

**Meeting of the Central Valley Flood Protection Board  
April 27, 2012**

**Staff Report**

**California Department of Transportation, District 10  
Replacement of Bridge at Mariposa Road over Duck Creek, San Joaquin County**

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**1.0 – ITEM**

Consider approval of Permit No. 18718 (Attachment B).

**2.0 – APPLICANT**

California Department of Transportation (Caltrans), District 10, San Joaquin County.

**3.0 – LOCATION**

The project is located at the Mariposa Road crossing of Duck Creek, approximately 1,000 feet west of State Route 99, in the City of Stockton (San Joaquin County, see Attachment A).

**4.0 – DESCRIPTION**

This project is part of Caltrans plan to widen State Route 99. Applicant proposes to remove the existing Duck Creek Bridge at Mariposa Road (bridge No. 29C-0194), and replace it with a new single-span, cast-in-place concrete bridge (Bridge No. 29C-0451). The new bridge will have a span of 67.0 feet long and 105.8 feet wide.

**5.0 – PROJECT ANALYSIS**

The overall design of the proposed project, described in Section 4.0, is found to be in compliance with Title 23 standards as described in Sections 5.1 and 5.2 below. The new structure will allow for increased traffic flow through the area. See Attachment C for proposed bridge general plan.

## **5.1 – Hydraulic Analysis**

The model used for the one-dimensional hydraulic analysis was the Hydrologic Engineering Center's River Analysis System (HEC-RAS). The roughness coefficient of 0.034 was used for both existing and proposed conditions. The analysis included a scenario for a 100-yr event with a design flow of 900-cfs based on the Design Flood flows as per CVFPB and Corps guidelines. The channel is concrete-lined at this location; therefore the analysis concludes that scouring is not critical.

According to the modeling results, the water surface elevation (WSE) during a 100-yr flow will be 25.5 ft, with an average velocity of 3.9 ft/s and 3.3 feet of freeboard (see Attachment D). The analysis indicates that scouring is not critical.

The proposed project will convey the design flow without significant impact or damage to either the existing levee or flood plain. The hydraulic impact is negligible on the floodway for the proposed bridge project.

## **5.2 – Geotechnical Analysis**

Potential liquefaction is considered to be insignificant at the proposed project site due to low ground water level and ground motion magnitude. The project is located in an area where asbestos is not found in natural form. The subsurface materials at the proposed site consisted of loose to very dense sands and silts with varying clay and gravel contents. Isolated clayey soils were encountered.

Staff reviewed the design plans and concluded that this project does not bear any significant geotechnical impacts on the floodway. All work will be done in a manner that does not pose a threat to the structural integrity of the channel, structures, or floodway. Earthwork will be completed in compliance with Permit No. 18718 (Attachment B) and Title 23 Standards.

## **6.0 – AGENCY COMMENTS AND ENDORSEMENTS**

The comments and endorsements associated with this project, from all pertinent agencies are shown below:

- The San Joaquin County Flood Control and Water Conservation District endorses the project (see Attachment E).

- The U.S. Army Corps of Engineers 208.10 comment letter has not been received for this application. Staff anticipates receipt of a letter indicating that the USACE District Engineer has no objection to the project, subject to conditions. Upon receipt of the letter, staff will review to ensure conformity with the permit language and incorporate it into the permit as Exhibit A.

## **7.0 – CEQA ANALYSIS**

Board staff has prepared the following CEQA findings:

The Board, as a responsible agency under CEQA, has reviewed Draft Environmental Impact Report/Environmental Assessment (DEIR) (SCH Number: 2002022027, March 2008) and the Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact (FEIR) (September 2008) and Mitigation Measures for the South Stockton Six-Lane Project prepared by the lead agency, Caltrans. These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvpfb.ca.gov/meetings/2012/04-27-2012.cfm> under a link for this agenda item. These documents are also available for review in hard copy at the Board and the Caltrans District offices.

Caltrans has determined that the project would not have a significant effect on the environment and certified the project on October 28, 2008 and subsequently filed a Notice of Determination on November 3, 2008 with the State Clearinghouse. Board staff finds that although the proposed project could have a potentially significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. The project proponent has incorporated mandatory mitigation measures into the project plans to avoid identified impacts or to mitigate such impacts to a point where no significant impacts will occur. These mitigation measures are included in the project proponent's FEIR and address impacts to aesthetics, biological resources, paleontological resources, hazards and hazardous materials, emergency services, water quality and storm water runoff, traffic and transportation. The description of the mitigation measures are further described in the adopted FEIR.

## **8.0 – SECTION 8610.5 CONSIDERATIONS**

1. Evidence that the Board admits into its record from any party, State or local public agency, or nongovernmental organization with expertise in flood or flood plain management:

The Board will make its decision based on the evidence in the permit application and attachments, this staff report, and any other evidence presented by any individual or group.

2. The best available science that related to the scientific issues presented by the executive officer, legal counsel, the Department or other parties that raise credible scientific issues.

The accepted industry standards for the work proposed under this permit as regulated by Title 23 have been applied to the review of this permit.

3. Effects of the decision on the entire State Plan of Flood Control:

This project does not have significant impacts on the State Plan of Flood Control, as the project does not impair the structural or hydraulic functions of the system.

4. Effects of reasonable projected future events, including, but not limited to, changes in hydrology, climate, and development within the applicable watershed:

There are no foreseeable projected future events that would impact this project.

### **9.0 – STAFF RECOMMENDATION**

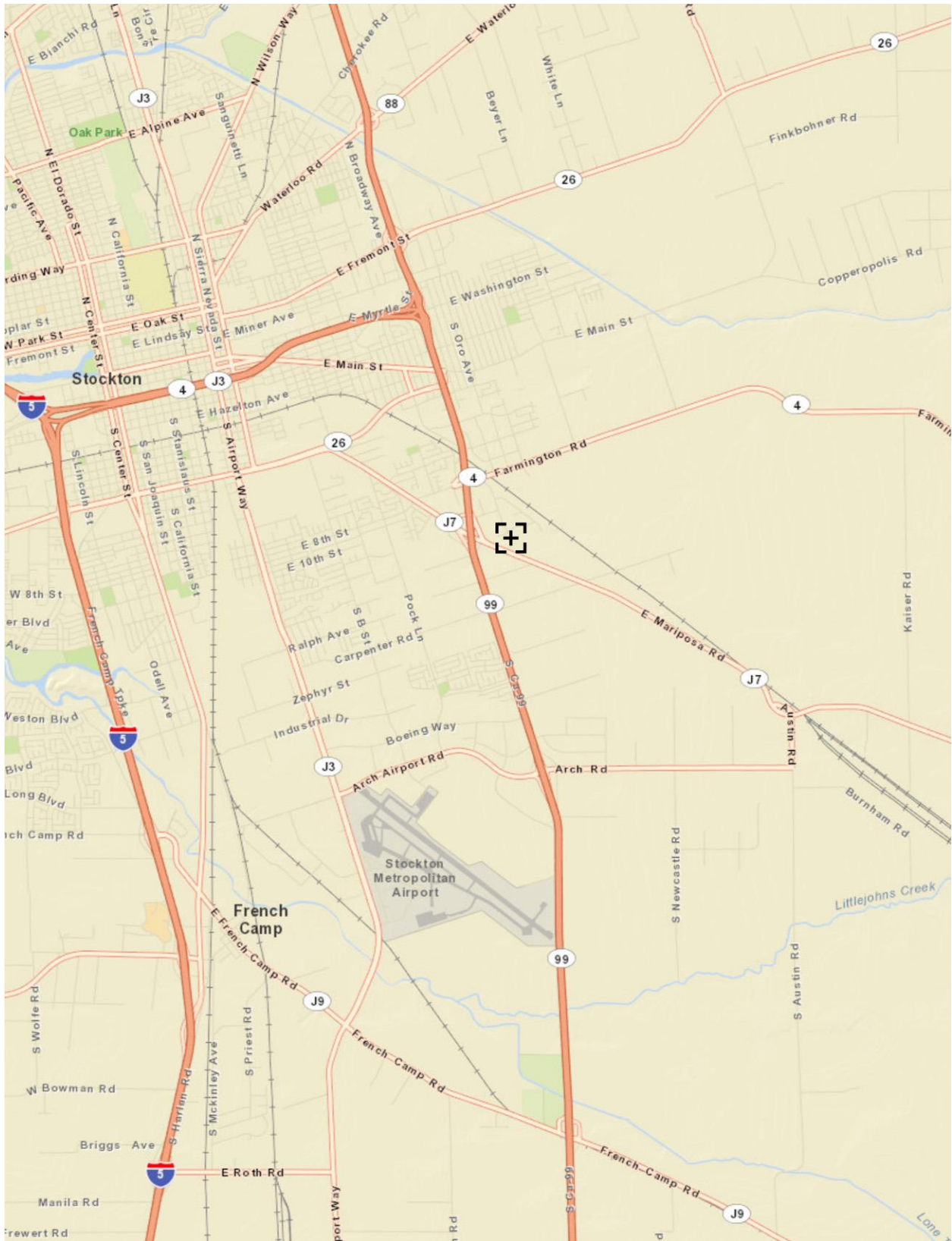
Staff recommends that the Board adopt the CEQA findings and approve the permit, conditioned upon receipt of a U.S. Army Corps of Engineers comment letter indicating that the District Engineer has no objection to the project, subject to conditions, and direct staff to file a Notice of Determination with the State Clearinghouse.

### **10.0 – LIST OF ATTACHMENTS**

- A. Location Map
- B. Draft Permit No. 18718
- C. General and Foundation Plan
- D. Hydraulic Summary Table and Profile
- E. Letter of Endorsement

Report Preparation:	Sergio Guillen, P.E., Atkins
Design Review:	Sungho Lee, Ph D.
Environmental Review:	James Herota, E.S.
Document Review:	David R. Williams, P.E. – Senior Engineer, WR Eric Butler, P. E. – Supervising Engineer, WR

ATTACHMENT A – LOCATION MAP





**DRAFT**

STATE OF CALIFORNIA  
THE RESOURCES AGENCY  
**THE CENTRAL VALLEY FLOOD PROTECTION BOARD**

**PERMIT NO. 18718 BD**

**This Permit is issued to:**

Caltrans  
2015 E. Shields Avenue  
Suite 100  
Fresno, California 93726

Removal of the existing Duck Creek Bridge at Mariposa Road and the construction of a new 105.8 +/- wide simple span Cast-In-Place concrete bridge (Br.No.29c-0451) at Mariposa Road The project is located at the Mariposa Road crossing of Duck Creek, approximately 1000 feet west of State Highway Route 99, in the City of Stockton, in San Joaquin County. (Section , T , R , MDB&M, San Joaquin County Flood Control and Water Conservation District, Duck Creek, San Joaquin 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: \_\_\_\_\_

\_\_\_\_\_  
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  
Page 1 of 4

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. 18718 BD**

**THIRTEEN:** All work approved by this permit shall be in accordance with the submitted drawings and specifications 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.

**FOURTEEN:** 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 Department of Water Resources or any other agency responsible for maintenance.

**FIFTEEN:** The permittee shall contact the Department of Water Resources, Inspection Branch by telephone, (916) 574-0609, and submit the enclosed postcard to schedule a preconstruction conference. The permittee shall also contact the Central Valley Flood Protection Board's Construction Supervisor at (916) 574-2646 for quality assurance inspection. Failure to do so at least 10 working days prior to start of work may result in delay of the project.

**SIXTEEN:** 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 flood fight, operation, maintenance, inspection, or emergency repair.

**SEVENTEEN:** The permittee should contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Branch, 1325 J Street, Sacramento, California 95814, telephone (916) 557-5250, as compliance with Section 10 of the Rivers and Harbors Act and/or Section 404 of the Clean Water Act may be required.

**EIGHTEEN:** The permittee shall be responsible for repair of any damages to the project levee and



other flood control facilities due to construction, operation, or maintenance of the proposed project.

**NINETEEN:** 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 Central Valley Flood Protection 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.

**TWENTY:** 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 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 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.

**TWENTY-ONE:** 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 and Department of Water Resources, at the permittee's or successor's cost and expense.

**TWENTY-TWO:** The permittee shall provide supervision and inspection services acceptable to the Central Valley Flood Protection Board. A professional engineer registered in the State of California shall certify that all work was inspected and performed in accordance with submitted drawings, specifications, and permit conditions.

**TWENTY-THREE:** Upon completion of the project, the permittee shall submit as-built drawings to: Department of Water Resources, Flood Project Inspection Section, 3310 El Camino Avenue, Suite Rm 256, Sacramento, California 95821.

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

**TWENTY-FIVE:** At all times during construction, at least one lane of the levee crown roadway shall be kept clear for vehicular access.

**TWENTY-SIX:** A temporary bench mark, set to a known datum, shall be placed at the project site during construction.

**TWENTY-SEVEN:** All cleared trees and brush shall be completely burned or removed from the floodway, and downed trees or brush shall not remain in the floodway during the flood season from November 1 to April 15.

**TWENTY-EIGHT:** Temporary staging, formwork, stockpiled material and/or equipment shall not remain in the floodway during the flood season from November 1st to April 15.

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

THIRTY: Trees, brush, sediment, and other debris shall be kept cleared from the bridge site and disposed of outside the floodway to maintain the design flow capacity and flowage area.

THIRTY-ONE: 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.

THIRTY-TWO: All debris generated by this project shall be disposed of outside the adopted plan of flood control and/or the flood control project works.

THIRTY-THREE: The mitigation measures approved by the CEQA lead agency and the permittee are found in its Mitigation and Monitoring Reporting Program (MMRP) adopted by the CEQA lead agency. The permittee shall implement all such mitigation measures.

THIRTY-FOUR: The permittee shall comply with all conditions set forth in the letter from the Department of the Army dated XXXX, 2012, which is attached to this permit as Exhibit A and is incorporated by reference.

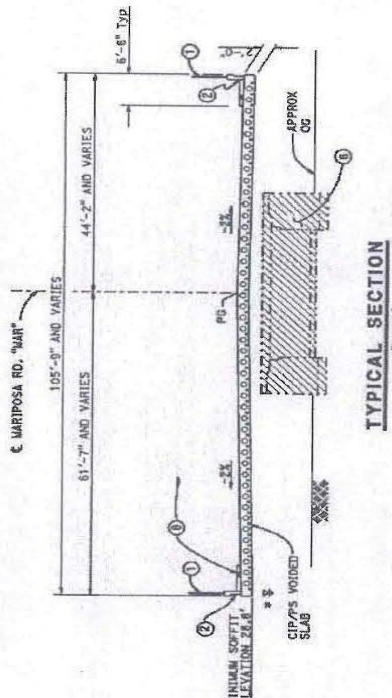
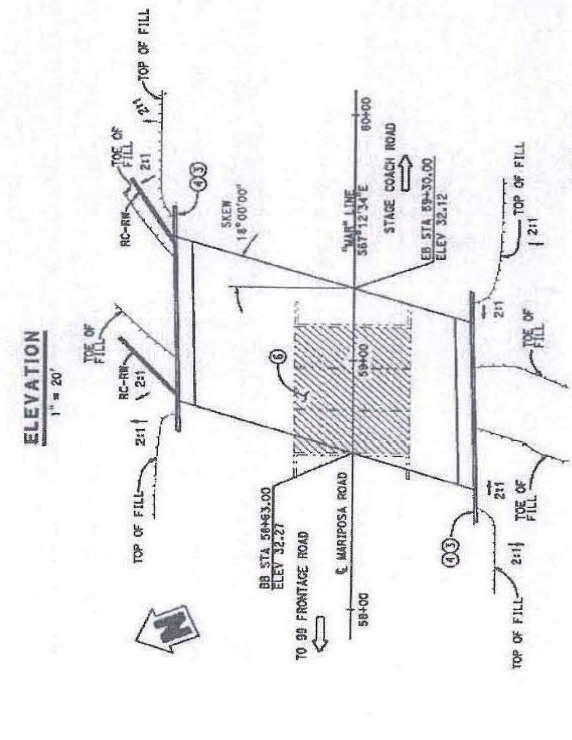
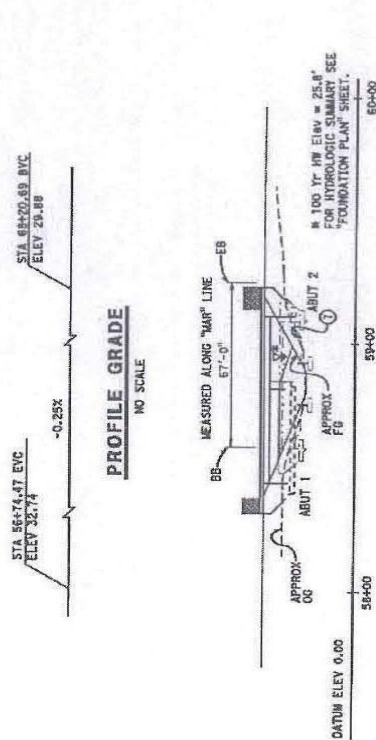
DATE	COUNTY	ROUTE	POST MILES	SHEET NO.
10	SJ	99		15

REGISTERED CIVIL ENGINEER DATE: 7/1/2009  
 DIVISION: CIVIL  
 PROJECT: SOUTH STOCKTON WIDENING DUCK CREEK BRIDGE (REPLACE)  
 PLANS APPROVAL DATE: 7/1/2009  
 THE SEAL IS VALID ONLY IF IT APPEARS ON THE ORIGINAL SET OF PLANS AND IS NOT REPRODUCED OR ALTERED IN ANY MANNER.

**DRAFT SP3&E**

**INDEX TO PLANS**

- GENERAL PLAN
- DESIGN PLAN
- FOUNDATION PLAN
- ABUTMENT 1 LAYOUT
- ABUTMENT 2 LAYOUT
- ABUTMENT DETAILS NO. 1
- ABUTMENT DETAILS NO. 2
- PIERCING WALL LAYOUT
- TYPICAL SLAB LAYOUT
- P/S SLAB VOID LAYOUT
- STRUCTURE APPROACH DRAINAGE DETAILS
- LOG OF TEST BORING 1 OF 4
- LOG OF TEST BORING 2 OF 4
- LOG OF TEST BORING 3 OF 4
- LOG OF TEST BORING 4 OF 4

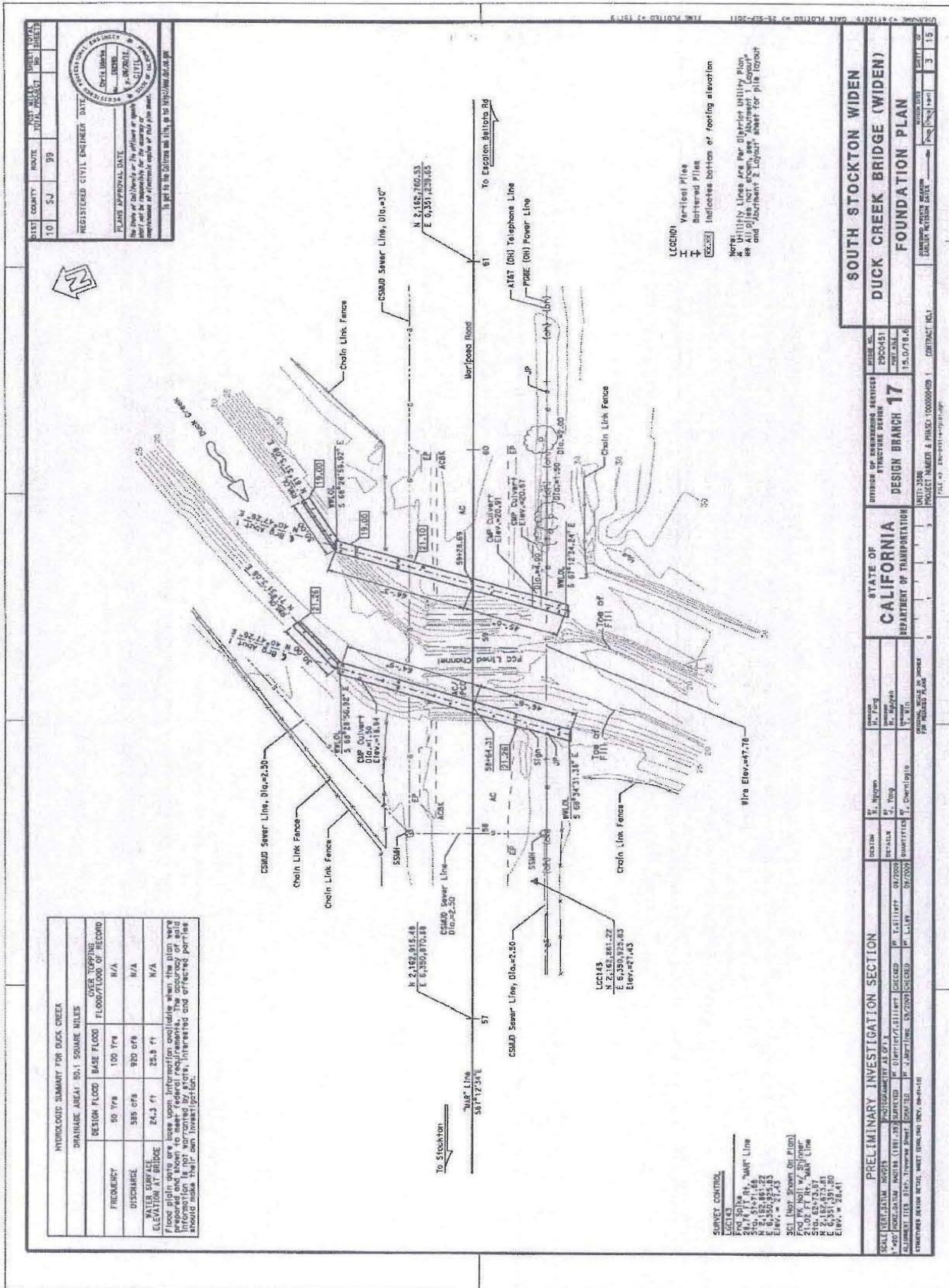


- Legend:**
- Indicates new structure
  - - - - - Indicates existing structure
  - /// Structure Removal
  - XXXXX Indicates rock slope protection, see "road Plans"

- Notes:**
- Chain Link Railing Type 7 (Mod)
  - Concrete Barrier Type 26 (Mod)
  - Point "Duck Creek bridge"
  - Point "P" No. 290-0451"
  - Existing bridge to be removed (P. No. 2900194)
  - Bridge removed LOCATION C
  - Existing channel lining to be removed
  - City of Stockton Communication lines (3" & conduit in 5' opening)

Note:  
 For GENERAL NOTES, STANDARD PLANS, AND  
 FILE DATA TABLE, see "GENERAL NOTES" sheet.

SOUTH STOCKTON WIDENING DUCK CREEK BRIDGE (REPLACE) GENERAL PLAN	
DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 17	PROJECT NO.: 19-341(01) CONTRACT NO.: 19-341(01)
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	CONTRACT NO.: 19-341(01)
PROJECT NUMBER & PHASE: 19-341(01)	CONTRACT NO.: 19-341(01)
DATE: 7/1/2009	CONTRACT NO.: 19-341(01)
PROJECT NUMBER & PHASE: 19-341(01)	CONTRACT NO.: 19-341(01)
PROJECT NUMBER & PHASE: 19-341(01)	CONTRACT NO.: 19-341(01)



DATE	COUNTY	ROUTE	POST MILES	SHEET TOTAL SHEETS
10	SJ	99		
REGISTERED CIVIL ENGINEER DATE				
PLANS APPROVAL DATE				

OFFICE OF ENGINEERING SERVICES		PROJECT NUMBER & PHASE: 1000000001 - CONTRACT NO. 15.0.018.0
STATE OF CALIFORNIA		DESIGN BRANCH 17
DEPARTMENT OF TRANSPORTATION		
PRELIMINARY INVESTIGATION SECTION		
SCALE: HORIZONTAL: AS SHOWN	VERTICAL: AS SHOWN	
DATE: 12/11/07	DATE: 03/20/08	
BY: J. J. JENSEN	BY: J. J. JENSEN	
BY: J. J. JENSEN	BY: J. J. JENSEN	
BY: J. J. JENSEN	BY: J. J. JENSEN	
BY: J. J. JENSEN	BY: J. J. JENSEN	

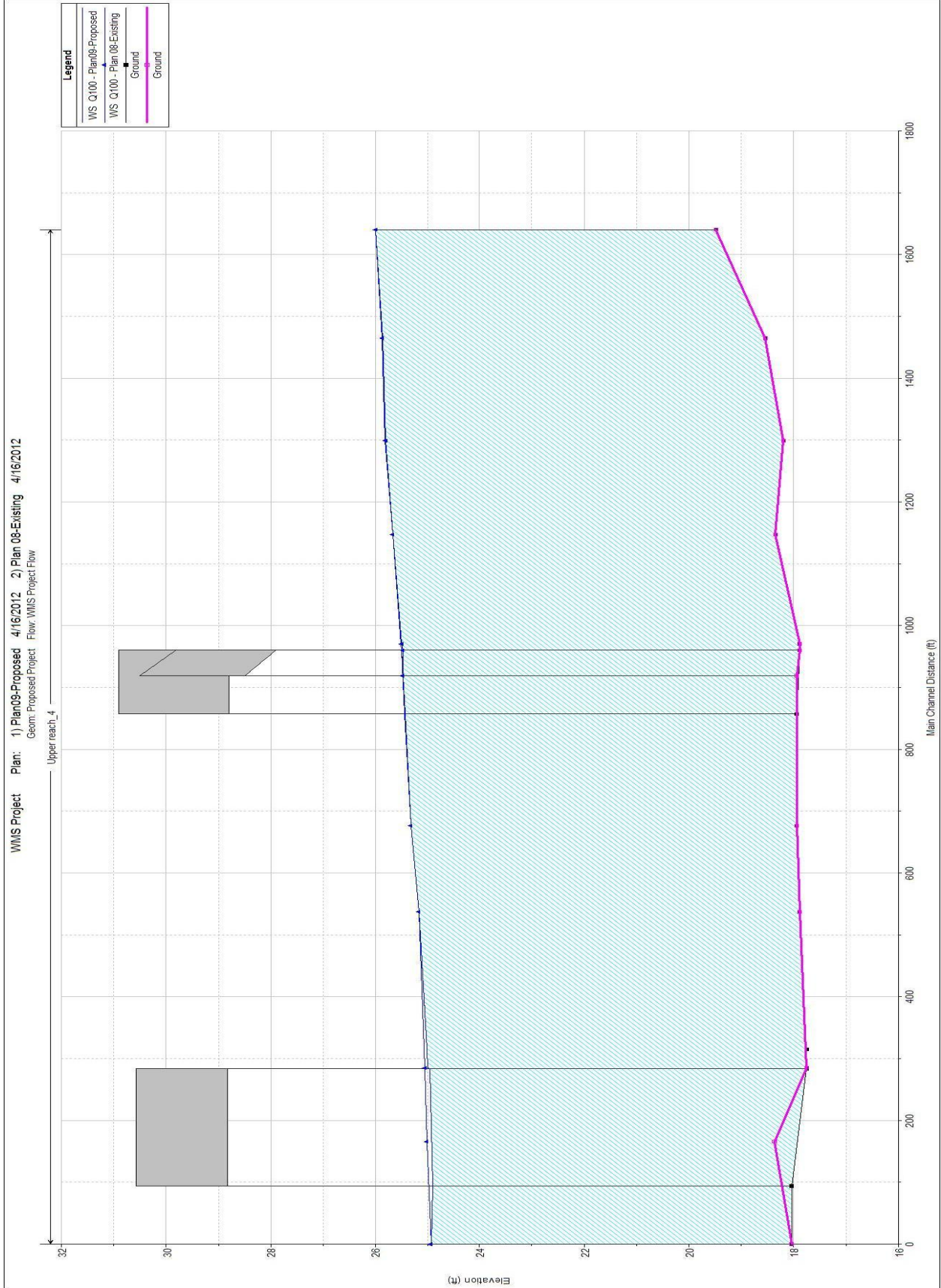
SOUTH STOCKTON WIDEN		PROJECT NUMBER & PHASE: 1000000001 - CONTRACT NO. 15.0.018.0
DUCK CREEK BRIDGE (WIDEN)		DESIGN BRANCH 17
FOUNDATION PLAN		
PRELIMINARY INVESTIGATION SECTION		
SCALE: HORIZONTAL: AS SHOWN	VERTICAL: AS SHOWN	
DATE: 12/11/07	DATE: 03/20/08	
BY: J. J. JENSEN	BY: J. J. JENSEN	
BY: J. J. JENSEN	BY: J. J. JENSEN	
BY: J. J. JENSEN	BY: J. J. JENSEN	
BY: J. J. JENSEN	BY: J. J. JENSEN	

ATTACHMENT D – HYDRAULIC SUMMARY TABLE AND PROFILE

*Duck Creek (Mariposa Rd) bridge replacement, Br. No. 29-C0451*

	WSEL	Average Velocity	Available Freeboard
100-year Design Flood 900 cfs	25.5 ft	3.9 fps	<b>3.3 ft</b>

# ATTACHMENT D – HYDRAULIC SUMMARY TABLE AND PROFILE



# ATTACHMENT E - LETTER OF ENDORSEMENT



SAN JOAQUIN COUNTY  
**FLOOD CONTROL & WATER  
CONSERVATION DISTRICT**

P. O. BOX 1810  
1810 EAST HAZELTON AVENUE  
STOCKTON, CALIFORNIA 95201  
TELEPHONE (209) 468-3000  
FAX NO. (209) 468-2999

THOMAS M. GAU  
DIRECTOR OF PUBLIC WORKS  
FLOOD CONTROL ENGINEER

October 19, 2011

Central Valley Flood Protection Board  
3310 El Camino Avenue  
Sacramento, California 95821

Attention: Floodway Protection Section

**SUBJECT: CENTRAL VALLEY FLOOD PROTECTION BOARD PERMIT APPLICATION  
OF THE CALIFORNIA STATE DEPARTMENT OF TRANSPORTATION (CALTRANS)  
TO CONSTRUCT A NEW BRIDGE AT THE MARIPOSA ROAD CROSSING OVER  
DUCK CREEK, ASSESSOR'S PARCEL NO. 173-310-11**

Gentlemen:

Reference is made to the Central Valley Flood Protection Board (Board) Permit Application (Permit) of Caltrans to replace the Mariposa Road Bridge over Duck Creek with a new 105.8±-foot-wide simple span cast-in-place concrete bridge (Bridge No. 29C-0451) (Project). The Project consists of: (a) Two 12-foot travel lanes in the eastbound direction; (b) three 12-foot travel lanes in the westbound direction; (c) ten-foot right shoulders along with a 5.5-foot sidewalk in each direction; (d) the new bridge will have a 67-foot-long span on the same alignment as the existing bridge, but with a new vertical profile as shown on the plans; (e) a total bridge thickness of two feet; (f) new fill approach embankments and channel realignment has been included in the HEC-RAS modeling.

The Project is located at the Mariposa Road crossing of Duck Creek, approximately 1,000 feet west of State Highway Route 99, in the City of Stockton, in San Joaquin County.

The San Joaquin County Flood Control and Water Conservation District (District) has reviewed the Board's Permit Application of Caltrans (Permittee) and endorses the Project subject to the following conditions:

1. The District shall not be responsible for the maintenance of the facilities specified in this Permit.
2. The District shall not be held liable for damage(s) to the permitted encroachment(s) due to the District's operation, maintenance, flood fight, inspection, or emergency repairs.
3. The Permittee or the Successors-in-Interest shall be responsible for the modification or possible removal of the facilities, as requested by the District, if required for any future flood control plans at the Permittee or the Successors-in-Interest sole cost and expense.
4. The Permittee shall be liable for any damage to Duck Creek that may occur as a result of this Project.
5. The Project shall be constructed in accordance with the plans dated September 20, 2011 submitted with the Application dated August 17, 2011. Any revisions to the Project will require the submittal of the revised plans to the District for review and approval.
6. No work shall be allowed in the Duck Creek channel between November 1st and April 15th without prior approval of the Central Valley Flood Protection Board and the District.

ATTACHMENT E - LETTER OF ENDORSEMENT

Central Valley Flood Protection Board  
PERMIT APPLICATION OF CALTRANS  
TO CONSTRUCT A NEW BRIDGE  
AT MARIPOSA ROAD CROSSING  
OF DUCK CREEK, APN 173-310-11

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7. The Permittee or Successors-in-Interest shall keep the encroachments properly maintained in accordance with applicable current or future local, State, and Federal standards.
8. The lowest horizontal bridge member shall be a minimum of three feet above the 100-year flood water surface elevation.
9. Access roads shall be kept open for maintenance at all times.
10. Backfill material, within the channel or within 25 feet of the top of bank, shall be placed in four-to-six-inch layers with approved material and compacted to a minimum of 90 percent relative compaction as per ASTM D-1557.
11. District-approved access gates shall be installed at right angles across Duck Creek banks at each end of the bridge. The gates shall be set back a minimum of 60 feet from the back of the sidewalk.
12. Bank and channel stabilization material (riprap) shall be placed in a manner such that no reduction in channel cross-section or increase in base flood elevation will result.
13. The piles shall be constructed parallel to the direction of flow.
14. Stockpiled materials, coffer dams, and construction equipment shall be removed from the floodway prior to November 1st.
15. The Permittee shall restore Duck Creek's invert and banks to the condition that existed prior to commencement of work.
16. Future maintenance of the improvements free from obstructions, erosion, and/or siltation shall be the ongoing responsibility of the Permittee or Successors-in-Interest.
17. Upon completion of the Project, the Permittee shall submit a hard copy and an electronic copy in AutoCAD and PDF format of the as-built drawings to:

San Joaquin County Flood Control and Water Conservation District  
1810 East Hazelton Avenue  
Stockton, California 95205

If there are any questions regarding these comments, please contact me at (209) 953-7617.

Sincerely,



JOHN I. MAGUIRE  
Engineering Services Manager

JIM:SS:to  
FM-11J020-T1