

**DESIGN WATER SURFACE PROFILES  
for the  
FEATHER RIVER WEST LEVEE PROJECT**

**ADDENDUM #2  
(December 2013)**



*Prepared for: Sutter-Butte Flood Control Agency*

*December 27, 2013*

**Prepared by:** Chris Fritz, PE

**Reviewed by:** Dave Peterson, PE; Barry O'Regan, PE

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**INTRODUCTION**

This Technical Memorandum (TM) documents the second Addendum to the March 2012 design water surface profiles for the Sutter Butte Flood Control Agency's (SBFCA) Feather River West Levee Project (FRWLP). The purpose of this Addendum #2 is to update the top-of-levee elevations for stationing 466+00 thru 469+00, and for stationing 553+00 thru 558+00. Previous freeboard analyses identified these levee sections of having less than three feet of freeboard for the 200-year event. However, the identified freeboard deficiencies were relatively minor (generally less than a tenth of a foot) and the previous freeboard analyses utilized CVFED LiDAR<sup>1</sup> data for the referenced top-of-levee elevations. Therefore, field survey data was collected by SBFCA in order to more accurately determine the top-of-levee elevations at these locations, which in turn provides a more accurate measurement of the available freeboard.

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<sup>1</sup> California Department of Water Resources, LiDAR Datasets for the Sacramento River Basin, Central Valley Floodplain Evaluation and Delineation Program (CVFED)

It is important to note that the updates incorporated into this Addendum #2 only pertain to the documented top-of-levee elevations for the Feather River West Levee Project. No updates to the design water surface profile elevations were incorporated as part of this Addendum #2.

**RESULTS**

A summary of the updates that were incorporated into the freeboard analysis (Table 6 in Addendum #1) is shown in Table 1 and Table 2 below. Using the more accurate field survey information, the referenced levee sections are shown to have more than three feet of available freeboard during the 200-year event.

The associated field survey documentation is included as Attachment A.

The updated freeboard table, in its entirety, is included as Attachment B.

**Table 1. Feather River West Levee Project Freeboard Analysis; STA 553+00 to 558+00 (Amendment #2 updates are highlighted)**

LEEVE DESIGN STATION	Survey Elevation @ Control Line	CVFED Elevation @ Control Line	100YR WSE	200YR WSE	500YR WSE	Field Survey Elevations			CVFED Elevations		
						100YR Freeboard	200YR Freeboard	500YR Freeboard	100YR Freeboard	200YR Freeboard	500YR Freeboard
55900.00		69.95	63.54	66.85	71.50				6.41	3.10	-1.55
55800.00	69.97	69.83	63.53	66.84	71.49	6.44	3.13	-1.52	6.29	2.98	-1.66
55700.00	69.88	69.61	63.52	66.83	71.48	6.36	3.05	-1.60	6.08	2.77	-1.87
55600.00	69.97	69.67	63.52	66.83	71.47	6.45	3.14	-1.50	6.16	2.85	-1.79
55500.00	70.00	69.68	63.51	66.82	71.46	6.49	3.18	-1.46	6.17	2.86	-1.78
55400.00	69.89	69.70	63.50	66.81	71.44	6.39	3.08	-1.55	6.21	2.90	-1.74
55300.00	69.93	69.73	63.48	66.79	71.43	6.45	3.14	-1.50	6.25	2.94	-1.70
55200.00		69.94	63.47	66.78	71.42				6.47	3.16	-1.47

**Table 2. Feather River West Levee Project Freeboard Analysis; STA 466+00 to 469+00 (Amendment #2 updates are highlighted)**

LEEVE DESIGN STATION	Survey Elevation @ Control Line	CVFED Elevation @ Control Line	100YR WSE	200YR WSE	500YR WSE	Field Survey Elevations			CVFED Elevations		
						100YR Freeboard	200YR Freeboard	500YR Freeboard	100YR Freeboard	200YR Freeboard	500YR Freeboard
47000.00	68.41	67.75	61.35	64.57	68.91	7.06	3.84	-0.50	6.40	3.18	-1.16
46900.00	68.16	67.53	61.32	64.54	68.87	6.84	3.62	-0.71	6.21	2.99	-1.34
46800.00		67.76	61.29	64.51	68.84				6.46	3.25	-1.08
46700.00	67.98	67.45	61.27	64.48	68.80	6.71	3.50	-0.82	6.18	2.97	-1.35
46600.00	68.01	67.43	61.24	64.45	68.77	6.77	3.56	-0.76	6.19	2.98	-1.34
46500.00	67.87	67.50	61.21	64.42	68.73	6.66	3.45	-0.86	6.29	3.08	-1.23

**ATTACHMENT A**

**Wood Rodger's Field Survey Documentation**



# WOOD RODGERS

December 11, 2013

Mr. Michael W. Bessette, PE  
Director of Engineering  
Sutter Butte Flood Control Agency  
1227 Bridge Street, Suite C  
Yuba City, California 95991

Dear Mr. Bessette:

Subject: Sutter Butte Flood Control Agency-Feather River West Levee Project, Existing Levee Crown Field Verification Surveys

Wood Rodgers, Inc. performed field surveys on July 8, 2013 to collect top-of-levee data between STA 466+00 and STA 469+00. These surveys were conducted using a combination of RTK and Conventional Survey methods and meet survey project requirements.

This work was performed entirely under my direct supervision.

Sincerely,  
**Wood Rodgers, Inc.**

Michael E. Long, PLS 6815  
Project Surveyor



**ATTACHMENT B**

**Feather River West Levee Project Freeboard Analysis**