

**Meeting of the Central Valley Flood Protection Board
June 23, 2023**

**Staff Report for the
Third Supplement to the Memorandum of Understanding
Respecting the Sacramento River Flood Control Project
Agenda Item No. 10B**

200-Year Goldfields Levee Project (Permit 19463)

1.0 – ITEM

Approve the Third Supplement to the Memorandum of Understanding (MOU) Respecting the Sacramento River Flood Control Project (Attachment A) to include the modified length of the Yuba River South Levee due to completion of the 200-Year Goldfields Levee Project (Project).

2.0 – SPONSORS

Federal: U.S. Army Corps of Engineers (USACE)

State: Central Valley Flood Protection Board (Board)

Local: Three Rivers Levee Improvement Authority (TRLIA)

3.0 – PROJECT LOCATION

The Project area is loosely bounded by the Yuba Goldfields to the north, Hammonton-Smartsville Road to the south, Apex Lane to the west, and Hammonton Road to the east in Yuba County. Attachment B shows the general Project location.

4.0 – PROJECT DESCRIPTION

The Project consists of a new levee embankment 2.6 miles in length, the degrade of 0.2 miles of the existing Yuba River South Levee, and appurtenant system improvements. The levee begins at a point 0.2 mile west (downstream) of the existing eastern (upstream) terminus of the Yuba River South Levee. It extends southeasterly to Hammonton-Smartsville Road and proceeds west-northwesterly along the road's north side terminating approximately 0.5 mile southwest of Hammonton Road. Substantial construction of the Project was completed in January 2022.

The segment of the Yuba River South Levee is an element of the Sacramento River Flood Control Project (SRFCP) and is described in the SRFCP Unit 145 of the Supplement to Standard Operation and Maintenance Manual. Reclamation District 784 operates and maintains the Project on behalf of the Board.

5.0 – PROJECT BACKGROUND

In 2010, the USACE determined that the Goldfields area presented a flood risk for the Yuba Basin as shown in modeling for a 200-year design event. The USACE did not find a federal interest in improving the existing flood risk reduction measures, such as constructing a new levee south of the Goldfields area. As a result, TRLIA conducted a supplemental analysis and found residual risk within the system for less severe storms.

In 2016, TRLIA, with local funding, constructed the 100-Year Goldfields embankments within active mining areas to provide an interim solution for reducing risk and to preserve Federal Emergency Management Agency accreditation. In 2017, the California Department of Water Resources and TRLIA executed an Urban Flood Risk Reduction funding agreement for the Project. TRLIA submitted an application to the Board in October 2019 and the Board issued Permit 19463 for the Project in May 2020.

The Project was authorized by Section 1305 of the Water Resources Development Act (WRDA) of 2018 for a non-federal interest to construct a new levee to connect the existing Yuba River South Levee to high ground. Because of this federal authorization, USACE Section 408 approval was not required. Section 1305 of WRDA 2018 requires the USACE to execute an amendment to the MOU for the SRFCP dated November 30, 1953 (Attachment C) that is “limited to changing the description of the project to reflect the modification.” The 1953 MOU was previously amended in November 1957 and June 1958 to include a description of work items “over and above those in the 1953 [MOU] necessary to complete the [SRFCP].”

TRLIA and the USACE began coordinating with Board staff on a revised MOU in August 2021. The draft document underwent review by USACE Sacramento District and South Pacific Division legal counsel, and a final version of the draft MOU amendment was reviewed by Board staff in May 2023.

6.0 – CALIFORNIA ENVIRONMENTAL QUALITY ACT ANALYSIS AND FINDINGS

The proposed administrative action consists of the Board transmitting its approval of the Third Supplement to the MOU Respecting the SRFCP. The proposed action does not have the potential to result in either a direct physical change in the environment or a

reasonably foreseeable indirect physical change in the environment, and thus, is not a “project” for purposes of the CEQA (Public Resources Code Section 21065; CEQA California Code of Regulations, Title 14, Section 15378(a)).

7.0 – STAFF RECOMMENDATION

Staff recommends the Board to:

- Find the approval of the Third Supplement to the MOU Respecting the SRFCP is a continuing administrative activity and is thus not a project (CEQA Public Resources Code Section 21065; CEQA California Code of Regulations, Title 14, Section 15378(a)).
- Approve the Third Supplement to the MOU Respecting the SRFCP in substantially the form provided in Attachment A.
- Delegate authority to the Board President to sign the Third Supplement to the MOU Respecting the SRFCP.

8.0 – ATTACHMENTS

- A. Third Supplement to the MOU Respecting the SRFCP
- B. Project Area Map
- C. MOU Respecting the SRFCP with Existing Supplements

9.0 – REVIEWERS

Prepared by: Mike Zelazo, Senior Engineer
Jennifer Calles, Senior Environmental Scientist

Staff Review: Greg Harvey, Flood System Improvements Branch Chief
Andrea Buckley, Environmental Services and Land Management
Division Chief
Michael C. Wright, Chief Engineer

Legal Review: Jit Dua, Board Counsel

Attachment A

THIRD SUPPLEMENT TO THE
MEMORANDUM OF UNDERSTANDING
RESPECTING THE SACRAMENTO RIVER FLOOD CONTROL PROJECT

This third supplement to the November 30, 1953 Memorandum of Understanding Respecting the Sacramento River Flood Control Project is entered into this ____ day of _____ 20__ by and between the United States Army Corps of Engineers, represented by the Division Engineer, U.S. Army Engineer Division, South Pacific, Corps of Engineers, hereinafter called the Corps, and the State of California, represented by its agency, the Sacramento and San Joaquin Drainage District, acting by and through the Central Valley Flood Protection Board, hereinafter called the State.

W I T N E S S E T H

That Whereas, the above-mentioned parties entered into a Memorandum of Understanding on November 30, 1953, herein referred to as "1953 MOU", a Supplement thereto on November 29, 1957, and a second Supplement thereto on June 5, 1958 which delineated, among other things, the extent of, and the work to be done by both parties, to complete, operate, and maintain the Sacramento River Flood Control Project; and

Whereas, part 1 (a) Item 74 of the 1953 MOU, states the Yuba River left bank, from the Feather River to high ground, was approximately 7.2 miles long, historical modifications made to the terminus of the Yuba River left bank at high ground have resulted in a reduced approximate length of 6.0 miles; and

Whereas, Section 1305 of the Water Resources Development Act of 2018 authorized a non-federal interest to extend the existing levee to high ground, and directed the Secretary to execute an amendment to the 1953 MOU; and

Whereas, the Three Rivers Levee Improvement Authority, in cooperation with the Central Valley Flood Protection Board, the non-federal sponsor, and the State of California Department of Water Resources, constructed the 200-Year Goldfields Levee Project, a new flood control levee 2.6 miles in length, the downstream location of which is 1,054.5 feet west (downstream) of the existing eastern (upstream) terminus of the Yuba River left bank levee (Item 74), and extending south and east towards Hammonton-Smartsville Road, continuing along the north side of Hammonton-Smartsville Road, and terminating approximately 0.5 mile southwest of Hammonton Road in Yuba County, California; and

Whereas, the Three Rivers Levee Improvement Authority, in cooperation with the Central Valley Flood Protection Board, the non-federal sponsor, and the State of California Department of Water Resources, degraded 0.2 miles of the existing Yuba River left bank levee, from the terminus of the new flood control levee upstream along the Yuba River.

Attachment A (cont.)

Now, Therefore, the parties hereto agree that the provisions hereof under the following subject headings represent their mutual understanding, namely:

1. The Sacramento River Flood Control Project Item 74 under section (a) of part 1 of the 1953 MOU is revised to reflect the constructed levee extension to high ground. The new approximate length of the Yuba River left bank levee is 8.4 miles as a result of the 200-Year Goldfields Levee Project net addition of 2.4 miles to the prior length of 6.0, rounded to the nearest tenth of a mile.
2. All other provisions of the 1953 MOU and the 1957 and 1958 Supplements remain unchanged.

In witness thereof, the respective parties hereto have caused this Third Supplement to the 1953 MOU to be executed as of the date first herein written.

THE UNITED STATES OF AMERICA

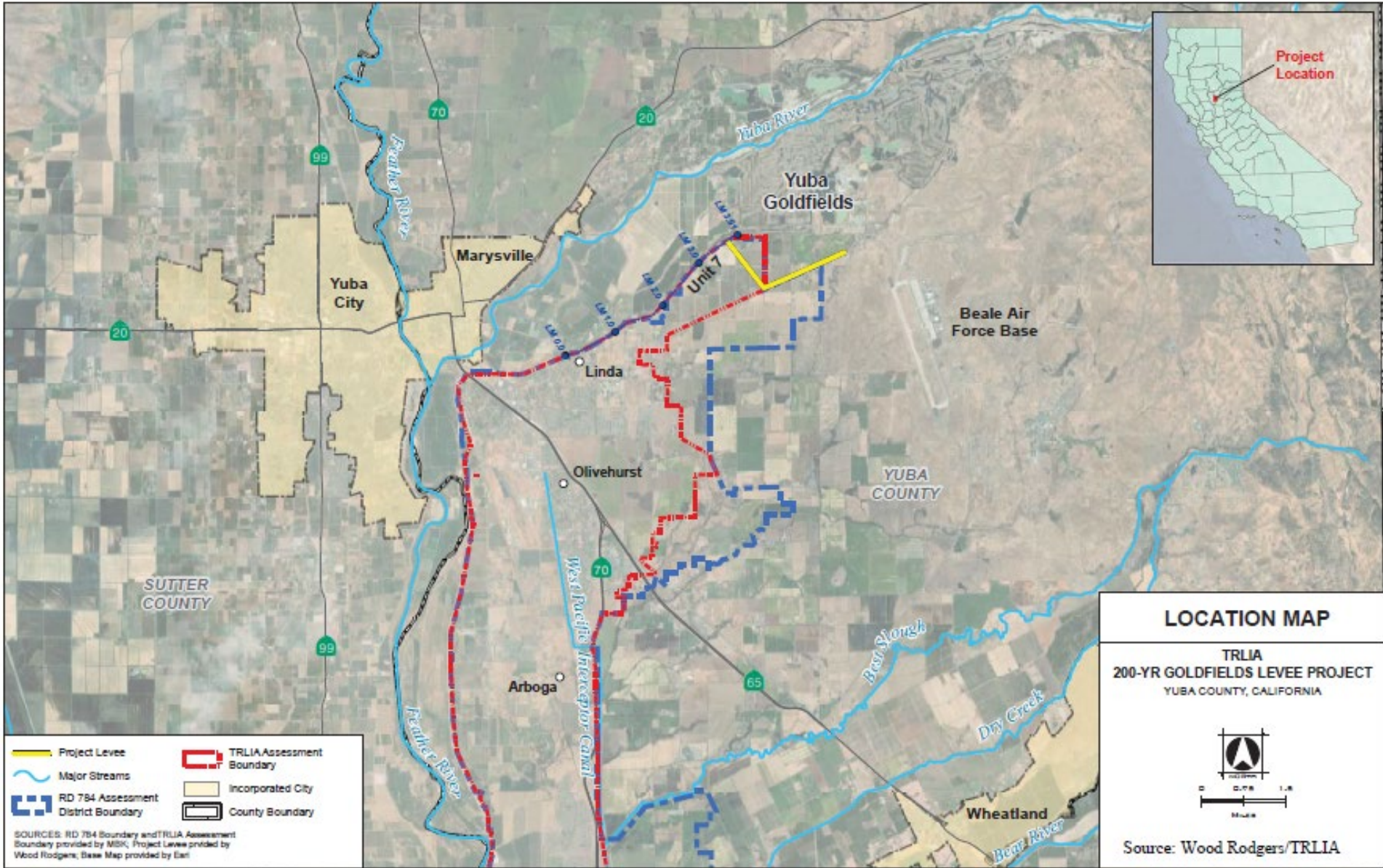
BY _____
Division Engineer
U.S. Army Engineer Division,
South Pacific
Corps of Engineers

THE STATE OF CALIFORNIA, acting
by and through the Central Valley Flood
Protection Board

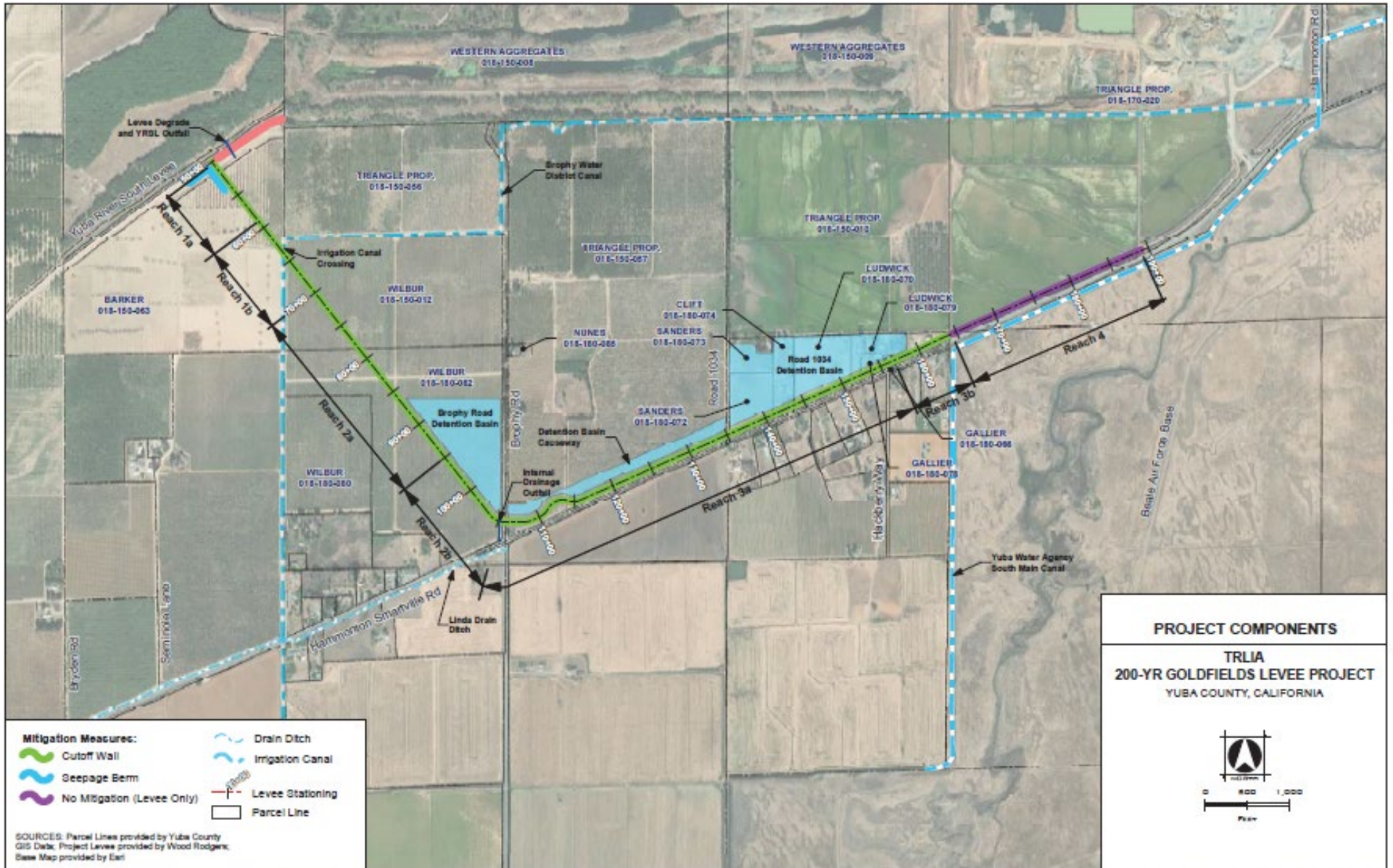
BY _____
President

BY _____
Secretary

Attachment B: Project Location Maps



Attachment B: Project Location Maps (cont.)



November 6, 1953

MEMORANDUM OF UNDERSTANDING
RESPECTING THE SACRAMENTO RIVER FLOOD CONTROL PROJECT

This Memorandum of Understanding entered into this 30th day of November, 1953, by and between the Corps of Engineers, U. S. Army, represented by the Division Engineer, South Pacific Division, Corps of Engineers, United States Army, hereinafter called the Corps, and the State of California, represented by its agency the Sacramento and San Joaquin Drainage District, acting by and through The Reclamation Board, hereinafter called the State,

W I T N E S S E T H :

That, whereas the United States represented by the Corps and the State are collaborating in the prosecution of a public improvement commonly known as the Sacramento River Flood Control Project; and

Whereas, for Federal budgetary and appropriation purposes the said Sacramento River Flood Control Project is prosecuted by the Corps under two separate and distinct subdivisions; namely, that portion adopted by the Federal Flood Control Acts approved 1 March 1917, 15 May 1928, 26 August 1937 and 18 August 1941, hereinafter called the "Old Project", and that portion adopted by the Federal Flood Control Acts approved 22 December 1944 and 17 May 1950, hereinafter called the "Major and Minor Tributaries Project"; and

Whereas, on 29 September 1952 representatives of the Chief of Engineers and the State of California, represented by the State

Reclamation Board and the State Engineer, agreed as to the position of the several agencies with respect to the "Old" Sacramento River Flood Control Project, the basic principles of which are incorporated herein; and

Whereas, under the laws of the State of California the State, acting by and through its Reclamation Board, may, in cooperation with the Corps, adopt and carry out any project plans and give assurances satisfactory to the Secretary of the Army of the United States that the State will provide the local cooperation on the project required by Federal law to be furnished by the State and local interests; and

Whereas, total expenditures on the Old Project to date amount to about \$125,000,000, of which approximately one-third has been expended by the United States and two-thirds by the State of California and other local interests; and

Whereas, under the laws of the State of California the Department of Public Works, Division of Water Resources of the State of California, acting by and through the State Engineer, has supervisory powers over the maintenance and operation of the works of the project, and has the direct obligation of maintaining and operating a major portion of such works; and

Whereas, a number of public districts and other local interests within the State are, pursuant to State law, responsible for the maintenance and operation, or for defraying the cost of maintenance and operation of such portions of the flood control works of the project as are within the boundaries or jurisdiction of such districts or local interests, subject, however, to the supervision of the State; and

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Whereas, the State acting by and through its Reclamation Board has given to the United States, on behalf of the State and local interests, the assurances of local cooperation on the project required by Federal law, namely: That the State will provide without cost to the United States all lands, easements and rights of way; bear the expense of necessary highway, railroad and bridge alterations; hold and save the United States free from claims for damages resulting from construction of the works; and maintain and operate all works after completion; and

Whereas, Federal improvements constructed and authorized by the Congress, for construction by the Corps, on the Sacramento River, include, in addition to the Sacramento River Flood Control Project, a Navigation Project, both of which have been modified and enlarged from time to time by Federal legislation; and

Whereas, the construction and operation of Shasta Reservoir on the Sacramento River and other Federally authorized or proposed multi-purpose reservoirs on other streams within and without the Sacramento River Drainage Basin, not contemplated under the Sacramento River Flood Control Project, will materially alter the regimen of stream flow during both low and high water seasons and might adversely affect the stability of project river banks and levees and thereby increase the cost of the maintenance of flood control works; and

Whereas, it is considered advisable, necessary and expedient that the parties hereto arrive at an understanding regarding the project, and particularly concerning the respective obligations of the parties with reference thereto.

Now, Therefore, the parties hereto agree that the provisions hereof, under the following subject headings, represent their mutual understanding, namely: 1. Items comprising the Old Sacramento River Flood Control Project; 2. Levee construction standards; 3. Costs of completion of the Old Project; 4. Respective responsibilities of the United States and the State with regard to the completion of construction and the operation and maintenance of the Old Project.

1. Items Comprising The Old Sacramento River Flood Control Project.

The following is a general description of the system of project works as the same have been authorized for construction by the Congress prior to December 22, 1944 (date of approval of Public Law 534, 78th Congress, 2d Session):

- (1) Levees along the Sacramento River below Chico Landing and on the lower reaches of American, Feather, Bear and Yuba Rivers and on numerous other intercepted streams, canals and sloughs.
- (2) Leveed by-passes through Yolo and Sutter basins along Butte Slough and leading from Moulton and Colusa Weirs.
- (3) The Moulton, Colusa, Tisdale, Fremont and Sacramento Weirs located on the Sacramento River for the purpose of discharging excess river channel flood flows into Butte Basin and the Sutter and Yolo By-passes.
- (4) Unleveed by-pass through Butte Basin.
- (5) The enlarged Sacramento River channel extending from the mouth of Cache Slough to Collinsville.
- (6) The Tisdale By-pass for conveyance of discharges over Tisdale Weir to Sutter By-pass, together with its levees.
- (7) The Sacramento By-pass for conveyance of discharges over Sacramento Weir to Yolo By-pass, together with its levees.
- (8) The Wadsworth Canal and East and West intercepting canals, together with their levees.

- (9) The Western Pacific Interceptor, the Natomas Cross Canal, the Natomas East Canal, and the Coon Creek Group Interceptor, together with their levees.
- (10) The levee adjacent to the east bank of Colusa Trough.
- (11) The Knights Landing Ridge Cut, together with the levees on both sides thereof.
- (12) The Cache Creek Settling Basin and its surrounding levees.
- (13) The primary clearing of by-passes and overflow channels.
- (14) Three major pumping plants adjacent to the east levee of Sutter By-pass.
- (15) Two major outfall structures, one from the lower end of Butte Basin to Sacramento River near Colusa, and the other from the lower end of Colusa Trough to Sacramento River near Knights Landing.
- (16) Appurtenant structures and gaging stations.
- (17) Alteration of existing bridges, railroads and highways.

The following tabulation enumerates specifically the project works and features under the subject headings, (a) Levees, (b) Weirs, (c) Drainage Pumping Plants, (d) Channels and Canals, (e) By-passes, (f) Check Dams and Drains, (g) Bridges, and (h) Gaging Stations:

<u>(a) Levees</u>			<u>APPROX.</u>
<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>	<u>LENGTH</u>
			<u>IN MILES</u>
1.	American River, left bank	Sacramento R. to Mayhew	11.3
2.	American River, right bank	Sacramento R. to Swanston	5.9
3.	Arcade Creek, left bank	Natomas E.Canal to Old Msvl.Rd.	2.1
4.	Arcade Creek, right bank	Natomas E.Canal to Old Msvl.Rd.	2.0
5.	Bear River, left bank	Feather R. to high ground	12.6
6.	Bear River, right bank	Feather R. to high ground	14.2
7.	Butte Sl. By-pass, R.Bk.	Butte Sl. Outfall Gates to Long Bridge	7.4
8.	Cache Creek, left bank	Yolo By-pass to high ground	10.3
9.	Cache Creek, right bank	Cache Cr.Set.Bsn.to high ground	9.5
10.	Cache Cr.Set.Bsn.lt.bnk.	Cache Cr. to Yolo By-pass	2.3
11.	Cache Cr.Set.Bsn.rt.bnk.	Cache Cr. to Yolo By-pass	4.7
12.	Cache Slough, left bank	Steamboat Sl. to Maine Prairie	9.5
13.	Cache Slough, right bank	Yolo By-pass to Ulati Creek	4.0

(a) Levees (Cont'd)

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>	<u>APPROX. LENGTH IN MILES</u>
14.	Colusa By-pass, lt. bk.	Sacramento R. easterly	1.1
15.	Colusa By-pass, rt. bk.	Sacramento R. easterly	1.0
16.	Colusa Trough, lt. bk.	Knights Lndg. to high ground	37.8
17.	Coon Cr. Gp. Intercept. rt. bank	Natomas Cross Canal to near Trowbridge	4.8
18.	E. Intercept. Canal, lt. bk.	Wadsworth Canal to nr. Pease Sta.	3.0
19.	Elk Slough, left bank	Sacramento R. to Sutter Sl.	9.2
20.	Elk Slough, right bank	Sacramento R. to Sutter Sl.	9.2
21.	Feather R. left bank	Sacramento R. to Honcut Cr.	41.3
22.	Feather R. right bank	Sutter By-pass to Western Canal Headgate	44.3
23.	Georgiana Sl. lt. bk.	Sacramento R. to Mokelumne R.	12.8
24.	Georgiana St. rt. bk.	Sacramento R. to Mokelumne R.	11.9
25.	Haas Slough, lt. bk.	Cache Sl. to near Millar	8.6
26.	Haas Slough, rt. bk.	Cache Sl. to near Maine Prairie	4.8
27.	Honcut Creek, lt. bk.	Feather R. to high ground	4.1
28.	Knights Ldg. Rdg. Cut, lt. bk.	Sycamore Sl. to Yolo By-pass	6.3
29.	Knights Ldg. Rdg. Cut, rt. bk.	Sycamore Sl. to Yolo By-pass	6.4
30.	Linda Cr., left bank	Natomas E. Canal to high ground	1.4
31.	Lindsey Sl. left bank	Yolo By-pass to Dozier Sta.	7.0
32.	Lindsey Sl. right bank	Yolo By-pass to high ground	6.1
33.	Miner Slough, left bank	Sutter Sl. to Cache Sl.	8.3
34.	Miner Slough, right bank	Sutter Sl. to Yolo By-pass	2.5
35.	Moulton By-pass, lt. bk.	Sacramento R. easterly	2.0
36.	Moulton By-pass, rt. bk.	Sacramento River easterly	0.3
37.	Natomas Cross Canal, lt. bk.	Sacramento R. to Natomas E. Canal	5.2
38.	Natomas Cross Canal, rt. bk.	Sacramento R. to Coon Cr. Gr. Inter.	5.3
39.	Natomas E. Canal, lt. bk.	American R. to Linda Cr.	4.1
40.	Natomas E. Canal, rt. bk.	American R. to Natomas Cr. Canal	15.8
41.	Nigger Jack Sl. lt. bk.	Feather R. to Yuba R.	3.1
42.	Nigger Jack Sl. rt. bk.	Feather R. to high ground	6.5
43.	North Dry Crk. lt. bk.	W.P. Interceptor to high ground	2.1
44.	Putah Cr., left bank	Yolo By-pass to W. of Davis	9.4
45.	Putah Cr. right bank	Yolo By-pass to W. of Davis	7.5
46.	Sacramento By-pass, lt. bk.	Sacramento R. to Yolo By-pass	1.8
47.	Sacramento By-pass, rt. bk.	Sacramento R. to Yolo By-pass	1.7
48.	Sacramento R. left bank	Mayberry Sl. to Butte-Glenn Co. Line	164.1
49.	Sacramento R. rt. bk.	Junction Point to Ord Ferry	163.5
50.	South Dry Cr., lt. bk.	Bear R. to high ground	9.0
51.	South Dry Cr., rt. bk.	Bear R. to high ground	1.6
52.	Steamboat Sl., lt. bk.	Sacramento R. to Junct. Pt.	13.2
53.	Steamboat Sl., rt. bk.	Sacramento R. to Junct. Pt.	11.9
54.	Sutter By-pass, lt. bk.	High Ground near Long Bridge to Feather R.	23.4
55.	Sutter By-pass, rt. bk.	Long Bridge to Sacramento R.	33.8
56.	Sutter Sl., lt. bk.	Sacramento R. to Steamboat Sl.	6.9
57.	Sutter Sl., rt. bk.	Sacramento R. to Steamboat Sl.	6.9

(a) Levees (Cont'd)

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>	<u>APPROX. LENGTH IN MILES</u>
58.	Threemile Sl., lt.bk.	Sacramento R. to San Joaquin R.	4.1
59.	Threemile Sl., rt.bk.	Sacramento R. to San Joaquin R.	3.6
60.	Tisdale By-pass, lt. bk.	Sacramento R. to Sutter By-pass	4.4
61.	Tisdale By-pass, rt.bk.	Sacramento R. to Sutter By-pass	4.4
62.	Ulati Cr. rt. bk.	Cache Sl. to near Dozier Sta.	3.9
63.	Wadsworth Canal, lt.bk.	Sutter By-pass to E.Intercep.Cl.	4.6
64.	Wadsworth Canal, rt.bk.	Sutter By-pass to W.Intercep.Cl.	4.5
65.	W. Intercept.Canal, rt.bk.	Wadsworth Cl. to Sutter Buttes	1.8
66.	Western Pac.Intercep.lt.bk.	Bear R. to N. Dry Creek	2.3
67.	W.P.Intercept. rt.bk.	Bear R. to near Alicia Sta.	6.3
68.	Willow Sl., lt. bk.	Yolo By-pass to near Merritt Sta.	8.0
69.	Willow Sl., right bank	Yolo By-pass to near Merritt Sta.	7.9
70.	Yankee Sl., left bank	Bear R. to high ground	3.8
71.	Yankee Sl., right bank	Bear R. to high ground	6.3
72.	Yolo By-pass, lt. bk.	Fremont Weir to Miner Sl.	37.1
73.	Yolo By-pass, rt. bk.	Fremont Weir intermittently to near Rio Vista	34.4
74.	Yuba River, left bank	Feather R. to high ground	7.2
75.	Yuba River, right bank	Feather R. to high ground	8.0
		Total length	<u>980.0</u>

(b) Weirs and Control Structures

<u>ITEM</u>	<u>STRUCTURE</u>	<u>LOCATION</u>	
1	Moulton Weir	Lt. bk. Sacramento R. at River Mi.	159.0
2	Colusa Weir	Lt.bk.Sacramento R. at River Mi.	146.5
3	Butte Sl. Outfall Gates	Lt.bk.Sacramento R. at River Mi.	139.2
4	Tisdale Weir	Lt.bk.Sacramento R. at River Mi.	129.4
5	Knights Ldg. Outfall Gates	Rt.bk.Sacramento R.at River Mi.	89.6
6	Fremont Weir	Rt.bk.Sacramento R. at River Mi.	82.3
7	Sacramento Weir	Rt.bk.Sacramento R. at River Mi.	62.9

(c) Drainage Pumping Plants

<u>ITEM</u>	<u>PUMPING PLANTS</u>	<u>LOCATION</u>
1	Sutter By-pass No. 1	Near Chandler
2	Sutter By-pass No. 2	At O'Banion Road
3	Sutter By-pass No. 3	Above mouth of Wadsworth Canal.

(d) Channels and Canals

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>	<u>LENGTH IN MILES</u>
1	American River	Sacramento River to Mayhew	8.8
2	Arcade Creek	Natomas E.Canal to Old Msvl.Rd.	2.1
3	Bear River	Feather R.to E.Bdry of S.S.J.D.D.	13.4
4	Cache Cr. and Cache Cr. Settling Basin	Yolo By-pass to high ground	10.4
5	Cache Slough	Yolo B-P to W.Bdry. of S.S.J.D.D.	11.0
6	Coon Cr. Grp.Intercept.	Natomas Crs.Cnl.to nr Trowbridge	4.8
7	E. Intercepting Canal	Wadsworth Canal to nr Pease Sta.	3.0
8	Elk Slough	Sacramento R. to Sutter Slough	9.2
9	Feather River	Sacramento R. to Western Cnl. Headgate	45.0
10	Georgiana Slough	Sacramento R. to Mokelumne R.	12.8
11	Haas Slough	Cache Sl. to W.Bdry. S.S.J.D.D.	2.9
12	Honcut Creek	Feather R. to E.Bdry.S.S.J.D.D.	4.1
13	Knights Lndg. Ridge Cut	Sycamore Sl. to Yolo By-pass	6.4
14	Linda Creek	Natomas E.Canal to Old Msvl.Rd.	1.4
15	Lindsey Slough	Yolo B.P. to W.Bdry. S.S.J.D.D.	6.7
16	Miner Slough	Sutter Sl. to Cache Sl.	8.3
17	Natomas Cross Canal	Sacramento R. to Natomas E.Canal	5.2
18	Natomas East Canal	American R.to Natomas Cross Cnl.	15.8
19	Nigger Jack (Simmerly) Sl.	Feather R. to W.P.R.R.	1.7
20	North Dry Creek	W.P. Intercept. Canal to Old Marysville Road	2.1
21	Putah Creek	Yolo By-pass to Winters	17.2
22	Sacramento River	Collinsville to Ord Ferry	184.6
23	South Dry Creek	Bear R. to E.Bdry S.S.J.D.D.	9.0
24	Steamboat Slough	Sacramento R.to Junction Pt.	13.2
25	Sutter Slough	Sacramento R.to Steamboat Sl.	6.9
26	Threemile Slough	Sacramento R. to San Joaquin R.	3.6
27	Ulatis Creek	Cache Sl.to W.Bdry.S.S.J.D.D.	1.5
28	Wadsworth Canal	Sutter By-pass to E. & W. Intercept. Canal	4.5
29	W. Intercepting Canal	Wadsworth Canal to Sutter Buttes	1.8
30	W.P.Interceptor Canal	Bear R. to near Alicia Sta.	6.3
31	Willow Slough	Point on Willow Sl. near Merritt Sta. on S.P.R.R. in Yolo Co. to Yolo By-pass	8.0
32	Yankee Slough	Bear R. to E. Bdry. S.S.J.D.D.	6.3
33	Yuba River	Feather R. to Two Mi. E. of S.S.J.D.D.	8.0
Total Length			446.0

(e) By-passes

<u>ITEM</u>	<u>BY-PASS</u>	<u>LOCATION</u>	<u>LENGTH IN MILES</u>	<u>AREA IN ACRES</u>
1	Butte Basin	Sacramento River to Butte Slough	33.0	110,000
2	Butte Slough	Butte Sl. Outfall Gts. to Long Brdg.	6.7	2,000
3	Sutter	Long Bridge to Sacramento R. at Verona & Fremont Weir	30.0	22,000
4	Colusa	Colusa Weir on Sacramento R. to Butte Basin	1.0	470
5	Tisdale	Tisdale Weir on Sacramento R. to Sutter By-pass	4.3	480
6	Yolo	Fremont Weir on Sacramento R. to Rio Vista	43.0	75,000
7	Sacramento	Sacramento Weir on Sacramento R. to Yolo By-pass	2.0	400
			<u>120.0</u>	<u>210,350</u>

(f) Check Dams and Drains

<u>ITEM</u>	<u>CHANNEL OR CANAL</u>	<u>LOCATION</u>
1	Borrow Pit, E.L. Sutter By-pass	0.7 mile below Wadsworth Canal
2	Borrow Pit, W.L. Sutter By-pass	Opposite mouth of Wadsworth Cnl
3	Gilsizer Slough	Sutter By-pass, 2.5 miles S. of Tisdale By-pass
4	Willow Slough	Sutter By-pass near Chandler
5	Wadsworth Canal	South Butte Road
6	Collecting Canals and Seepage Ditches	Tributary to East side of Sutter By-pass

(g) Bridges

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>
1	Sutter By-pass E. levee borrow pit	Chandler
2	Sutter By-pass E. levee borrow pit	Sutter Causeway
3	Sutter By-pass E. levee borrow pit	One-half mi. N. of O'Banion Road
4	Sutter By-pass E. levee borrow pit	Bogue Road
5	Sutter By-pass E. levee borrow pit	Below mouth of Wadsworth Canal
6	Sutter By-pass E. levee borrow pit	Franklin Road
7	Sutter By-pass W. levee borrow pit	Karnak
8	Sutter By-pass W. levee borrow pit	McClatchy Road
9	Sutter By-pass W. levee borrow pit	Franklin Road
10	Tisdale B.P. S. levee borrow pit	Reclamation Road
11	Tisdale B.P. N. levee borrow pit	R.D. No. 1660 Pumping Plant
12	Wadsworth Canal	Franklin Road
13	Wadsworth Canal	South Butte Road
14	Wadsworth Canal	Butte House Road
15	East Intercepting Canal	West of East Butte Road
16	East Intercepting Canal	East Butte Road
17	East Intercepting Canal	Township Road

(g) Bridges (Cont'd)

LOCATION

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>
18	East Intercepting Canal	East of Madison Road
19	West Intercepting Canal	East of Mallot Road
20	West Intercepting Canal	West of Cemetery Road
21	West Intercepting Canal	East of Butte Pass Road
22	West Intercepting Canal	West of Butte Pass Road
23	West Intercepting Canal	One-half mi. W. of Butte Pass Road
24	Collecting Canal	Sutter By-pass Pmpg. Plant #1
25	Collecting Canal	Marcuse and Sawtelle Roads
26	Collecting Canal	One mile S. of O'Banion Road near Sutter By-pass
27	Collecting Canal	One mile S. of O'Banion Road and one-half mile E. of Sutter By-pass
28	Collecting Canal	O'Banion Road
29	Collecting Canal	One mi. N. of Sutter By-pass Pumping Plant No. 2
30	Collecting Canal	One mile N. of Oswald Road
31	Collecting Canal	Bogue Road

(h) Gaging Stations

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>
1	Sacramento River	Keswick
2	Clear Creek	Near Igo
3	Cottonwood Creek	Near Cottonwood
4	Battle Creek	Near Cottonwood
5	Sacramento River	Iron Canyon
6	Sacramento River	Red Bluff
7	Antelope Creek	Near Red Bluff
8	Mill Creek	Near Los Molinos
9	Thomas Creek	Paskenta
10	Deer Creek	Near Vina
11	Sacramento River	Hamilton City
12	Chico Creek	Near Chico
13	Stony Creek	Near Hamilton City
14	Stony Creek	St. John
15	Sacramento River	Ord Ferry
16	Sacramento River	Butte City
17	Sacramento River	Gordon Pump
18	Sacramento River	Moulton Weir
19	Sacramento River	Colusa Weir
20	Sacramento River	Colusa
21	Sacramento River	Butte Slough Outfall Gates
22	Sacramento River	Meridian
23	Sacramento River	Reclamation Dist. No. 70 Pump
24	Sacramento River	Tisdale Weir
25	Sacramento River	Tisdale

(h) Gaging Stations (Cont'd)

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	<u>LOCATION</u>
26	Sacramento River	Below Wilkins Slough
27	Sacramento River	Near Rough & Ready Bend
28	Sacramento River	Knights Landing
29	Butte Creek	Near Chico
30	Butte Slough	Outfall Gates
31	Butte Slough	Mawson Bridge
32	Sutter by-pass	Long Bridge
33	Sutter By-pass	No. 3 Pumping Plant
34	Wadsworth Canal	Butte House Road
35	Sutter By-pass	No. 2 Pumping Plant
36	Tisdale By-pass	Reclamation Dist. #1660 Pump
37	Sutter By-pass	No. 1 Pumping Plant
38	Sutter By-pass	Reclamation Dist. #1500 Pump
39	Feather River	Five miles east of Oroville
40	Feather River	Oroville
41	Feather River	Near Gridley
42	Yuba River	Narrows Dam
43	Yuba River	Simpson Lane Bridge
44	Yuba River	Marysville
45	Feather River	Yuba City
46	Feather River	Below Shanghai Bend
47	Bear River	Near Wheatland
48	Feather River	Nicolaus
49	Sacramento River	West end Fremont Weir
50	Sacramento River	East end Fremont Weir
51	Sacramento River	Verona
52	Sacramento River	Pritchard Lake
53	Sacramento River	Sacramento Weir
54	Sacramento River	Opposite Sacramento Weir
55	Sacramento River	Second Bannon Slough
56	North Fork American River	Rattlesnake Bridge
57	South Fork American River	Coloma
58	American River	Folsom
59	American River	Fair Oaks
60	American River	H Street Bridge
61	American River	Elvas
62	American River	Garden Highway
63	Sacramento River	I Street Bridge

The foregoing items (f) and (g) are pursuant to the provisions of portions of items (b), (c) and (d) of Section 8361 of the Water Code of the State of California, made part of the project for purpose of maintenance by the State, but said project items have not been specifically authorized by Congress. Also only a portion of the gages in Item (h) has been authorized by Congress.

Sections 8360 and 8361 read as follows:

"8360. On behalf of the State the Department of Public Works acting by and through the State Engineer, has supervisory powers over the maintenance and operation of the flood control works of the Sacramento River Flood Control Project."

"8361. The department, acting by and through the State Engineer, shall maintain and operate on behalf of the State the following units or portions of the works of the Sacramento River Flood Control Project, and the cost of such maintenance and operation shall be defrayed by the State.

- "(a) The east levee of the Sutter By-pass north of Nelson Slough.
- "(b) The levees and channels of the Wadsworth Canal, Willow Slough Channel downstream from the Southern Pacific Railroad from Davis to Woodland except that portion of the north levee thereof lying within Reclamation District No. 2035, Putah Creek downstream from Winters, the intercepting canals draining into them, and all structures incidental thereto.
- "(c) The collecting canals, sumps, pumps and structures of the drainage system of Project No. 6 east of the Sutter By-pass.
- "(d) The by-pass channels of the Butte Slough By-pass, the Sutter By-pass, the Tisdale By-pass, the Yolo By-pass and the Sacramento By-pass with all cuts, canals, bridges, dams, and other structures and improvements contained therein and in the borrow pits thereof.
- "(e) The levees of the Sacramento By-pass.
- "(f) The channels and overflow channels of the Sacramento River and its tributaries within the Sacramento and San Joaquin Drainage District.
- "(g) The Knights Landing Ridge Cut flowage area.
- "(h) The flood relief channels controlled by the Moulton and Colusa Weirs and the training levees thereof.
- "(i) The levee on the left bank of the Sacramento River adjoining Butte Basin, from the Butte Slough outfall gates upstream to a point four miles northerly from the Moulton Weir, after completion.
- "(j) All weirs and relief structures.

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- "(k) The west levee of the Yolo By-pass, extending from the west end of the Fremont Weir southerly to the Cache Creek Settling Basin and from Willow Slough Channel to Putah Creek and the east levee of the Yolo By-pass from Fremont Weir southerly two miles.
 - "(l) The levee on the west bank of Feather River extending a distance of about two miles southerly from the Sutter-Butte Canal headgate.
 - "(m) The levees of Cache Creek and the easterly and westerly levees of Cache Creek Settling Basin.
 - "(n) The flowage area of Western Pacific Intercepting Canal extending northerly for a distance of five miles from Bear River."

The maintenance of all project works under the supervision of the State Engineer and in accordance with the foregoing Section 8360, except those enumerated in the foregoing Section 8361, is the responsibility and liability of local interests pursuant to Section 8370 of the Water Code, which reads as follows:

"8370. It is the responsibility, liability and duty of the reclamation districts, levee districts, protection districts, drainage districts, municipalities, and other public agencies within the Sacramento River Flood Control Project limits, to maintain and operate the works of the project within the boundaries or jurisdiction of such agencies, excepting only those works enumerated in Section 8361 and those for which provision for maintenance and operation is made by Federal Law."

Public Law 534, 78th Congress, 2d Session, and Public Law 516, 81st Congress, 2d Session, provide for the flattening of by-pass levee slopes of the Sacramento River Flood Control Project; for the extension of the project to include the reclamation of Butte Basin; construction of two multi-purpose reservoirs on the Sacramento River and tributaries; and construction of levee and channel improvement projects for flood control on nine minor tributary streams.

2. LEVEE CONSTRUCTION STANDARDS

The specifications for grade and section of the levees of the Sacramento River Flood Control Project are set forth in Senate Document No. 23, 69th Congress, 1st Session, (Enacted by Public Law 391, 70th Congress) and in House Document 649, 78th Congress, 2d Session (enacted by Public Law 534, 78th Congress).

The following tabulation, copied from House Document 649, 78th Congress, 2d Session, sets forth the specifications of Project levee sections:

	: Crown : Width	: River : Slope	: Land : Slope	: Freeboard
Present authorized river levees (Old Project)	: 20 feet	: 1 on 3	: 1 on 2	: 3 feet
Proposed river levees (Major & Minor Tributaries Project)	: 20 feet	: 1 on 3	: 1 on 2	: 3 feet
Present authorized by-pass levees (Old Project)	: 20 feet	: 1 on 4 : to : 1 on 2½	: 1 on 2½	: 5 or 6 feet
Proposed By-pass levees (Major & Minor Tributaries Project)	: 20 feet	: 1 on 4	: 1 on 3	: 5 or 6 feet

The "present" sections as set forth in the tabulations were those in effect prior to 1944, and the "proposed" sections are those authorized by the Flood Control Act of 1944. Standards both prior and subsequent to 1944 provide for the construction of a surfaced roadway suitable for access, patrol, and maintenance on all levees. Levee standards for the minor tributary stream projects proposed in H. D. 649 provide for the same slopes and freeboard as the river levees, but with narrower crown widths.

The following exceptions to the foregoing standards have been adopted to conform to special local conditions after conference among Federal, State, and local interests. These exceptions provide for a crown width of only 12 feet on the following sections of Project levees. The numbers refer to the items denoted in the tabulation setting forth Project levees segregated by stream or by-pass channels and their respective left and right banks.

	<u>Approximate length in miles</u>
(a) Items 10 and 11, levees within Cache Creek Settling Basin and levee adjacent to Sacramento Northern R. R. embankment	7.0
(b) Portion of Item 12, levee on left bank of Cache Slough on Peters Tract, classified as minor tributary levee	2.6
(c) Portion of Item 25, levee on left bank of Haas Slough, upstream from Duck Slough, classified as minor tributary levee	4.0
(d) Portion of Item 26, levee on right bank of Haas Slough on Peters Tract, classified as minor tributary levee	3.6
(e) Portions of Items 28 and 29, Knights Landing Ridge Cut levees between Sycamore Slough and the south line of Reclamation District No. 730	7.2
(f) Portion of Item 42, levee on Nigger Jack Slough adjacent to Western Pacific R.R. embankment	4.8
(g) Items No. 70 and 71, both levees of Yankee Slough, classified as a minor tributary	10.1
(h) Small portion of Item 73, levee extending westerly from southern end of Yolo By-pass along Watson Hollow Drain to high ground	1.7
(i) Item No. 67, west levee of the Western Pacific Interceptor along the W. P. R. R.	2.5
(j) Portion of Item No. 39, east levee of Natomas East Canal from Globe Station to Linda Creek	3.6
(k) Item No. 50, left bank South Dry Creek from 1.86 miles east of Bear River to high ground, including Grasshopper Creek levees.	8.5
TOTAL	<u>55.6</u>

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With reference to standards for by-pass levees as set forth in the table on page 14, the $2\frac{1}{2}$:1 slopes were adopted during the early stages of the Project when practical considerations dictated a somewhat narrow base of levee to be placed with a floating clamshell dredge of limited reach. The standards were progressively changed with changes in methods of construction and as proven necessary by destructive wave-wash on the steeper waterward slopes and severe slips resulting from saturation of the landward slopes. About 52 miles of Sutter By-pass levees were reconstructed or contracts awarded therefor, by the State or the United States, prior to the adoption of the Flood Control Act of 1944, with waterward slopes of 1 on 4 and landward slopes of 1 on 3. These section standards were subsequently specifically authorized by the 1944 Flood Control Act, and the further flattening is to be accomplished as a part of the Major & Minor Tributaries Project.

3. COSTS OF COMPLETION OF PROJECT WORKS

The cost to complete the works of the Old Sacramento River Flood Control Project may be divided into two classifications, (a) Federal Costs, and (b) State Costs (inclusive of costs of all local interests).

(a) Federal Costs

The District Engineer, Corps of Engineers, Sacramento District, has made a field survey of the Old Sacramento River Flood Control Project with the objective of determining the work required to complete the Project.

The findings of the survey with reference to the work required to complete the levee system and the cost thereof in which

in the tabulation setting forth project levees segregated by stream or by-pass channels and their respective left and right banks.

<u>Item</u>	<u>Stream or Channel</u>	
1	American River, left bank	\$ 18,654
2	American River, right bank	95,916
3	Arcade Creek, left bank	41,563
4	Arcade Creek, right bank	188,275
5	Bear River, left bank	72,869
6	Bear River, right bank	94,547
8	Cache Creek, left bank	572,001
9	Cache Creek, right bank	344,187
11	Cache Creek Settling Basin, right bank	28,614
12	Cache Slough, left bank	836,439
13	Cache Slough, right bank	189,124
16	Colusa Trough, left bank	1,006,748
17	Coon Creek Group Interceptor, right bank	129,505
19	Elk Slough, left bank	67,683
20	Elk Slough, right bank	171,085
21	Feather River, left bank	526,312
22	Feather River, right bank	672,749
25	Haas Slough, left bank	7,312
26	Haas Slough, right bank	128,555
28	Knights Landing Ridge Cut, left bank	76,612
29	Knights Landing Ridge Cut, right bank	84,728
30	Linda Creek, left bank	106,917
31	Lindsey Slough, left bank	263,795

32	Lindsey Slough, right bank	177,607
33	Miner Slough, left bank	202,149
34	Miner Slough, right bank	63,591
37	Natomas Cross Canal, left bank	130,907
38	Natomas Cross Canal, right bank	57,558
39	Natomas East Canal, left bank	304,703
40	Natomas East Canal, right bank	352,478
48	Sacramento River, left bank	4,210,210
49	Sacramento River, right bank	4,043,388
50	South Dry Creek, left bank	59,362
52	Steamboat Slough left bank	943,946
53	Steamboat Slough, right bank	179,297
56	Sutter Slough, left bank	314,226
57	Sutter Slough, right bank	224,737
58	Threemile Slough, left bank	81,608
62	Ulatis Creek, right bank	114,075
70	Yankee Slough, left bank	16,383
71	Yankee Slough, right bank	59,363
73	Yolo By-pass, right bank	594,182
74	Yuba River, left bank	141,445
75	Yuba River, right bank	<u>89,595</u>

Total Levee Costs \$ 18,065,000

The survey by the Corps also disclosed that the primary clearing of by-passes and overflow channels, a Project construction obligation, has not been accomplished on areas aggregating about 4,800 acres segregated by overflow channel or by-pass and their respective areas and costs, including contingencies, engineering

and overhead, are as follows:

<u>Overflow Channel or By-pass</u>	<u>Area in Acres</u>	<u>Cost</u>
Sacramento River	350	\$ 81,000
American River	95	16,000
Feather River	2,385	627,000
Bear River	570	250,000
Sutter By-pass	1,130	229,000
Yolo By-pass	270	47,000
	<u>4,800</u>	<u>\$1,250,000</u>

The total Federal cost, as estimated and submitted by the Corps to complete the Federal portion of the Project work at construction prices prevailing as of June 30, 1951, may be summarized as follows:

Levees - including structures, patrol roads, bank protection, contingencies, engineering and overhead	\$ 18,085,000
Clearing by-pass and overflow channels	1,250,000
Dredging enlarged Sacramento River Channel below Cache Slough	200,000
Gaging Stations	<u>25,000</u>
Total Federal Costs	\$ 19,560,000

The locations and lengths of sections of by-pass levees with waterward and landward slopes steeper than 4 to 1 and 3 to 1 are as follows:

<u>Item</u>	<u>Location</u>	<u>Length in miles</u>
(1)	Butte Slough By-pass, right bank	7.5
(2)	Sutter By-pass, right bank south of Long Bridge	5.3
(3)	Tisdale By-pass, right bank	4.4
(4)	Tisdale By-pass, left bank	4.4
(5)	Yolo By-pass, right bank, Fremont Weir South	12.2
(6)	Yolo By-pass, right bank, near Millar Sta. to Lindsey Sl.	10.6
(7)	Yolo By-pass, left bank, 2 mi. South of Fremont Weir to Miner Slough	31.0
(8)	Sacramento By-pass, right bank	1.7
(9)	Sacramento By-pass, left bank	<u>1.8</u>
	Total	78.9

The widths of the Tisdale and Sacramento By-pass channels are sufficiently narrow that there is no hazard from wavewash to their respective levees aggregating 12.3 miles in length designated items (3), (4), (8) and (9). The southerly 19.1 miles of the levee on the left bank of Yolo By-pass under present plans would be incorporated with the works of the authorized Sacramento Ship Channel. However, with favorable consideration of these items, there would still remain 47.5 miles of by-pass levees requiring flattening of waterward slopes to 1 on 4 and landward slopes to 1 on 3, for which no provision has been made in the estimate submitted by the Corps since this work is authorized under the Major and Minor Tributaries Project.

(b) State Costs (inclusive of costs of all local interests)

In addition to the Federal costs, there will be substantial State costs involved in completion of the Project. The Reclamation Board of the State of California has prepared an estimate of such State costs as of June 30, 1951, in which the Corps concurs, including the acquisition of levee rights of way and borrow areas, flowage easements, and alteration of improvements incidental to the items of construction or improvement set forth in this memorandum.

The estimates of State costs with reference to the rights of way required to complete the levee system are as follows (Item numbers refer to items denoted in the tabulation setting forth project levees, segregated by stream or by-pass channels and their respective left and right banks):

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	
1	American River, left bank	\$ 1,440
2	American River, right bank	39,870
3	Arcade Creek, left bank	62,860
4	Arcade Creek, right bank	215,930
5	Bear River, left bank	6,860
6	Bear River, right bank	17,260
8	Cache Creek, left bank	137,530
9	Cache Creek, right bank	70,735
12	Cache Slough, left bank	85,105
13	Cache Slough, right bank	28,340
16	Colusa Trough, left bank	154,830
17	Coon Creek Group Interceptor, right bank	10,800
19	Elk Slough, left bank	4,780
20	Elk Slough, right bank	20,350
21	Feather River, left bank	18,140
22	Feather River, right bank	367,450
25	Haas Slough, left bank	700
26	Haas Slough, right bank	20,025
28	Knights Landing Ridge Cut, left bank	4,075
29	Knights Landing Ridge Cut, right bank	4,500
30	Linda Creek, left bank	132,045
31	Lindsey Slough, left bank	69,820
32	Lindsey Slough, right bank	6,470
33	Miner Slough, left bank	18,500
34	Miner Slough, right bank	4,000
37	Natomas Cross Canal, left bank	12,020

<u>ITEM</u>	<u>STREAM OR CHANNEL</u>	
38	Natomas Cross Canal, right bank	\$ 4,610
39	Natomas East Canal, left bank	184,640
40	Natomas East Canal, right bank	63,280
48	Sacramento River, left bank	1,489,790
49	Sacramento River, right bank	1,515,840
50	South Dry Creek, left bank	4,570
52	Steamboat Slough, left bank	72,840
53	Steamboat Slough, right bank	13,780
56	Sutter Slough, left bank	23,230
57	Sutter Slough, right bank	39,680
58	Threemile Slough, left bank	5,600
62	Ulati Creek, right bank	15,470
70	Yankee Slough, left bank	1,630
71	Yankee Slough, right bank	4,525
73	Yolo By-pass, right bank	163,850
74	Yuba River, left bank	36,170
75	Yuba River, right bank	<u>18,700</u>
	Total levee costs	\$ 5,172,640

In addition to costs of rights of way for levee construction, State costs also include provision for the acquisition of additional flowage easements, not heretofore acquired in overflow areas, and the alteration of existing bridges, railroads and highways across river channels and by-passes where such are below flood plane elevation or otherwise obstruct flood flows. These additional items and their respective costs, including contingencies, engineering and overhead, are estimated as follows:

Bridge, railroad and highway alterations	\$ 7,475,000
Flowage easements not yet acquired	2,112,000
Landside berm fills	130,000
Access to levee patrol roads, not yet constructed	15,000
Miscellaneous clearing, fence construction, etc.	<u>60,000</u>
Total additional items	9,792,000*
Levee rights-of-way	<u>5,173,000</u>
Total State costs	\$ 14,965,000

*A detailed statement has been furnished to the District Engineer, Sacramento District, with respect to the additional items.

These total costs of the State and local interests do not include continuing expenditures by the State and local interests on the maintenance of Project works estimated to be in excess of \$1,000,000 per year. Neither do they include the cost of acquisition of rights of way for flattening the slopes of 47.5 miles of sub-standard by-pass levees to waterward slopes of 1 on 4 and landward slopes of 1 on 3, for which no provision has been made in the estimate of Federal costs submitted by the Corps.

Summary of Costs to Complete Project

Work remaining to be performed by the Corps on the Old Sacramento River Flood Control Project, as determined by the Corps and concurred in by the State and listed in detail in this memorandum, comprises the reconstruction to adopted grade and section of 210 miles of levee, including miscellaneous structures; 46 miles of bank protection; 359 miles of levee patrol road; clearing 4,800 acres of by-pass and overflow channels; minor dredging of the enlarged Sacramento River Channel below Cache Slough; establishing gaging stations; all at an estimated Federal cost of \$19,560,000, based on prices as of June 30, 1951. The estimated State cost for

acquisition of levee rights of way and borrow areas, flowage easements, and alteration of improvements incidental thereto as determined by the State and concurred in by the Corps, is \$14,965,000 as of June 30, 1951.

4. RESPECTIVE RESPONSIBILITIES OF THE UNITED STATES AND THE STATE WITH REGARD TO THE COMPLETION OF CONSTRUCTION AND THE OPERATION AND MAINTENANCE OF THE SACRAMENTO RIVER FLOOD CONTROL PROJECT.

Levee construction standards relative to the by-pass levees have been progressively changed from waterward and landward slopes of two and one-half to one, to waterward slopes of four to one and landward slopes of three to one, as proven necessary by destructive wavewash on the steeper waterward slopes and severe slips resulting from saturation of the landward slopes. About 52 miles of Sutter By-pass levees were so improved by the State or the United States prior to the adoption of the Flood Control Act of 1944, and the improved standards were subsequently specifically authorized by the 1944 Flood Control Act for by-pass levees. The total estimated Federal cost of \$19,560,000 to complete the project works does not include the cost of completion of 47.5 miles of by-pass levees to revised standards nor the cost of completion of the southerly 19.1 miles of the levee on the left bank of Yolo By-pass for use in the event the Sacramento Ship Canal is not constructed, since this work is included in the Major & Minor Tributaries Project.

In addition to the Sacramento River Flood Control Project,

been authorized by the Congress as a separate and distinct project. The Sacramento River Deep Water Channel Project has been authorized by the Congress and construction thereon commenced.

The construction and operation of Shasta Reservoir of the Central Valley Project on the Sacramento River and other Federally authorized or proposed multi-purpose reservoirs have altered, or will materially alter, the regimen of stream flow during both low and high water seasons and might adversely affect the stability of project river banks and levees and thereby increase the cost of maintenance of flood control works.

The United States has sole responsibility for the construction of all levees to grade and section, and for the construction of all other project works as such are itemized under subject heading numbered 3 herein, and for the construction, operation and maintenance of all works relating to the improvement of navigation within the area of the Old Sacramento River Flood Control Project.

The State fully recognizes and accepts its obligation to operate and maintain all completed project works and has given assurances of local cooperation required by federal law. Such assurances obligating the State are limited to:

- (a) Furnishing lands, easements and rights of way; bearing the expense of necessary highway, railroad and bridge alterations.
- (b) Holding and saving the United States free from claims for damages due to construction of the works.
- (c) The operation and maintenance of all the works, after completion, in accordance with regulations prescribed by the Secretary of the Army.

In conclusion, anything herein to the contrary notwithstanding, it is hereby agreed by the parties that the following represents the agreement of the parties with respect to the Sacramento River Flood Control Project (Old Project, so-called):

a. The State and the United States are in agreement as to the following:

1. The scope of the project;
2. The project standards;
3. The work to be done and the estimated cost thereof as of June 30, 1951;
4. The priority of the work will be determined by agreement between The Reclamation Board and the District Engineer, due consideration being given to the principle that in general the work, except strictly emergency work, be accomplished by beginning with the lower part of the project and working upstream.

Items 1; 2 and 3 are all as heretofore set forth herein.

b. The State accepts the fact that the flattening of certain by-pass levee slopes will be accomplished under the Major and Minor Tributaries Project, but urges that this work be expedited to the greatest extent practicable.

c. The State will continue to maintain locally constructed levees, including their contiguous waterway banks, which meet project standards, with or without patrol roads, and will accept for maintenance units of the project works as those units are satisfactorily completed.

d. In case any project works heretofore or hereafter accepted for maintenance by the State shall suffer damage or

deterioration due to the use of the river for functions other than flood control, such as for navigation or for the transportation of water as under the Central Valley Project, the State reserves any legal or equitable rights it may have, including the right to seek relief through judicial, legislative or administrative action.

e. Where works for navigation result in a shift in the channel or erosion of the opposing banks, corrective measures will be undertaken by the United States.

f. Pending completion and formal acceptance, it shall be the policy of the State to continue to perform normal maintenance to all project works.

g. The State recognizes that the Corps of Engineers interprets that the Federal obligation for the maintenance of the enlarged channel of Sacramento River below Cache Slough applies only to the navigation channel and that the maintenance of the remainder of the channel upon completion is a State obligation. However, the State reserves the right to request the future enactment by the Congress of legislation authorizing Federal maintenance of the entire channel in this reach of the Sacramento River. Further, The Reclamation Board is without State legislative authority to perform this maintenance, but upon failure to obtain such Federal enactment will seek State legislation to provide the required authority. Every effort will be made by The Reclamation Board to consummate the required Federal or State legislation prior to completion of this portion of the project.

In Witness Whereof, the respective parties hereto have

caused this Memorandum of Understanding to be executed as of the date first herein written.

THE UNITED STATES OF AMERICA

By *Berryman*
Division Engineer, South Pacific
Division Corps of Engineers, United
States Army

THE STATE OF CALIFORNIA, acting by and
through The Reclamation Board

By *Ed. ...* ✓
President

By *St. ...* ✓
Secretary

C O P Y

25 November 1957

SUPPLEMENT TO THE
MEMORANDUM OF UNDERSTANDING
RESPECTING THE SACRAMENTO RIVER FLOOD CONTROL PROJECT

This Supplement to the 30 November 1953 Memorandum of Understanding Respecting the Sacramento River Flood Control Project entered into this 29th day of November 1957 by and between the Corps of Engineers, U. S. Army, represented by the Division Engineer, South Pacific Division, Corps of Engineers, United States Army, hereinafter called the Corps, and the State of California, represented by its agency the Sacramento and San Joaquin Drainage District, acting by and through the Reclamation Board, hereinafter called the State.

W I T N E S S E T H :

That, whereas the above-mentioned parties entered into a Memorandum of Understanding on the 30th day of November 1953 which delineated, among other things, the extent of, and the work to be done by both parties to complete, operate and maintain, the Sacramento River Flood Control Project; and

Whereas, certain additional work would have been included therein had the need therefor, as demonstrated by the 1955-56 floods, been apparent at the time the Memorandum was consummated; and

Whereas, it is considered advisable to clarify completion procedures for all project units.

Now, Therefore, the parties hereto agree that the provisions hereof under the following subject headings represent their mutual understanding, namely: 1. Status of the 1953 Memorandum of Understanding; 2. Items over and above those in the 1953 Memorandum of Understanding necessary to complete the Sacramento River Flood Control Project as presently authorized to the Standards agreed to in said Memorandum; 3. Estimates of costs over and above those indicated in the 1953 Memorandum of Understanding to complete the presently authorized Sacramento River Flood Control Project; 4. Completion procedures:

1. STATUS OF THE 1953 MEMORANDUM OF UNDERSTANDING

The 30 November 1953 Memorandum of Understanding is not changed in any way except for the addition of work to be done by the Federal Government and the State. Completion procedures are also clarified.

2. ITEMS OVER AND ABOVE THOSE IN THE 1953 MEMORANDUM OF UNDERSTANDING NECESSARY TO COMPLETE THE SACRAMENTO RIVER FLOOD CONTROL PROJECT AS PRESENTLY AUTHORIZED TO THE STANDARDS AGREED TO IN SAID MEMORANDUM

Item numbers are identification symbols used in correspondence and conferences during negotiations for this Supplement. Details of each item can be found in supporting documents on file in the State and Corps Offices. Group titles are those used by the Corps for budgeting purposes:

Item No.

General Description

American River

- 56d & e Provide patrol road along East levee of Natomas Canal downstream from Arcade Creek with turnaround at upstream end.
- 56f Provide patrol road on left levee American River from W.P.R.R. upstream to existing road.
- 56g Construct road ramp at Old U.S. 40 Floodgate - right bank American River.

Cache Creek

- 82-1 Reconstruct damaged weir structure along east levee Cache Creek Settling Basin.

Cache Slough, Lindsey Slough, and Yolo Bypass

- 23a Correct dangerous piping through left levee Watson Hollow Drain in R. D. 536.
- 23b Correct large riverside slip on right levee Lindsey Slough in R.D. 536.
- 23e Remove pipe endangering right levee Yolo Bypass in R.D. 536.
- 23j Correct subsidence of right levee Yolo Bypass at R.D. 536 main pumping plant.
- 53a Correct seepage endangering left levee Lindsey Slough.

Feather River and Tributaries

- 1aa Remove obstructing residual levees in Feather River Flood Plain.
- 1c Correct seepage endangering levee in Yuba City.
- 1y Clear additional obstructing trees in Feather River Flood Plain.
- 4a Complete repairs at two "near failure" locations in L.D. 9.
- 4e Correct seepage endangering levee in L.D. 9.

- 4
- 5a, b & d Strengthen weak levees in vicinity of Hamilton Bend.
- 5e Provide turnaround at Sutter-Butte Canal Headgate.
- 7a & 1 Reconstruct weak back levee R.D. 10 to Project standards, and provide turnaround at downstream end.
- 36e Correct seepage endangering left levee Feather River at Plumas Lake in R.D. 784.
- 48J Correct seepage endangering right levee of Sutter Bypass in R.D. 1500.
- 51a Correct seepage endangering right levee Sutter Bypass in R.D. 1660.
- 58e Correct seepage endangering Marysville Levee at Binney Junction.
- 58p Correct seepage condition endangering right levee of Yuba River from Marysville Levee upstream to high ground.
- 58r Correct longitudinal cracking condition of Marysville north levee.
- 58s Provide three turnarounds in vicinity of Binney Junction in Marysville.
- 58t Provide 20-foot standard crown on levee between 13th Street and S.P.R.R. (north) in Marysville.
- 73c & d Reconstruct weak levee to Project Standards in R.D. 803 and 823.
- 80a Correct seepage endangering left levee Sutter Bypass.
- 89w Eliminate unsatisfactory hydraulic conditions in vicinity Nelson Bend Bow Levee, right bank Feather River.

100-8, 9, 11, 14, 16, 18, 19, 21, 24 and 25

Raise levees to project grade as required and provide standard patrol road where raised.

Georgiana Slough

- 13a Correct dangerous piping condition in R.D. 317.

5

C

C

Sacramento River - Ord Bend to Fremont Weir

- 48c Reconstruct damaged bank protection work at Race Track bend in R.D. 1500.
- 71c Provide patrol road through town of Princeton.
- 77a Provide turnaround at the downstream ends of Colusa Bypass levees.

Sacramento River - Fremont Weir to Sacramento Weir

- 101-5 Raise levee to project grade and provide standard patrol road.

Sacramento River - Sacramento Weir to Mouth of Cache Slough

- 12b Correct levee cracking and subsidence endangering right levee Sacramento River upstream from Freeport Bridge.
- 56i Provide patrol road on left levee from S.P. Shops to Jibboom Street Bridge.
- 101-4 Low 100-foot reach immediately downstream from I Street Bridge to be raised to project grade and provided with standard patrol road.

Sacramento River - Mouth of Cache Slough to Collinsville

- 50c Provide patrol road along left levee of Three Mile Slough on Twitchell Island.

Yolo Bypass - Fremont Weir to Sacramento Weir

- 49-h Correct dangerous piping condition in left levee Yolo Bypass R.D. 1600.
- 60b Repair sloughing and subsidence along right levee K.L. Ridge Cut.
- 76f Correct seepage endangering levee near right abutment of Fremont Weir.
- 101-26 Raise east levee Cache Creek Settling Basin to provide 3-foot project freeboard. Provide turnarounds and patrol roads.

3. ESTIMATES OF COSTS OVER AND ABOVE
THOSE INDICATED IN THE 1953 MEMORANDUM OF UNDERSTANDING TO
COMPLETE THE PRESENTLY AUTHORIZED
SACRAMENTO RIVER FLOOD CONTROL PROJECT

	<u>Federal Costs</u>	<u>Non-Federal Costs</u>
American River	\$ 70,000	\$ 2,500
Cache Creek	500,000	1,000
Cache Slough, Lindsey Slough, and Yolo Bypass	180,000	22,300
Feather River and Tributaries	4,302,800	164,600
Georgiana Slough	10,000	2,700
Sacramento River - Ord Bend to Fremont Weir	535,000	21,000
Sacramento River - Fremont Weir to Sacramento Weir	4,700	1,000
Sacramento River - Sacramento Weir to Mouth of Cache Slough	391,900	72,000
Sacramento River - Mouth of Cache Slough to Collinsville	10,000	15,000
Yolo Bypass - Fremont Weir to Sacramento Weir	295,600	9,400
TOTAL	\$6,300,000	\$311,500

4. COMPLETION PROCEDURES

The work provided to be done by the Federal Government in this Supplement, together with the items remaining to be done under the 30 November 1953 Memorandum of Understanding, shall constitute the Federal program as presently authorized under the Sacramento River Flood Control Project.

The units of the project which meet project standards

and upon which no further work is to be accomplished by the Federal Government under the Memorandum of Understanding respecting the Sacramento River Flood Control Project, dated 30 November 1953 or this Supplement thereto, and upon which letters of completion or project compliance have been furnished to the State or which have been or are being completed by the Federal Government in accordance with plans and specifications heretofore reviewed by the State, will be maintained and operated by the State as of the date of execution of this Supplement or the date of completion of the work, whichever occurs last.

Where additional work by the Corps remains to be accomplished under the terms of the Memorandum of Understanding or this Supplement thereto, the State hereby agrees to operate and maintain each unit of work which is completed in accordance with the contract plans and specifications upon notification of such completion by the Federal Government. The Federal Government agrees to submit the contract plans and specifications to the State for review at least thirty (30) days prior to the opening of bids. Lack of written objections by the State within twenty-one (21) days after submittal of said contract plans and specifications to the State for review shall constitute final agreement by the State as to the adequacy of the proposed plans.

Nothing contained herein shall prejudice the findings of the review report authorized by the Committee on Public Works, U. S. Senate on 18 February 1955, "with a view to determining whether any modifications in the existing project for bank

protection and maintenance of the channel is advisable at the present time"; the provisions of paragraphs d and e, pages 26 and 27 of the 30 November 1953, Memorandum of Understanding; or such future administrative, legislative, or judicial review as may occur.

In Witness Whereof, the respective parties hereto have caused this Supplement to the 30 November 1953 Memorandum of Understanding to be executed as of the date first herein written.

THE UNITED STATES OF AMERICA

BY /s/ William F. Cassidy
Division Engineer, South
Pacific Division Corps of
Engineers, United States
Army

THE STATE OF CALIFORNIA, acting
by and through The Reclamation
Board

BY /s/ A. R. Gallaway, Jr.
President

BY /s/ George H. Holmes
Secretary

Control Sheet for Supplement No 7 Work 25 Sept
Rev.

25 November 1957

SUPPLEMENT TO THE
MEMORANDUM OF UNDERSTANDING
RESPECTING THE SACRAMENTO RIVER FLOOD CONTROL PROJECT

This Supplement to the 30 November 1953 Memorandum of Understanding Respecting the Sacramento River Flood Control Project entered into this 29th day of November 1957 by and between the Corps of Engineers, U. S. Army, represented by the Division Engineer, South Pacific Division, Corps of Engineers, United States Army, hereinafter called the Corps, and the State of California, represented by its agency the Sacramento and San Joaquin Drainage District, acting by and through the Reclamation Board, hereinafter called the State

W I T N E S S E T H :

That, whereas the above-mentioned parties entered into a Memorandum of Understanding on the 30th day of November 1953 which delineated, among other things, the extent of, and the work to be done by both parties to complete, operate and maintain, the Sacramento River Flood Control Project; and

Whereas, certain additional work would have been included therein had the need therefor, as demonstrated by the 1955-56 floods, been apparent at the time the Memorandum was consummated; and

Whereas, it is considered advisable to clarify completion procedures for all project units.

Now, Therefore, the parties hereto agree that the provisions hereof under the following subject headings represent their mutual understanding, namely: 1. Status of the 1953 Memorandum of Understanding; 2. Items over and above those in the 1953 Memorandum of Understanding necessary to complete the Sacramento River Flood Control Project as presently authorized to the Standards agreed to in said Memorandum; 3. Estimates of costs over and above those indicated in the 1953 Memorandum of Understanding to complete the presently authorized Sacramento River Flood Control Project; 4. Completion procedures:

1. STATUS OF THE 1953 MEMORANDUM
OF UNDERSTANDING

The 30 November 1953 Memorandum of Understanding is not changed in any way except for the addition of work to be done by the Federal Government and the State. Completion procedures are also clarified.

2. ITEMS OVER AND ABOVE THOSE IN THE
1953 MEMORANDUM OF UNDERSTANDING NECESSARY TO COMPLETE THE
SACRAMENTO RIVER FLOOD CONTROL PROJECT AS PRESENTLY AUTHORIZED
TO THE STANDARDS AGREED TO IN SAID MEMORANDUM

Item numbers are identification symbols used in correspondence and conferences during negotiations for this Supplement. Details of each item can be found in supporting documents on file in the State

and Corps Offices. Group titles are those used by the Corps for budgeting purposes:

<u>Item No.</u>	<u>General Description</u>
<u>American River</u>	
56d & e <i>Completed 1962</i>	Provide patrol road along East levee of Natomas Canal downstream from Arcade Creek with turnaround at upstream end.
56f. <i>Completed 1962</i>	Provide patrol road on left levee American River from W.P.R.R. upstream to existing road.
56g <i>Completed 1962</i>	Construct road ramp at Old U.S. 40 Floodgate - right bank American River.
<u>Cache Creek</u>	
82-1 <i>Deferred for restudy</i>	Reconstruct damaged weir structure along east levee Cache Creek Settling Basin.
<u>Cache Slough, Lindsey Slough, and Yolo Bypass</u>	
23a <i>Eliminated</i>	Correct dangerous piping through left levee Watson Hollow Drain in R. D. 536
23b <i>Completed - on condition no subsidence for 3412</i>	Correct large riverside slip on right levee Lindsey Slough in R.D. 536.
23e	Remove pipe endangering right levee Yolo Bypass in R.D. 536
23j <i>Eliminated</i>	Correct subsidence of right levee Yolo Bypass at R.D. 536 main pumping plant.
53a <i>Completed 1962</i>	Correct seepage endangering left levee Lindsey Slough
<u>Feather River and Tributaries</u>	
1aa <i>included in Feather clearing</i>	Remove obstructing residual levees in Feather River Flood Plain
1c <i>Completed July 60</i>	Correct seepage endangering levee in Yuba City
1y <i>Comp. 1961</i>	Clear additional obstructing trees in Feather River Flood Plain

4a ^{Completed July 1960} State Levee Complete repairs at two "near failure" locations in L.D. 9

4e ^{Completed July 1960} Correct seepage endangering levee in L.D. 9

5a, b & d Strengthen weak levees in vicinity of Hamilton Bend ^{July 1961} bsd elimina

5e Provide turnaround at Sutter-Butte Canal Headgate

X 7a & 1 ^{Completed Sept 61} Reconstruct weak back levee R.D. 10 to Project standards, and provide turnaround at downstream end

36e ^{Completed Oct 1957} Correct seepage endangering left levee Feather River at Plumas Lake in R.D. 784

48j ^{Eliminated} Correct seepage endangering right levee of Sutter Bypass in R.D. 1500

51a ^{Completed Nov 1958} Correct seepage endangering right levee Sutter Bypass in R.D. 1660

X 58e ^{Completed 1961} Correct seepage endangering Marysville Levee at Binney Junction.

X 58p ^{Deferred} Correct seepage condition endangering right levee of Yuba River from Marysville Levee upstream to high ground.

X 58r ^{eliminated} Correct longitudinal cracking condition of Marysville north levee

X 58s ^{Completed 1961} Provide three turnarounds in vicinity of Binney Junction in Marysville

X 58t ^{Completed 1961} Provide 20-foot standard crown on levee between 13th Street and S.P.R.R. (north) in Marysville

73c & d ^{Completed March 1963} Reconstruct weak levee to Project Standards in R.D. 803 and 823

80a ^{Completed Nov 1958} Correct seepage endangering left levee Sutter Bypass

X 89w Eliminate unsatisfactory hydraulic conditions in vicinity Nelson Bend Bow Levee, right bank Feather River.

^{eliminated} 100-8, 9, 11, 14, 16, 18, 19, 21, 24 and 25 ^{elim} ^{comple} ^{comple} ^{comple} ^{comple} ^{comple} ^{comple}

Raise levees to project grade as required and provide standard patrol road where raised.

5

Georgiana Slough

13a Correct dangerous piping condition in R.D. 317.

Sacramento River - Ord Bend to Fremont Weir

48c *Completed* ¹⁹⁶¹ Reconstruct damaged bank protection work at Race Track bend in R.D. 1500.

71c *Eliminated* Provide patrol road through town of Princeton.

77a *Eliminated* Provide turnaround at the downstream ends of Colusa Bypass levees.

Sacramento River - Fremont Weir to Sacramento Weir

102-5 *Eliminated* Raise levee to project grade and provide standard patrol road. in RD 1600

Sacramento River - Sacramento Weir to Mouth of Cache Slough

12b *Eliminated* Correct levee cracking and subsidence endangering right levee Sacramento River upstream from Freeport Bridge.

561 *Completed* ¹⁹⁶² Provide patrol road on left levee from S.P. Shops to Jibboom Street Bridge.

101-4 *Completed* ¹⁹⁶² Low 100-foot reach immediately downstream from I Street Bridge to be raised to project grade and provided with standard patrol road.

Sacramento River - Mouth of Cache Slough to Collinsville

50c *Completed* ^{Sept 1960} Provide patrol road along left levee of Three Mile Slough on Twitchell Island

Yolo Bypass - Fremont Weir to Sacramento Weir

49-h Correct dangerous piping condition in left levee Yolo Bypass R.D. 1600.

60b *Completed* ¹⁹⁵⁹ Repair sloughing and subsidence along right levee K.L. Ridge Cut.

76f *Eliminated* Correct seepage endangering levee near right abutment of Fremont Weir.

101-26 *Completed* ¹⁹⁶⁰ Raise east levee Cache Creek Settling Basin to provide 3-foot project freeboard. Provide turnarounds and patrol roads.

3. ESTIMATES OF COSTS OVER AND ABOVE

THOSE INDICATED IN THE 1953 MEMORANDUM OF UNDERSTANDING TO

COMPLETE THE PRESENTLY AUTHORIZED

SACRAMENTO RIVER FLOOD CONTROL PROJECT

	<u>Federal Costs</u>	<u>Non-Federal Costs</u>
American River	<u>\$ 70,000</u>	<u>\$ 2,500</u>
Cache Creek	<u>500,000</u>	<u>1,000</u>
Cache Slough, Lindsey Slough, and Yolo Bypass	<u>180,000</u>	<u>22,300</u>
Feather River and Tributaries	<u>4,302,800</u>	<u>164,600</u>
Georgiana Slough	<u>10,000</u>	<u>2,700</u>
Sacramento River - Ord Bend to Fremont Weir	<u>535,000</u>	<u>21,000</u>
Sacramento River - Fremont Weir to Sacramento Weir	<u>4,700</u>	<u>1,000</u>
Sacramento River - Sacramento Weir to Mouth of Cache Slough	<u>391,900</u>	<u>72,000</u>
Sacramento River - Mouth of Cache Slough to Collinsville	<u>10,000</u>	<u>15,000</u>
Yolo Bypass - Fremont Weir to Sacramento Weir	<u>295,600</u>	<u>9,400</u>
TOTAL	<u>\$6,300,000</u>	<u>\$311,500</u>

4. COMPLETION PROCEDURES

The work provided to be done by the Federal Government in this Supplement, together with the items remaining to be done under the 30 November 1953 Memorandum of Understanding, shall constitute the Federal program as presently authorized under the Sacramento River Flood Control Project.

7

The units of the project which meet project standards and upon which no further work is to be accomplished by the Federal Government under the Memorandum of Understanding respecting the Sacramento River Flood Control Project, dated 30 November 1953 or this Supplement thereto, and upon which letters of completion or project compliance have been furnished to the State or which have been or are being completed by the Federal Government in accordance with plans and specifications heretofore reviewed by the State, will be maintained and operated by the State as of the date of execution of this Supplement or the date of completion of the work, whichever occurs last.

Where additional work by the Corps remains to be accomplished under the terms of the Memorandum of Understanding or this Supplement thereto, the State hereby agrees to operate and maintain each unit of work which is completed in accordance with the contract plans and specifications upon notification of such completion by the Federal Government. The Federal Government agrees to submit the contract plans and specifications to the State for review at least thirty (30) days prior to the opening of bids. Lack of written objection by the State within twenty-one (21) days after submittal of said contract plans and specifications to the State for review shall constitute final agreement by the State as to the adequacy of the proposed plans.

Nothing contained herein shall prejudice the findings of the review report authorized by the Committee on Public Works, U. S. Senate on 18 February 1955, "with a view to determining whether any

modifications in the existing project for bank protection and maintenance of the channel is advisable at the present time"; the provisions of paragraphs d and e, pages 26 and 27 of the 30 November 1953, Memorandum of Understanding; or such future administrative, legislative, or judicial review as may occur.

In Witness Whereof, the respective parties hereto have caused this Supplement to the 30 November 1953 Memorandum of Understanding to be executed as of the date first herein written.

THE UNITED STATES OF AMERICA

BY

William E. Cassidy
Division Engineer, South Pacific
Division Corps of Engineers,
United States Army

THE STATE OF CALIFORNIA, acting by
and through The Reclamation Board

BY

A. R. Gilliland
President

BY

James E. Holmes
Secretary

SECOND SUPPLEMENT TO THE
MEMORANDUM OF UNDERSTANDING
RESPECTING THE SACRAMENTO RIVER FLOOD CONTROL PROJECT

This Second Supplement to the 30 November 1953 Memorandum of Understanding Respecting the Sacramento River Flood Control Project entered into this 5th day of June 1958 by and between the Corps of Engineers, U. S. Army, represented by the Division Engineer, U. S. Army Engineer Division, South Pacific, Corps of Engineers, hereinafter called the Corps, and the State of California, represented by its agency the Sacramento and San Joaquin Drainage District, acting by and through the Reclamation Board, hereinafter called the State.

W I T N E S S E T H

That, whereas the above-mentioned parties entered into a Memorandum of Understanding on the 30th day of November 1953 and a Supplement thereto on 29 November 1957, which delineated, among other things, the extent of, and the work to be done by both parties, including bank protection work, to complete, operate and maintain, the Sacramento River Flood Control Project; and

Whereas, all of the bank protection work so delineated in the 1953 Memorandum of Understanding is now practically complete; and

Whereas, extensive additional bank erosion has occurred since the 1951 survey, which was the basis for the delineation of work to be done to complete the Project; and

Whereas, immediate construction of additional bank protection work at critical locations is necessary to safeguard the Project and to reduce ultimate cost to the Federal Government; and

Whereas, neither the State of California nor other local interests is currently able to construct the critical bank protection work.

Now, Therefore, the parties hereto agree that the provisions hereof under the following subject headings represent their mutual understanding, namely: 1. Status of the 1953 Memorandum of Understanding and the 1957 Supplement thereto; 2. Bank Protection work over and above that provided for in 1953 Memorandum of Understanding and the 1957 Supplement necessary to provide interim protection to the Project and estimates of cost therefor.

1. STATUS OF THE 1953 MEMORANDUM OF UNDERSTANDING
AND THE 1957 SUPPLEMENT THERETO

The 1953 Memorandum of Understanding and the 1957 Supplement thereto are not changed in any way except for the addition of bank protection work as hereinafter provided.

2. BANK PROTECTION WORK OVER AND ABOVE THAT PROVIDED
FOR IN 1953 MEMORANDUM OF UNDERSTANDING AND THE 1957
SUPPLEMENT NECESSARY TO PROVIDE INTERIM PROTECTION TO THE
PROJECT AND ESTIMATES OF COST THEREFOR.

The work to be done consists of construction of bank protection work at critical sites to be selected jointly by the State and the Corps with the same degree of local participation as provided for under existing law.

The maximum amount of money to be expended by the Federal Government for this work is \$1,500,000, at a rate of approximately \$500,000 per year. It is estimated that the total Non-Federal costs for this work will amount to \$200,000. These costs are over and above those indicated in the 1953 Memorandum of Understanding and the 1957 Supplement thereto. This work is to provide interim protection until such time as the State or other local interests make arrangements to accomplish bank protection work as a maintenance item or the Congress determines that bank protection is a joint Federal-State or a Federal responsibility, whichever occurs sooner.

In Witness Whereof, the respective parties hereto have caused this Second Supplement to the 30 November 1953 Memorandum of Understanding to be executed as of the date first herein written.

THE UNITED STATES OF AMERICA

BY

William J. Casper

Division Engineer
U. S. Army Engineer Division,
South Pacific
Corps of Engineers

THE STATE OF CALIFORNIA, acting by
and through the Reclamation Board

BY

Arnold S. Shanno

Vice-President

BY

Ernest K. Holmes

Secretary

800.5
SPKCC 824-3 (SacRiv FCP)

16 MAY 1958

SUBJECT: Negotiations for Second Supplement to the "1953 Memorandum of Understanding" Respecting the Sacramento River Flood Control Project

TO: Division Engineer
U.S. Army Engineer Division, South Pacific
San Francisco, California

1. Reference is made to the following:

a. Teletype SPDCP 54, dated 26 Mar 58, quoting teletype ENGWO 139, dated 25 Mar 58, which authorizes negotiating with the State of California for a Second Supplement to the Memorandum of Understanding respecting the Sacramento River Flood Control Project.

b. Letter dated 24 Feb 58 from OCE to Bureau of the Budget regarding proposed Supplement No. 2.

c. Letter dated 20 Dec 57 from Sacramento District to SPD, subject, "Supplement No. 2, Bank Protection, Sacramento River Flood Control Project."

2. Inclosed for your consideration is a draft dated 15 May 58 of the proposed Second Supplement which has tentatively been agreed to with State representatives. It will be noted that the draft does not make specific reference to the 3-year period for the work as mentioned in Chief of Engineers' letter of 24 Feb 58 to the Bureau of the Budget. Urgency of other Project work and uncertainty of future appropriations and workload makes it undesirable to set a fixed time for the life of the agreement. The provisions in the document that the maximum amount of money to be expended by the Federal Government for the work is \$1,500,000 at the rate of approximately \$500,000 per year and that the work is to provide interim protection is believed to conform to the intent as outlined in reference 1b. In this regard, evaluation of the situation indicates that little or no work can be accomplished prior to F.Y. 1960, and that expenditures may be less than \$500,000 per year.

SPDCP 800.922 (Sac River) Sec 1st Ind (S-15 July 1958)
(15 May 58)

SUBJECT: Negotiations for Second Supplement to the "1953 Memorandum of Understanding" Respecting the Sacramento River Flood Control Project

U. S. Army Engineer Division, South Pacific, San Francisco, California,
5 June 1958

TO: District Engineer, U. S. Army Engineer District, Sacramento, Calif

1. The draft of the second supplement to the "Memorandum of Understanding" of 1953 is approved. The second supplement has been reproduced and six copies signed by the Division Engineer are inclosed for the signatures of the President and Secretary of the State Reclamation Board.

2. When the signatures have been obtained, two signed copies should be returned for the files of this office and for CCE. Additional reproductions will be made as needed from the signed copies.

1 Incl
w/d - 1
Added: 1 Incl (6 cys)
2, Signed cys Second Supplement dtd 5 June 1958

WILLIAM F. CASSIDY
Brigadier General, USA
Division Engineer

SPKCC 800.5 (16 May 58)

2d Ind

JLN/vg

U. S. Army Engineer District, Sacramento, California 26 JUN 1958

TO: Div Engr, U. S. Army Engr Div, So Pac, San Francisco, Calif

Inclosed are two copies of the second supplement to the 1953 "Memorandum of Understanding" signed for the State of California by the President and Secretary of the Reclamation Board. Two signed copies were retained by said Reclamation Board and two for the Sacramento District files.

1 Incl
w/d - 4 cys incl 2
(cys 3,4,5,& 6)

I signed cys in MTR.

A. E. McCOLLAM
Colonel, CE
District Engineer

cc: Const-Oper. Div w/incl
Planning Branch w/incl
Levees & Channels Sec w/incl
Survey & Mats Br w/incl (in dup)

Contract
Originals
Date: 6/2
Dist.
Eng.
Asst. U.S. (A)
Asst. U.S. (C)
Exec. Asst.
Off. Asst.
Code
Inc. &
Acctg.
Mod.
Prop.
Office Service
Com. & Equip.
Supp.
R. E.
Pres.
Legal
Supply

SPKGP 800.5 (Sac River) Sac 3d Ind
(15 May 58)

SUBJECT: Negotiations for Second Supplement to the "1953 Memorandum
of Understanding" Respecting the Sacramento River Flood
Control Project

U. S. Army Engineer Division, South Pacific, San Francisco, California,
30 June 1958

TO: Chief of Engineers, Department of the Army, Washington 25, D. C.
ATTENTION: ERGWD

Inclosed for information and files of OCE is one fully executed
copy of the Second Supplement to the Memorandum of Understanding
Respecting the Sacramento River Flood Control Project. This supplement
became effective as of 5 June 1958.

FOR THE DIVISION ENGINEER:

1 Incl
w/d - 1 cy

O. F. ROBINSON
Colonel, CE
Assistant Division Engineer

cc: Sacramento District
Ref 2d Ind 26 Jun 58
File SPKGC 800.5

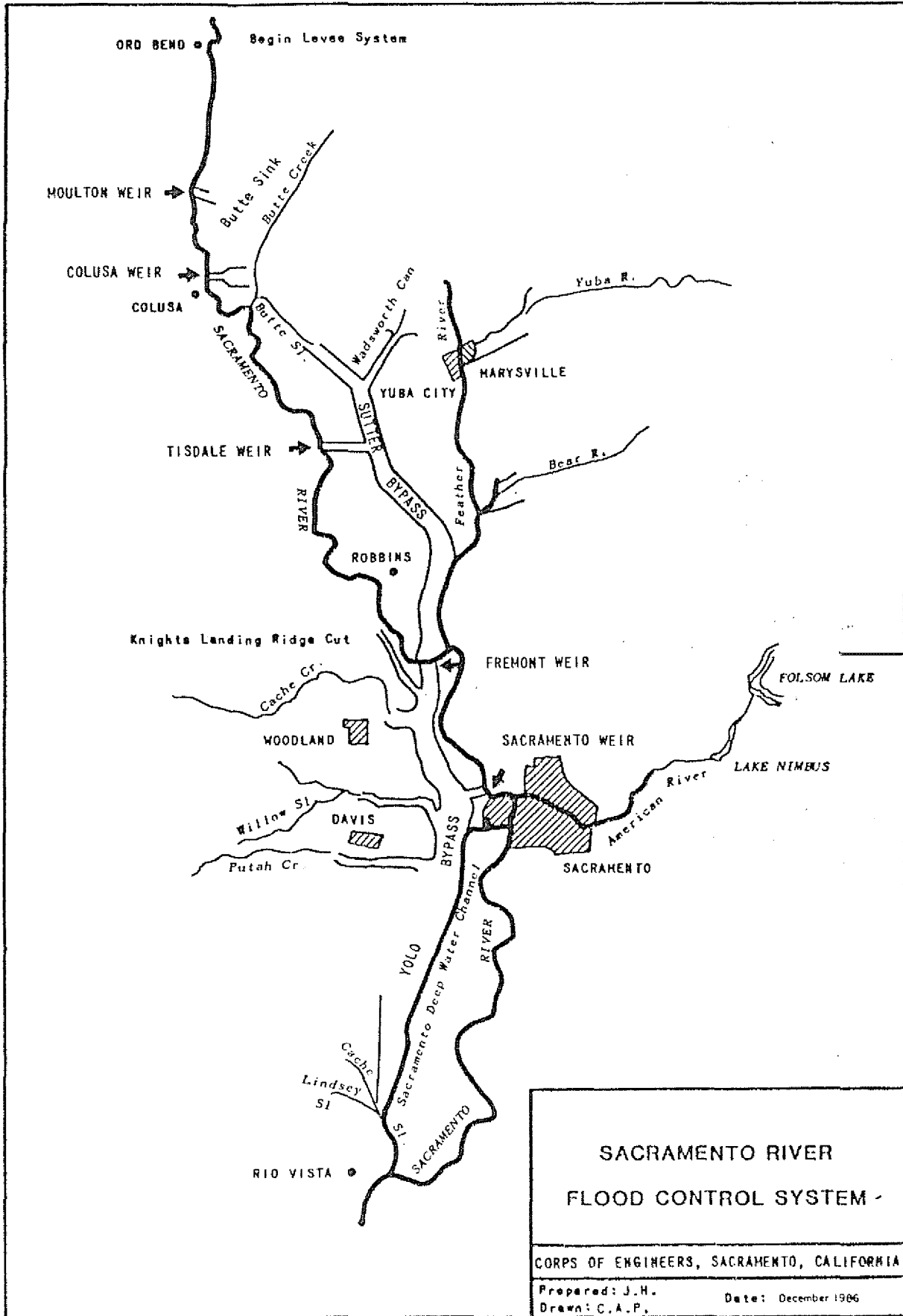
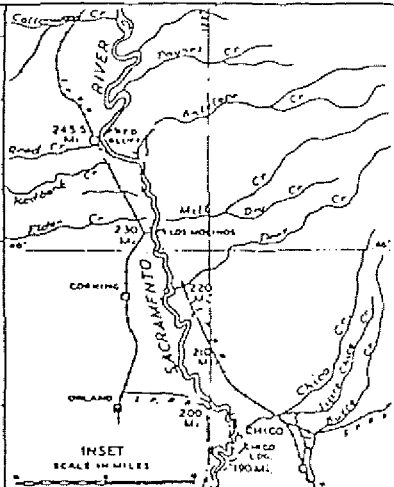
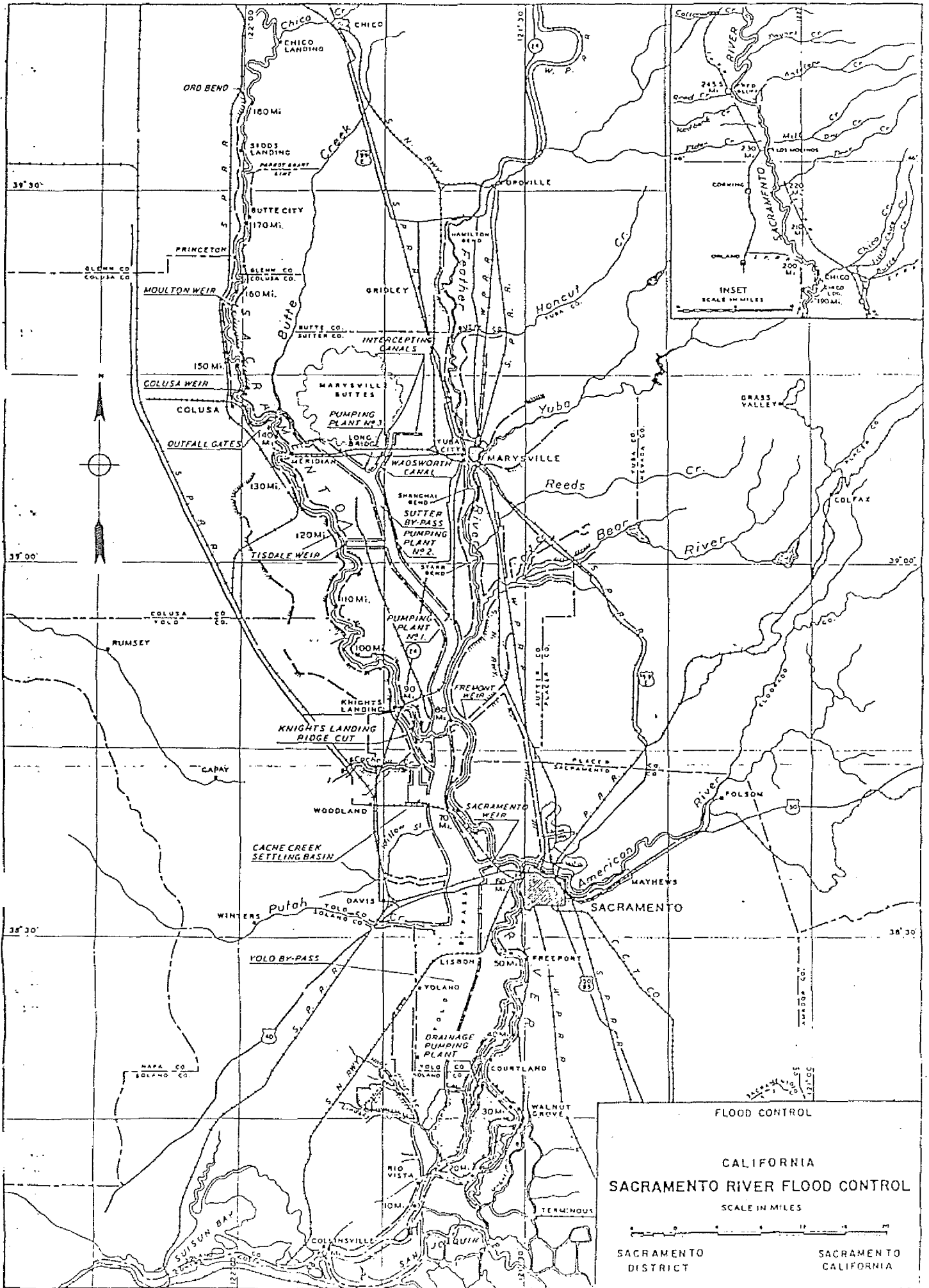


FIGURE II-14



FLOOD CONTROL

CALIFORNIA

SACRAMENTO RIVER FLOOD CONTROL

SCALE IN MILES

SACRAMENTO DISTRICT

SACRAMENTO CALIFORNIA