminal
Midwest Guardrail System
31" Top of Rail

Sheet: 1
Date: 02/24/10
By: JRR
Drawing Name: SKT-SP-S-MGS
Scale: None
Rev: 0

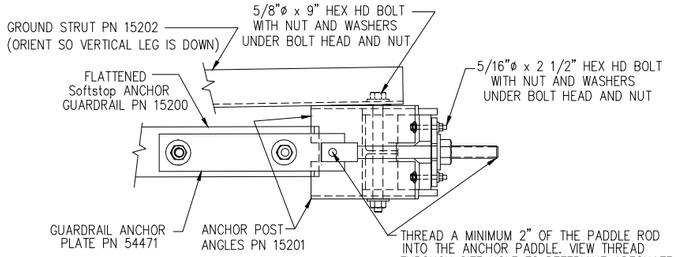


BILL OF MATERIAL			
PART NUMBER	QTY	DESCRIPTION	
11G	3	12/12'6/3'1.5/S GUARDRAIL (12GA)	
15200G	1	SoftStop ANCHOR GUARDRAIL (12GA)	
15208A	1	SoftStop HEAD	
15203G	1	POST #1 4'-9 1/2" (SYTP)	
15000G	1	POST #2 6'-0" (SYTP)	
6100B	7	OFFSET BLOCK 6 x 12 x 14	
54471G	1	GUARDRAIL ANCHOR PLATE	
15205A	1	ANCHOR POST #0	
15201G	2	ANCHOR POST ANGLE 10" LG	
15207G	1	ANCHOR KEEPER PLATE (24 GA)	
15206G	1	ANCHOR PLATE WASHER (1/2"THK)	
15202G	1	GROUND STRUT x 4'-8 1/4"	
533G	6	POST #3-#8 6'-0"	
HARDWARE			GR
4902G	1	1" WASHER	F-436
3908G	1	1" HEX NUT	A563 DH
3717G	2	3/4"ø x 2 1/2" HEX HD BOLT	A-325
3701G	4	3/4" WASHER	F-436
3704G	2	3/4" HEX NUT	A563 DH
3360G	32	5/8"ø x 1 1/4" HGR SPLICE BOLT	A-307
3540G	7	5/8"ø x 14" HGR POST BOLT	A-307
3391G	1	5/8"ø x 1 3/4" HEX HD BOLT	A-325
4489G	1	5/8"ø x 9" HEX HD BOLT	A-325
4372G	4	5/8" WASHER	F-436
3340G	41	5/8" HGR HEX NUT	A563 A
105285G	2	5/16"ø x 2 1/2" HEX HD BOLT	GR-5
105286G	1	5/16"ø x 1 1/2" HEX HD BOLT	GR-5
118352G	1	1"ø x 12" ALL THREAD ROD	A193 B7
3240G	6	5/16" WASHER	
3245G	3	5/16" HEX NUT	A563 A

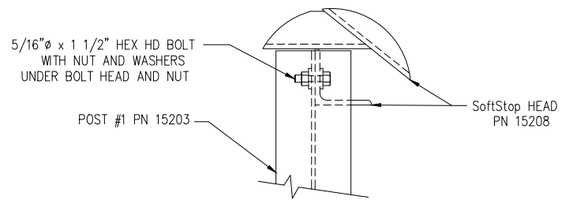
NOTES:
1) REFER TO SoftStop ASSEMBLY MANUAL.
2) SoftStop IS A MASH TEST LEVEL 3 (TL-3) END TREATMENT.
3) 12" NOMINAL DEEP PLASTIC OFFSET BLOCKS (ROUTED) ARE ACCEPTABLE ALTERNATES.
4) MANUFACTURER SUGGESTS CUSTOMER TO PROVIDE REFLECTORIZATION OF THE TERMINAL.
5) 25' GUARDRAIL PANELS (12GA) ARE AN ACCEPTABLE ALTERNATE TO SHOWN 12'-6" PANELS.
6) IT IS ACCEPTABLE TO INSTALL THE SoftStop HEAD PARALLEL TO THE GRADE LINE OR WITH AN UPWARD TILT. SEE SoftStop ASSEMBLY MANUAL FOR SPECIFIC DETAILS.



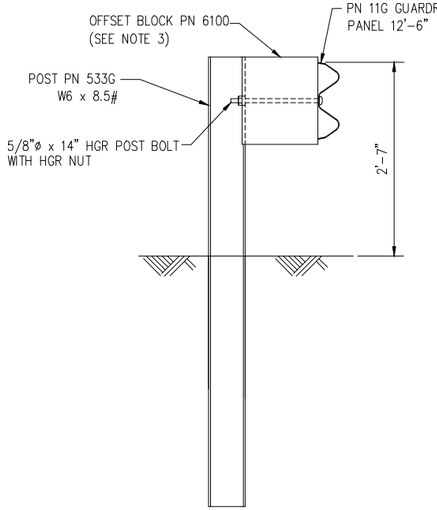
DETAIL "C"
(POST #1, SHOWN NEAR GROUND)



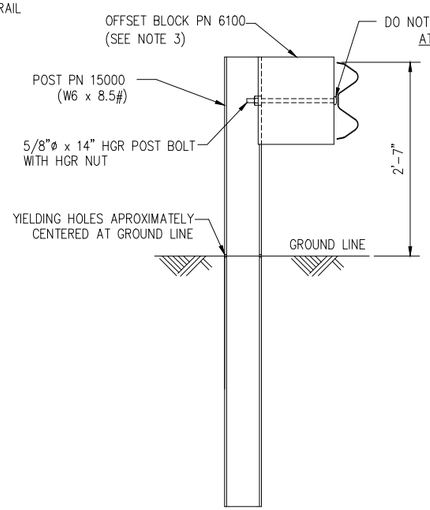
DETAIL "B"
(AT ANCHOR POST #0)



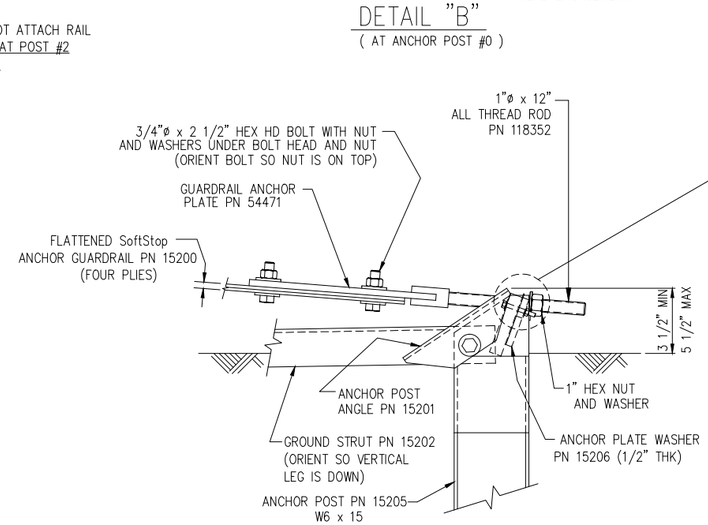
DETAIL "D"
(POST #1)



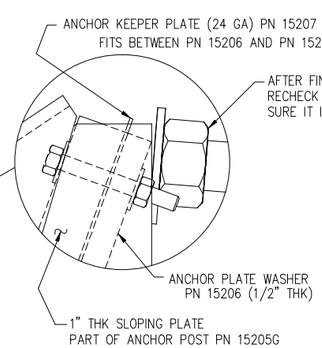
SECTION "C-C
(POSTS #3 -#8)



SECTION "B-B"
(POST #2)



DETAIL "A"
(AT ANCHOR POST #0)

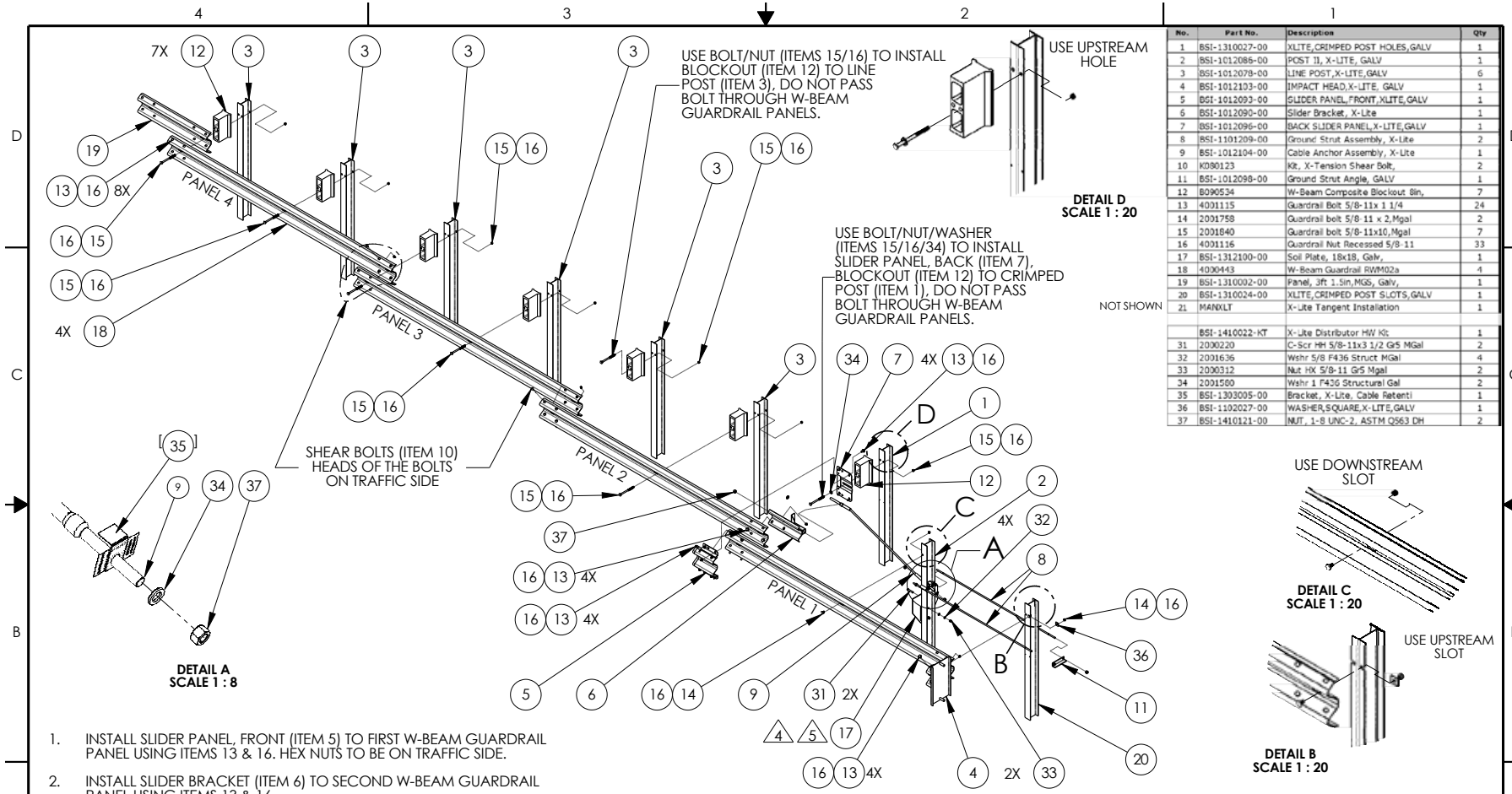


SoftStop

TRINITY SoftStop TERMINAL (12" BLOCKS)
PLAN, ELEVATION & SECTION
MASH TEST LEVEL 3 (TL-3)

DRAWN	BT
CHECKED	BS
SCALE	N.T.S.
DATE	01/10/12
ENG. FILE #	SS 645-01EM
SHT.No.	E1 OF 1
DRAWING NO.	SS 645

TRINITY HIGHWAY PRODUCTS, LLC.
2525 STEMMONS FREEWAY
DALLAS, TX 75207



No.	Part No.	Description	Qty
1	BSI-1310027-00	XLITE,CRIMPED POST HOLES,GALV	1
2	BSI-1012086-00	POST 11, X-LITE, GALV	1
3	BSI-1012078-00	LINE POST,X-LITE,GALV	6
4	BSI-1012103-00	IMPACT HEAD,X-LITE, GALV	1
5	BSI-1012093-00	SLIDER PANEL,FRONT,XLITE,GALV	1
6	BSI-1012090-00	Slider Bracket, X-Lite	1
7	BSI-1012096-00	BACK SLIDER PANEL,X-LITE,GALV	1
8	BSI-1101209-00	Ground Strut Assembly, X-Lite	2
9	BSI-1012104-00	Cable Anchor Assembly, X-Lite	1
10	K080123	Kit, X-Tension Shear Bolt,	2
11	BSI-1012098-00	Ground Strut Angle, GALV	1
12	B090534	W-Beam Composite Blockout 8in,	7
13	4001115	Guardrail Bolt 5/8-11x 1 1/4	24
14	2001758	Guardrail bolt 5/8-11 x 2,Mgal	2
15	2001840	Guardrail bolt 5/8-11x10,Mgal	7
16	4001116	Guardrail Nut Recessed 5/8-11	33
17	BSI-1312100-00	Soil Plate, 18x18, Galv,	1
18	4000443	W-Beam Guardrail RWM02a	4
19	BSI-1310002-00	Panel, 3ft 1.5in,MGS, Galv,	1
20	BSI-1310024-00	XLITE,CRIMPED POST SLOTS,GALV	1
NOT SHOWN 21	MANXLT	X-Lite Tangent Installation	1
	BSI-1410022-KT	X-Lite Distributor HW Kit	1
31	2000220	C-Scr HH 5/8-11x3 1/2 Gr5 MGal	2
32	2001636	Wshr 5/8 F436 Struct MGal	4
33	2000312	Nut HX 5/8-11 Gr5 Mgal	2
34	2001500	Wshr 1 F436 Structural Gal	2
35	BSI-1303005-00	Bracket, X-Lite, Cable Retenti	1
36	BSI-1102027-00	WASHER,SQUARE,X-LITE,GALV	1
37	BSI-1410121-00	NUT, 1-8 UNC-2, ASTM Q563 DH	2

1. INSTALL SLIDER PANEL, FRONT (ITEM 5) TO FIRST W-BEAM GUARDRAIL PANEL USING ITEMS 13 & 16. HEX NUTS TO BE ON TRAFFIC SIDE.
2. INSTALL SLIDER BRACKET (ITEM 6) TO SECOND W-BEAM GUARDRAIL PANEL USING ITEMS 13 & 16.
3. AFTER STEPS 1 & 2 SECURE FIRST AND SECOND W-BEAM GUARDRAIL PANEL USING ITEMS 7, 13 & 16. HEX NUTS TO BE ON TRAFFIC SIDE.
4. IF ROCK OR STIFF SOIL IS ENCOUNTERED, THE POST AND SOIL PLATE MAY BE INSTALLED BY AUGERING AND BACKFILLING THE HOLE. EXTRA CARE MUST BE TAKEN TO PREVENT SETTLEMENT OR LATERAL DISPLACEMENT OF THE POST. BACKFILL MATERIAL SHALL BE COMPACTED TO OPTIMUM COMPACTION.
5. IF ROCK IS ENCOUNTERED, THE SOIL PLATE MAY BE MODIFIED IF APPROVED BY THE PROJECT ENGINEER.

APPROVALS

DRAWN BY:	JMT
DRAWN DATE:	09/25/14
APPR'D BY:	JAF
APPR'D DATE:	09/29/14

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ±1/16 DECIMAL .XX = ±.03 .XXX = ±.010 ANGLES ±1/2°
INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5-1994
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING

REV	ECN#	DATE
B	2540	12/08/14
A	2444	09/25/14

LINDSAY™ TRANSPORTATION SOLUTIONS

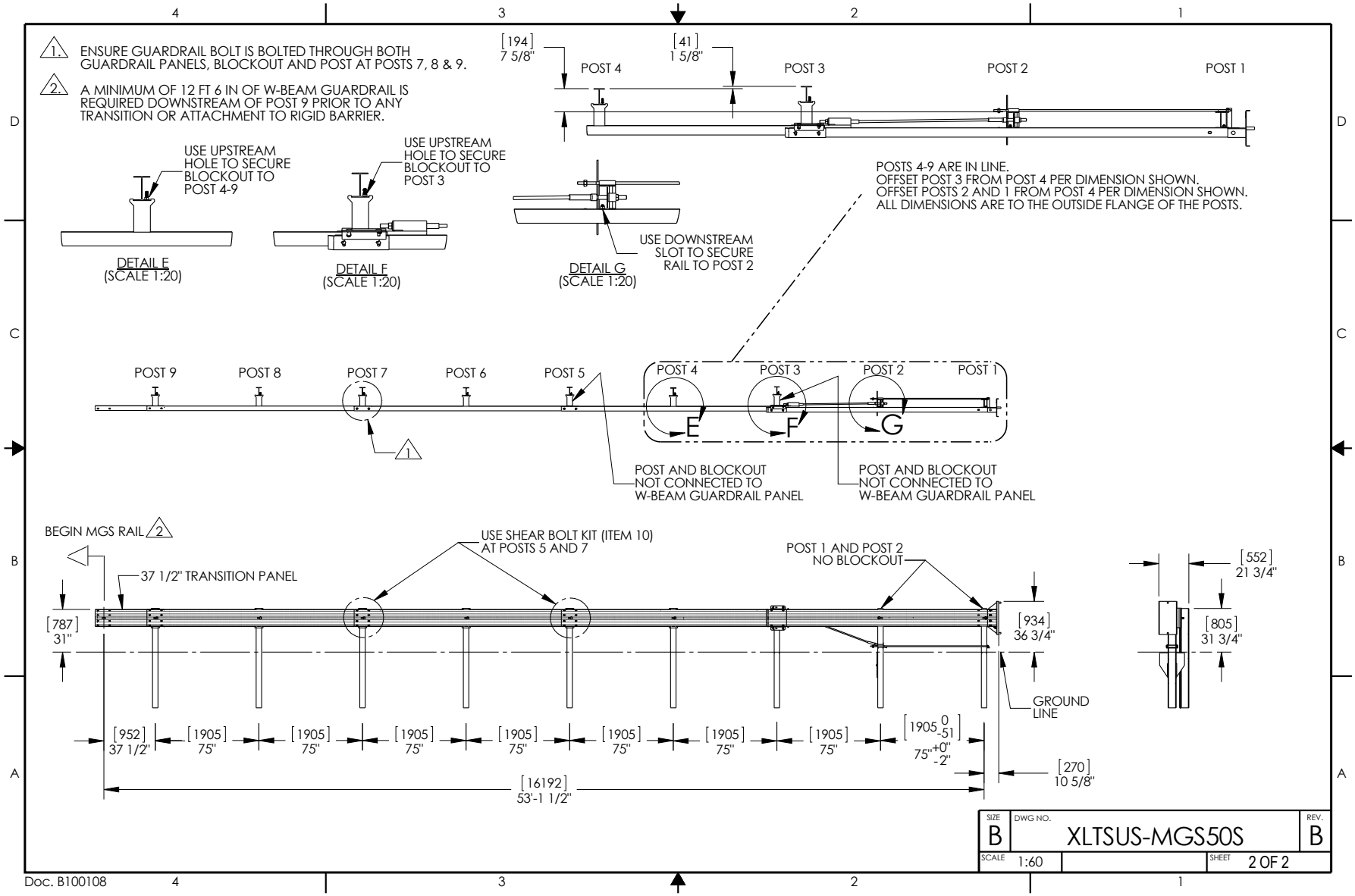
BARRIER SYSTEMS
180 River Road
Rio Vista, CA 94571
Tel: 888-800-3691
www.barriersystemsinc.com

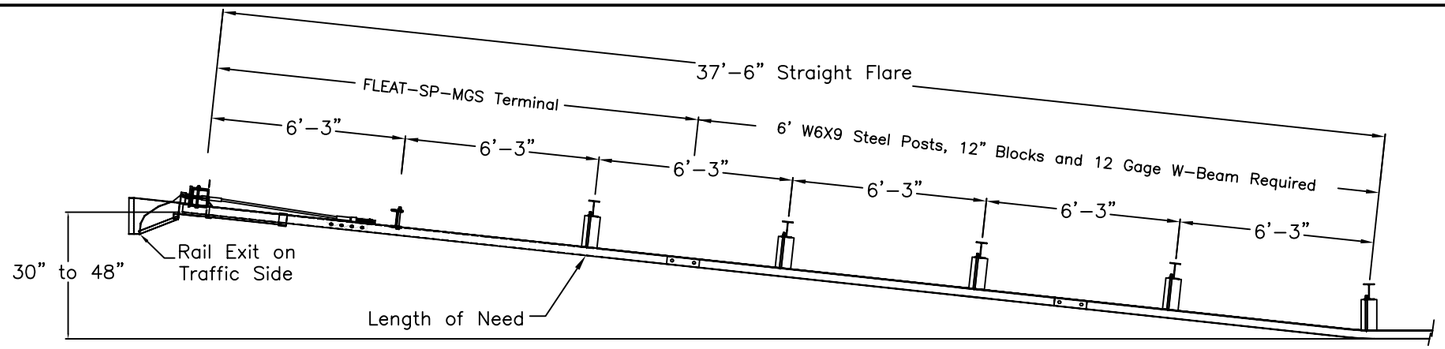
TITLE: **X-LITE TANGENT, 50 FT TRANSITION TO MGS WITH 37 1/2" PANEL**

SIZE B | DWG NO. XLTSUS-MGS50S | REV. B

SCALE 1:48 | SHEET 1 OF 2

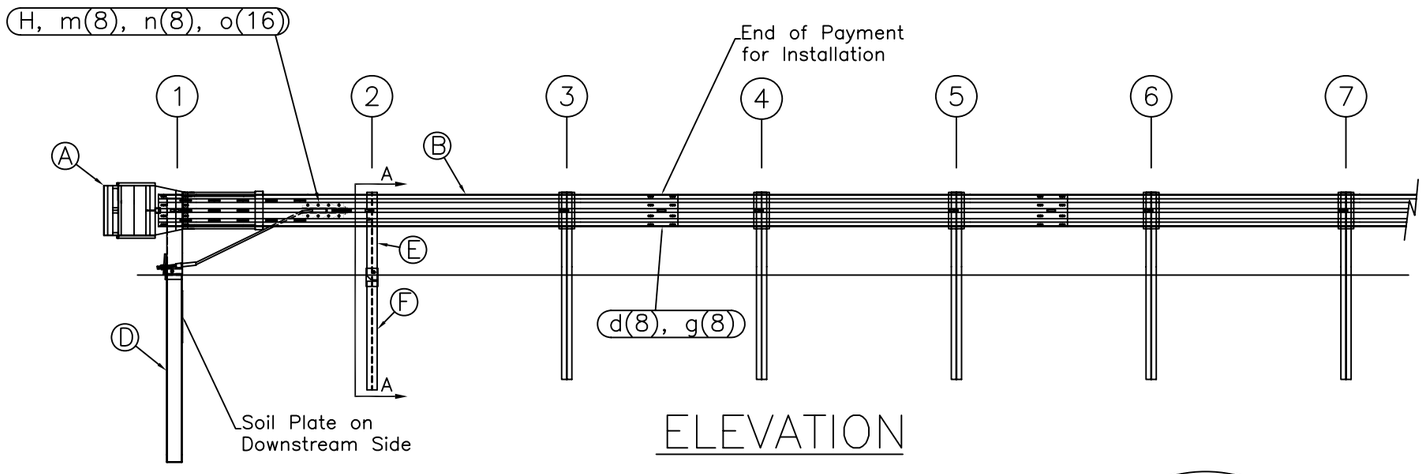
Doc. B100108


1. ENSURE GUARDRAIL BOLT IS BOLTED THROUGH BOTH GUARDRAIL PANELS, BLOCKOUT AND POST AT POSTS 7, 8 & 9.
2. A MINIMUM OF 12 FT 6 IN OF W-BEAM GUARDRAIL IS REQUIRED DOWNSTREAM OF POST 9 PRIOR TO ANY TRANSITION OR ATTACHMENT TO RIGID BARRIER.
[194] 7 5/8"
[41] 1 5/8"
POST 4
POST 3
POST 2
POST 1
USE UPSTREAM HOLE TO SECURE BLOCKOUT TO POST 4-9
USE UPSTREAM HOLE TO SECURE BLOCKOUT TO POST 3
USE DOWNSTREAM SLOT TO SECURE RAIL TO POST 2
DETAIL E (SCALE 1:20)
DETAIL F (SCALE 1:20)
DETAIL G (SCALE 1:20)
POSTS 4-9 ARE IN LINE.
OFFSET POST 3 FROM POST 4 PER DIMENSION SHOWN.
OFFSET POSTS 2 AND 1 FROM POST 4 PER DIMENSION SHOWN.
ALL DIMENSIONS ARE TO THE OUTSIDE FLANGE OF THE POSTS.
POST 9
POST 8
POST 7
POST 6
POST 5
POST 4
POST 3
POST 2
POST 1
E
F
G
1
POST AND BLOCKOUT NOT CONNECTED TO W-BEAM GUARDRAIL PANEL
POST AND BLOCKOUT NOT CONNECTED TO W-BEAM GUARDRAIL PANEL
BEGIN MGS RAIL 2
37 1/2" TRANSITION PANEL
USE SHEAR BOLT KIT (ITEM 10) AT POSTS 5 AND 7
POST 1 AND POST 2 NO BLOCKOUT
[787] 31"
[934] 36 3/4"
[552] 21 3/4"
[805] 31 3/4"
GROUND LINE
[952] 37 1/2"
[1905] 75"
[1905 0 -51] 75" +0" -2"
[270] 10 5/8"
[16192] 53'-1 1/2"
SIZE B
DWG NO. XLTSUS-MGS50S
REV. B
SCALE 1:60
SHEET 2 OF 2
Doc. B100108

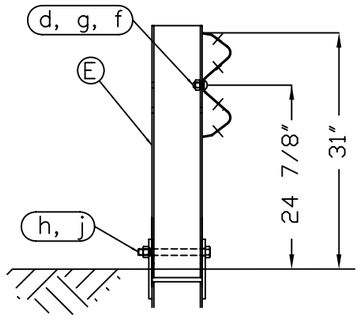


PLAN

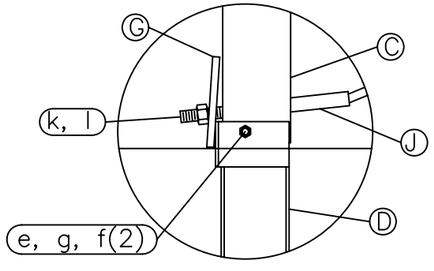
TRAFFIC



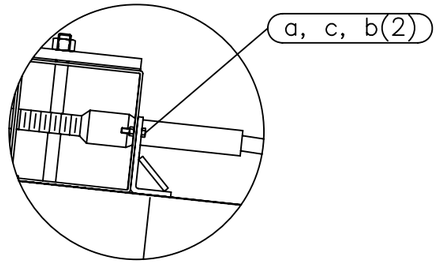
ELEVATION



SECTION A-A
Post #2



Post #1 Connection Detail



Impact Head Connection Detail

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	F3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	MGS-SF1303
C	1	FIRST POST TOP (6X6X$\frac{1}{8}$" Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	SB58A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
3. The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

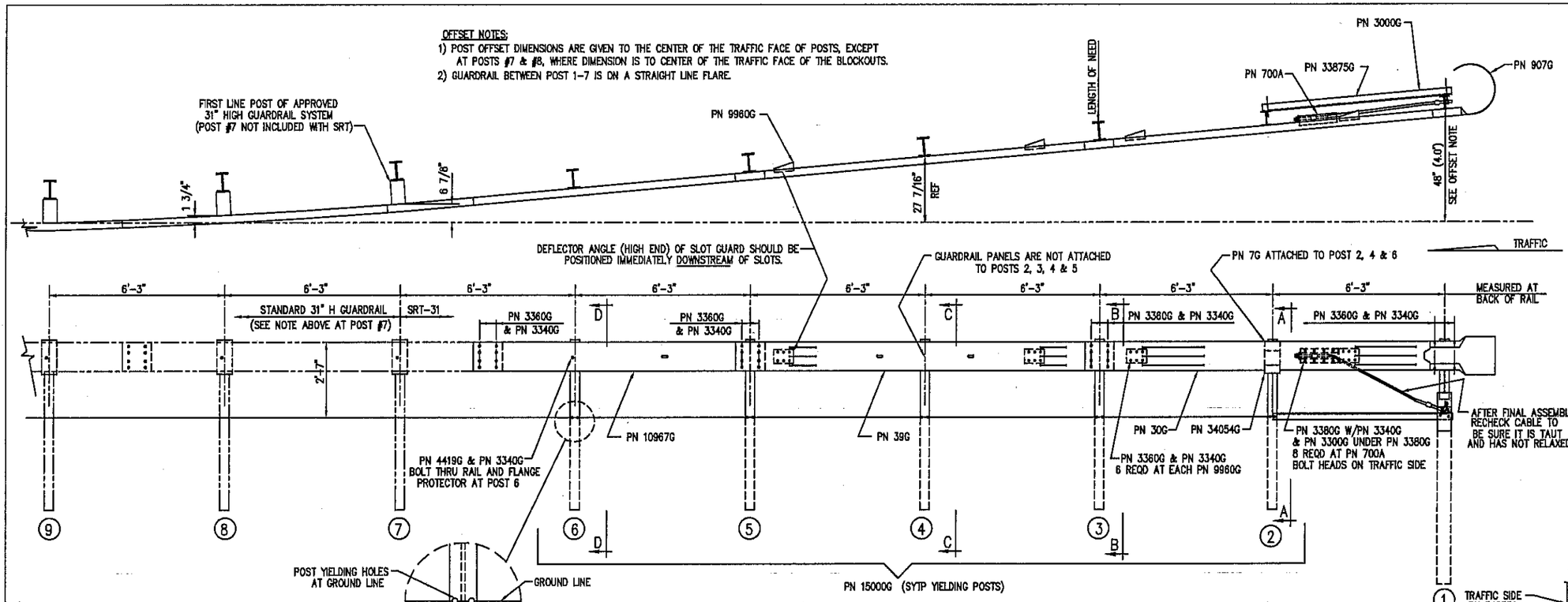
RSI
Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0721

FLEAT-SP-MGS Terminal Midwest Guardrail System 31" Top of Rail

Sheet:	Date:	By:
1	02/24/10	JRR

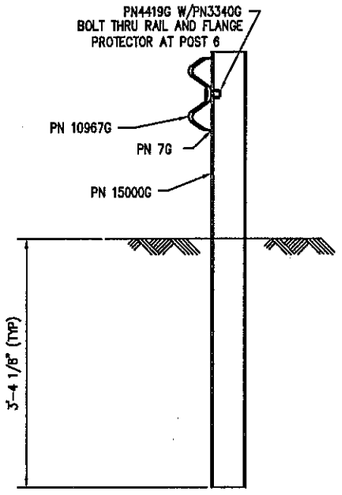
Drawing Name:	Scale:	Rev:
FLT-SP-S-MGS	None	0

OFFSET NOTES:
1) POST OFFSET DIMENSIONS ARE GIVEN TO THE CENTER OF THE TRAFFIC FACE OF POSTS, EXCEPT AT POSTS #7 & #8, WHERE DIMENSION IS TO CENTER OF THE TRAFFIC FACE OF THE BLOCKOUTS.
2) GUARDRAIL BETWEEN POST 1-7 IS ON A STRAIGHT LINE FLARE.

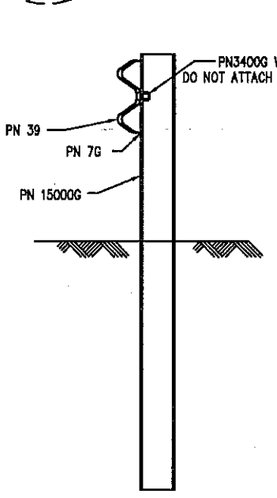


BILL OF MATERIAL

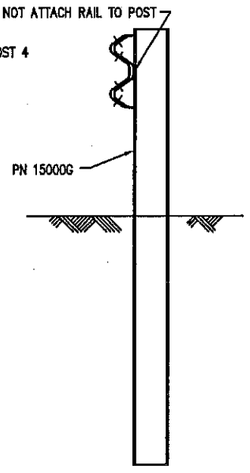
	PN	QTY	DESCRIPTION
	7G	3	12/6"/FLG PROTECTOR (AT POST 2, 4 & 6)
	30G	1	12/12'6/S SRT-1 (GUARDRAIL)
	39G	1	12/12'6/S SRT-2 (GUARDRAIL)
	700A	1	CABLE ANCHOR BRACKET
	907G	1	12/BUFFER/ROLLED (TERMINAL)
	3000G	1	3/4 x 6'-6" CABLE
HARDWARE	3240G	2	5/16" WASHER (AT POST 1)
HARDWARE	3245G	2	5/16" HEX NUT (AT POST 1)
2 HARDWARE	3300G	12	5/8" WASHER
1 HARDWARE	3340G	67	5/8" HEX HGR NUT
HARDWARE	3360G	52	5/8"ø x 1 1/4" HGR SPLICE BOLT
HARDWARE	3380G	8	5/8"ø x 1 1/2" HEX HD BOLT
4 HARDWARE	3400G	4	5/8"ø x 2" HGR POST BOLT (AT POSTS 1, 2 & 4)
HARDWARE	3391G	2	5/8"ø x 1 3/4" HEX BOLT (A325) (AT STRUT)
HARDWARE	3900G	2	1" WASHER (AT CABLE)
HARDWARE	3910G	2	1" HEX NUT (AT CABLE)
HARDWARE	4211G	2	5/16"ø x 1 3/4" HEX BOLT (AT POST 1)
HARDWARE	4419G	1	5/8"ø x 1 3/4" COUNTERSUNK HD BOLT (AT POST 6)
	9960G	4	SLOT GUARD BRACKET
	10967G	1	12/9'4.5/3'1.5/S SRT-3 (GUARDRAIL)
	15000G	5	6'-0" SYT POST (W6 X 8.5)
	33909G	1	CABLE ANCHOR BRACKET (AT POST 1)
	33875G	1	ANGLE STRUT 3 x 3 x 1/4
	34052A	1	CR POST 1 BOT (W6 x 15)
	34053A	1	CR POST 1 TOP (W6 x 8.5)
	34054G	1	POST SHELF ANGLE (AT POST 2)



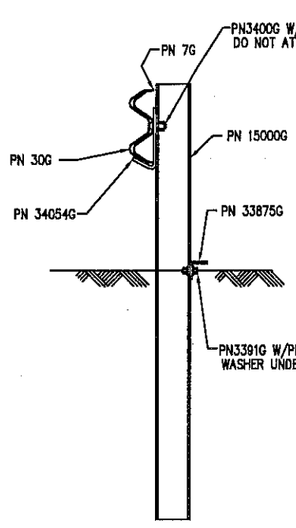
SECTION "D-D"
(@ POST #6)



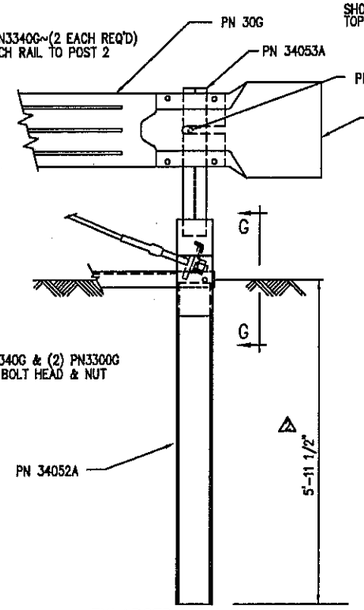
SECTION "C-C"
(@ POST #4)



SECTION "B-B"
(@ POST #3 & #5)



SECTION "A-A"
(@ POST #2)



ENLARGED VIEW @ POST #1

VIEW "G-G"
(@ POST #1)

REV.	CHK'D	BY	DATE	REMARKS
4	BT	LH	10/6/10	OFFSET POSTS #7 & #8
3	BT	LH	2/26/09	REVISED HARDWARE
2	SG	LH	7/28/08	REVISED POST #1 LENGTH IN GROUND
1	SG	LH	1/16/08	REVISED HARDWARE QUANTITY IN BILL OF MATERIAL

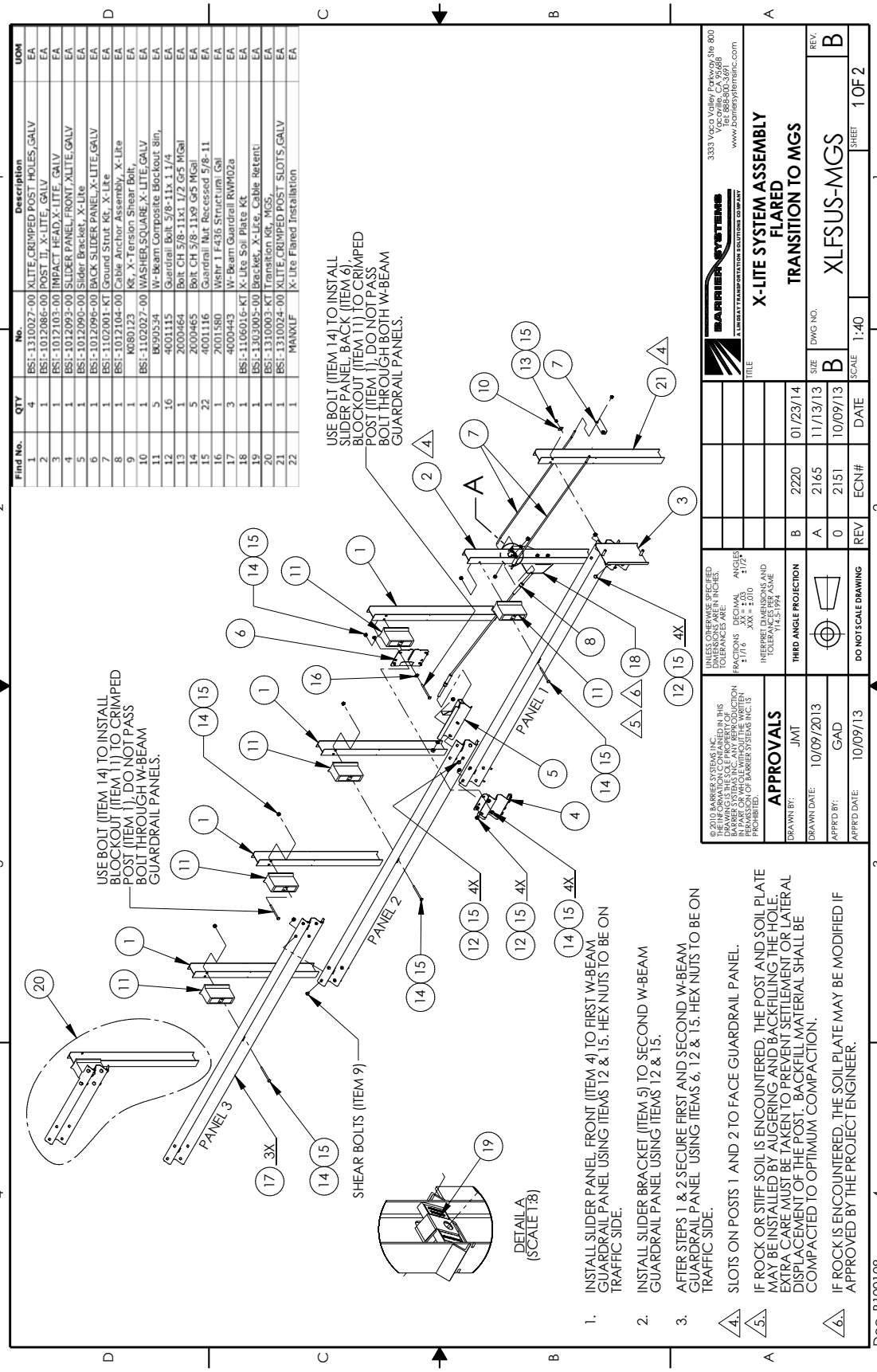
SRT-31

SLOTTED RAIL TERMINAL SRT-31 (31" H)
ERECTION DETAILS
(3 PANELS, CR AND SYT POSTS)

DRAWN	BT
CHECKED	SG
SCALE	NTS
DATE	10/30/07
ENG. FILE #	SS436-01E
SHT.No.	E1 OF 1
DRAWING NO.	SS 436
REV.	4

TRINITY HIGHWAY PRODUCTS, LLC.
2525 STEMMONS FREEWAY
DALLAS, TX 75207

Appendix A - System Configuration, 37’ 6” MGS



Find No.	QTY	No.	Description	UOM
1	4	BSI-1310027-00	XLITE,CRIMPED POST HOLES,GALV	EA
2	1	BSI-1012086-00	POST II, X-LITE, GALV	EA
3	1	BSI-1012103-00	IMPACT HEAD,X-LITE, GALV	FA
4	1	BSI-1012093-00	SLIDER PANEL,FRONT,XLITE,GALV	EA
5	1	BSI-1012090-00	Slider Bracket, X-Lite	EA
6	1	BSI-1012096-00	BACK SLIDER PANEL,X-LITE,GALV	EA
7	1	BSI-1102001-KT	Ground Strut Kit, X-Lite	EA
8	1	BSI-1012104-00	Cable Anchor Assembly, X-Lite	EA
9	1	K080123	Kit, X-Tension Shear Bolt,	EA
10	1	BSI-1102027-00	WASHER,SQUARE,X-LITE,GALV	EA
11	5	B0990534	W-Beam Composite Blockout 8in,	EA
12	16	4001115	Guardrail Bolt 5/8-11x 1 1/4	EA
13	1	2000464	Bolt CH 5/8-11x1 1/2 Gr5 MGal	EA
14	5	2000465	Bolt, CH 5/8-11x9 Gr5 MGal	EA
15	22	4001116	Guardrail Nut Recessed 5/8-11	EA
16	1	2001580	Weir T F436 Structural Gal	FA
17	3	4000443	W-Beam Guardrail RWM02a	EA
18	1	BSI-1106016-KT	X-Lite Soil Plate Kit	EA
19	1	BSI-1303005-00	Bracket, X-Lite, Cable Retenti	EA
20	1	BSI-1310003-KT	Transition Kit, MGS,	EA
21	1	BSI-1310024-00	XLITE,CRIMPED POST SLOTS,GALV	EA
22	1	MANXLF	X-Lite Flared Installation	EA

APPROVALS	
DRAWN BY:	JMT
DRAWN DATE:	10/09/2013
APPR'D BY:	GAD
APPR'D DATE:	10/09/13

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ±1/16 DECIMAL XX = ±.010 XXX = ±.005 ANGLES ±1/2°
INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5.1994
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING

REV	ECN#	DATE
B	2220	01/23/14
A	2165	11/13/13
0	2151	10/09/13

BARRIER SYSTEMS
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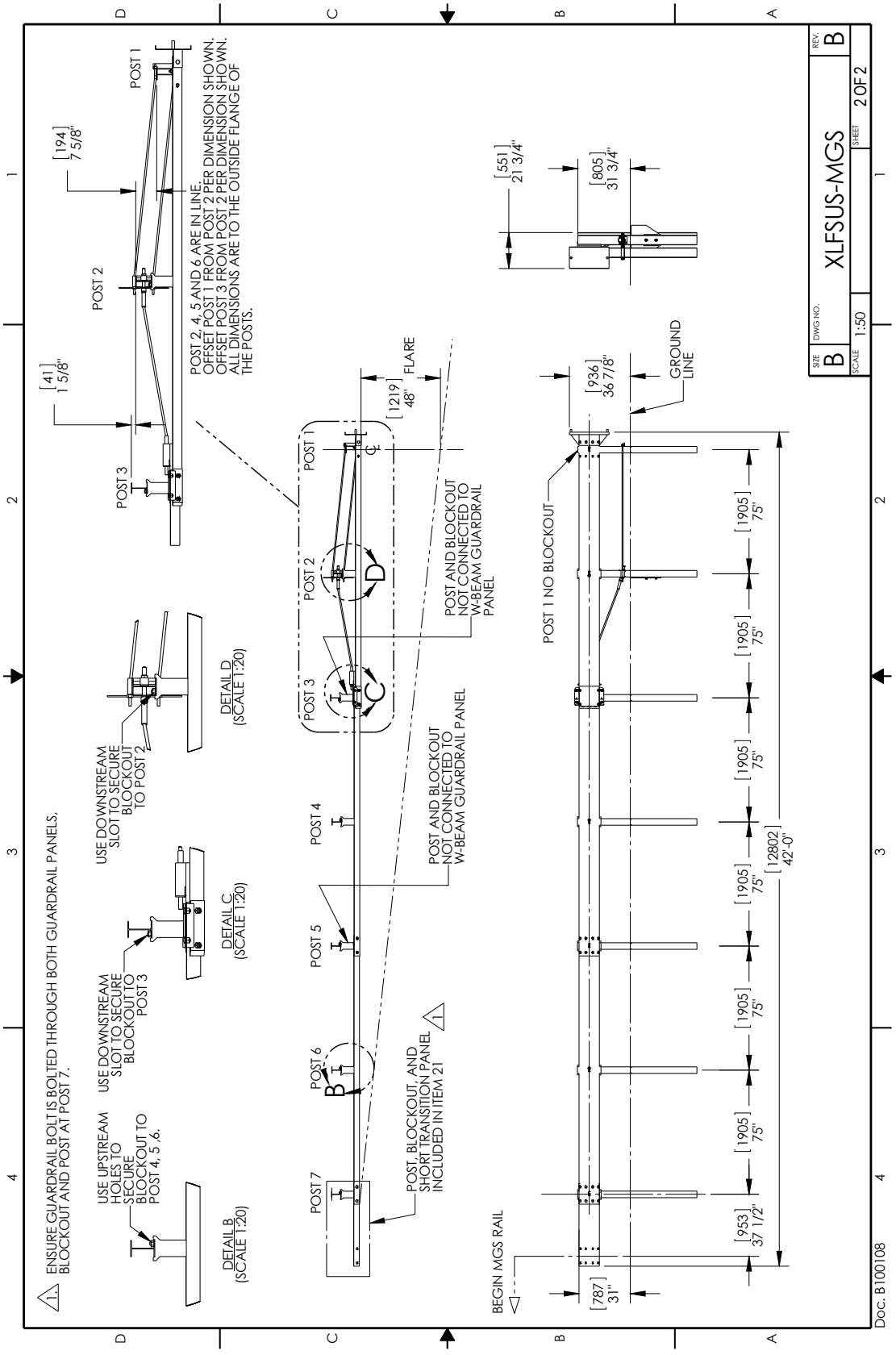
3333 Vaca Valley Parkway,Ste 800
Vacaville, CA 95688
Tel: 888-800-3691
www.barriersystemsinc.com

TITLE: X-LITE SYSTEM ASSEMBLY FLARED TRANSITION TO MGS

SIZE: B | DWG NO.: XLFSUS-MGS | REV: B
SCALE: 1:40 | SHEET: 1 OF 2

Appendix A - System Configuration, 37’ 6” MGS



Maximum Applied Water Allowance Calculations for New and Rehabilitated Non-Residential Landscapes

Enter value in Pale Blue Cells

Tan Cells Show Results

Messages and Warnings

Click on the blue cell on right to Pick City Name	**Fresno**	**Name of City**
ET_o of City from Appendix A	**51.10**	**ET_o** (inches/year)
	16300	Overhead Landscape Area (ft^2)
	0	Drip Landscape Area (ft^2)
	0	SLA (ft^2)
Total Landscape Area	**16,300**	
Results:		
$(ET_o) \times (0.62) \times [(0.45 \times LA) + (1.0 - 0.45) \times SLA)]$	-	Gallons
	-	Cubic Feet
	-	HCF
	-	Acre-feet
	-	Millions of Gallons
MAWA calculation incorporating Effective Precipitation (Optional)		
Precipitation (Optional)		
ET_o of City from Appendix A	**51**	ET_o (inches/year)
Total Landscape Area	**16,300**	LA (ft^2)
Special Landscape Area	**0**	SLA (ft^2)
	11.5	Total annual precipitiation (inches/year)
Enter Effective Precipitation	**2.88**	Eppt (in/yr)(25% of total annual precipitation)
Results:		
$MAWA = [(ET_o - Eppt) \times (0.62)] \times [(0.45 \times LA) + ((1.0 - 0.45) \times SLA)]$	**219,313**	Gallons
	29,317.96	Cubic Feet
	293.18	HCF
	0.67	Acre-feet
	0.22	Millions of Gallons

Hydrozone	Select System From the Dropdown List click on cell below	Plant Water Use Type (s) (low, medium, high)	Plant Factor (PF)	Hydrozone Area (HA) (ft^2) Without SLA	Enter Irrigation Efficiency (IE)	(PF x HA (ft^2))/IE
Zone 1	Overhead Spray	Low	0.25	16,300	0.75	5,433
Zone 2						
Zone 3						
Zone 4						
Zone 5						
Zone 6						
Zone 7						
Zone 8						
Zone 9						
Zone 10						
Zone 11						
Zone 12						
Zone 13						
Zone 14						
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Zone 90						
Zone 91						
Zone 92						
Zone 93						
Zone 94						
Zone 95						
Zone 96						
Zone 97						
Zone 98						
Zone 99						
Zone 100						
						5,433
		SLA		0		0
			Sum	16,300		

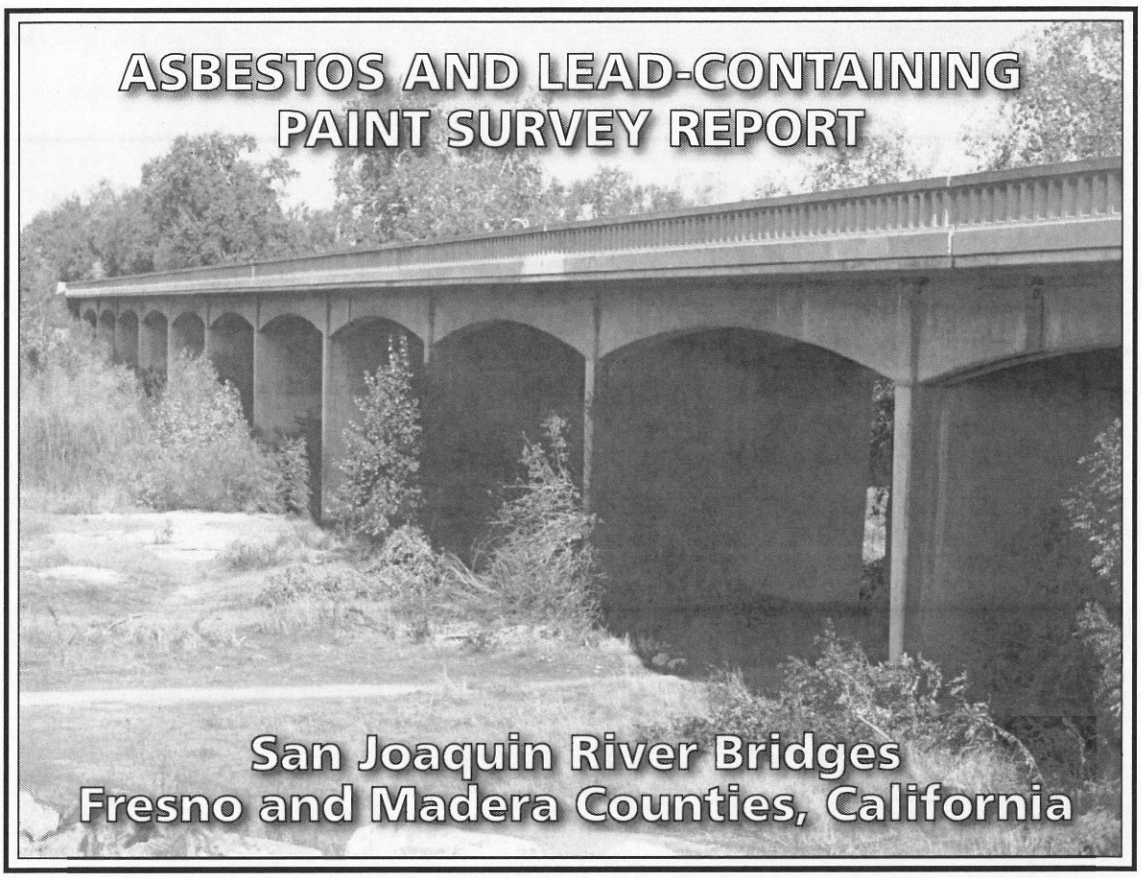
Results

MAWA = 219,313

ETWU = 162,454 Gallons
21,717 Cubic Feet
217.17 HCF
0.50 Acre-feet
0.16 Millions of Gallons

ETWU complies with MAWA

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT



San Joaquin River Bridges
Fresno and Madera Counties, California

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PLANNING 06/1410
855 M STREET, SUITE 200
FRESNO, CALIFORNIA 93721

Caltrans®

PREPARED BY:

GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742

GEOCON

GEOCON PROJECT NO. S9800-01-71
TASK ORDER NO. 71
E-FIS 06-1200-0114-1 (EA 06-0N9901)
CONTRACT NO. 06A1895

JANUARY 2016

GEOCON
CONSULTANTS, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. S9800-01-71
January 19, 2016

Clemens Goewert, Task Order Manager
California Department of Transportation
Environmental Planning 06/1410
855 M St., Suite 200
Fresno, California 93721

Subject: ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT
SAN JOAQUIN RIVER BRIDGES
FRESNO AND MADERA COUNTIES, CALIFORNIA
CONTRACT NO. 06A1895, E-FIS 06-1200-0114-1 (EA 06-0N9901)
TASK ORDER NO. 71

Dear Mr. Goewert:

In accordance with California Department of Transportation Contract No. 06A1895 and Task Order No. 71, we have performed an asbestos and lead-containing paint (LCP) survey of the subject bridges in Fresno and Madera Counties, California. Our scope of services included surveying two bridges for suspect asbestos-containing materials and LCP, collecting bulk samples, and submitting the samples to laboratories for analyses.

The accompanying report summarizes the services performed and laboratory analysis.

The contents of this report reflect the views of Geocon Consultants, Inc., who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if you have questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

David Watts, CAC No. 98-2404
Senior Project Scientist

John E. Juhrend, PE, CEG
Senior Engineer

(2 + 1 CD) Addressee

TABLE OF CONTENTS

ASBESTOS AND LEAD-CONTAINING PAINT SURVEY REPORT

1.0 INTRODUCTION

This asbestos and lead-containing paint (LCP) survey report was prepared by Geocon Consultants, Inc. under Caltrans Contract No. 06A1895, Task Order No. 71 (TO-71).

1.1 Project Description

The project consists of the San Joaquin River Main Channel Bridge (MCB) at Post Mile (PM) 33.3 and Overflow Channel Bridge (OCB) at PM 0.2 on Old Highway 41 in Fresno and Madera Counties, respectively, California. We performed asbestos and LCP survey activities of the structures. The approximate bridge locations are depicted on the Vicinity Map, Figure 1. The bridges are depicted on the Site Plans, Figures 2A and 2B.

1.2 General Objectives

The purpose of the scope of services outlined in TO-71 was to determine the presence and quantity of asbestos-containing building materials and LCP at the bridge locations prior to seismic retrofit activities. The information obtained from this investigation will be used by Caltrans for waste profiling, determining California Occupational Safety and Health Administration (Cal/OSHA) applicability, and coordinating asbestos and LCP disturbance activities.

> *It was not Geocon's intent during this inspection to conduct an evaluation of lead-based paint hazards in accordance with U.S. Department of Housing and Urban Development (HUD) guidelines.*

2.0 BACKGROUND

2.1 Asbestos

The Code of Federal Regulations (CFR), 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than* 1% asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of nonfriable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a California hazardous waste when friable, is classified as any manufactured material that contains *greater than* 1% asbestos by dry weight *and* is:

- Friable (can be crumbled, pulverized, or reduced to powder by hand pressure); or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding grinding, cutting or abrading; or
- Category II nonfriable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the Cal/OSHA asbestos standard contained in Title 8, California Code of Regulations (CCR) §1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing greater than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that must be addressed. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material (ACCM) as construction material that contains greater than 0.1% asbestos (Title 8, CCR 341.6).

2.2 Lead Paint

Construction activities (including demolition) that disturb materials or paints containing *any* amount of lead are subject to certain requirements of the Cal/OSHA lead standard contained in Title 8, CCR, §1532.1. Deteriorated paint is defined by Title 17, CCR, Division 1, Chapter 8, §35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a substrate. Demolition of a deteriorated LCP component would require waste characterization and appropriate disposal. Intact LCP on a component is currently accepted by most landfills and recycling facilities; however, contractors are responsible for segregating and characterizing waste streams prior to disposal.

For a solid waste containing lead, the waste is classified as California hazardous when: 1) the representative total lead content equals or exceeds the respective Total Threshold Limit Concentration (TTLC) of 1,000 milligrams per kilogram (mg/kg); or 2) the representative soluble lead content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) based on the standard Waste Extraction Test (WET). A waste has the potential for exceeding the lead STLC when the waste's total lead content is greater than or equal to ten times the respective STLC value since the WET uses a 1:10 dilution ratio. Hence, when total lead is detected at a concentration greater than or equal to 50 mg/kg, and assuming that 100 percent of the total lead is soluble, soluble lead analysis is required. Lead-containing waste is classified as "Resource, Conservation, and Recovery Act" (RCRA) hazardous, or Federal hazardous, when the representative soluble lead content equals or exceeds the Federal regulatory level of 5 mg/l based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability; however, for the purposes of this investigation, toxicity (i.e., lead concentration) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or other criteria. Waste that is classified as either California-hazardous or RCRA-hazardous requires management as a hazardous waste.

Potential hazards exist to workers who remove or cut through LCP coatings during demolition. Dust containing hazardous concentrations of lead may be generated during scraping or cutting materials coated with lead-containing paint. Torching of these materials may produce lead oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with LCP. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in Title 8, CCR, §1532.1.

2.3 As-Built Drawings and Previous Survey Activities

As-built drawings and previous asbestos survey reports were not available for our review.

3.0 SCOPE OF SERVICES

Mr. David Watts, a California-Certified Asbestos Consultant (CAC), certification No. 98-2404 (expiration September 16, 2016), and Certified Lead Paint Inspector/Assessor and Project Monitor with the California Department of Public Health (DPH), certification numbers I-1734 and M-1734 (expiration December 4, 2016), completed the asbestos and LCP survey activities at the project locations on November 20, 2015.

3.1 Asbestos

Suspect ACM were grouped into homogeneous areas with representative samples randomly collected from each. In addition, each potential ACM was evaluated for friability. A total of fourteen bulk asbestos samples representing six material types were collected.

Our procedures for inspection and sampling in accordance with TO-71 are discussed below:

- Collected bulk asbestos samples after first wetting friable suspect materials with a light mist of water. The samples were then cut from the substrate and transferred to labeled containers. Note that when multiple samples were collected, the sampling locations were distributed throughout the homogeneous area (spaces where the material was observed).
- Relinquished bulk asbestos samples under chain-of-custody protocol to EMSL Analytical, Inc., a California-licensed and Caltrans-approved subcontractor, for asbestos analysis in accordance with United States Environmental Protection Agency (EPA) Test Method 600/R-93/116 using polarized light microscopy (PLM). EMSL is a laboratory accredited by the National Institute of Standards and Technology National Voluntary Laboratory Accreditation Program (NIST-NVLAP) for bulk asbestos fiber analysis. The laboratory analyses were requested on a turnaround period of five days.

Sample group identification numbers, material descriptions, approximate quantities, friability assessments, and photo references are summarized on Table 1. Approximate sample locations are presented on Figures 2A and 2B. Materials represented by the samples collected are shown in the attached photographs.

3.2 Lead Paint

A total of four bulk paint samples were collected from suspect LCP observed at the project locations. Mr. Watts field-composited the suspect LCP samples into two paint schemes prior to submittal to the laboratory. Our sampling procedures in accordance with TO-71 are discussed below:

- Collected bulk samples of suspect LCP using techniques presented in HUD guidelines. In addition, the painted areas were evaluated for evidence of deterioration such as flaking or cracking.
- Relinquished bulk LCP samples under chain-of-custody protocol to Advanced Technology Laboratories, a California-licensed and Caltrans-approved subcontractor, for total lead analysis in accordance with EPA Test Method 6010B. Advanced Technology Laboratories is accredited by the DPH for lead analysis. The laboratory analyses were requested on a turnaround period of five days.

Paint sample identification numbers, descriptions, peeling and flaking quantities, and photo references are summarized on Table 2. Approximate sample locations are presented on Figures 2A and 2B. Materials represented by the samples collected are shown in the attached photographs.

4.0 INVESTIGATIVE RESULTS

4.1 Asbestos

No asbestos was detected in samples of the suspect materials collected during our survey. A summary of the analytical laboratory test results for asbestos is presented on Table 1. Reproductions of the laboratory report and chain-of-custody documentation are in Appendix A.

4.2 Lead Paint

Our samples representing intact beige graffiti abatement applied to the Main and Overflow Channel Bridges exhibited representative total lead concentrations of 31 and 42 mg/kg, respectively.

A summary of the analytical laboratory test results for paint is presented on Table 2. Reproductions of the laboratory reports and chain-of-custody documentation are in Appendix A.

5.0 RECOMMENDATIONS

Based on our findings, we recommend the following:

5.1 Asbestos

Since no asbestos was detected in the samples collected during our survey, the Cal/OSHA asbestos standard does not apply for planned activities. In addition, demolition debris would not be considered a California hazardous waste based on asbestos content.

Written notification to the San Joaquin Valley Unified Air Pollution Control District is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not).

5.2 Lead Paint

Paints identified during our survey would not be classified as California or Federal hazardous based on lead content.

We recommend that all paints at the project location be treated as lead-containing for purpose of determining the applicability of the Cal/OSHA lead standard during maintenance, renovation, and demolition activities. This recommendation is based on LCP sample results and the fact that lead was a common ingredient of paints manufactured before 1978 and is still an ingredient of some paints. In accordance with Title 8, CCR, §1532.1(p), written notification to the nearest Cal/OSHA district office is required at least 24 hours prior to certain lead-related work. Compliance and training requirements regarding construction activities where workers may be exposed to lead are presented in Title 8, CCR, §1532.1, subsections (e) and (l), respectively.

6.0 REPORT LIMITATIONS

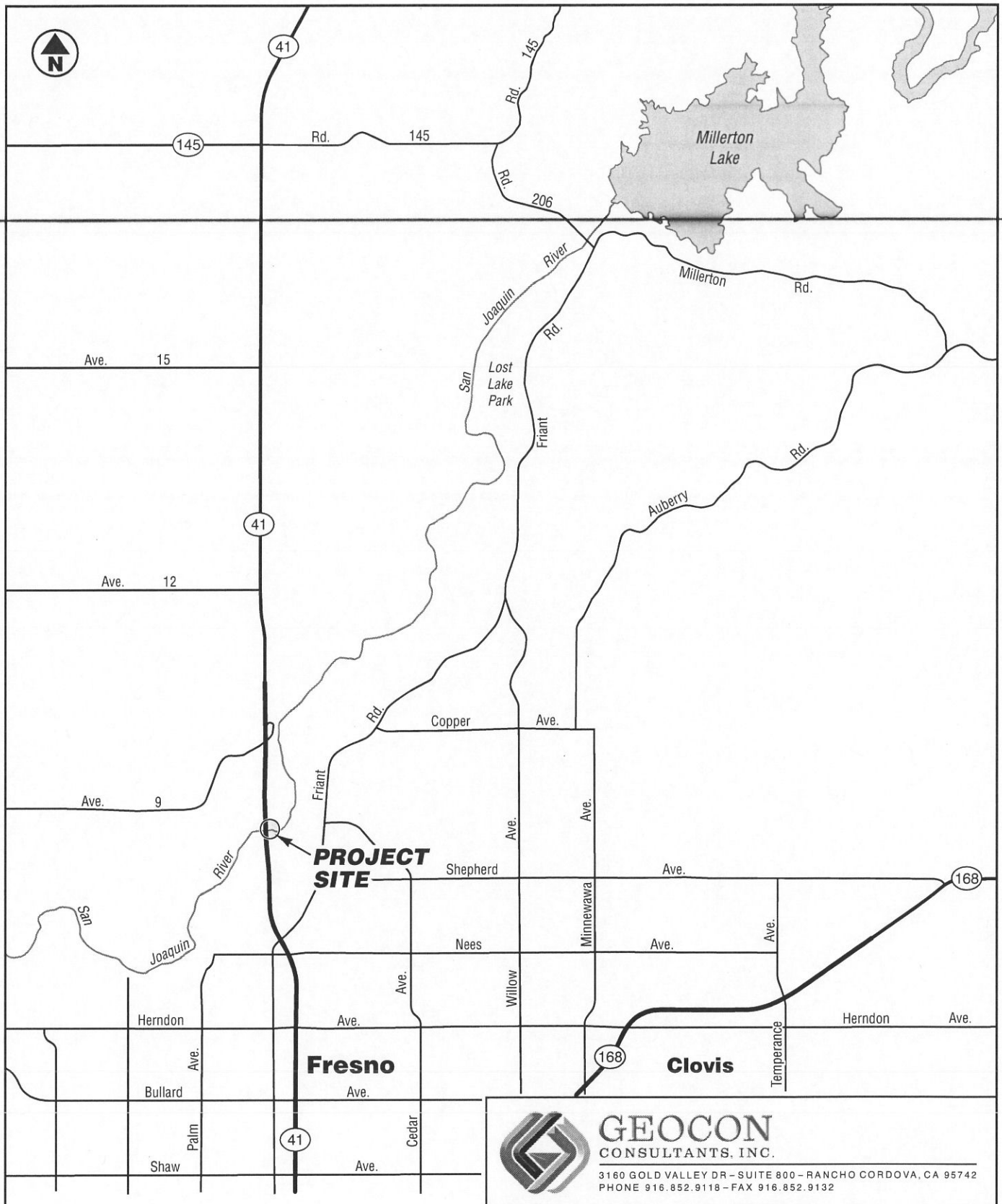
This asbestos and LCP survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos and LCP in structures. The survey addressed only the structures identified in Section 1.1. Due to the nature of structure surveys, asbestos and LCP use, and laboratory analytical limitations, some ACM or LCP at the project location may not have been identified. Spaces such as cavities, voids, crawlspaces, and pipe chases may have been concealed to our investigator. Previous renovation work may have concealed or covered spaces or materials or may have partially demolished materials and left debris in inaccessible areas. Additionally, renovation activities may have partially replaced ACM with indistinguishable non-ACM. Asbestos and/or LCP may exist in areas of the structures that were not accessible or sampled in conjunction with this TO.

During renovation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of renovation/demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If suspect ACM and/or LCP are found, additional sampling and analysis should be performed to determine if the materials contain asbestos or lead.

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

The contents of this report reflect the views of the author who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification or regulation.



GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

San Joaquin River Bridges

Fresno & Madera Counties, California	**VICINITY MAP**	
GEOCON Proj. No. S9800-01-71		
Task Order No. 71	January 2016	Figure 1

LEGEND:

- ● Approximate Asbestos Sample Location
- ▲ Approximate Paint Sample Location

0 120

Scale in Feet

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San Joaquin River Bridges

Fresno & Madera Counties, California	**SITE PLAN Main Channel Bridge**	
GEOCON Proj. No. S9800-01-71		
Task Order No. 71	January 2016	Figure 2A

LEGEND:

- ● Approximate Asbestos Sample Location
- ▲ Approximate Paint Sample Location

0 30

Scale in Feet

GEOCON
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San Joaquin River Bridges		
Fresno & Madera Counties, California	**SITE PLAN** **Overflow Channel Bridge**	
GEOCON Proj. No. S9800-01-71		
Task Order No. 71	January 2016	Figure 2B

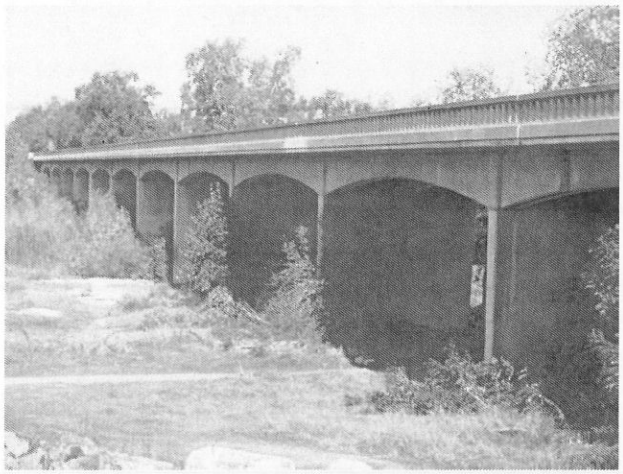

Photo 1 – Main Channel Bridge at PM 33.3 on Old Highway 41 in Fresno County, California

Photo 2 – Main Channel Bridge deck and barriers

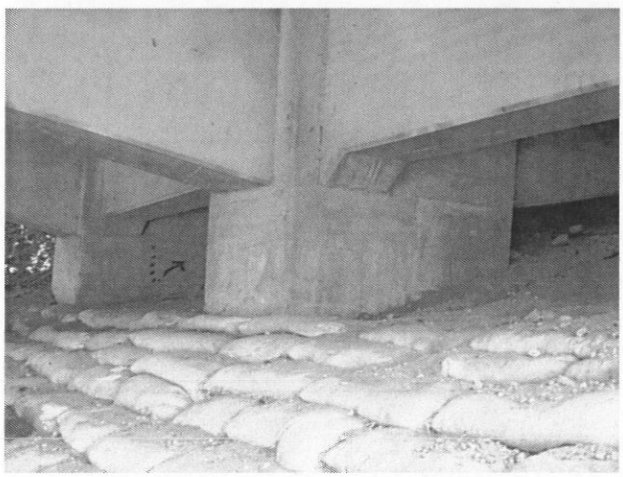

Photo 3 – Main Channel Bridge abutment

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

PHOTOGRAPHS 1, 2, & 3		
San Joaquin River Bridges Fresno and Madera Counties, California		
S9800-01-71		January 2016

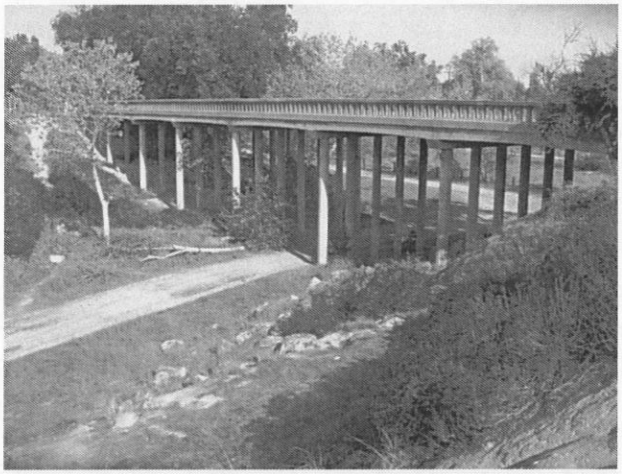

Photo 4 – Overflow Channel Bridge at PM 0.2 on old Highway 41 in Madera County, California

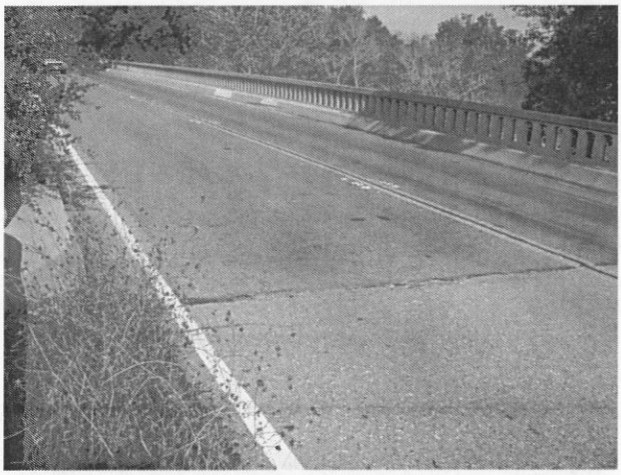

Photo 5 – Overflow Channel Bridge deck and barriers

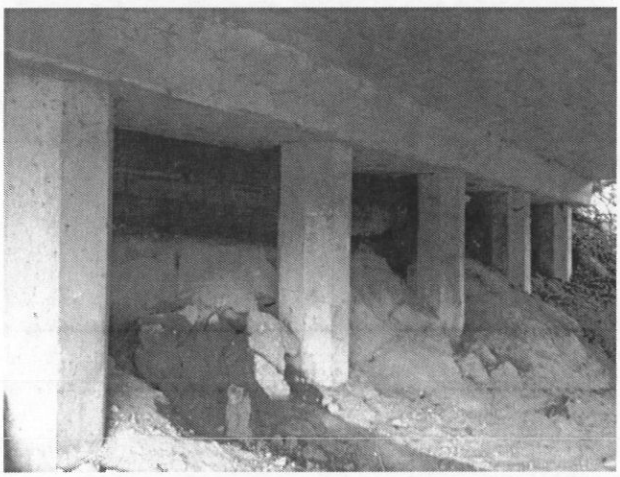

Photo 6 – Overflow Channel Bridge abutment

GEOCON
CONSULTANTS, INC.
3160 GOLD VALLEY DR – SUITE 800 – RANCHO CORDOVA, CA 95742
PHONE 916.852.9118 – FAX 916.852.9132

PHOTOGRAPHS 4, 5, & 6		
San Joaquin River Bridges Fresno and Madera Counties, California		
S9800-01-71		January 2016

TABLE 1
SUMMARY OF ASBESTOS ANALYTICAL RESULTS
SAN JOAQUIN RIVER BRIDGES
CALTRANS CONTRACT 06A1895, TASK ORDER NO. 71, 06-1200-0114-1 (EA 06-0N9901)
FRESNO AND MADERA COUNTIES, CALIFORNIA

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Bridge No.	Sample Group No.	Description of Material	Approximate Quantity	Friable	Site Photos	Asbestos Content
MCB	MCB-1	Concrete	NA	NA	1 through 3	ND
	MCB-2	Asphalt	NA	NA	2	ND
	MCB-3	Textured paint (graffiti abatement)	NA	NA	2	ND
OCB	OCB-1	Concrete	NA	NA	4 through 6	ND
	OCB-2	Asphalt	NA	NA	5	ND
	OCB-3	Textured paint (graffiti abatement)	NA	NA	5	ND

Notes:
MCB = Main Channel Bridge
OCB = Overflow Channel Bridge
NA = Not applicable (asbestos not detected)
ND = Not detected

TABLE 2
SUMMARY OF PAINT ANALYTICAL RESULTS - TOTAL LEAD
SAN JOAQUIN RIVER BRIDGES
CALTRANS CONTRACT 06A1895, TASK ORDER NO. 71, 06-1200-0114-1 (EA 06-0N9901)
FRESNO AND MADERA COUNTIES, CALIFORNIA

Bridge No.	Sample No.	Paint Description	Approximate Quantity Peeling/Flaking	Site Photos	Total Lead (mg/kg)
MCB	MCB-P1A/B	Beige graffiti abatement	Intact	2	31
OCB	OCB-P1A/B	Beige graffiti abatement	Intact	4	42

Notes:
MCB = Main Channel Bridge
OCB = Overflow Channel Bridge
mg/kg = milligrams per kilogram

APPENDIX A

EMSL Analytical, Inc.
464 McCormick Street San Leandro, CA 94577
Tel/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com / sanleandrolab@emsl.com

EMSL Order: 091520720
Customer ID: GECN21
Customer PO: 06A1895
Project ID:

Attention: Dave Watts
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550

Phone: (925) 785-5340
Fax: (925) 371-5915
Received Date: 12/13/2015 8:00 AM
Analysis Date: 12/21/2015
Collected Date: 11/20/2015

Project: 06A1895/OLD HWY 41/S9800-01-71

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
MCB-1A *091520720-0001*	CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 25% Ca Carbonate 15% Gypsum <1% Mica 20% Non-fibrous (Other)	None Detected
MCB-1B *091520720-0002*	CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 25% Ca Carbonate 15% Gypsum <1% Mica 20% Non-fibrous (Other)	None Detected
MCB-1C *091520720-0003*	CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 25% Ca Carbonate 15% Gypsum 20% Non-fibrous (Other)	None Detected
MCB-2A *091520720-0004*	ASPHALT	Black Non-Fibrous Homogeneous	<1% Cellulose	40% Quartz 30% Matrix 30% Non-fibrous (Other)	None Detected
MCB-2B *091520720-0005*	ASPHALT	Black Non-Fibrous Homogeneous		40% Quartz 15% Gypsum 30% Matrix 15% Non-fibrous (Other)	None Detected
MCB-3A *091520720-0006*	TEXTURED PAINT	Gray Non-Fibrous Homogeneous		20% Quartz 60% Matrix 20% Non-fibrous (Other)	None Detected
MCB-3B *091520720-0007*	TEXTURED PAINT	Gray Non-Fibrous Homogeneous		20% Ca Carbonate 15% Gypsum 60% Matrix 5% Non-fibrous (Other)	None Detected
OCB-1A *091520720-0008*	CONCRETE	Gray Non-Fibrous Homogeneous		45% Quartz 20% Ca Carbonate 15% Gypsum <1% Mica 20% Non-fibrous (Other)	None Detected
OCB-1B *091520720-0009*	CONCRETE	Gray Non-Fibrous Homogeneous		45% Quartz 20% Ca Carbonate 15% Gypsum <1% Mica 20% Non-fibrous (Other)	None Detected
OCB-1C *091520720-0010*	CONCRETE	Gray Non-Fibrous Homogeneous		45% Quartz 20% Ca Carbonate 15% Gypsum 20% Non-fibrous (Other)	None Detected
OCB-2A *091520720-0011*	ASPHALT	Black Non-Fibrous Homogeneous		40% Quartz 30% Matrix 30% Non-fibrous (Other)	None Detected
OCB-2B *091520720-0012*	ASPHALT	Black Non-Fibrous Homogeneous		40% Quartz 30% Matrix 30% Non-fibrous (Other)	None Detected

Initial Report From: 12/21/2015 12:28:34

EMSL Analytical, Inc.
464 McCormick Street San Leandro, CA 94577
Tel/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com / sanleandrolab@emsl.com

EMSL Order: 091520720
Customer ID: GECN21
Customer PO: 06A1895
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
OCB-3A	TEXTURED PAINT	Gray Non-Fibrous		15% Quartz 20% Ca Carbonate	None Detected
091520720-0013		Homogeneous		50% Matrix 15% Non-fibrous (Other)	
OCB-3B	TEXTURED PAINT	Gray Non-Fibrous		40% Quartz 50% Matrix	None Detected
091520720-0014		Homogeneous		10% Non-fibrous (Other)	

Analyst(s)
Cecilia Yu (5)
Matthew Batongbacal (9)

Chris Dojlidko, Laboratory Manager
or Other Approved Signatory

Initial Report From: 12/21/2015 12:28:34

OrderID: 091520720

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (*Lab Use Only*): 091520070

06A1895

EMSL ANALYTICAL, INC.
4640 NORTHGATE BLVD. #160
SACRAMENTO, CA 95834
PHONE: (916) 921-8251
FAX: (916) 921-8253

Company: GEOCON	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 6671 BRISA ST	
City: LIVERMORE, **State/Province:** CA	**Zip/Postal Code:** 94550 **Country:** USA
Report To (Name): D. WATTS	**Fax #:** 925-371-5915
Telephone #: 925-371-5900	**Email Address:** WATTS@GEOCONINC.COM
Project Name/Number: OLD HWY 41 / 9800-01-71	
Please Provide Results: ☐ Fax ☒ Email	**Purchase Order:** 06A1895 **U.S. State Samples Taken:** CA

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

*For TEM Air 3 hours/6 hours, please call ahead to schedule *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ **4-4.5hr TAT** (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ **Check For Positive Stop – Clearly Identify Homogenous Group**

Samplers Name: D. WATTS **Samplers Signature:**

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
MCB-1A-C	CONCRETE	NA	20 NOV 2015
-2A/B	ASPHALT		
-3A/B	TEXTURED PAINT		
OCB-1A-C	CONCRETE		
-2A/B	ASPHALT		
-3A/B	TEXTURED PAINT		

Client Sample # (s): **Total # of Samples:** 14

Relinquished (Client): **Date:** 10 DEC 2015 **Time:** 1800

Received (Lab): COC G30 **Date:** 12.13.15 10 DEC 2015 **Time:** 8:00am 1800

Comments/Special Instructions: COURIER

ADVANCED TECHNOLOGY LABORATORIES

December 21, 2015

Dave Watts
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5273
Fax:(925) 371-5915

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1504262
Client Reference : OLD HWY 41, S9800-01-71

Enclosed are the results for sample(s) received on December 14, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

Eddie Rodriguez
Laboratory Director

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : OLD HWY 41, S9800-01-71
6671 Brisa Street	Report To : Dave Watts
Livermore , CA 94550	Reported : 12/21/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MCB-P1A/B	1504262-01	Paint	11/20/15 0:00	12/14/15 9:05
OCB-P1A/B	1504262-02	Paint	11/20/15 0:00	12/14/15 9:05

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : OLD HWY 41, S9800-01-71
6671 Brisa Street	Report To : Dave Watts
Livermore , CA 94550	Reported : 12/21/2015

Total Metals by ICP-AES EPA 6010B

Analyte: Lead **Analyst: RR**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504262-01	MCB-P1A/B	**31**	mg/kg	20	10	B5L0358	12/17/2015	12/17/15 15:21	D2
1504262-02	OCB-P1A/B	**42**	mg/kg	8.0	2	B5L0358	12/17/2015	12/17/15 15:23	D2

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : OLD HWY 41, S9800-01-71
6671 Brisa Street	Report To : Dave Watts
Livermore , CA 94550	Reported : 12/21/2015

QUALITY CONTROL SECTION

Total Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0358 - EPA 3050B_S									
Blank (B5L0358-BLK1)					Prepared: 12/17/2015 Analyzed: 12/17/2015				
Lead	ND	1.0			NR				
LCS (B5L0358-BS1)					Prepared: 12/17/2015 Analyzed: 12/17/2015				
Lead	44.6481	1.0	50.0000		89.3	80 - 120			
LCS Dup (B5L0358-BSD1)					Prepared: 12/17/2015 Analyzed: 12/17/2015				
Lead	45.6779	1.0	50.0000		91.4	80 - 120	2.28	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : OLD HWY 41, S9800-01-71
6671 Brisa Street	Report To : Dave Watts
Livermore , CA 94550	Reported : 12/21/2015

Notes and Definitions

D2	Sample required dilution due to high concentration of non-target analyte.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:
(1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
(2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
(3) Results are wet unless otherwise specified.

CHAIN OF CUSTODY RECORD

ADVANCED TECHNOLOGY LABORATORIES
3275 Walnut Ave., Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

P.O.#: 06A1895 Quote #:

Logged By: Date:

NOTE: Please include your Quote No. to ensure proper pricing of your project.

FOR LABORATORY USE ONLY:

Method of Transport: ☐ Client ☐ ATL ☐ FedEx ☐ OnTrac ☑ GSO ☐ Other:

Sample Condition Upon Receipt:
1. CHILLED Y☐ N☑
2. HEADSPACE (VOA) Y☐ N☐
3. CONTAINER INTACT Y☑ N☐
4. CUSTODY SEAL Y☐ N☑
5. # OF SPLS MATCH COC Y☑ N☐
6. PRESERVED Y☐ N☑

Client: Geocon Consultants, Inc.
Attn: D. WATTS
Address: 6671 Brisa Street
City: Livemore State: CA Zip Code: 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

Project Name: OLD HWY 41 Project #: S9800-01-71 Sampler: (Printed Name) D. WATTS (Signature) [signature]

Relinquished by: (Signature and Printed Name)	Date	Time	Received by: (Signature and Printed Name)	Date	Time
[signature]	12/10/15	1800	GSO	12/10/15	1800
			[signature]	12/14/15	09:05

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: D. WATTS 12/10/15
Print Name Date
[signature]
Signature

Send Report To: Attn: SEE "CLIENT" Co: Addr: City: State: Zip:

Bill To: Attn: → Co: Addr: City: State: Zip:

Special Instructions/Comments: PAINT CHIPS - Pb
Anticipate Soluble Requests

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
Storage Fees (applies when storage is requested):
- Sample : $2.00 / sample / mo (after 45 days)
- Records : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested; SPECIFY APPROPRIATE MATRIX

ITEM	Lab No.	Sample I.D. / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal) - Pb	8015B (GRO) / 8021 (BTEX)	8015B (DRO)	TITLE 22 / CAM 17 (6010/7000)	PAINT	SEDIMENT	SOLID	SOIL	DRINKING WATER	GROUND WATER	WASTEWATER	STORMWATER	AQUEOUS	TAT	#	Type	PRESERVATION	REMARKS
	1504262-1	MCB-P1A/B	11/20/15	VAR					X				X									5-Day	1	Bg P		GA
	↓ -2	OCB-P1A/B	↓	↓					↓				↓									↓	↓	↓		GA

QA/QC: RTNE ☐ CT ☒ Legal ☐ SWRCB Logcode ☐ OTHER

TAT starts 8 a.m. following day if samples received after 5 p.m.

TAT: ☐ A= Overnight ≤ 24 hrs ☐ B= Emergency Next workday ☐ C= Critical 2 Workdays ☐ D= Urgent 3 Workdays ☐ E= Routine 7 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

v. 2010-0707 DISTRIBUTION: **White** with report, **Yellow** to folder, **Pink** to submitter.