

APPLICATION NO. 18931



UNION PACIFIC RAILROAD (UPRR)

Bridge No. 143.71 Replacement,
Sutter County

January 23, 2015

BOARD ACTION



Consider approval of Permit No. 18931 to:

- replace an existing timber bridge with a new concrete bridge and embankment in the west overbank area of the Feather River floodway; and
- grant two proposed variances to California Code of Regulations, Title 23 standards.



AUTHORITY OF THE BOARD

California Water Code § 8534, 8590 – 8610.5, and 8700 – 8710

Title 23 standards:

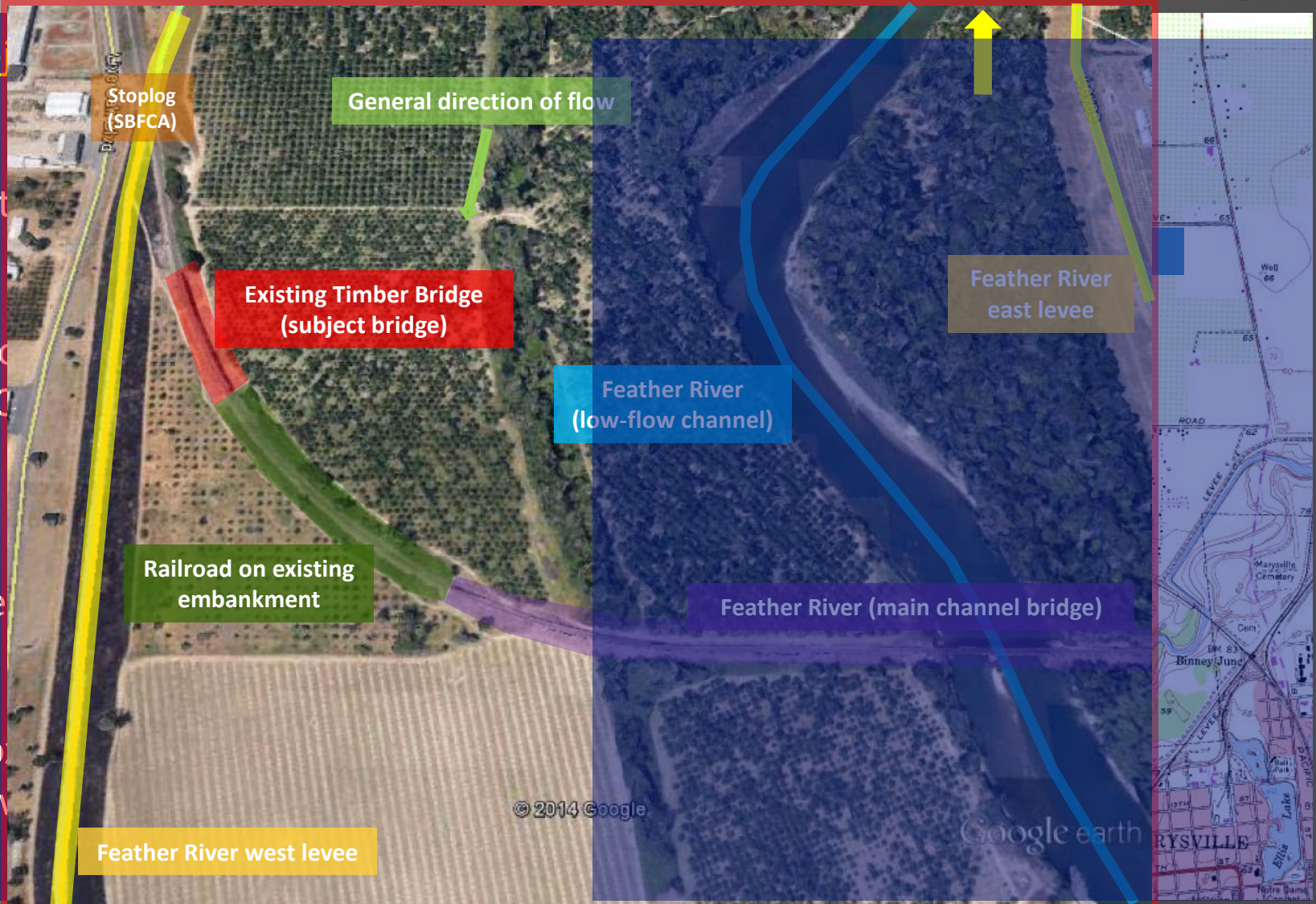
- § 6 – Need for a Permit
- § 11 – Variances
- § 13 – Evidentiary Hearings
- § 108 – Existing Encroachments
- § 112 – Streams Regulated and Nonpermissible Work Periods
- § 116 – Borrow and Excavation
- § 120 – Levees
- § 128 – Bridges

PROJECT LOCATION



The project

- In Sutter
- Just north of Yuba City
- In the Feather River
- Approaching the low



COMMENTS/ENDORSEMENTS (1/2)



- U.S. Army Corps of Engineers comment letter received September 15, 2014
 - USACE District Engineer has no objections, subject to conditions (Exhibit A)
- Levee District No. 1 conditionally endorsed the project (subject to conditions) at their January 12, 2015 meeting, which included two stipulations:
 - a project design modification resulting in zero computed rise in water surface elevation in order to approve the variances to Title 23 standards
 - receipt of a commitment letter from UPRR regarding coordinated efforts for design and approval of a stoplog structure where the railroad crosses the Feather River west levee



1. All improvements shall meet or exceed Central Valley Flood Protection Board Title 23, Department of Water Resources, DWR Urban Levee Design Criteria, FEMA, **Levee District No. 1 of Sutter County**, and U.S Army Corps of Engineers Standards and requirements.

LD1

- the endorsement included 15 conditions, of which:

5. All work endorsed by this permit shall be in accordance with the submitted drawings and
2. The permittee is responsible for all liability associated with construction, operation, and maintenance of the permitted facilities and shall defend, indemnify, and hold the **Levee District No. 1 of Sutter County**, 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.

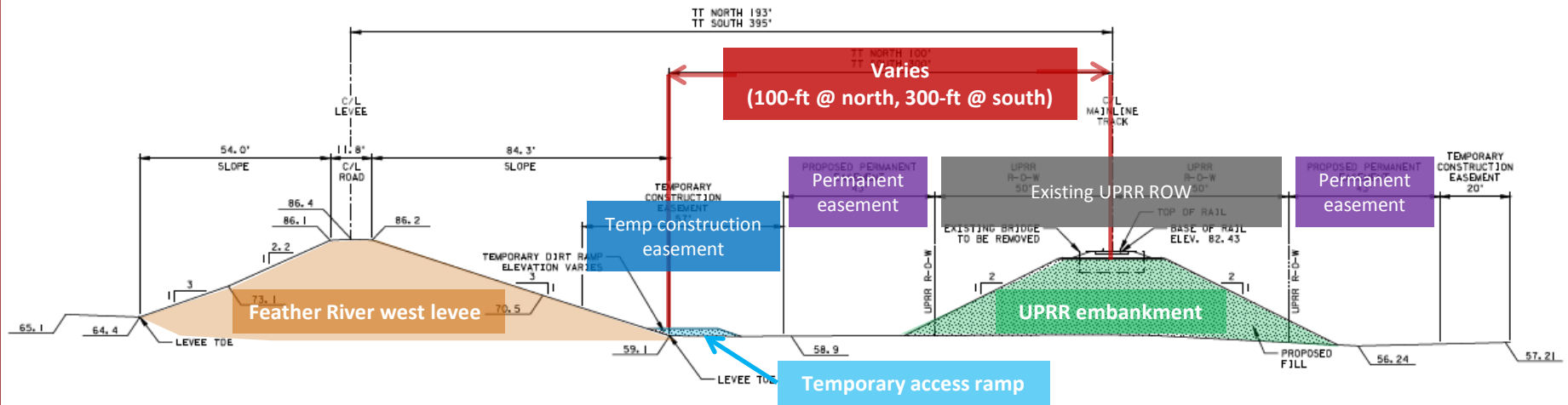
FOURTEEN: The permittee shall defend, indemnify, and hold the Board and the State of California, including its agencies, departments, boards, commissions, and their respective officers, agents, employees, successors and assigns (collectively, the "State") and Levee District No. 1 of Sutter County (LD1), 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.

assess and respond to any adverse impacts on the floodway or adjacent properties.

14. A copy of the final Central Valley Flood Protection Board Permit shall be provided to **Levee District No. 1 of Sutter County** upon approval of the permit by the CVFPB Board.

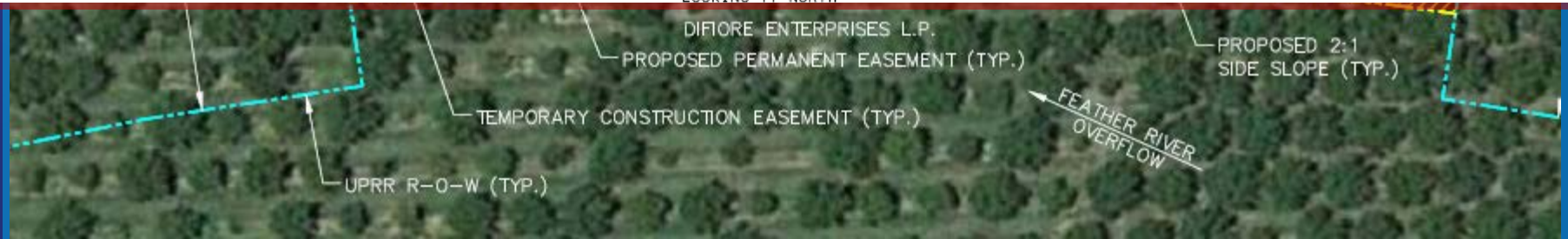
This is Board SOP and staff will ensure LD1 receives a copy of the issued permit.

PROJECT DETAILS



TYPICAL LEVEE SECTION A

LOOKING TT NORTH



HYDRAULIC SUMMARY (1/2)



Hydraulic Information:

- Both UPRR bridges (the subject bridge and the 2,300-foot main channel bridge) were modeled together in one HEC-RAS model
 - the subject bridge conveys flood flows in the overbank area, while the main channel bridge conveys flood flows within the main channel
- 200-year flood discharge is approximately 165,000 cubic-feet per second
 - as determined by Sutter Butte Flood Control Agency for its Feather River West Levee Project
- The proposed soffit elevation is approximately one foot lower in elevation than the existing bridge → **requires variance**
- The soffit of the proposed bridge will be submerged by approximately 0.6 feet at the 200-year discharge
 - the main channel bridge soffit is also submerged by about 0.5 feet at the 200-year discharge under existing conditions

HYDRAULIC SUMMARY (2/2)



Hydraul

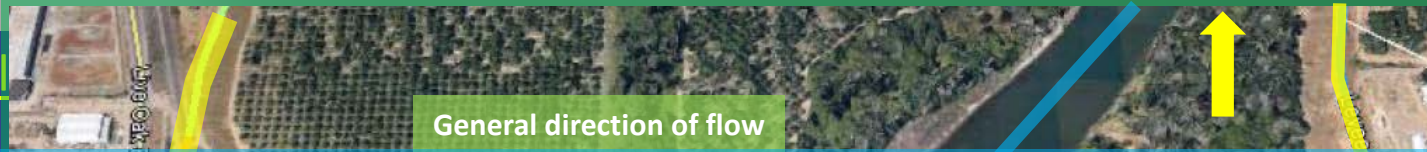


Table 2: Proposed 8-span, 240' long Concrete Bridge

Cross Section	Frequency	WSE _{CORR-EFF_INEFFECTIVE} FLOW AREAS	WSE _{POST_INNEFFECTIVE} FLOW AREAS	Δ WSE POST - CORR-EFF	V _{CORR EFF} (ft/s)	V _{POST} (ft/s)	Δ V CORR-EFF - POST
31.000	200-year	79.72	79.71	-0.01	3.47	3.47	0.00
30.750	200-year	79.58	79.57	-0.01	3.78	3.78	0.00
30.500	200-year	79.40	79.39	-0.01	3.84	3.84	0.00
30.250	200-year	79.23	79.22	-0.01	3.05	3.05	0.00
30.000	200-year	78.96	78.95	-0.01	4.34	4.34	0.00
29.828	200-year	78.88	78.87	-0.01	3.65	3.66	0.01
29.826	200-year	78.84	78.80	-0.04	4.33	4.66	0.33
29.824	UPRR Bridges 143.11 and 143.71: Valley Subdivision						
29.822	200-year	78.83	78.80	-0.03	4.13	4.71	0.58
29.821	200-year	78.81	78.81	0.00	4.27	4.27	0.00
29.820	Lateral Structure						
29.750	200-year	78.78	78.78	0.00	3.52	3.52	0.00
29.741	Lateral Structure						
29.501	200-year	78.69	78.69	0.00	2.76	2.76	0.00
29.500	200-year	78.69	78.69	0.00	2.76	2.76	0.00

Feather River west levee

© 2014 Google

Google earth

Existing Bend in Railroad



© 2014 Google

Google earth

PROPOSED VARIANCES (2/2)



- §§ 128(a)(16) requires the bottom soffit of structural members of a replacement railroad bridge to be **no lower than the soffit of the existing bridge**
 - If designed to the existing soffit then UPRR would need to construct a substantial track raise (increased depth of the concrete deck), which would:

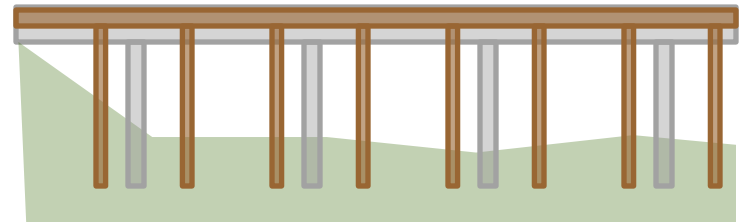


Bridge Cross Section

Thin section decreases span length



Thick section increases span length



Bridge Elevation

- Increase the total project cost by millions

Board staff has determined:

- UPRR has provided sufficient justification for the proposed variances
- the design does not cause any significant adverse impacts to the SRFCP

GEOTECHNICAL SUMMARY



- Board staff has reviewed geotechnical information provided by UPRR and has concluded that the proposed project **would result in no adverse geotechnical impacts** to the SRFCP.
- All fill, excavation, rip rap placement, and temporary structures will be completed in compliance with Draft Permit No. 18931 and Title 23 standards.

CEQA / WATER CODE 8610.5



- CEQA Analysis is included in **Staff Report Section 8.0** (Statutory Exemption)
- Water Code §§ 8610.5 Considerations are included in **Staff Report Section 9.0**

STAFF RECOMMENDATION



Board Staff Recommends that the Board:

Find:

- the project statutorily exempt from CEQA;

Approve:

- the requested variances to Title 23, §§ 128(a)(3) and 128(a)(16) standards pursuant to §§ 11(a) and (b);
- draft Encroachment Permit No. 18931 (in substantially the form provided); and

Direct:

- the Executive Officer to take the necessary actions to execute the permit and file a Notice of Exemption pursuant to CEQA with the State Clearinghouse.

QUESTIONS



Presented by: Nancy Moricz, Senior Engineer