

**Meeting of the Central Valley Flood Protection Board  
July 22, 2011  
Staff Report  
County of Tulare, Resources Management Agency  
Mountain Road M319 Bridge Replacement, Tulare County**

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**1.0 – ITEM**

Consider approval of Permit No. 18665 (Attachment B)

**2.0 – APPLICANT**

County of Tulare, Resources Management Agency

**3.0 – LOCATION**

The project is located southeast of Kaweah Lake, east of Highway 198, east of Woodlake, and crosses the left South Fork of the Kaweah River. (South Fork Kaweah River, Tulare County, see Attachment A)

**4.0 – DESCRIPTION**

This application is to remove the existing Mountain Road M319 bridge over the South Fork of the Kaweah River, an existing single-lane structure of approximately 60 feet in length and 12 feet in width; replace it with a precast concrete, pre-stressed box girder two-lane bridge, approximately 80 feet long and 22 feet wide, on the same alignment as the existing bridge; and construct a temporary low water crossing downstream of the proposed bridge. The superstructure will be supported at each end by high cantilever-type abutments and will have rock slope protection; across the South Fork of the Kaweah River.

**5.0 – PROJECT ANALYSIS**

The overall design of the proposed project, as 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 2 lanes of travel over the South Fork of the Kaweah. See Attachments C and D for Design Plans and Hydraulic Summary, respectively.

### 5.1 – Hydraulic Analysis

For the proposed project, a Final Hydraulics Analysis was completed to compare the hydraulic impacts comparing the existing single-lane bridge to the new proposed bridge, see Attachment D for Hydraulic Summary Tables and Graphics. The project was analyzed using a one-dimensional HEC-RAS hydraulic model with both a 50-yr (7,400-cfs) design and 100-yr (10,000-cfs) base flood events. The drainage area is 50.4-square-miles. The proposed bridge will also be supported by spread footings founded on bedrock.

The new bridge will improve the hydraulics within the project area slightly. For the 100-yr base flood water surface elevation (WSE), there is a small approximate 30-foot location downstream of the bridge that has a minor impact on the WSE (0.00- to 0.08-foot increase) and there is a large decrease in WSE (-0.86 to 1.21-feet) upstream of the bridge for approximately 100-feet. The existing bridge soffit is 1865.8-feet and the proposed bridge will be 1.2-feet higher at elevation 1867.0. The proposed bridge represents 2-feet of freeboard over the 100-year base flood event, as required by Section 128 of Title 23 for minor streams with low debris loads, and 3.5-feet of freeboard above the 50-year design storm event. The historical debris loading, along this stretch of the Kaweah, is of little or no concern due to the steep terrain, high-velocities, and bedrock foundations. The above results of the hydraulic model have shown a slight improvement, hydraulically, for the proposed project area and were caused, by:

- There will be no piers in the channel to capture debris.
- The span length will increase. The proposed 80-foot span bridge will be longer than the existing 60-foot span bridge. Since no debris capture is documented on the existing bridge, it is anticipated that the longer bridge span will decrease the probability of debris capture further.
- There is a substantial increase in vertical freeboard. The freeboard will be increased from 0.7-feet to 2-feet for the 100-yr discharge.

The project velocities, along this stretch of the Kaweah, range from 5-13-fps. Therefore, erosion protection measures were utilized. The existing wing-walls and abutments will be reduce down in size to 3-feet and left in place to provide erosion protection for the new structure. There will also be bank-slope protection, consisting of both rock and

fabric protection and in accordance with Title 23 standards, that will be installed as a mitigation measure. Scour was considered for this project, and again, due to the bedrock foundations little or no scour is expected for this project, and since no piers will exist within the channel, no pier scour will exist. Historical cross sections do not reflect precedence for scour potential in the future.

During project construction, a temporary low water crossing will be constructed just downstream of the proposed construction, to allow traffic to pass over the South Fork of Kaweah in this area. The temporary structure will only remain in the floodway during the allowable period from July 15 to October 31 (per Table 8.1 of Title 23). The structure will have a soffit elevation of 1855-feet and will be above the calculated flow of 1,200-cfs for the months it will be in-place. A profile of the temporary structure has been provided in Attachment D. The temporary crossing will be completely removed prior to the flood season starting on November 1.

Staff has concluded that they agree with the applicant's assessment that the proposed project has no adverse hydraulic impact on the adopted plan of flood control, and therefore is in compliance with Board standards.

## **5.2 – Geotechnical Analysis**

Upon completion of staff review of the design plans, staff is in agreement with the applicant's conclusion that this project does not bear any significant geotechnical impacts on the floodway and all work to be completed will be done in a manner that does not pose a threat to the structural integrity of the channel, structures, or floodway. All earthwork shall be completed in compliance with Permit No. 18605-1 (Attachment B) and Title 23 Standards.

## **5.3 – Project Benefits**

The project has the following benefits associated with its completion:

- Provides an additional lane of travel for this crossing.
- Provides increased freeboard that meets Title 23 standards.
- Decreases upstream WSE.
- The new structure will be constructed in compliance with current local and State standards.

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

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

- U.S. Army Corps of Engineers (USACE) Non-Federal letter was received on July 11, 2011, stating that the USACE District Engineer had no comments or recommendations regarding flood control because the project does not affect a federally constructed project.

## **7.0 – PROPOSED CEQA FINDINGS**

Board staff has prepared the following CEQA Findings:

The Board, as a responsible agency under CEQA, has reviewed Initial Study/Mitigated Negative Declaration (SCH Number: 2010111046, January 2011) and Mitigation Monitoring Plan for the Mountain Road M319 Bridge Replacement prepared by the lead agency, the County of Tulare Resource Management Agency. These documents, including project design, may be viewed or downloaded from the Central Valley Flood Protection Board website at <http://www.cvfpb.ca.gov/meetings/2011/7-22-2011.cfm> under a link for this agenda item. These documents are also available for review in hard copy at the Board and the Tulare County offices.

Tulare County has determined that the project would not have a significant effect on the environment and adopted the IS/MND on January 11, 2011 at Tulare County Board of Supervisors Meeting and subsequently filed a Notice of Determination on January 13, 2011 with the Tulare County Clerk and 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 Mitigation Monitoring and Reporting Program and address impacts to aesthetics, agricultural and forest resources, biological resources, cultural resources, geologic and soil resources. The description of the mitigation measures are further described in the adopted Mitigation Monitoring Plan.

## **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 has considered all the evidence presented in this matter, including the application, Staff Report and attachments. The Board has also considered all letters and other correspondence received by the Board and in the Board's files related to this matter.

The custodian of the file is Executive Officer Jay Punia at the Central Valley Flood Protection Board.

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 application.

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 other foreseeable projected future events that would impact this project, since the project is located within a controlled waterway with control structures on both the upstream and downstream ends.

## **9.0 – STAFF RECOMMENDATION**

Staff recommends that the Board adopt the CEQA findings, approve Permit No. 18665, and direct the Executive Officer to take necessary actions to execute the permit and to file a Notice of Determination with the State Clearinghouse.

**10.0 – LIST OF ATTACHMENTS**

- A. Location Maps and Photos
- B. Draft Permit No. 18665
  - Exhibit A: USACE Non-Fed Letter
- C. Design Plans
- D. Hydraulic Summary

Design Review:	Nancy C. Moricz, P.E.
Environmental Review:	James Herota, E.S. and Andrea Mauro, E.S.
Document Review:	David R. Williams, P.E., Dan S. Fua, P.E., and Len Marino, P.E.



Photo 1: Northern approach to existing bridge



Photo 2: Northeast corner of existing bridge



Photo 3: Downstream view from north end of existing bridge



Photo 4: Western view of riparian vegetation northwest of bridge

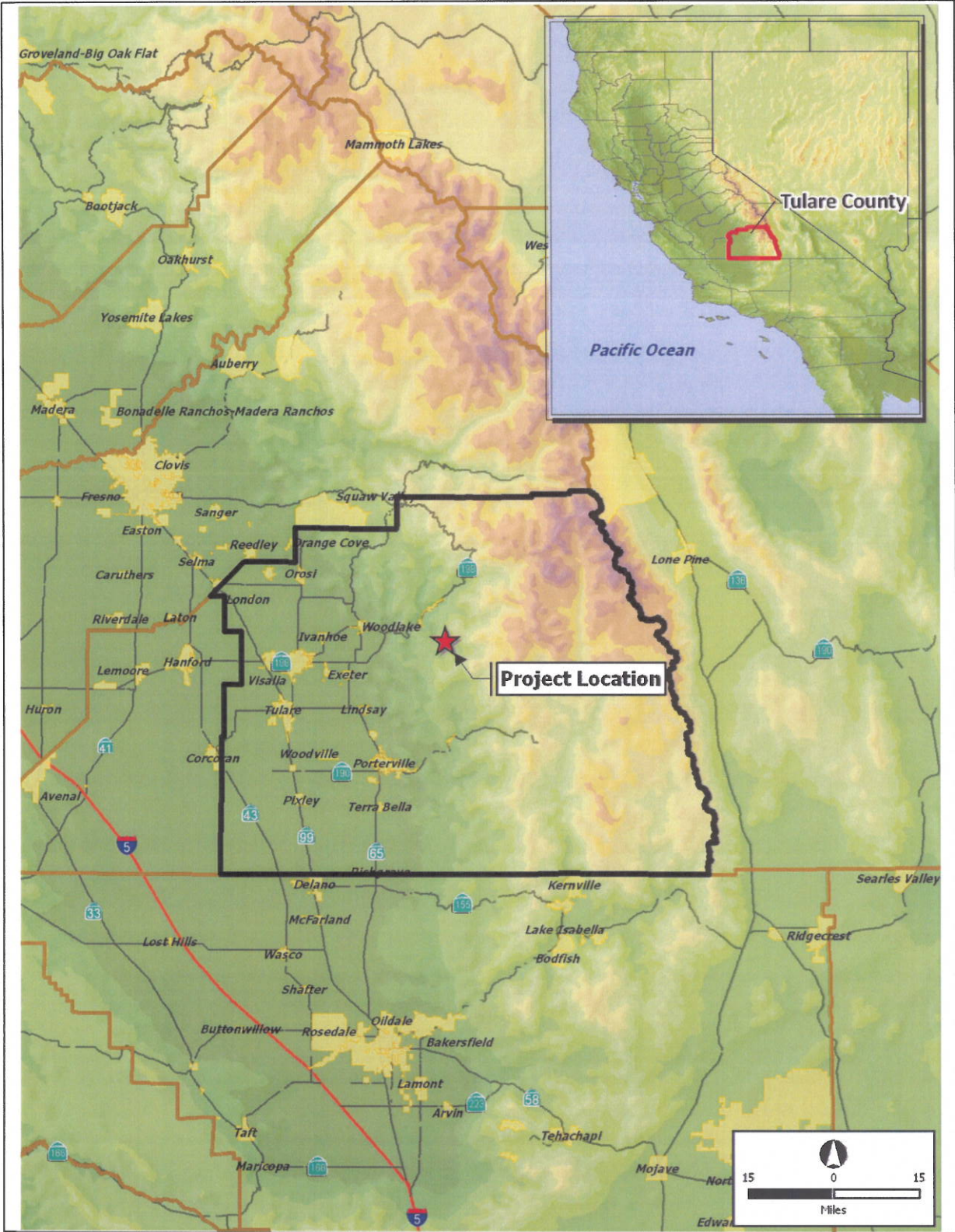




Photo 5: Southern approach to existing bridge



Photo 6: Downstream view from south end of existing bridge



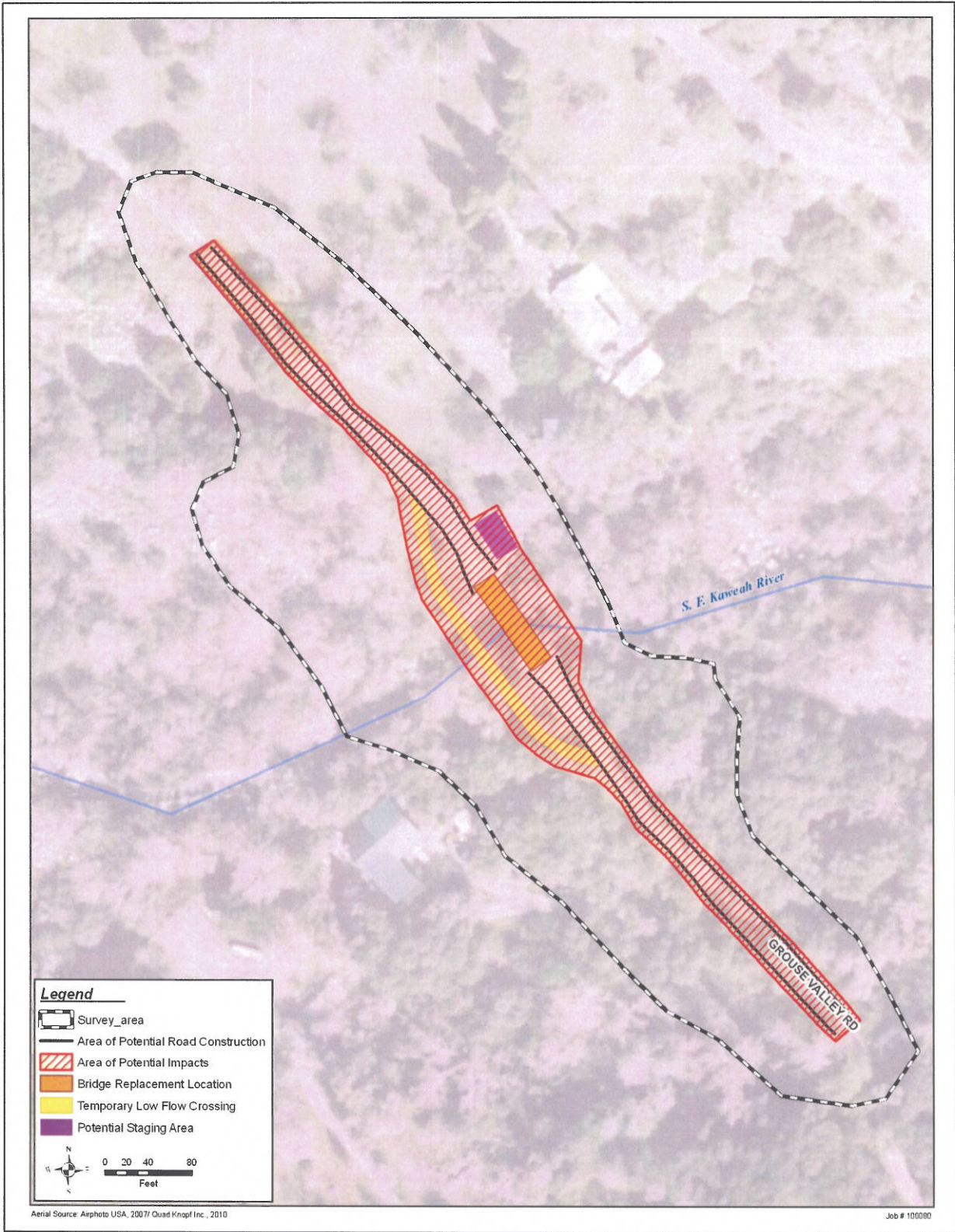
REGIONAL MAP  
MOUNTAIN ROAD M319 BRIDGE REPLACEMENT

Figure  
1



VICINITY MAP  
MOUNTAIN ROAD M319 BRIDGE REPLACEMENT

Figure  
2



 <p>Quad Knopf</p>	<p>PROJECT SITE FOOTPRINT MOUNTAIN ROAD M319 BRIDGE REPLACEMENT</p>	<p>Figure 4</p>
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**DRAFT**

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

**PERMIT NO. 18665 BD**

**This Permit is issued to:**

County of Tulare, Resources Management Agency  
5961 South Mooney Boulevard  
Visalia, California 93277

To remove the existing Mountain Road M319 bridge over the South Fork of the Kaweah River, an existing single-lane structure of approximately 60 feet in length and 12 feet in width; replace it with a precast concrete, pre-stressed box girder two-lane bridge, approximately 80 feet long and 22 feet wide, on the same alignment as the existing bridge; and construct a temporary low water crossing downstream of the proposed bridge. The superstructure will be supported at each end by high cantilever-type abutments and will have rock slope protection; across the South Fork of the Kaweah River. At the intersection of Mountain Road M319 and the South Fork of the Kaweah River (Section 16, T18S, R29E, W, Kaweah River, Tulare 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 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. 18665 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:** There shall be no plantings within the project area under this permit, except that of native grasses, which may be required for slope protection.

**FIFTEEN:** 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

**SIXTEEN:** 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.

SEVENTEEN: 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.

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

NINETEEN: 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.

TWENTY: 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.

TWENTY-ONE: The permittee shall contact the Department of Water Resources 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.

TWENTY-TWO: Temporary staging, formwork, stockpiled material, equipment, and structures shall not remain in the floodway during the flood season from November 1 to July 15.

TWENTY-THREE: Prior to start of any demolition and/or construction activities within the floodway, the applicant shall provide the Central Valley Flood Protection Board with two sets of layout plans for any and all temporary, in channel cofferdam(s), gravel work pad(s), work trestle(s), scaffolding, piles, and/or other appurtenances that are to remain in the floodway during the flood season from November 1 through July 15.

TWENTY-FOUR: Debris that may accumulate on the permitted encroachment(s) and related facilities shall be cleared off and disposed of outside the floodway after each period of high water.

TWENTY-FIVE: All debris generated by this project shall be disposed of outside the floodway.

TWENTY-SIX: 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 July 15.

TWENTY-SEVEN: Fill material shall be placed only within the area indicated on the approved plans.

TWENTY-EIGHT: 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-NINE: Density tests by a certified materials laboratory will be required to verify compaction of backfill within the regulated channel.

THIRTY: The soffit of the bridges shall be no lower than that of the existing bridges.

THIRTY-ONE: Revetment shall be uniformly placed and properly transitioned into the bank, levee slope, or adjacent revetment and in a manner which avoids segregation.

THIRTY-TWO: All revetment on the waterside of the levee or stream bank shall be quarry stone and shall meet the design and grading requirements, as specified, in Title 23, Section 121.

THIRTY-THREE: The revetment shall not contain any reinforcing steel, floatable, or objectionable material. Asphalt or other petroleum-based products may not be used as fill or erosion protection on the levee section or within the floodway.

THIRTY-FOUR: In the event existing revetment on the channel bank or levee slope is disturbed or displaced, it shall be restored to its original condition upon completion of the proposed installation.

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

THIRTY-SIX: The permittee shall provide supervision and inspection services acceptable to the Central Valley Flood Protection Board.

THIRTY-SEVEN: The permittee shall submit as-built drawings to the Department of Water Resources' Flood Project Inspection Section upon completion of the project.

THIRTY-EIGHT: In the event that levee or bank erosion injurious to the adopted plan of flood control occurs at or adjacent to the permitted encroachment(s), the permittee shall repair the eroded area and propose measures, to be approved by the Central Valley Flood Protection Board, to prevent further erosion.

THIRTY-NINE: The permitted encroachment(s) shall not interfere with operation and maintenance of the present or future flood control project. If the permitted encroachment(s) 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 encroachment(s) 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 encroachment(s) at the permittee's expense.

FORTY: 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 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 damaged by any cause. If the permittee does not comply, the Central Valley Flood Protection Board may remove the encroachment(s) at the permittee's expense.

FORTY-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.

FORTY-TWO: The permittee shall be responsible for securing any necessary permits incidental to habitat manipulation and restoration work completed in the flood control project, and will provide any biological surveying, monitoring, and reporting needed to satisfy those permits.



FORTY-THREE: 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.

FORTY-FOUR: The U.S. Army Corps of Engineers District Office has no comments or recommendations regarding flood control because the proposed work does not affect a federally constructed project, as stated in their letter dated July 11, 2011, which is attached to this permit as Exhibit A and is incorporated by reference.

FORTY-FIVE: This permit shall run with the land and all conditions are binding on permittee's successors and assigns.



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. Army Engineer District, Sacramento  
Corps of Engineers  
1325 J Street  
Sacramento, California 95814-2922

Flood Protection and Navigation Section (18665)

JUL 11 2011

Mr. Jay Punia, Executive Officer  
Central Valley Flood Protection Board  
3310 El Camino Avenue, Room 151  
Sacramento, California 95821

Dear Mr. Punia:

We have reviewed a permit application by the County of Tulare, Resources Management Agency (application number 18665). This project includes replacing Mountain Road M319 bridge over the South Fork of the Kaweah River. The project is located about 5 miles upstream from Lake Kaweah, at 36.3667°N 118.8439°W NAD83, Tulare County, California.

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

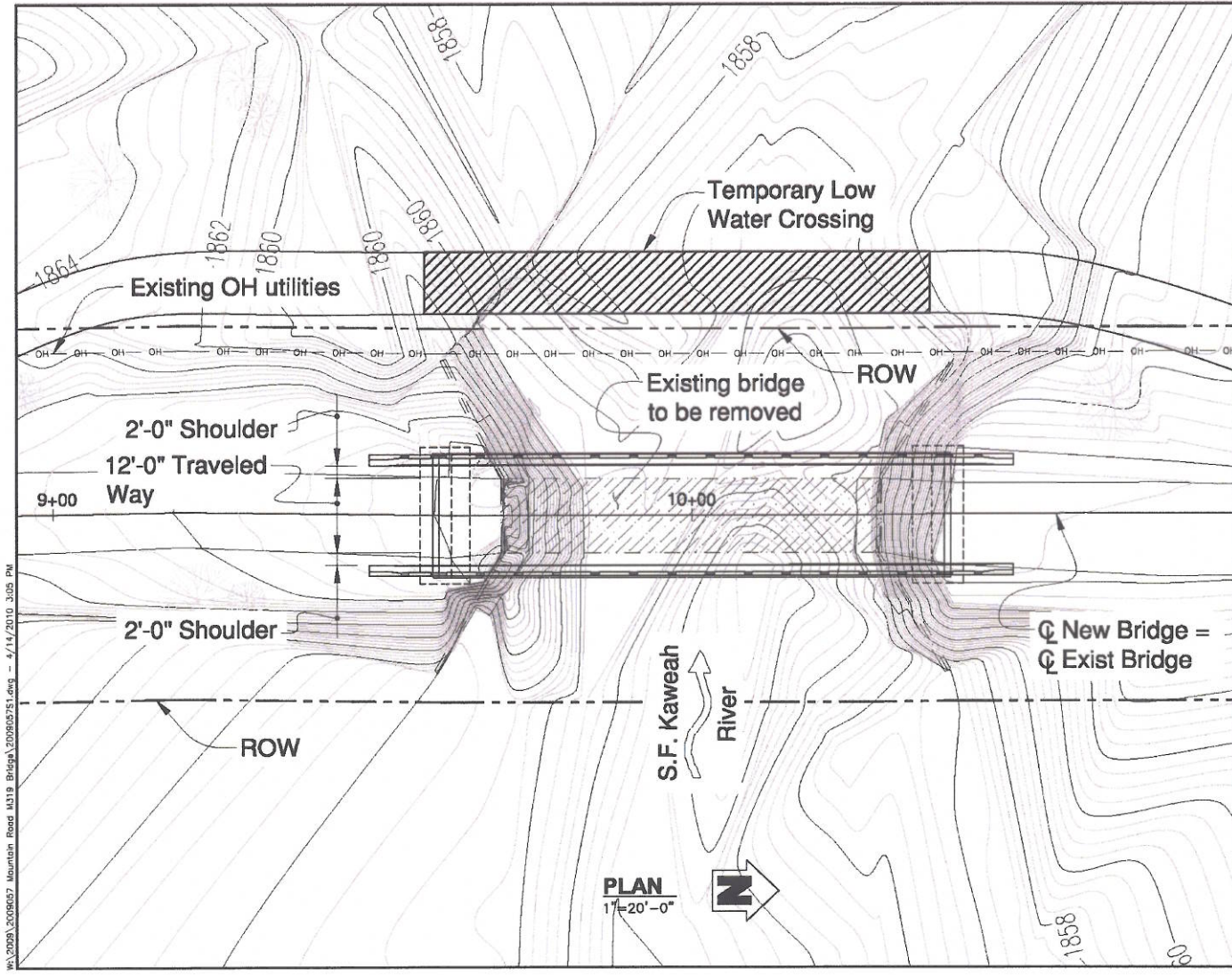
A Section 10 and/or Section 404 permit may be required. Please advise the applicant to contact the U.S. Army Corps of Engineers, Sacramento District, Regulatory Division, 650 Capitol Mall, Suite 5-200, Sacramento, California 95814, telephone (916) 557-5250.

A copy of this letter is being furnished to Mr. Don Rasmussen, Chief, Flood Project Integrity and Inspection Branch, 3310 El Camino Avenue, Suite LL30, Sacramento, CA 95821.

Sincerely,

A handwritten signature in black ink, appearing to read "Meegan G. Nagy".

Meegan G. Nagy, P.E.  
Chief, Flood Protection and Navigation Section



W:\2008\20080827 Mountain Road M319 Bridge\200805251.dwg - 4/14/2010 3:05 PM

DESIGNED BY: BR DRAWN BY: RED CHECKED BY: --- DATE: 4/7/10	<b>CORNERSTONE</b> structural engineering group	986 W Alameda Ave - Suite 201 Fresno, California 93711 559-320-3200 fax 559-320-3201
PLAN MOUNTAIN ROAD M319 BRIDGE		
TULARE COUNTY		
SHEET NUMBER S-1	OF 2 SHEETS DRAWING NO.	

**Figure 5**  
**AERIAL BRIDGE DESIGN PROFILE**  
**MOUNTAIN ROAD M319 BRIDGE REPLACEMENT**





**100-YR PROFILE & WSE TABLE**

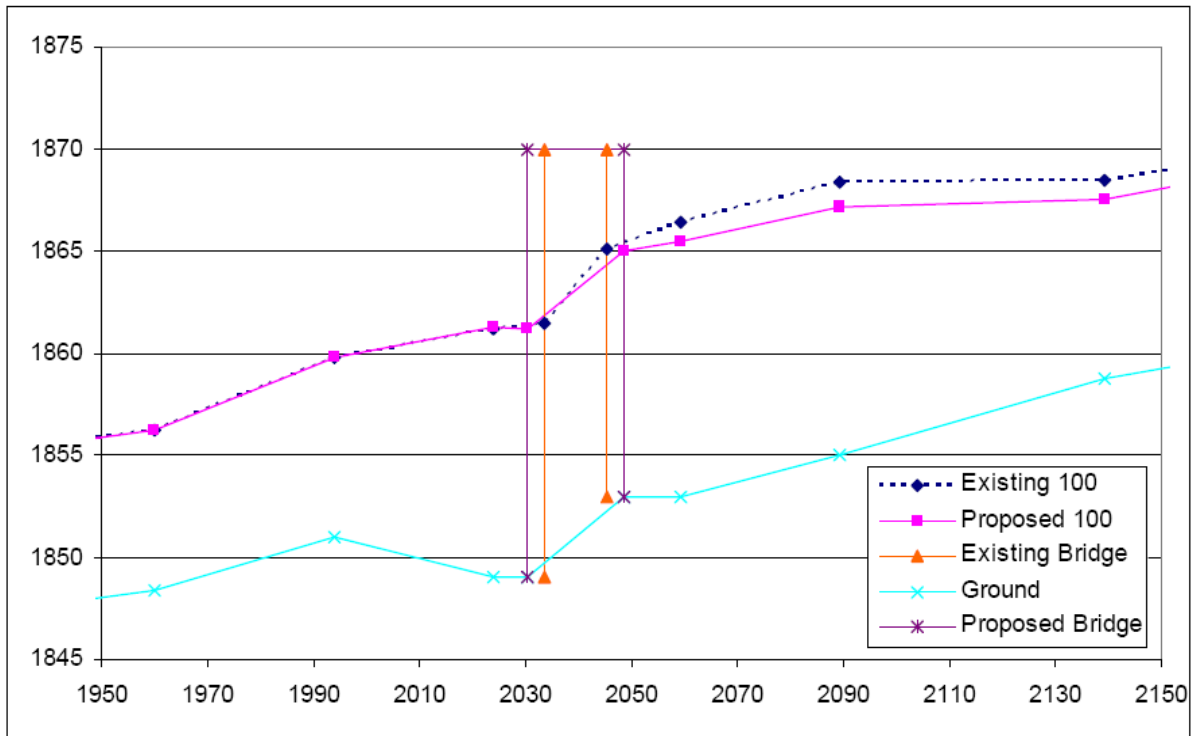


Figure 11: 100-year water surface elevation comparison existing vs. proposed

Table 6: Water surface elevation for the existing and proposed bridge for the 100-year discharge

Station	Existing	Proposed	Difference
19+94	1859.75	1859.75	0.00
20+24	1861.18	1861.26	0.08
Downstream face of proposed Br 20+30		1861.14	
Downstream face of exist Br 20+33	1861.41		
Upstream face of exist Br 20+45	1865.13		
Upstream face of proposed Br 20+48		1865.00	
20+59	1866.36	1865.49	-0.88
20+89	1868.36	1867.15	-1.21
21+39	1868.42	1867.56	-0.86

**EXISTING BRIDGE CROSS-SECTION**

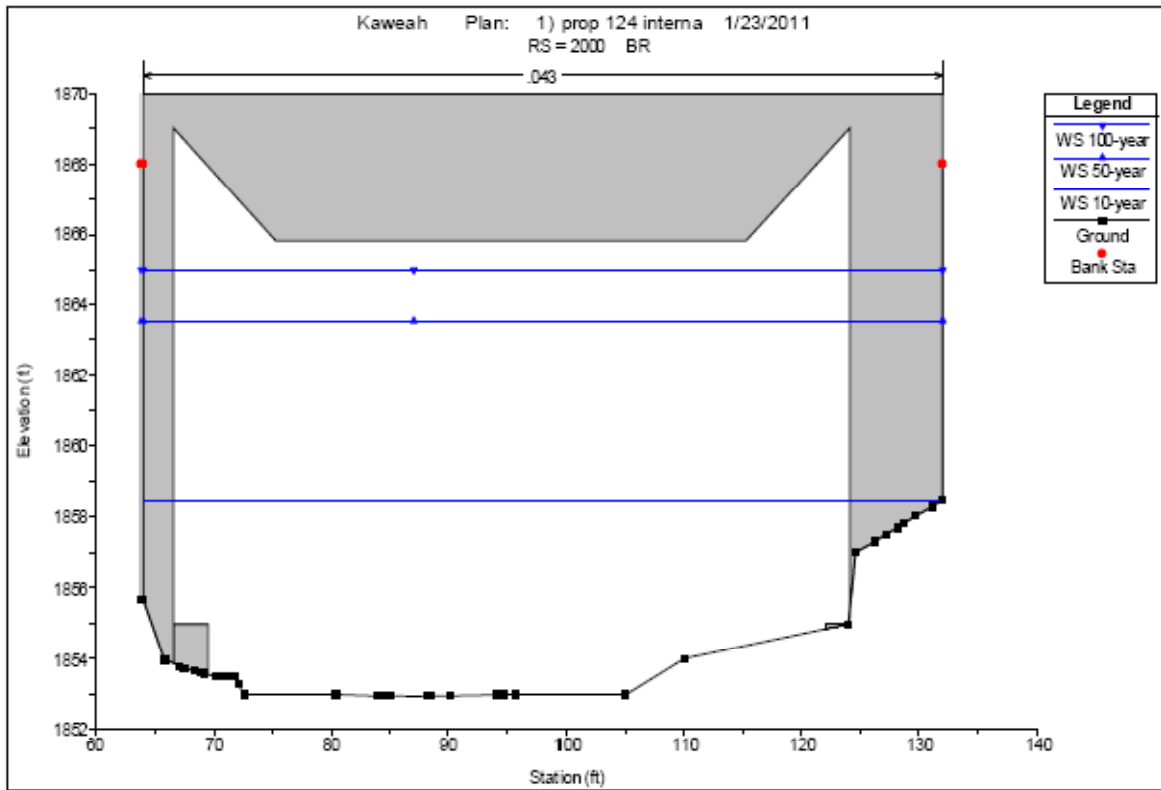


Figure 6: HEC-RAS cross section for the upstream existing conditions for the Flood of Record and 10- 50- 100 year  $Q$ 's

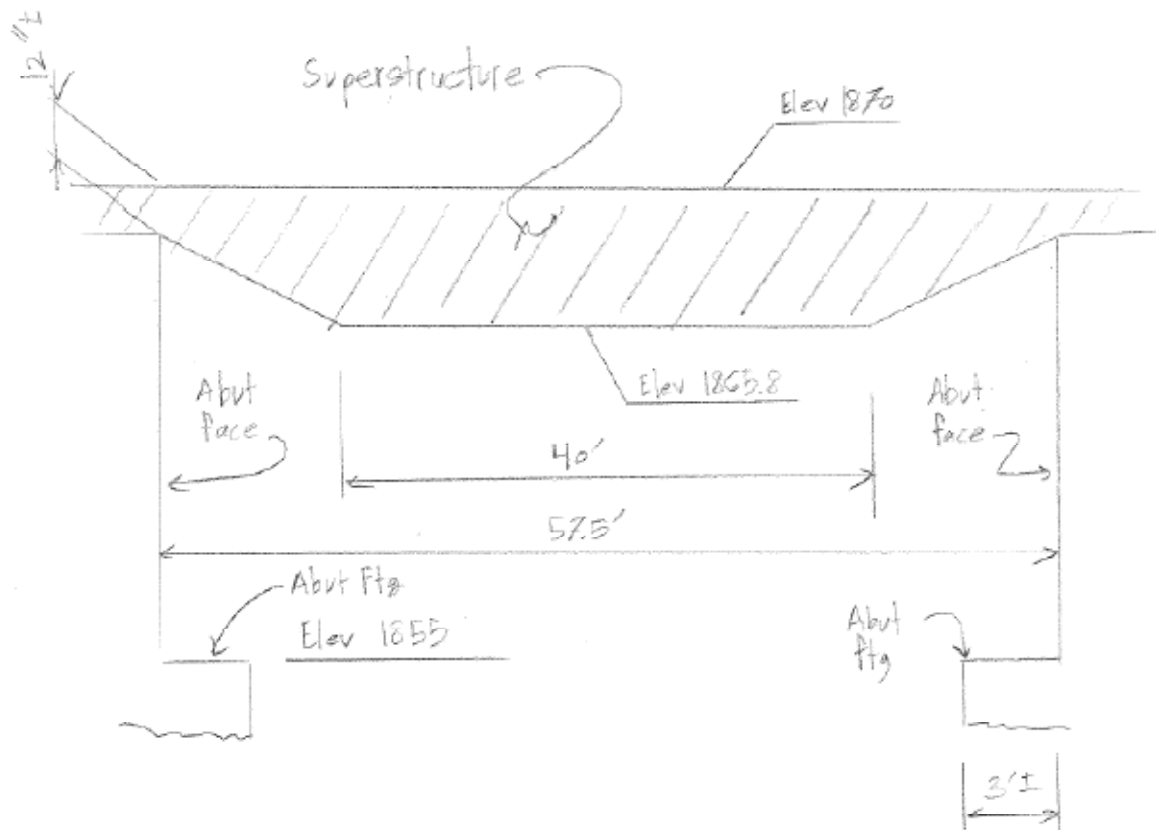


Figure 7: Existing bridge configuration from CSEG

**PROPOSED BRIDGE CROSS-SECTION**

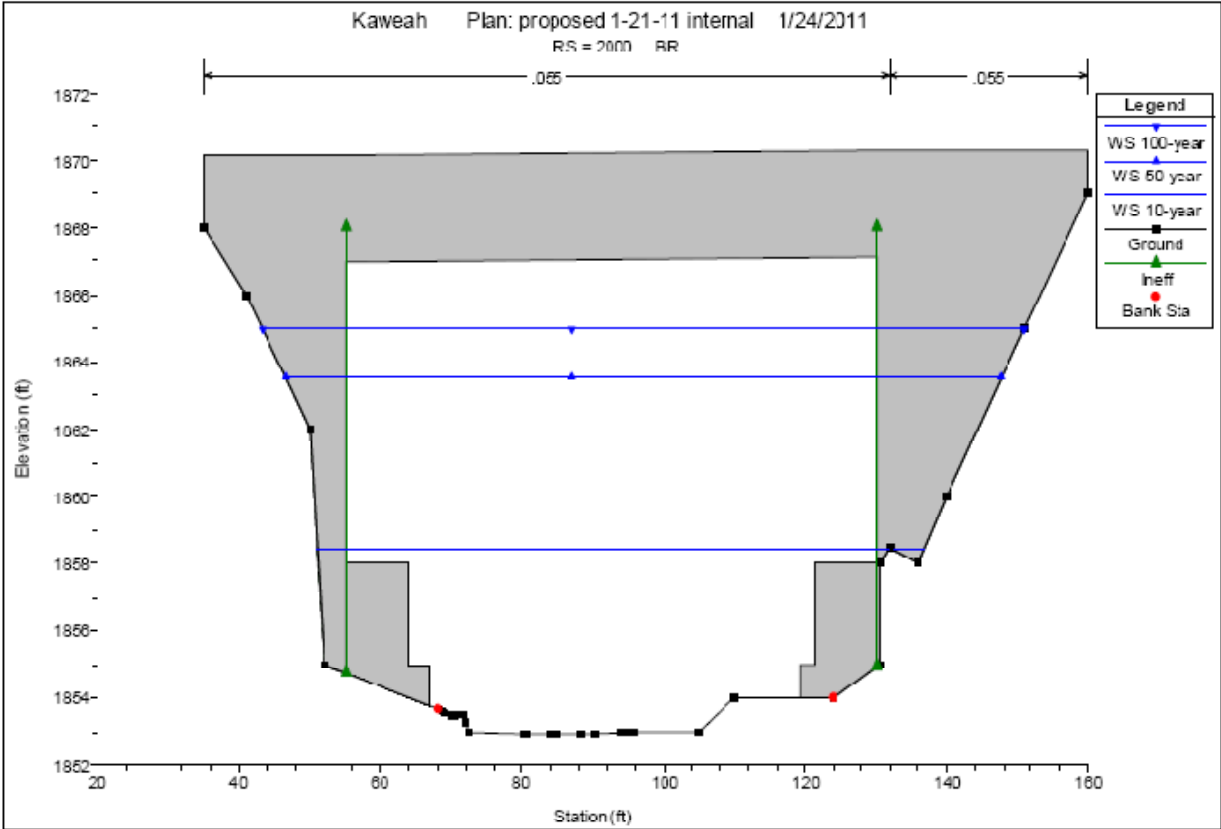


Figure 9: HEC-RAS cross section for the upstream existing conditions for the 10- 50- 100-year Q's

As shown in Figure 10, Figure 11, Table 5 and Table 6, the water surface elevation is lowered upstream between the existing and proposed for both the 50-year and 100-year discharges.

**LOW WATER CROSSING DESIGN**

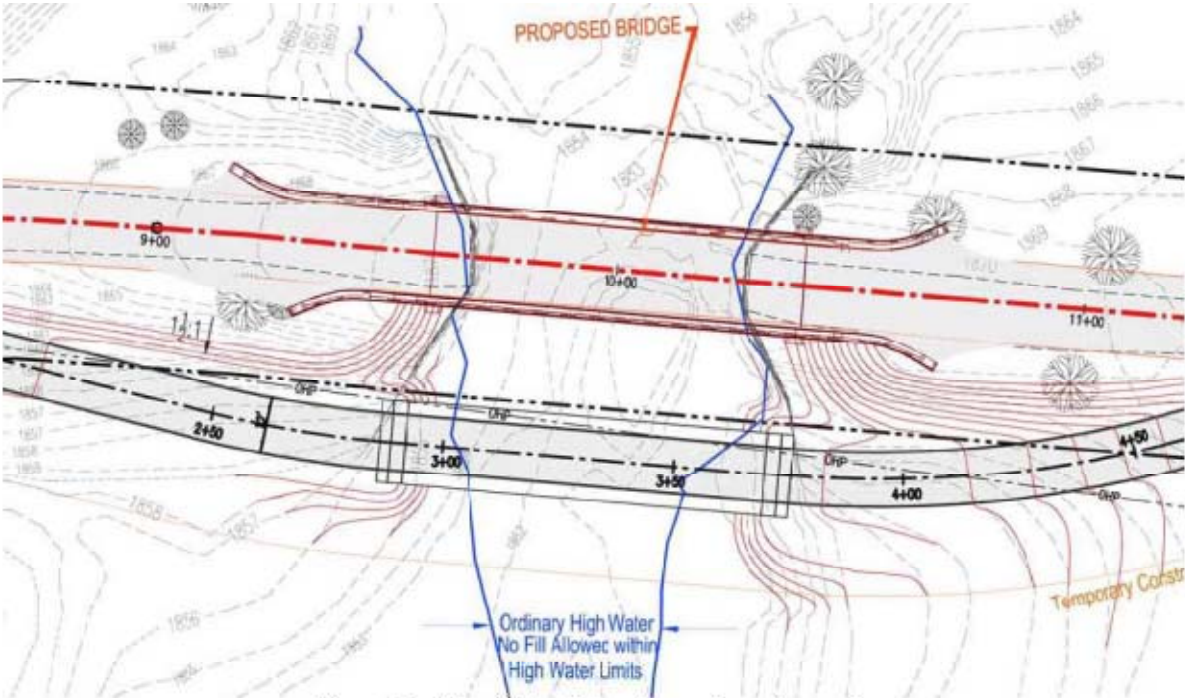


Figure 13: Plan of potential temporary low water crossing

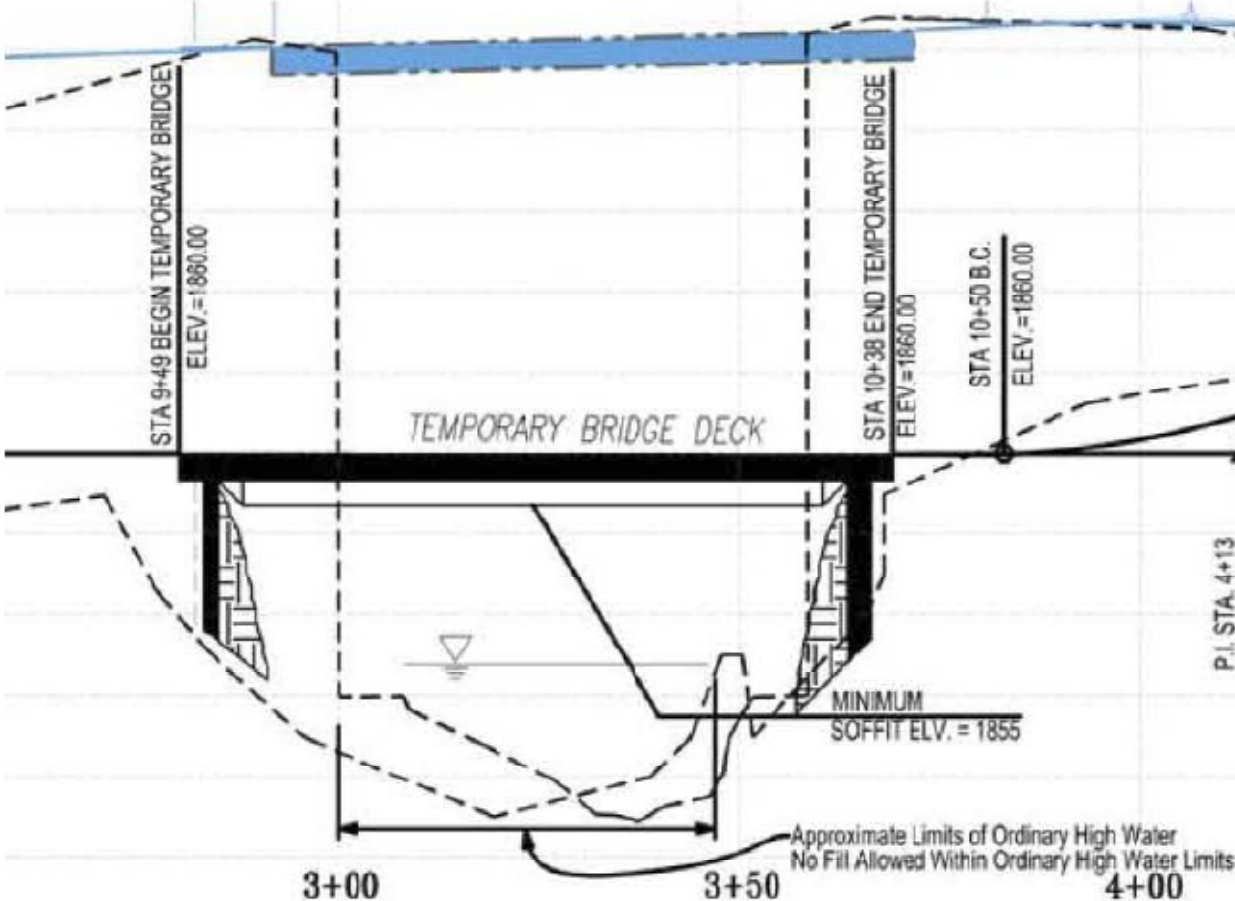


Figure 14: Profile for the potential temporary bridge crossing downstream