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SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE
MANUAL

SACRAMENTO RIVER
FLOOD CONTROL PROJECT

UNIT NO. 124

NORTH LEVEE OF AMERICAN RIVER
FROM
NATOMAS EAST CANAL TO THE SACRAMENTO RIVER
AND
EAST LEVEE OF THE SACRAMENTO RIVER
FROM
NATOMAS CROSS CANAL TO AMERICAN RIVER



SACRAMENTO DISTRICT
CORPS OF ENGINEERS
U. S. ARMY
SACRAMENTO, CALIFORNIA

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15 March 1954

SUBJECT: Operation and Maintenance Manuals

MEMORANDUM TO: CHIEF, CONSTRUCTION-OPERATIONS DIVISION

A Supplement to the Standard Operation and Maintenance Manual for the Sacramento River Flood Control Project, Unit No. 124, entitled, "North Levee of the American River from Natomas East Canal to the Sacramento River and East Levee of the Sacramento River from Natomas Cross Canal to the American River," is submitted herewith.

1. Incl

1. O & M Manual

cc: Levees


F. KOCHIS
Chief, Engineering Division

Copies furnished: —

State Reclamation Board	2 copies
Water Resources	2 "
Division Engineer	2 "

15 March 1954

SPK:R

SUBJECT: Operation and Maintenance Manual

MEMORANDUM TO: CHIEF, CONSTRUCTION-OPERATIONS DIVISION

A Supplement to the Standard Operation and Maintenance Manual for the Sacramento River Flood Control Project, Unit No. 134, entitled, "North levee of the American River from Nimbus West Canal to the Sacramento River and East levee of the Sacramento River from Nimbus Cross Canal to the American River," is submitted herewith.

E. ROBERTS
Chief, Engineering Division

I. O. & M Manual
I. 101

cc: Javess

Copy furnished

*State Department, Bureau of Reclamation
Division of Operations
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CORPS OF ENGINEERS
U. S. ARMY

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 124
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AND
EAST LEVEE OF THE SACRAMENTO RIVER
FROM
NATOMAS CROSS CANAL TO AMERICAN RIVER

Prepared by the Sacramento District
Corps of Engineers, U. S. Army
Sacramento, California, dated June 1953

**SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT**

UNIT NO. 124

NORTH LEVEE OF AMERICAN RIVER FROM
NATOMAS EAST CANAL TO THE SACRAMENTO RIVER
AND EAST LEVEE OF THE SACRAMENTO RIVER FROM
NATOMAS CROSS CANAL TO AMERICAN RIVER

LOCATION	ADDITION OR REVISION	DATE
1-03	Add contract no. 57-43	Nov 1963
Exhibit B	Add drawing no. 50-4-3285	Nov 1963
1-03	Add contract no. 66-50	Dec 1966
Exhibit B	Add drawing no. 50-4-4004	Dec 1966
Exhibit F	Add letter of acceptance dated 28 Jun 1966	Dec 1966
1-03 c.	Add contract no. DACW05-68-C-0014	Dec 1968
Exhibit B	Add drawing no. 50-4-4078	Dec 1968
Exhibit F	Add letter of acceptance dated 23 Dec 1968	Dec 1968
1-03 d.	Add contract no. DACW05-70-C-0008	Mar 1971
Exhibit B	Add drawing no. 50-4-4310	Mar 1971
Exhibit F	Add copy of letter of acceptance dated 2 Oct 1970	Mar 1971
1-03	Add subparagraph e.	Nov 1975
2-02	Add subparagraph e.	Nov 1975
Exhibit B	Add drawing no. 50-4-4713	Nov 1975
Exhibit F	Add copy of letter of acceptance dated 30 May 1974	Nov 1975
1-03	Add subparagraph f.	Nov 1983
Section II, page 16	Add paragraph 2-05	Nov 1983
Exhibit B	Add drawing no. 50-4-5433	Nov 1983
Exhibit F	Add copy of letter of transfer dated 14 Dec 1979	Nov 1983
1-03	Add subparagraph g.	Sep 1990
Exhibit B	Added drawing no. 50-4-5714	Sep 1990
Exhibit F	Added letter of transfer dated 30 Nov 1987	Sep 1990
1-03	Add subparagraph h.	Jul 1993
Exhibit B	Add drawing no. 50-4-5820	Jul 1993
Exhibit F	Add copy of letter of transfer dated 16 Apr 1993	Jul 1993
1-03	Add subparagraph i.	Aug 1993
2-04	Add subparagraph (7)	Aug 1993
Exhibit A-2	Add location map of observation wells	Aug 1993
Exhibit B	Add drawing no. 50-4-5833	Aug 1993
Exhibit F	Add copy of letter of acceptance dated 28 Apr 1993	Aug 1993
Exhibit F	Add copy of letter of transfer 19 Mar 1951	22 Dec 2010
Exhibit F	Add copy of letter of acceptance dated 20 Apr 1951	22 Dec 2010

LOCATION	ADDITION OR REVISION	DATE
Exhibit F	Add copy of letter of transfer dated 8 Dec 1951	22 Dec 2010
1-03	Add subparagraph j	22 Dec 2010
Exhibit F	Add copy of letter of transfer dated 30 June 1987	22 Dec 2010
Exhibit F	Add letter of acceptance dated 27 Dec 1993	22 Dec 2010
Exhibit F	Add copy of letter of transfer dated 5 Nov 1968	2 Feb 2011
Exhibit F	Add copy of letter of transfer dated 28 Sep 1970	2 Feb 2011
Exhibit F	Add copy of letter of transfer dated 20 May 1974	8 Mar 2011
Exhibit F	Add copy of letter of acceptance dated 9 Jan 1980	8 Mar 2011

SUPPLEMENT TO STANDARD
OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT
UNIT NO. 124

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D	Check List No. 1 - levee Inspection Report	Unattached (Contained in Standard Manual)
E	Check Lists - Levee, Channels, and Structures	Sheet 1 thru 7
F	Letter of Acceptance by State Reclamation Board	4 Sheets
G	Semi-Annual Report Form	Sheets 1 and 2

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UNIT NO. 124
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SECTION I - INTRODUCTION

1-01. Location. - The improvement covered by this manual is that part of the Sacramento River Flood Control Project which includes the North levee of the American River from Natomas Canal to the Sacramento River and the East levee of the Sacramento River from Natomas Cross Canal to the mouth of the American River. The levees of this unit form a portion of the boundary of Reclamation District No. 1000 and are located in Sacramento and Sutter Counties, California. The location of the completed unit covered by this manual is shown on Exhibit A-1 and is in the general vicinity of the Town of Verona and the City of Sacramento.

1-02. Protection provided. - The levees of this unit provide direct protection to agricultural lands against high water of the Sacramento River and the American River. The grade of the adopted flood plane profile along the main channel of the Sacramento River varies from elevation 41.0 at Natomas Cross Canal to elevation 34.7 at the mouth of the American River. The grade of the adopted flood plane profile in the American River varies from elevation 36.0 at Natomas East Canal to elevation 34.7 at the junction with the Sacramento River. Allowance for freeboard along both levees is in excess of 3 feet. The project design flood for the Sacramento River is 107,000 cubic feet per second and the project design flood for the American River is 180,000 cubic feet per second within the limits of this levee unit. In the event of high water as reflected on the U. S. Weather Bureau gage at the "I" Street Bridge, the Sacramento Weir is opened in order to control the flood stage in the river to 29.0 insofar as possible. With the Sacramento Weir in operation, flows in that portion of the Sacramento River from Sacramento Weir to the American River may vary from 107,000 cubic feet per second in a downstream direction to as much as 80,000 cubic feet per second in an upstream direction.

1-03. Project Works. Levees Within this unit have been built by local interests and equal or exceed the adopted section and grade requirements. For this reason, no new construction was necessary. A surfaced County Road has been built on the crown of the levees throughout their entire length, as shown on Drawing No. 50-13-2810, sheets 1 to 10, inclusive. (See Exhibit "B").

a. Emergency levee repairs, left bank Sacramento River, R.D. 1000-mile 75.5 was accomplished under Contract No. DA-04-167-CIVENG-57-43 by Claude L. Youngs, contractor, during the period from 20 September 1956 to 23 October 1956. Specification No. 2209, Drawing No. 50-4-3285.

b. Bank protection on the left bank of the Sacramento River at Mile 77.6 (Unit No. 8) was accomplished under Contract No. DA-04-167-CIVENG-66-50 by H. Earl Parker, Inc. during the period from 18 October 1965 to 14 June 1966. Specification No. 3154, Drawing No. 50-4-4004.

c. Bank protection on the left bank of the Sacramento River at Mile 61.5 (Unit No. 12) was accomplished under contract No. DACW05-68-C-0014 by A. Teichert and Son, Inc. and completed in November 1968. Specification No. 3288, Drawing No. 50-4-4078.

d. Bank protection on the left bank of the Sacramento River at Mile 61.0 (Unit No. 16) was accomplished under contract No. DACW05-70-C-0008 by H. Earl Parker during the period from 25 July 1969 to 23 September 1970. Specification No. 3390, Drawing No. 50-4-4310.

e. Bank protection and selective clearing on the left bank of the Sacramento River at Site Miles 77.4, 77.6, and 78.5 (Unit No. 24) was accomplished under Contract No. DACW05-73-C-0038 by Claude C. Wood during the period from 11 October 1972 to 6 January 1975. Specification No. 4169, Drawing No. 50-4-4713.

f. Bank sloping, stone protection and selective clearing on the left bank of the Sacramento River at Site Miles 77.8, and 78.4 (a portion of Unit 34) was accomplished under Contract NO. DACW05-78-C-0046 by Claude C. Wood. Construction was completed on 7 November 1979. Specification No. 5403, Drawing No. 50-4-5433.

g. Bank sloping, stone protection and selective clearing on the right bank of the Sacramento River at Site Mile 78.2 (a portion of Contract 38B) was accomplished under Contract No. DACW05-86-C-0079. Specification No. 7082, Drawing No. 50-4-5714.

h. Construction of approximately 12.2 miles of levee berm and drain construction on the landside slope of the Reclamation District 1000 levee between the Natomas Cross Canal and Powerline Road. This was accomplished under Contract No. DACW05-91-C-0029, Specification No. 8846, and Drawing No. 50-4-5820.

i. Construction of a slurry cutoff wall in the Reclamation District Number 1000 levee between Powerline Road and the Natomas Main Drainage Canal. Observation wells

were placed at various locations along the slurry cutoff wall (EXHIBIT A-2). This work was accomplished under Contract No. DACW05-91-C-0103, Specification No. 8872, Drawing No. 50-4-5833.

j. Emergency repairs on the left bank of the Sacramento River, Miles 2.38 to 12.48 in Reclamation District 1000 was completed on 8 June 1987 under Contract No. DACW05-87-C-0016. Drawing No. 50-4-5768.

1-04. Flood Flows. For purposes of this manual, the term "flood" or "high water period" shall refer to flows when the water surface near Verona reaches or exceeds a reading of 35.0 on the U.S.G.S. gage or when the water surface at the "I" street Bridge in Sacramento reaches or exceeds 25.0 on the U. S. Weather Bureau gage, or when the water surface reaches or exceeds the reading of 40.0 on the Division of Water Resources gage at the American River Bridge at "H" street.

1-05. Assurances provided by local interests. Assurance of cooperation by local interests is provided by state legislation, as contained in Chapter 3, Part 2, Division 5 of the State Water Code (see paragraph 2-02a of the standard Manual).

1-06. Acceptance by State Reclamation Board. Responsibility for operating and maintaining the completed works was officially accepted by the Reclamation Board of the state of California on 18 December 1951, as shown on the attached letter of acceptance, Exhibit F.

1-07. Superintendent. The name, address and telephone number of the Superintendent appointed by local interests to be responsible for the continuous inspection, operation, and maintenance of the project works shall be furnished the District Engineer, and in case of any change of Superintendent, the District Engineer shall be so notified.

SECTION II - FEATURES OF THE PROJECT SUBJECT
TO FLOOD CONTROL REGULATIONS

2-01. Channels. -

a. Description. The principal structures consist of:

(1) Channels. Flood flows along the reach of the Sacramento River from Natomas Cross Canal to the mouth of the American River are relieved at Fremont Weir on the Northerly end. Likewise, flood flows of the American River are partially relieved at the Sacramento Weir when placed in operation at a gage reading of 29.0 at the "I" Street Bridge.

Since the channel of the Sacramento River from Natomas Cross Canal to the American River is utilized for navigable purposes, the responsibility of local interests for inspection, maintenance and operation of the channel shall be limited to flood control and the requirements of subparagraphs 2-01b, c, and d, which follow, shall be observed only to that extent.

The channel of the American River within this unit shall be inspected, maintained and operated as outlined in the following subparagraphs 2-01b, c and d.

b. Inspection.

(1) Pertinent Requirements of the Code of Federal Regulations. Flood Control Regulations, Par. 208.10(g)(1) are quoted in part as follows:

- "(g) Channels and Floodways (1) Maintenance. Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:
- (i) The channel or floodway is clear of debris, weeds, and wild growth;
 - (ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;
 - (iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;
 - (iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;
 - (v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works. Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections....."

(2) The purpose of the flood-flow channels inspection is to insure that conditions which affect the channel capacity will remain the same, as far as possible, as those considered in the design assumptions and that no new conditions develop that may affect the stability of the project structures. At each inspection required by Par. 208.10(g)(1) of the Flood Control Regulations, particular attention will, therefore, be given the following:

- (a) Location, extent and size of vegetal growth.
- (b) Unauthorized operations within the flood-flow channel right-of-way, such as excavations, buildings, and other structures, levees, bank protection, or training dikes.
- (c) Rubbish and industrial waste disposal.
- (d) Changes in the channel bed such as aggradation or degradation, which would interfere with free-flow from side drainage structures or induce local meanders that would scour the banks.
- (e) Operations of any nature upstream from the project that would affect flow conditions within the limits of the flood control project.
- (f) Condition of project structure.
 - 1. Channel walls:
 - a. Deviation from alignment and grade.
 - b. Development of cracks and spalls.
 - c. Mechanical injuries.
 - 2. Fencing:
 - a. Injuries to posts, fencing or barbed wire.
 - b. Damage to galvanizing.

3. Earth fills:

- a. Settlement.
- b. Erosion of levee slopes.
- c. Excessive seepage or saturation area back of fills.
- d. Condition of bank protection - concrete or stone blanket.

4. Right-of-way:

- a. Presence of dumped refuse.
- b. Encroachment of trespass.

(3) No excavation within the limits of the Sacramento River Channel from Natomas Cross Canal to the American River or along the American River Channel from Natomas East Canal to the Sacramento River will be permitted unless an excavation permit has been approved by the State Reclamation Board.

(4) If any work is done to improve flow conditions in subject channels, it should be coordinated with the District Engineer to insure that proper provisions are made for channel alignment and capacity to conform to the existing project.

(5) The intent of these inspections is to disclose all conditions which in any way affect the stability of the structures and their functioning for the control of floods. Each inspection report should note and comment on any repair measures that have been taken since the last inspection. In making these inspections, the check sheets included as Exhibit E shall be explicitly followed.

c. Maintenance.

(1) Pertinent Requirements of the Code of Federal Regulations. Flood Control Regulations, Par. 208.10(e)(1) are quoted in part as follows: "... Immediate steps will be taken to remedy any adverse conditions disclosed by such inspection"

(2) Shoaling or aggradation at the inlets or outlets of side drainage structures may render them inoperative. It is, therefore, imperative that all drains be kept open and unobstructed at all times.

(3) Dumped rock or other suitable types of protection should be placed at locations found by experience to be critical trouble points, with a view to stabilizing the channel alignment and preserving the general uniformity of the bank lines.

(4) Sediment and debris plugs or other obstructions should be removed from the channel to prevent any tendency for the flows to be deflected within the channel. The heavy material likely to accumulate in the new channel at the mouths of tributaries should be removed to keep the channel clear.

(5) The channel and right-of-way shall be kept reasonably clear of debris, refuse matter, or industrial wastes.

(6) Weeds and other vegetal growth in the channel shall be cut in advance of the flood season and together with all debris, removed from the channel.

(7) All eroded concrete shall be repaired as soon as reinforcing steel is exposed or erosion reaches a depth of 4 inches. For this purpose, it is recommended that the repair be made by thoroughly cleaning the surface by sandblasting and building up the section with pneumatically placed Portland cement mortar. All evidence of settlement, uplift, or failure of concrete structures shall be referred to the State Engineer for analysis and remedial measures.

(8) All damage to fencing, whether resulting from accidental or willful injuries or from corrosion, shall be promptly repaired with new material in order to maintain satisfactory protection to the public.

(9) All subdrainage structures which have become cemented due to the evaporation of ground water or other causes, shall be thoroughly cleaned out and repacked with fresh gravel.

d. Operation.

(1) Pertinent Requirements of the Code of Federal Regulations. Par. 208.10(g)(2), are quoted in part as follows:

"(g) Channels and floodways..... (2) Operation. Both banks of the channel shall be patrolled during periods of high water Appropriate measures shall be taken to prevent the formation of jams of debris. Large objects which become lodged against the bank shall be removed. The improved channel or floodway shall be thoroughly inspected immediately following each major high water period. As soon as practicable thereafter all snags and other debris shall be removed and all damage to walls, drainage outlets or other flood control structures repaired."

(2) It shall be the duty of the Superintendent to maintain a patrol of the project works during all periods of flow in excess of a reading of 25.0 on the U. S. Bureau gage at "I" Street Bridge in the City of Sacramento or above a reading of 40.00 on the Division of Water Resources gage at the American River Bridge at "H" Street.

2-02. Levees. -

a. Description. The levees described in this manual are located along the north bank of the American River from Natomas East Canal to the Sacramento River and along the east bank of the Sacramento River from Natomas Cross Canal downstream to its junction with the American River. For more complete details of items included in construction of above-mentioned levees, refer to the "as constructed" drawings of Exhibit B. Structures affecting levee maintenance are listed in Exhibit E. Records of construction of levees within this unit are not available but it is probable that the bulk of the fill required to construct the levees was obtained by dredging the adjacent stream channel.

b. Inspection.

(1) Pertinent Requirements of the Code of Federal Regulations Flood Control Regulations, paragraph 208.10(b)(1), are quoted in part as follows:

- "(b) Levees - (1) Maintenance Periodic inspection shall be made by the Superintendent to be certain that:
- (i) No unusual settlement, sloughing, or material loss of grade of levee cross section has taken place;
 - (ii) No caving has occurred on either the landside or the riverside of the levee which might affect the stability of the levee section;
 - (iii) No seepage, saturated areas, or sand boils are occurring;
 - (iv) The drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged;
 - (v) Drains through the levees and gates on said drains are in good working condition;
 - (vi) No revetment work or riprap has been displaced, washed out, or removed;

- (vii) No action is being taken, such as burning grass and weeds, during inappropriate seasons, which will retard or destroy the growth of sod; (see Note (a) at end of subparagraph (1).)
- (viii) Access roads to and on the levee are being properly maintained;
- (ix) Cattle guards and gates are in good condition;
- (x) Crown of levee is shaped so as to drain readily, and roadway thereon, if any, is well shaped and maintained.
- (xi) There is no unauthorized grazing or vehicular traffic on the levees.
- (xii) Encroachments are not being made on the levee right-of-way which might endanger the structure or hinder its proper and efficient functioning during times of emergency.

Such inspections shall be made immediately prior to the beginning of the flood season, immediately following each major high water period, and otherwise at intervals not exceeding 90 days; and such intermediate times as may be necessary to insure the best possible care of the levee ..."

Note (a)

Since the growth of sod on the slopes of the levees of this project is not practicable and as the nature of the levee growth warrants burning thereof to facilitate inspection, the provisions of subparagraph b(1) of the regulations inconsistent therewith shall not apply. In place of item (vii), therefore, the following shall be observed:

Weeds, grasses and debris on the levee are burned during appropriate seasons, where not dangerous or impracticable, in order to permit the detection of cracks, holes, burrows, slips, and other damage and to permit the detection and extermination of burrowing animals and that grass and weeds on levee slopes be mowed where removal by burning is dangerous or impracticable, such as peat levees or where burning would constitute a hazard.

(2) To insure the taking of such maintenance measures as will be required for proper functioning of the levee, the following items shall be specifically covered in each inspection:

- (a) Aggradation or degradation of the stream bed along the toe.
- (b) Settlement of levee fill.
- (c) Erosion of levee slopes; both sides of levees.
- (d) Presence of seepage; saturated areas, or sand boils back of levee.
- (e) Condition of access roads and roadway on levee.

c. Maintenance.

(1) Repairs to levee embankment. Methods used for repair or reconstruction of the levee fill will depend on the extent of the damaged section. If of small extent, the most suitable method will be to bring the levee back to line and grade by a fill made in 6-inch layers of earth free from brush, roots, or other unsuitable matter. If of greater extent the fill should be made of selected materials from suitable borrow pits placed in accordance with modern approved construction methods.

(2) Depredations of burrowing animals. Dens and runways formed within the levee by burrowing animals are frequently the causes of levee failures during flood stages. Burrowing animals such as muskrats, ground hogs, ground squirrels, moles and gophers, found in the levee should be exterminated. The dens and runways should be opened up and thoroughly compacted as they are backfilled. Levees kept properly cleared are not seriously menaced by burrowing animals as they prefer areas where a protective cover, such as high grass, weeds, and brush, is found. Several methods of extermination are found effective, such as trapping, baiting, and poison gases, depending on the type of animal present and the time of year the work is done. Advice concerning the best methods in each locality can be obtained from the County Agricultural Agent.

(3) Access roads. Access roads to the levees shall be maintained in such condition that they will be accessible at all times to trucks used to transport equipment and supplies for maintenance of flood fighting.

d. Operation.

(1) Pertinent Requirements of the Code of Federal Regulations. Flood Control Regulations, Par. 208.10(b)(2) are quoted in part as follows:

e. Environmental values. Vegetation preserved as a part of selective clearing on the waterside berm or slope above the bank protection during prosecution of the contract shall not be removed as a part of normal maintenance as long as it remains alive and in a healthy state.

"(2) Operation. During flood periods, the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope to be certain that:

- (i) There are no indications of slides or sloughs developing;
- (ii) Wave wash or scouring action is not occurring.
- (iii) No low reaches of levee exist which may be overtopped.
- (iv) No other conditions exist which might endanger the structures.

Appropriate advance measures will be taken to insure the availability of adequate labor and materials to meet all contingencies. Immediate steps will be taken to control any condition which endangers the levee and to repair the damaged section."

2-03. Drainage and irrigation structures. -

a. Description. Drainage and irrigation structures provided in project works are located and described as follows:

(1) Structures located along the easterly bank of the Sacramento River from Natomas Cross Canal to the American River and along the northerly bank of the American River from Natomas East Canal to the Sacramento River, as shown on drawing No. 50-13-2810, in 10 sheets, and drawing No. 1-4-391 are listed as follows:

Location (River Mile):	Steel Pipe :	Other Structure Description	Elev. of Invert : at pipe
<u>SACRAMENTO RIVER EAST LEVEE</u>			
78.27	10"	Pump and check valve on riverside	40.0
77.74	12"	Pump and valve on riverside	21.5
77.32	24"		31.0
75.18	40"	Slide gate on riverside	25.5
75.17	36"	Slide gate on landside	21.5
75.15	48"	Slide gate and 3 pumps on riverside	24.8
73.17	48"	Slide gate and pumps on riverside	24.8
71.40	2"		32.04
69.70	12"	Riverside pump on incline	33.0
69.15	14"	Pump and gate valve on riverside	26.0

Location (River Mile)	Steel Pipe	Other Structure Description	Elev. of Invert at pipe
68.835	18"	Pump and gate valve on riverside	35.0
67.03	12"	Pump and valve on riverside	34.6
66.94	10"	Pump and valve on riverside	20.0
66.67	14"	Pump and gate valve on riverside	35.8
65.39	2-24"	Pump and valves on riverside	26.6
62.78		Gas Line Crossing, Steel pipe and regulating valves	
62.14	10"		
61.28	3"	Gate valve on riverside	29.0
61.25	10"	Pump on riverside	34.2
		4 - 5' x 9' concrete tunnels with wooden flap gates and 4 - 5' x 9' slide gates - Outlet from R.D. #1000 Drainage Pump.	
61.09	10"	Pump and valve on riverside	27.4
<u>NORTH LEVEE AMERICAN RIVER</u>			
0.425 mi. upstream from Jibboom Street Bridge	12"	Gate valve and pump on riverside	32.9

b. Inspection.

(1) Pertinent Requirements of the Code of Federal Regulations, Flood Control Regulations, paragraph 208.10(d)(1), are quoted in part as follows:

"(d) Drainage Structures (1) Maintenance.
Adequate measures shall be taken to insure that inlet and outlet channels are kept open and that trash, drift, or debris is not allowed to accumulate near drainage structures. Flap gates and manually operated gates and valves on drainage structures shall be examined, oiled and trial operated at least once every 90 days Periodic inspections shall be made by the Superintendent to be certain that;

- (i) Pipes, gates, operating mechanism, riprap and headwalls are in good condition;
- (ii) Inlet and outlet channels are open;
- (iii) Care is being exercised to prevent the accumulation of trash and debris near the structures and that no fires are being built near bituminous coated pipes;
- (iv) Erosion is not occurring adjacent to the structure which might endanger its water tightness or stability.

Immediate steps will be taken to repair damage, replace missing or broken parts, or remedy adverse conditions disclosed by such inspections."

(2) At each inspection required by paragraph 4-02(b)(2) of the Standard Manual, the following items, if applicable, shall be particularly noted:

- (a) Debris or other obstructions to flow.
- (b) Condition of pipes and gates.
- (c) Damage or settlement of pipe.
- (d) Condition of concrete—cracks, spalls, erosion.

c. Maintenance.

(1) All eroded concrete shall be repaired as soon as erosion reaches a depth of 4 inches on any reinforcing steel is exposed. For this purpose it is recommended that the repair be made by thoroughly cleaning the surface by sandblasting and building up the concrete to its original section with pneumatically-placed Portland cement mortar. All evidences of settlement, uplift, or failure of concrete structures should be referred to the State Engineer for analysis and recommendation of remedial measures.

(2) If the inspection shows that the automatic drainage structures have been jammed in an open position by debris or other obstructions, they shall be thoroughly cleaned so that they swing freely to a true closure. If any parts of the gates have been damaged or broken, they shall be replaced by new parts.

(3) Compliance with the provisions prescribed above pertaining to drainage structures is essential for proper maintenance of the levee system covered by this manual. Levee failures caused by neglected drainage structures are of common occurrence; it is, therefore, of utmost importance that these structures always be kept in perfect working condition in accordance with the regulations.

(4) Care should be taken not to bury any of the side drainage inlets in the event that it becomes necessary to fill any of the lowlying pockets in back of the levee. Plans for the maintenance of drainage facilities at any such points should be submitted to the State Engineer for approval before such work is started.

d. Operation.

(1) Pertinent Regulations of the Code of Federal Regulations. Flood Control Regulations, paragraph 208.10(d)(2), is quoted in part as follows:

"(2) Operation. Whenever high water conditions impend, all gates will be inspected a short time before water reaches the invert of the pipe and objects which might prevent closure of the gate shall be removed. Automatic gates shall be closely observed until it has been ascertained that they are securely closed..... All drainage structures in the levees shall be inspected frequently during floods to ascertain whether seepage is taking place along the lines of their contact with the embankment. Immediate steps shall be taken to correct any adverse conditions."

(2) The outlets of side drainage structures inundate at relatively low river stages. They should, therefore, be inspected at the first sign of a rise in the river to make certain that the gates are not jammed in an open position and thus allow flood waters to enter behind the levee.

2-04. Miscellaneous Facilities.

Miscellaneous structures or facilities which were constructed as a part of, or existed in conjunction with, the protective works, and which might affect their functioning, include the following:

(1) Bridges:

(a) A bridge crossing the American River and adjacent overflow area near its junction with the Sacramento River at Jibboom Street.

(b) A bridge crossing Natomas Cross Canal near the junction of Natomas Cross Canal and the Sacramento River at mile 78.8.

(2) Wharf.

(a) A U. S. Military wharf on the east bank of the Sacramento River at mile 61.2.

(3) County Highway. A surfaced county highway has been built along the crown of the levee and extends the entire length of this unit.

(4) Ferry Crossing. The Elkhorn Ferry over the Sacramento River is located approximately at river mile 70.8. This ferry operates on a cable which is laid across the river and which is normally submerged except in the vicinity of the ferry when it is under way.

(5) Hydrographic Facilities. Provisions have been made at several locations within this unit for hydrographic facilities. These facilities are listed as follows:

(a) U. S. Geological Survey continuous water stage recorder and staff gage located on the bridge over the mouth of the Natomas Cross Canal. Maintenance of this station is a responsibility of the U. S. Geological Survey.

(b) Staff gage located on the left bank of the Sacramento River at the pumping plant of Reclamation District No. 1000, five miles downstream from Verona. Maintenance of the gage is a responsibility of Reclamation District No. 1000.

(c) State Division of Water Resources continuous water stage recorder and staff gage located on the left bank of the Sacramento River opposite the center of Sacramento Weir. This station is used to estimate the discharge over Sacramento Weir. Maintenance of the gage is a responsibility of the State of California.

(d) Staff gage located on the left bank of the Sacramento River at the drainage pumping plant of Reclamation District 1000 one mile upstream from the mouth of the American River. Maintenance of this gage is a responsibility of Reclamation District No. 1000.

(e) Continuous water stage recorder and staff gage located at the highway bridge over the American River and adjacent overflow area at the confluence with the Sacramento River

(6) Utility Relocations. Because of the nature of the construction of the levee by local interests, no records of any utility relocations are available.

(7) Slurry Cutoff Wall and Observation Wells:

(a) All observation well readings shall be referenced from the top of the PVC riser pipe.

(b) Observation well readings should be collected monthly for at least a one year period and plotted along with the river stage. After the first year of data collection, readings should only be collected during high river stage.

(c) High water monitoring of the observation wells should begin 48 to 72 hours before river stage is forecasted to be at elevation 20 and continue until 48 to 72 hours following the return of river stage to that elevation. Observations should be made at 12 hour intervals.

(d) If any of the following conditions are noted, they should be reported immediately to the Chief, Emergency Management Division (916-557-6919), and the Chief, Geotechnical Branch (916-557-7197), U.S. Army Corps of Engineers, Sacramento District, 1325 J Street, Sacramento, CA 95814.

- (1) Visual signs of levee distress, such as cracking, sloughing, settlement, etc.
- (2) Seepage emerging at or above the landside levee toe.
- (3) Saturation and/or development of boils near the landside toe.
- (4) Sudden or rapid rise of water level in the landside observation wells (i.e., ≥ 6 inches in 12 hours)

(e) The data should be tabulated and furnished in report form annually before 1 September of each year to the Chief, Geotechnical Branch, U.S. Army Corps of Engineers, Sacramento District, 1325 J Street, Sacramento, CA 95814.

(f) The General Manager, Reclamation Board, shall be responsible for performing or having performed evaluation of the adequacy of the cutoff wall performance to include comparison with expected or previous years cutoff wall performance. This analysis will be included in the annual data report and will include a statement of the adequacy of cutoff wall performance and any recommendations, such as placement of additional observation wells.

(g) Maintenance of the observation wells shall include determining individual sediment levels annually, by measuring from the top of the PVC riser pipe to the sediment in the slotted interval. Ensure that the well is capped between readings and the cap is vented with a 1/8-inch diameter air hole. No fluids such as antifreeze or preparations designed to lubricate the inside of the riser pipe shall be introduced into any observation well. These types of fluids can damage the water tight joints, promote clogging of the slotted interval, and introduce contaminants into the groundwater. Any well observed with signs of tampering or vandalism should be measured for depth and checked for obstructions.

b. Inspection and Maintenance.

(1) Pertinent Requirements of the Code of Federal Regulations. Flood Control Regulations, paragraph 208.10(h)(1) are quoted in part as follows:

"(h) Miscellaneous Facilities. (1) Maintenance. Miscellaneous structures and facilities constructed as a part of the protective works and other structures and facilities which function as a part of, or affect the efficient functioning of the protective works, shall be periodically inspected by the Superintendent and appropriate maintenance measures taken. Damaged or unserviceable parts shall be replaced without delay"

(2) Inspection of the miscellaneous facilities shall be made at the same time that the inspection of the other features of the project are made, and shall be reported on check list No. 3, sheet No. 4 of EXHIBIT E.

(3) The interest of the Corps of Engineers and the responsibility of the local interests in the existing highway and railroad bridges is confined to their effect on the safety and functioning of the flood control channel, but any conditions noted in the inspections that may affect them in any way should, as a matter of courtesy, be brought to the attention of the agencies maintaining and operating them. If the inspection of any miscellaneous structure, either existent or constructed in the future under permit, discloses any condition that indicates the probability of failure during periods of high water, the Superintendent shall address a letter to the owner of the structure, quoting this manual as authority and inviting attention to the conditions observed and requesting that immediate steps be taken to correct them. A copy of such letter shall be forwarded to the District Engineer for his information. A report on the action taken by the owner shall be submitted to the District Engineer to accompany the next semi-annual report under provisions of paragraph 3-03c of the Standard Manual. A suggested report form is included as EXHIBIT G of this manual.

(4) The purpose of maintenance work is to insure continuous satisfactory operation of miscellaneous facilities. It is, therefore, important in such work that all possible causes of future trouble be found and corrected. Particular attention should be given to minor weaknesses which may be an indication of future trouble.

c. Operation.

(1) Requirements of the Code of Federal Regulations. Flood Control Regulations, paragraph 208.10(h)(2) are quoted as follows:

"(2) Operation. Miscellaneous facilities shall be operated to prevent or reduce flooding during periods of high water. Those facilities constructed as a part of the protective works shall not be used for purposes other than flood protection without approval of the District Engineer unless designed therefor."

2-05. Environment Protection.

a. Vegetation left during construction on the waterside berm or slope above the bank protection shall not be removed under normal maintenance. Dead trees with wildlife value will be retained except where they are a hazard to existing flood control works. *

SECTION III - REPAIR OF DAMAGE TO PROJECT WORKS AND
METHODS OF COMBATING FLOOD CONDITIONS

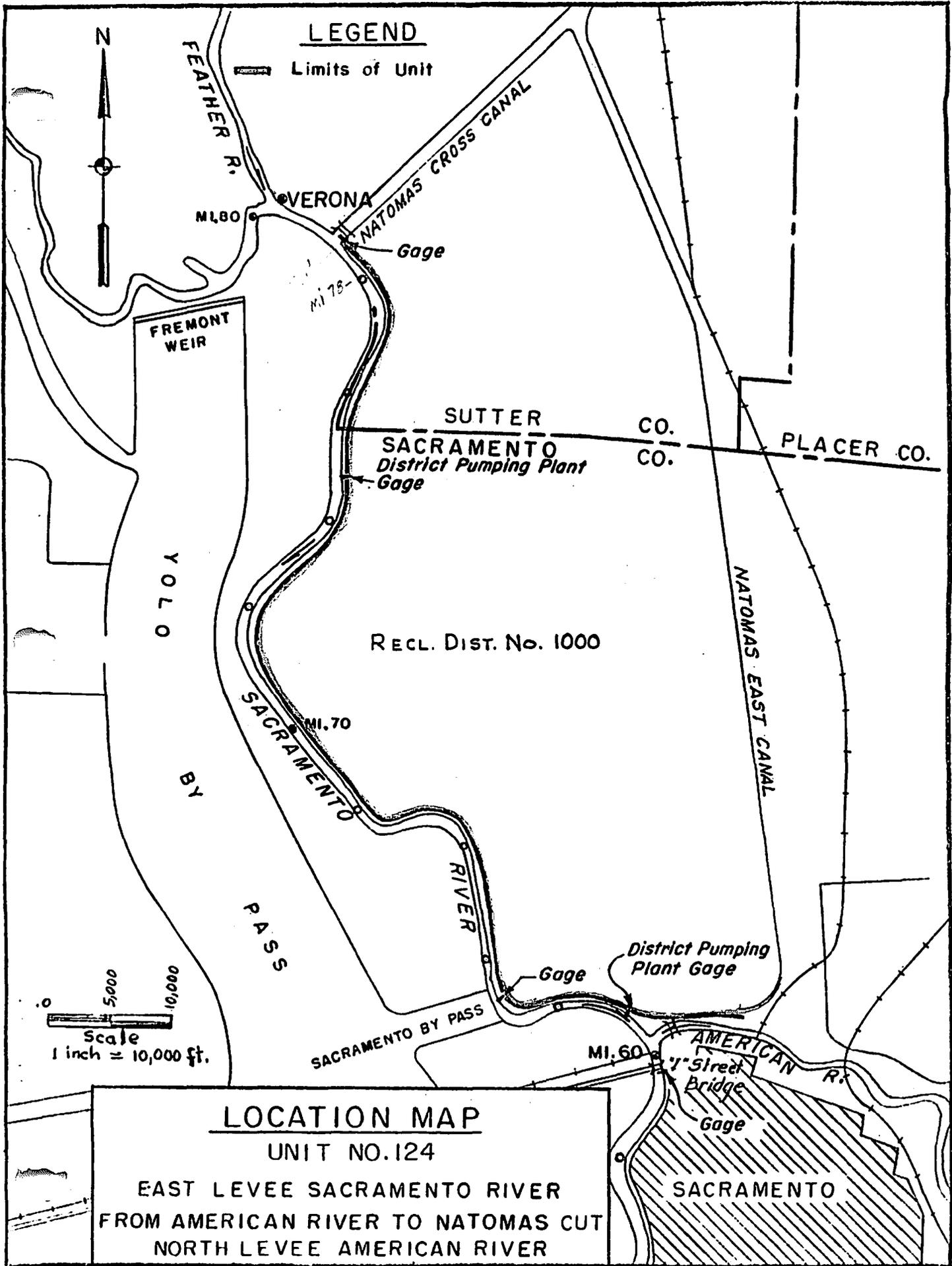
3-01. Repair of damage. - In the event of serious damage to the project works, whether due to flood conditions or other causes, and which may be beyond the capability of local interests to repair, the Superintendent will contact a representative of the State of California who coordinates maintenance of project works of the Sacramento River Flood Control Project. The State representative will give assistance or advice, or will determine appropriate action to be taken.

3-02. Applicable methods of combating floods. - For applicable methods of combating flood conditions, reference is made to Section V of the Standard Manual, where the subject is fully covered.

EXHIBIT A

FLOOD CONTROL REGULATIONS

(See Standard Manual)



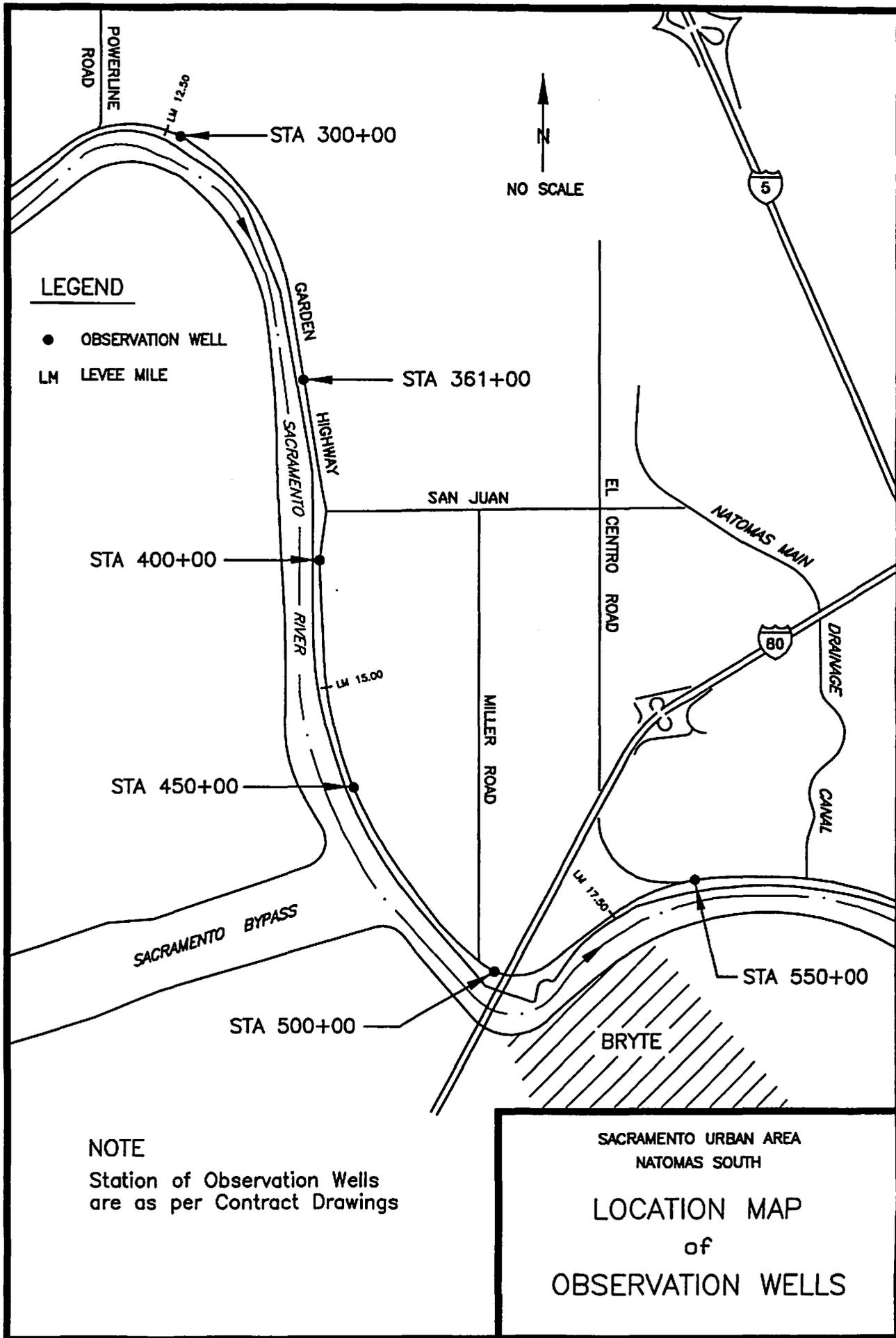


EXHIBIT B

"AS CONSTRUCTED" DRAWINGS

SEE SEPARATE FOLDER FOR THE FOLLOWING DRAWINGS:

DRAWINGS NO. 50-13-2810, in 10 Sheets

DRAWING NO. 50-10-2813, District No. 1000. Levee Profile Sheets 1, 2, & 4

DRAWINGS NO. 50-4-2936/1, Typical Cross Sections

DRAWINGS NO. 1-4-391, N. Levee Am. River

50-4-3285

Emergency levee repairs, left bank Sacramento River,
R. D. 1000, Mile 75.5, in 1 sheet

50-4-4004

Bank Protection, Various Locations, Rt. and Lt. Banks Sacramento
River, and Bear River, and Rt. Bank Feather River, in 33 sheets.
(Unit No. 8).

50-4-4078

Bank Protection, Various Locations Right and Left Banks Sacra-
mento River and Feather River, in 30 sheets.

50-4-4310

Bank Protection, Various Locations Right and
Left Banks Sacramento River between Tisdale
Weir and Sacramento, in 26 sheets.

50-4-4713

Bank Protection, Various Locations Right and Left Banks,
Sacramento River Mile 60.0 to Mile 111.0, in 20 sheets.

50-4-5433

Bank Protection, Various Locations, Right and Left Banks,
Sacramento River Mile 61.0 to Mile 102.0, in 33 sheets.

50-4-5714

Bank Protection, Contract 388, Right and Left
Banks, Sacramento River Mile 62.6 to Mile
117.7, in 57 sheets

50-4-5820

Sacramento Urban Area Levee Reconstruction
Project, Natomas - North in 89 sheets

50-4-5833

Sacramento Urban Area Levee Reconstruction
Project, Natomas - South in 30 sheets

EXHIBIT C

PLATES OF SUGGESTED FLOOD FIGHTING METHODS

(See Standard Manual)

EXHIBIT D
CHECK LIST NO. 1
LEVEE INSPECTION REPORT
(See Standard Manual)

EXHIBIT E
CHECK LISTS OF LEVEES,
CHANNEL AND STRUCTURES

For definition of "flood" or "high water period", see paragraph 1-04 of this manual

CHECK LIST NO. 2

LEVEES OF UNIT NO. 124

Inspector's Report Sheet No. _____

Inspector _____

Date _____

Superintendent _____

Item	Remarks
(a) Location by Station	
(b) Settlement, sloughing, or loss of grade	
(c) Erosion of both slopes of levee	
(d) Condition of roadways, including ramps	
(e) Evidence of seepage	
(f) Condition of farm gates and fencing	
(g) Maintenance measures taken since last inspection	
(h) Comments	

INSTRUCTIONS FOR COMPLETING SHEET 2, EXHIBIT E

(TO BE PRINTED ON BACK OF SHEET 2)

- Item (a) Indicate levee station of observation, obtained by pacing from nearest reference point; indicate right or left bank.
- Item (b) If sufficient settlement of earthwork has taken place to be noticeable by visual observation, indicate amount of settlement in tenths of a foot. If sloughing has caused a change in slope of the embankment sections, determine the new slope. Note areas where erosion or gulying of the section has occurred.
- Item (c) If sufficient erosion or gulying of back face of back toe of levee has taken place to be noticeable by visual inspection, indicate area affected and depth.
- Item (d) Note any natural change in any section of roadway or ramps. Indicate any inadequacy in surface drainage system.
- Item (e) Indicate any evidence of seepage through the embankment section.
- Item (f) Indicate the serviceability of all farm gates across the embankments and roadway, and indicate if repainting is required.
- Item (g) Indicate maintenance measures that have been performed since last inspection and their condition at the time of this inspection.
- Item (h) Record opinion, if any, of contributory causes for conditions observed and also any observations not covered under other columns.

NOTE: One copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion, and one copy is to be attached to and submitted with the Superintendent's semi-annual report.

CHECK LIST NO. 3

CHANNEL AND RIGHT-OF-WAY

UNIT NO. 124

Inspector's Report Sheet No. _____

Inspector _____

Date _____

Superintendent _____

Item	Remarks
(a) Name of channel and location by stations	
(b) Vegetable growth in channel	
(c) Debris and refuse in channel	
(d) New construction within right-of-way	
(e) Extent of aggradation or degradation	
(f) Condition of riprapped section	
(g) Condition of bridges	
(h) Measures taken since last inspection	
(i) Comments	

INSTRUCTIONS FOR COMPLETING SHEET 4, EXHIBIT E

(TO BE PRINTED ON THE BACK OF SHEET 4)

- Item (a) Indicate station of observation obtained by pacing from nearest reference point.
- Item (b) Note nature, extent, and size of vegetal growth within the limits of flood flow channel.
- Item (c) Note nature and extent of debris and refuse that might cause clogging of the conduits of the irrigation intake works, or the bridges over the channel.
- Item (d) Report any new construction along the diversion channel that might affect the functioning of the project.
- Item (e) Indicate any change in grade or alignment of the channels, either by deposition or sediment or scour, that is noticeable by visual inspection. Estimate amount and extent.
- Item (f) Indicate any change that has taken place in the riprap such as disintegration of the rock, erosion, or movement of the rock. Note the presence of vegetal growth through the riprap.
- Item (g) Note any damage or settlement of the footings of the bridges. Indicate condition of wooden structures and if repainting is required. Indicate condition of bridge approaches, headwalls, and other appurtenances.
- Item (h) Indicate maintenance measures that have been performed since the last inspection and their condition at time of this inspection.
- Item (i) Record opinion, if any, of contributory causes for conditions observed, also any observations not covered under other columns.

NOTE: One copy of the Inspector's Report is to be mailed to the District Engineer immediately on completion, and one copy is to be attached to and submitted with the Superintendent's semi-annual report.

CHECK LIST NO. 4
DRAINAGE AND IRRIGATION STRUCTURES
UNIT NO. 124

Inspector's Report Sheet No. _____

Inspector _____

Date _____

Superintendent _____

(a) Location by River Mileage	(b) Bank	(c) Debris or other obstruction to flow	(d) Damage or settlement of pipe or conduit	(e) Condition of concrete headwall or invert paving	(f) Condition of right-of-way adjacent to structure	(g) Repair Measures taken since last Inspection	Comments
78.27	left						
77.74	left						
77.32	left						
75.18	left						
75.17	left						
75.15	left						
73.17	left						
71.40	left						
69.70	left						
69.15	left						
68.84	left						
67.03	left						
66.94	left						
66.67	left						
65.39	left						
62.78	left						
62.14	left						
61.28	left						
61.25	left						
61.09	left						
0.43	Right						

INSTRUCTIONS FOR COMPLETING SHEET 6, EXHIBIT E

(TO BE PRINTED ON BACK OF SHEET 6)

- (1) Enter station of all structures under Column (a) for check list.
- (2) Inspect inlet, barrel, and outlet for accumulation of sediment, rubbish, and vegetal matter. Note condition under Column (c).
- (3) If any settlement or damage to the pipe, barrel, or invert of the drain has occurred, estimate the location and amount. Note particularly if any backfill has come into the pipe or been disturbed.
- (4) Inspect the concrete portions of the structures for evidence of settlement, cracks, "pop-outs", spaces, abrasive wear, or other deterioration. Record conditions under Column (e).
- (5) Inspect backfill area adjacent to structure for evidence of erosion caused by overflow of the drainage structure and note conditions in Column (f).
- (6) Under Column (g) indicate physical measures that have been taken to correct conditions reported in last inspection, and their condition at time of this inspection.
- (7) Under Column (h) record opinion, if any, of contributory causes for conditions observed, also any observations not covered under other columns.
- (8) A copy of the inspector's report is to be mailed to the District Engineer immediately on completion, and a record copy shall be attached to the Superintendent's semi-annual report.

EXHIBIT F
LETTER OF ACCEPTANCE
BY STATE RECLAMATION BOARD

THE RECLAMATION BOARD

16 Ninth Street, Room 455-6
Sacramento, CA 95814-5594
(916) 653-5434 FAX: (916) 653-5805



FFR 1 5 1994

Colonel John N. Reese
District Engineer
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Dear Colonel Reese:

This is in reference to additions to the supplements of the Standard Operation and Maintenance Manual for the Sacramento River Flood Control Project for Units 115, 117, and 124. These additions address the reconstruction work completed as part of the Sacramento Urban Area Levee Reconstruction Project.

The Reclamation Board requests the additions to the Standard Operation and Maintenance Manual for Item C, subparagraph 7, Paragraph 2.04, Miscellaneous Facilities, within Section II be modified. The requirement to begin well observations 48 to 72 hours prior to the river stage being forecasted to reach 20 feet is incompatible with current practice. Reclamation District 1000, local maintaining agency for unit 124, and the City of Sacramento, local maintaining agency for unit 117, commence highwater inspections when the "I" Street gage on the Sacramento River measures approximately 25 feet. The Department of Water Resources' Sacramento Maintenance Yard, local maintaining agency for unit 115, commences highwater inspections when the "I" Street gage measures at least 23 feet and the Sacramento River is forecasted to rise. Therefore, to combine the highwater inspections and observation well readings into a more efficient task, the Board recommends that observation well readings begin once the gage at "I" Street reaches 25 feet and readings shall be taken as close to 12-hour intervals as possible. The Board and local maintaining agencies believe the following draft of Item C is reasonable and within their ability to perform:

(c) Highwater monitoring of the observation wells should begin when the river stage at the I Street gage is forecasted to reach an elevation of 25 feet and should continue until the river stage recedes below elevation 25 as conditions permit. Observations should be made as reasonably close to 12-hour intervals as possible.

3/28/94 - Orig sent to
Cent. Vy Section for
action

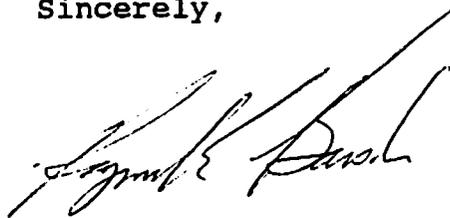
Colonel John N. Reese

FEB 15 1994

Page Two

For further information, please contact me at (916) 653-5434 or have your staff contact Ricardo Pineda at (916) 327-1596 or Victor Pacheco at (916) 327-1532.

Sincerely,



Raymond E. Barsch
General Manager

cc: Mr. John P. Saia
Programs and Project Management
Division
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Mr. Larry Johnson
Programs and Project Management
Division
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

THE RECLAMATION BOARD

1416 Ninth Street, Room 455-6
Sacramento, CA 95814-5594
(916) 653-5434 FAX: (916) 653-5805



DEC 27 1993

Colonel John N. Reese
District Engineer
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Dear Colonel Reese:

This is in reference to the Sacramento Urban Area Levee Reconstruction Project.

At its December 20, 1993 meeting, The Reclamation Board acknowledged completion of the reconstruction work of this public safety project. The completed work consists of the construction of approximately 10 miles of seepage cutoff wall within the east levee of the Sacramento River between Miller Park and Morrison Creek, 6 miles of levee berm and drain along the landside slope of the west levee of the Sacramento River in Reclamation District 900, 6 miles of seepage cutoff wall, and 12 miles of levee berm and drain along the landside slope of the east levee of the Sacramento River in Reclamation District 1000, as well as miscellaneous utility relocations and appurtenant work. In addition, the reconstruction work included removal and restoration of four levee sections along the east levee of the Sacramento River in the Greenhaven/Pocket area. Staff from the Corps and the Board inspected the completed work on December 3, 1993.

Attached are copies of letters to the local maintaining agencies notifying them of contract work completion in their area and of their responsibility to continue to operate and maintain their respective areas in accordance with the local cost-sharing agreement between the Board and agencies dated May 10, 1990, and in accordance with Title 33, Code of Federal Regulations, Part 208 - Flood Control Regulations.

The Board understands that modification of the installed berm section along the east levee of the Sacramento River in Reclamation District 1000 to improve drainage and to improve access for maintenance requirements is scheduled to be completed next year in a follow-up contract for the Cache Creek Settling Basin Enlargement Project. Staff will coordinate activities between the Board, the Corps, and RD 1000 to complete the design, cost estimate, and agreements for this work.

Warts 115, 124

Colonel John N. Reese
DEC 27 1993
Page Two

For further information, please contact me at above address or have your staff contact Ricardo Pineda at (916) 327-1596 or Victor Pacheco at (916) 327-1532.

Sincerely,

Rodney A. Magee
for Raymond E. Barsch
General Manager

Attachments

cc: Mr. John P. Saia
Programs and Project Management
Division
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

Mr. Larry Johnson
Planning Division
Sacramento District
U.S. Army Corps of Engineers
1325 J Street
Sacramento, California 95814-2922

WAS-S 115, 1024

April 28, 1993

Navigation and Flood Control Unit

The Reclamation Board
State of California
1416-9th Street, Room 455-6
Sacramento, California 95814

Members of the Board:

You are hereby notified that the Corps of Engineers has completed the Sacramento Urban Area Levee Reconstruction Project (Natomas South) work on the Sacramento River left bank levee under authority of the Flood Control Act of 1917 as amended and modified. The work consisted of the construction of approximately six miles of seepage cutoff slurry wall in the Reclamation District Number 1000 levee between the Powerline Road and the Natomas Main Drainage Canal.

The work was completed on March 30, 1993, in accordance with Contract Number DACW05-91-C-0103, Specification Number 8872, and Drawing Number 50-4-5833.

The levee will continue to be maintained in accordance with the Local Cooperation Agreement between the Department of the Army and the State of California dated June 14, 1990. The new work will be added by amendment to the Operation and Maintenance Manual, Supplement Number 124, Sacramento River Flood Control Project. Copies will be furnished to your office at a later date.

TAVANA/ms

Sincerely,

KELLY

Laurence R. Sadoff
Colonel, Corps of Engineers
District Engineer

HELM

Copies Furnished:

WINTON

Department of Water Resources, ATTN: G. Snow, 3201 S Street,
Sacramento, California 95816-7017

DENNIS

Department of Water Resources, ATTN: G. Qualley, 1416 Ninth
Street, Sacramento, California 95814

CDR, SPD, ATTN: CESPDCO-O
CDR, USACE, ATTN: DAEN-CECW-OM

SAIA

cc:

KASPRISIN

> Central Valley Sec
PM (Childs)
Prog Dev
F&A Br
Valley Res Ofc

SADOFF

LU/K0077. *lf*

EXHIBIT F

April 16, 1993

Navigation and Flood Control Unit

The Reclamation Board
State of California
1416-9th Street, Room 455-6
Sacramento, California 95814

Members of the Board:

You are hereby notified that the Corps of Engineers has completed the North Natomas work on the Sacramento River left bank levee under authority of the Flood Control Act of 1917 as amended and modified. The work consisted of the construction of approximately 12.2 miles of levee berm and drain construction on the landside slope of the Reclamation District 1000 levee between the Natomas Cross Canal and Powerline Road.

The work was completed on December 15, 1992, in accordance with Contract Number DACW05-91-C-0029, Specification Number 8846, and Drawing Number 50-4-5820.

The existing levee along with the new berm and drain will continue to be maintained in accordance with the Local Cooperation Agreement between the Department of the Army and the State of California, dated June 14, 1990. The new work will be added by amendment to the Operation and Maintenance Manual, Supplement Number 124, Sacramento River Flood Control Project. Copies will be furnished to your office at a later date.

Sincerely,

KELLY/ms

Laurence R. Sadoff
Colonel, Corps of Engineers
District Engineer

HELM

WINTON

Copies Furnished:

Department of Water Resources, ATTN: G. Snow, 3201 S Street, DENNIS
Sacramento, California 95816-7017

Department of Water Resources, ATTN: G. Qualley, 1416 Ninth
Street, Sacramento, California 95814

CHILDS

CDR, SPD, ATTN: CESPd-CO-O

CDR, USACE, ATTN: DAEN-CECW-OM

SAIA

cc:

>Central Valley Sec
PM (Childs)
Prog Dev
F&A Br
Valley Res Ofc

SADOFF

20
LU/K0069

**DEPARTMENT OF WATER RESOURCES
THE RECLAMATION BOARD**

1416 - 9th Street, Room 335-18
Sacramento, CA 95814
(916) 445-9454



JAN 0 - 1980

Colonel Paul F. Kavanaugh
District Engineer
Sacramento District
U. S. Army Corps of Engineers
650 Capitol Mall
Sacramento, CA 95814

Dear Colonel Kavanaugh:

The Reclamation Board at its regular meeting of December 14, 1979, authorized me to accept the completed flood control work from the Corps of Engineers. This work is a portion of Unit No. 34 of the Sacramento River Bank Protection Project. The work was transferred to the State of California by your letter of December 14, 1979.

The flood control work was constructed in a workmanlike manner and in conformance with File No. 50-4-5433, Specification No. 5403, and Contract No. DACW05-78-C-0046, insofar as could be determined visually, at Sites Miles 71.0, 73.2, 74.1, 74.6, 75.0, 75.5, 76.0, 78.1 Right Bank, and 77.8, 78.4 Left Bank, Sacramento River.

Sincerely,

A handwritten signature in blue ink that reads "Eldon E. Rinehart".

ELDON E. RINEHART
General Manager

CERTIFIED MAIL
RETURN RECEIPT REQUESTED



Units 123, 124
7/1/80
12/1/80

November 30, 1987

Navigation and Flood Control Unit

The Reclamation Board
State of California
1416 - 9th Street, Room 455-6
Sacramento, California 95814

Members of the Board:

This is in regard to the joint inspections of November 24 and 25, 1987, made for the purpose of transferring a portion of the Sacramento River Bank Protection Project (Unit 38B), to the State of California for operation and maintenance. The flood control work consists of bank sloping and placement of stone protection on the Sacramento River's right bank at Site Miles 62.6, 70.2, 71.2, 72.1, 76.6, 76.9, 89.8 (two sites on the left and right banks below Colusa Basin Outfall) and 98.7, and left bank at Site Miles 78.2, 101.5 and 105.5.

The work was completed on November 15, 1987, in accordance with Contract Number DACW05-86-C-0079, Specification Number 7082 and Drawing Number 50-4-5714. A 100-foot section of bank protection was deleted on the right bank at Site Mile 62.6 to accommodate a water intake facility for the City of West Sacramento.

The work was performed under general authority of the Flood Control Act of 1960, 86th Congress, 2nd Session (PL 86-645, July 14, 1960), and Section 2304(a), Title 10, and the Water Resources Development Act of 1986 (PL 99-662, October 17, 1986), and now meets the requirements of the Sacramento River Bank Protection Project. Therefore, said work together with the waterway bank contiguous, thereto, is transferred as of November 25, 1987 to the State of California for operation and maintenance.

This portion of the work will be added by amendment to the Operation and Maintenance Manual, Supplement Numbers 116, 122, Part-1, 123, 124, 127, 128 and 130, Sacramento River Flood Control Project. Copies will be furnished to your office at a later date.

Sincerely,

Wayne J. Scholl
Colonel, Corps of Engineers
District Engineer

(1145)

ROMPALA/m

Copies Furnished:

KELLY

DWR, ATTN: G. Snow
DWR, ATTN: G. Qualley

A. SMITH

cc:
Commander, South Pacific Division, ATTN: CESP-0
Commander, USACE, ATTN: DAEN-CECW-OM
Flood Control Unit
Civ Des Sec D (Pahl)
Prog Dev
F&A Br
Valley Res Ofc (dupe)
C-0 Div
Reading

HELM

FAST

DENNIS

CZARZASTY

SCHOLL

WANG #885

June 30, 1987

Navigation and Flood Control Unit

CERTIFIED
No. **789313**
RETURN RECEIPT REQUESTED

The Reclamation Board
State of California
1416 - 9th Street, Room 435-6
Sacramento, California 95814

Members of the Board:

You are hereby notified that the Corps of Engineers has completed emergency repairs to project levees under authority of Section 3 of the Flood Control Act of August 18, 1941, as amended (Public Law 99, 84th Congress, 1st Session). The work was completed as of June 8, 1987, and consisted of restoring portions of the Sacramento River left bank levee, between levee miles 2.38 to 12.48 in Reclamation District Number 1000, in accordance with Contract Number DACW03-87-C-0016 and Drawing Number 30-4-3768. This work shall be maintained in accordance with the assurances which your Board provided for the Sacramento River Flood Control Project. This portion of the work will be added by amendment to the Operation and Maintenance Manual, Supplement Number 124, Sacramento River Flood Control Project. Copies will be furnished to your office at a later date.

Sincerely,

not

L. Cloyd III
Lieutenant Colonel, Corps of Engineers
Acting District Engineer

Unit 124

(C)

Copies Furnished:

OWR, ATTN: J. Angel
OWR, ATTN: G. Snow
Commander, South Pacific Division, ATTN: SEDCO-0

cc:
E.M. (Garrett)
Ops Br
Engr Div, Civ Des Sec C(Pahl)
Valley Res Ofc (Cameron)

6-24
KOMPALA/jg
RCK
KELLY
A. SMITH
HEM
FAST
DENNIS
W
CLOYD
WANG #7453a

CERTIFIED MAIL
(15c)

December 22, 1986

Navigation and Flood Control Unit



*Clark
File*

The Reclamation Board
State of California
1518 - 9th Street, Room 455-6
Sacramento, California 95814

Members of the Board:

This is in regard to the joint inspection of December 16, 1986, made for the purpose of transferring a portion of the Sacramento River Bank Protection Project (Unit 388), to the State of California for Operation and Maintenance. The flood control work consists of bank sloping and placement of stone protection on the Sacramento River right bank at Site Miles 92.4, 92.8, 111.4, 114.8, 115.6 and 117.7.

The site was completed on December 16, 1986, in accordance with Contract Number DACW05-86-C-0079, Specification Number 7002 and Drawing Number 50-4-5714.

The work was performed under general authority of the Flood Control Act of 1960, 86th Congress, 2nd Session (PL 86-645, July 14, 1960), and Section 2304(a), Title 10, and the Water Resources Development Act of 1986 (PL 99-662, October 17, 1986), and now meets the requirements of the Sacramento River Bank Protection Project. Therefore, said work together with the waterway bank contiguous, thereto, is transferred as of December 22, 1986 to the State of California for operation and maintenance.

This portion of the work will be added by amendment to the Operation and Maintenance Manual, Supplement Number 130, Sacramento River Flood Control Project. Copies will be furnished to your office at a later date.

Flood Control Unit
Engr Div
Civ Des Sec D (Pall.)
Prog Dev
F&A Br
Valley Res Ofc
C-O iv
Reading

Sincerely,

Walker Bruce Cloyd, III
Lieutenant Colonel Corps of Engineers
Acting Commander

KELLY
A. SMITH

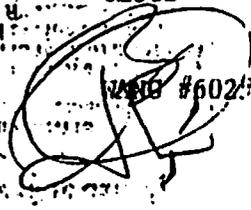
HELM

DEMMIS
CLOYD



Copies furnished to:

DWR, ATTN: G. Snow
DWR, ATTN: J. Angel
Commander, South Pacific Division, ATTN: SPDCO-0



**DEPARTMENT OF WATER RESOURCES
THE RECLAMATION BOARD**

1416 - 9th Street, Room 335-18
Sacramento, CA 95814
(916) 445-9454



JAN 0 - 1980

Colonel Paul F. Kavanaugh
District Engineer
Sacramento District
U. S. Army Corps of Engineers
650 Capitol Mall
Sacramento, CA 95814

Dear Colonel Kavanaugh:

The Reclamation Board at its regular meeting of December 14, 1979, authorized me to accept the completed flood control work from the Corps of Engineers. This work is a portion of Unit No. 34 of the Sacramento River Bank Protection Project. The work was transferred to the State of California by your letter of December 14, 1979.

The flood control work was constructed in a workmanlike manner and in conformance with File No. 50-4-5433, Specification No. 5403, and Contract No. DACW05-78-C-0046, insofar as could be determined visually, at Sites Miles 71.0, 73.2, 74.1, 74.6, 75.0, 75.5, 76.0, 78.1 Right Bank, and 77.8, 78.4 Left Bank, Sacramento River.

Sincerely,

A handwritten signature in blue ink that reads "Eldon E. Rinehart".

ELDON E. RINEHART
General Manager

CERTIFIED MAIL
RETURN RECEIPT REQUESTED



Units 123, 124
7/1/80
12/1/80



C
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DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO, CALIFORNIA 95814

C
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REPLY TO
ATTENTION OF

SPKCO-0

14 December 1979

The Reclamation Board
State of California
1416 - 9th Street, Room 335
Sacramento, CA 95814

Gentlemen:

This is in regard to the joint inspection of 6 December 1979 made for the purpose of transferring a portion of the Sacramento River Bank Protection Project (Unit 34), to the State of California for Operation and Maintenance. The flood control work consists of levee bank sloping and placement of stone protection on the Sacramento River right bank at Site Miles 71.0, 73.2, 74.1, 74.6, 75.0, 75.5, 76.0, and 78.1 and left bank at Site Miles 77.8 and 78.4. The sites described in the inclosure were completed on 6 December 1979 in accordance with Contract No. DACW05-78-C-0046, Specification No. 5403 and Drawing No. 50-4-5433.

The work was performed under general authority of the Flood Control Act of 1960, 86th Congress, 2nd Session (PL 86-645, 14 July 1960), and Section 2304 (a), Title 10, and now meets the requirements of the Sacramento River Bank Protection Project. Therefore, said work together with the waterway bank contiguous, thereto, is transferred as of 6 December 1979 to the State of California for operation and maintenance.

This portion of the work will be added by amendment to the Operation and Maintenance Manual, Supplements Nos. 123 and 124, Sacramento River Flood Control Project. Copies will be furnished your office at a later date.

Sincerely,

1 Incl
1. Summary Sac Rv Bk
Prot Proj Unit 34

PAUL F. KAVANAUGH
Colonel, CE
District Engineer

Copy furnished:
DWR,ATTN: R. Franson
DWR,ATTN: D. Meixner

EXHIBIT F

SUMMARY OF SACRAMENTO RIVER
BANK PROTECTION PROJECT
PORTION OF UNIT 34

SACRAMENTO RIVER RIGHT BANK

Site Mile	Stone Protection	L.F.
71.0	STA. 63+00 to 69+00	600
73.2	STA. 168+00 to 178+00	1000
74.1	STA. 120+60 to 129+00	840
74.6	STA. 100+00 to 108+00	800
75.0	STA. 79+00 to 90+00	1100
75.5	STA. 45+00 to 53+00	800
75.0	STA. 26+00 to 31+00	500
78.1	STA. 0+00 to 2+30	598
	STA. 8+00 to 11+67.8	

SACRAMENTO RIVER LEFT BANK

77.8	STA. 68+00 to 74+50	650
78.4	STA. 35+50 to 42+00	650

C
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THE RECLAMATION BOARD
STATE OF CALIFORNIA

C
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May 30, 1974

District Engineer
Sacramento District
U. S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

Refer to: 4130.60.206

Dear Sir:

The Reclamation Board at its regular meeting of May 24, 1974, formally accepted the completed flood control work from the District Engineer for operation and maintenance. The completed work is a portion of the Sacramento River Bank Protection Project, Unit No. 24, and includes those sites referred to in your May 20, 1974 letter.

The flood control work consisted of selective clearing, levee bank sloping, placement of stone bank protection, and such miscellaneous work as necessary to complete the construction at Sites Miles 77.4, 77.6, and 78.5 Left Bank and 73.1, 74.7, 75.7, 100.7 and 101.7 Right Bank, Sacramento River.

The flood control work was constructed in a workmanlike manner. This flood control work has been constructed in conformance with Drawings Nos. 50-4-4713, Specification No. 4169, and Contract No. DACW05-73-C-0038, insofar as could be determined visually.

Sincerely yours,

/s/ A. E. McCollam
A. E. McCOLLAM
Chief Engineer and
General Manager

20 May 1974

The Reclamation Board
State of California
1416 - 9th Street, Room 335
Sacramento, California 95814

done

Gentlemen:

Reference is made to the joint inspection of 16 May 1974, made for the purpose of transferring a portion of the Sacramento River Bank Protection Project Work (Unit No. 24), to the State of California for operation and maintenance. This portion of flood control work consists of levee and bank sloping, and placement of stone bank protection on the Sacramento River left bank at Site Miles 77.4, 77.6 and 78.5 and right bank at Site Miles 73.1, 74.7, 75.7, 100.7 and 101.7. The sites, as listed on the enclosure, were completed on 16 May 1974 in accordance with Specification No. 4169, Contract No. DACW05-73-C-0038, Drawing No. 50-4-4713.

The work was performed under the general authority of the Flood Control Act of 1960, 86th Congress, 2nd Session and Section 2304(a), Title 10 and now meets the requirements of the Sacramento River Bank Protection Project. Therefore, said work together with the waterway banks contiguous thereto, is transferred as of 20 May 1974 to the State of California for operation and maintenance.

This portion of the project work will be added by amendment to the Operation and Maintenance Manual, Supplements Nos. 123, 124 and 130 Sacramento River Flood Control Project. Copies will be furnished your office at a later date.

Sincerely yours,

1 Incl
As stated

F. G. ROCKWELL, JR.
Colonel, CE
District Engineer

Copy furnished:
DWR, ATTN: John Wright and Carl King
OCE
SPD

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Valley
F & A (Jones)

Engr (Lev & Chan)
Engr (Prog Dev)

cc:

W
ROMPALA/dc
Redac

M for
COLIMAN
[Signature]
HENSON

[Signature]
MADONNY
[Signature]
POTAMOS

K
ROCKWELL
h

*Units 1231
1241130*

SUMMARY OF PORTION OF SACRAMENTO RIVER
BANK PROTECTION UNIT NO. 24

Sacramento River Left Bank

<u>Site Mile</u>	<u>Stone Protection</u>	<u>L.F.</u>
77.4	60+15 to 72+00	1185
77.6	49+60 to 56+00	640
78.5	4+00 to 12+00	800
		<u>2625</u> <i>ck</i>

Sacramento River Right Bank

73.1	176+00 to 181+21	521
*74.7	87+25 to 99+00	1175 <i>— see records show 1120</i>
75.7	34+00 to 44+00	1000
100.7	19+22 to 23+00	378
101.7	14+65 to 24+00	935
		<u>4009</u> <i>ck</i>

*Extended upstream 75'±
20'

Total 6634 *ck*

Units 123, 124, 130

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THE RECLAMATION BOARD
STATE OF CALIFORNIA

C
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November 12, 1973

District Engineer
Sacramento District
U. S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

Refer to: 4130.60.206

Dear Sir:

Reference is made to your letter of October 18, 1973, concerning the transfer of a portion of the Sacramento River Bank Protection Project, Unit No. 24, to the State of California for operation and maintenance.

The flood control work consisted of selective clearing, bank sloping, placement of stone bank protection, and such miscellaneous work as necessary to complete the construction at Site Miles 105.0, 103.0, 100.7, 86.6 and 85.5 all on the Left Bank, Sacramento River.

The flood control work has been completed and was constructed in a workman-like manner. This flood control work has been constructed in conformance with Drawing No. 50-4-4713, Specification No. 4169, and Contract No. DACW05-73-C-0038, insofar as could be determined visually.

The Reclamation Board at its regular meeting of November 9, 1973, formally accepted for operation and maintenance, the completed flood control work on the above referenced sites.

Sincerely yours,

/s/ A. E. McCollam
A. E. McCOLLAM
Chief Engineer and
General Manager

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DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA

C
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October 2, 1970

District Engineer
U. S. Army Corps of Engineers
650 Capitol Mall
Sacramento, California 95814

Subject: 4130.60.204
Your Contract 70-C-0008
Sacramento River Bank Protection
Project, Unit No. 16

Dear Sir:

Reference is made to the precompletion inspection of a portion of the above referenced project made on September 23, 1970.

The work sites inspected were as follows:

Site Mile 61.0, Left Bank, Sacramento River
Site Mile 70.4, Right Bank, Sacramento River
Site Mile 71.5, Right Bank, Sacramento River
Site Mile 71.9, Right Bank, Sacramento River
Site Mile 77.0, Right Bank, Sacramento River
Site Mile 77.85, Right Bank, Sacramento River
Site Mile 84.5, Right Bank, Sacramento River
Site Mile 96.8, Right Bank, Sacramento River
Site Mile 83.45, Left Bank, Sacramento River
Site Mile 89.6, Left Bank, Sacramento River
Site Mile 95.4, Left Bank, Sacramento River
Site Mile 95.6, Left Bank, Sacramento River

The work appeared to be completed in an acceptable manner and, insofar as could be determined visually, in conformance with the plans and specifications for the project. No deficiencies were noted.

Sincerely yours,

/s/ Clyde E. Shields
Clyde E. Shields, Chief
Construction Branch
Division of Design and Construction

EXHIBIT F

SPKCO-0

28 September 1970

The Reclamation Board
State of California
1416 - 9th Street, Room 1335
Sacramento, California 95814

Gentlemen:

Reference is made to the joint inspection of 23 September 1970, made for the purpose of transferring a portion of the Sacramento River Bank Protection Project Work (Unit #16), to the State of California for operation and maintenance.

83.45

The flood control work consists of levee setback, bank sloping and placement of stone bank protection on the Sacramento River left bank at Site Miles 61.0, 89.6, 95.4 & 95.6, and right bank at Site Miles 70.4, 71.5, 71.9, 77.0, 77.85, ~~82.45~~, 84.5 & 96.8. A list covering the completed work is inclosed. The work was completed on 23 September 1970 in accordance with Specification No. 3390, Contract No. DACW05-70-C-0008, Drawing No. 50-4-4310.

The work was performed under the general authority of the Flood Control Act of 1960, 86th Congress, 2nd Session and Section 2304(a), Title 10 and now meets the requirements of the Sacramento River Bank Protection Project. Therefore, said work together with the waterway banks contiguous thereto, is transferred as of 23 September 1970 to the State of California for operation and maintenance.

This portion of the project work will be added by amendment to the Operation and Maintenance Manual, Supplements Nos. 122, 123, 124, 127, 128 & 130, Sacramento River Flood Control Project. Copies will be furnished your office at a later date.

Sincerely yours,

JAMES H. HIGMAN
Lieutenant Colonel, CE
Acting District Engineer

1 Incl (in dupe)
as stated

Copy furnished:
DWR, ATTN: John Wright

OCE
SPD

cc: Engr-Lev&Chan; Engr-Prog Dev; Valley; F&A(Cordano)

WAIT/pp

COLEMAN

NENSON

HART

HIGMAN

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Units 122, 123, 124, 127, 128, 130

SUMMARY OF SACRAMENTO RIVER BANK PROTECTION PROJECT - UNIT 16, SACRAMENTO

LEFT BANK

<u>SITE MILE</u>	<u>LEVEE SETBACK STATION</u>	<u>L.F.</u>	<u>STONE PROTECTION STATION</u>	<u>L.F.</u>	<u>STONE TOE WALL STATION</u>	<u>L.F.</u>
61.0			34+00 to 43+00	900	34+00 to 35+40	140
89.6			0+00 to 5+00	500		
95.4			10+00 to 18+00	800		
95.6			0+00 to 6+57	657		

83.45 ←

RIGHT BANK

70.4			-0+25 to 1+00	125	-0+25 to 1+00	125
71.5			45+00 to 64+00	1900	51+80 to 52+20	40
					59+30 to 60+83	153
71.9			34+00 to 41+00	700		
77.0			166+00 to 172+00	600		
77.85			130+00 to 133+00	300		
83.45			491+61 to 481+93	968		
84.5			0+00 to 7+45	745	1+78 to 5+90	312
96.8	9+00 to 16+00	700	9+00 to 15+00	600		

*Units 122, 123, 124,
127, 128, 130*

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THE RECLAMATION BOARD
STATE OF CALIFORNIA

DEC 23 1968

4130.60.203

District Engineer
Corps of Engineers
U. S. Army
650 Capitol Mall
Sacramento, California 95814

Dear Sir:

Reference is made to your letter of November 5, 1968 concerning transfer to the State of California of a portion of the Sacramento River Bank Protection Project, Unit No. 12, consisting of Sites Mile 100.9, 100.3, 95.3, 89.2 and 87.0, right bank, Sacramento River and Sites Mile 88.7 and 61.5, left bank, Sacramento River for maintenance and operation.

This work was constructed in accordance with Specification No. 3288, Contract No. DACW05-68-C-0014, Drawing No. 50-4-4078.

The Reclamation Board, at its meeting of December 20, 1968, formally accepted the above referred to work for operation and maintenance.

Sincerely yours,

/s/ A. E. McCOLLAM
A. E. McCOLLAM
Chief Engineer and
General Manager

EXHIBIT F

SPKCO-0

5 November 1968

The Reclamation Board
State of California
1416 - 9th Street, Room 1335
Sacramento, California 95814

Gentlemen:

Reference is made to the joint inspection of 4 November 1968, made for the purpose of transferring a portion of the Sacramento River Bank Protection Work (Unit #12), to the State of California for operation and maintenance.

The flood control work, consisting of levee enlargement, bank sloping, levee setback and placement of stone bank protection on the Sacramento River at Site Miles 100.9, 100.3, 95.3, 89.2 and 87.0, right bank; and Site Miles 88.7 and 61.5, left bank, is listed on the attached inclosure. The work was completed on 4 November 1968, in accordance with Specification No. 3288, Contract No. DACW05-68-C-0014, Drawing No. 50-4-4078.

The work was performed under the general authority of the Flood Control Act of 1960, 86th Congress, 2nd Session; and Section 2304(a), Title 10, and now meets the requirements of the Sacramento River Bank Protection Project. Therefore, said work, together with the waterway banks contiguous thereto, is transferred to the State of California for operation and maintenance.

This portion of the project work will be added by amendment to the Operation and Maintenance Manual, Supplement Nos. 124, 127, 128 & 130, Sacramento River Flood Control Project. Copies will be furnished your office at a later date.

Sincerely yours,

CRAWFORD YOUNG
Colonel, CE
District Engineer

✓ 1 Incl.
as stated

✓ Copy furnished:

DWR
OCE & SPD

cc: Engr-Lev&Chan; Engr-Prog Dev; F&A(Cordano); Valley Area Ofc

JK
ROMPAIA/p

COLEMAN

McB
HENSON

YOUNG
7

*Units 124
127, 128
130*

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THE RECLAMATION BOARD
STATE OF CALIFORNIA

C
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Y

28 Jun 1966

Refer to: 4130.60.302

Contract 66-50

District Engineer
Corps of Engineers
U. S. Army
650 Capitol Mall
Sacramento, California

Dear Sir:

Reference is made to your letter of June 20, 1966 concerning transfer to the State of California of the Sacramento River Bank Protection Project, Unit No. 8, Site Mile 77.6, left bank, Sacramento River; Site Mile 24.5, right bank, Feather River; Sites Mile 2.98 and 1.76, right bank, Bear River; and Sites Mile 11.6, 7.12 and 4.90, left bank, Bear River, in accordance with Specification No. 3154.

The Reclamation Board, at its meeting of June 23, 1966, formally accepted the above referred to work for operation and maintenance.

Sincerely yours,

/s/A. E. McCollam
A. E. McCOLLAM
General Manager

EXHIBIT F

REGISTERED MAIL
Receipt Receipt
Requested

Letter No. 12

12

SPKKA 824,3(Sac. Riv. F.C.P.)

8 DEC 1951

The Reclamation Board
State of California
1100 "O" Street
Sacramento 16, California

Gentlemen:

Reference is made to your letter of 22 June 1951 acknowledging that certain reaches of the levees of the Sacramento River Flood Control Project and the waterway bank contiguous to said levee reaches meet the requirements of the project as authorized prior to the Flood Control Act of 1944.

The levee reaches in question are located as follows:

140. a. Northerly levee of the American River from Jibboom Street Bridge to Sacramento River. 118.2 (?)

b. Easterly levee of the Sacramento River.

Reach 15 141. (1) American River to Natones Out. 60.25 to 79.0 124

Reach No. 11 142. (2) At Moulton Weir. (man 2) 154

143. (3) Mile 158.5 (North End Moulton Weir) to Mile 164.4 (Princeton Ferry). (man 2) ? 134

144. (4) Mile 168.5 to Mile 168.9 (at Dutch City). (man 2) ? 138

c. Westerly levee of the Sacramento River.

145. (1) Mile 59.9 to Mile 60.75. 116

146. (2) Mile 61.8 to Mile 62.65 (at Drye Bend) 116

62.65

Accepted by letter dated 9 March 1953

Letter 12 Items 140 to 198

12

SPKRA 024,5 (Sac. Riv. F.C.P.)
The Reclamation Board

Letter No. 12

12

c. Westerly levee of the Sacramento River, (cont'd)

- ✓ 147. (8) Mile 62.65 to Mile 63.1 (South End Sacramento Weir). 116
- ✓ 148. (4) At Sacramento Weir. 158
- ✓ 149. (5) Mile 63.5 (North End Sacramento Weir) to Mile 67.11. 122
- ✓ 150. (6) Mile 68.42 to Mile 70.9. 122
- ✓ 151. (7) Mile 76.5 to Mile 81.7 (East End Fremont Weir). 123
- ✓ 152. (8) Along Fremont Weir. 157
- ✓ 153. (9) Mile 84.0 (West End Fremont Weir) to Mile 85.3. 128
- ✓ 154. (10) Mile 85.5 to Mile 85.9. 128
- ✓ 155. (11) Mile 87.6 to Mile 88.4. 128
- ✓ 156. (12) Mile 89.2 to Mile 89.8 (Knights Landing Highway Bridge). 128
- ✓ 157. (13) Mile ^{89.2} 89.8 (Knights Landing Highway Bridge) to Sycamore Slough. 89.9 128
- ✓ 158. (14) Mile ^{100.6} 100.6 to Mile 101.4. 128
- ✓ 159. (15) Mile 110.9 to Mile 111.2. 128

Reach No. 5

Reach No. 4

d. Westerly levee of the Feather River.

- Reach 39 ✓ 160. (1) Sutter Bypass to Nicolaus Bridge. 143
- ✓ 161. (2) From a point 3.51 miles northerly from Nicolaus Bridge to the Fifth Street Bridge between Marysville and Yuba City. 143, 144
- Reach 38 ✓ 162. (3) From a point 1,400 feet northerly from the Fifth Street Bridge between Marysville and Yuba City to Station 774+00 "Y.C.N.B." Traverse. 144
- ✓ 163. (4) From a point east of Station 1188+00 "Y.C.N.B." Traverse to high ground just northerly from the Western Canal Headgate. 144

- Reach 42 ✓ 164. a. Easterly levee of the Sacramento River from Natomas Cut to Feather River. 141.1

12

Letter No. 12

12

f. Easterly levee of the Feather River.

- Reach 42 ✓ 165. (1) Sacramento River to a point 2.37 miles southerly from Nicolaus Bridge. 141 Pt 1
- Reach 41 ✓ 166. (2) Bear River to Mile 14.4. } 145
- ✓ 167. (3) Mile 14.4 to Mile 14.7.
- ✓ 168. (4) Mile 14.7 to Mile 21.5.
- ✓ 169. (5) Mile 21.5 to Mile 22.75.
- ✓ 170. (6) Mile 22.75 to Mile 26.5 (Point where levee and S.N.R.R. meet). 145

g. Levees protecting the City of Marysville. All 147

- Reach 43 ✓ 171. (1) From the W.P.R.R. at Simerly Slough easterly to the Yuba River.
- ✓ 172. (2) Along the Yuba River from the "D" Street Bridge to the back levee near the Valley Meat Company.

h. Levees protecting Reclamation District No. 10.

- Reach No. 40 ✓ 173. (1) Northerly levee of Simerly Slough from the W.P.R.R. to the S.P.R.R. 151
- ✓ 174. (2) Easterly levee of the Feather River from Simerly Slough to a point 4.3 miles northerly from Simerly Slough. 151

Reach 46 ✓ 175. i. Northerly levee of the Yuba River from the back levee of the City of Marysville to a point 1.3 miles easterly from said back levee. 147

Reach 47 ✓ 176. j. Southerly levee of the Yuba River from Feather River (i.e. S.N.R.R.) easterly to the S.P.R.R. Main Line. 147

45 ✓ 177. k. Northerly levee of Bear River from Feather River easterly to the W. P.R.R. Interceptor. 145

45 ✓ 178. l. Westerly levee of the W.P.R.R. Interceptor and Clark Slough Interceptor (i.e. back levee of Reclamation District No. 784) from Bear River to the southerly end of the Clark Slough Interceptor. 145

12

SPIKA 824.3 (Sac. Riv. P.C.P.)
The Reclamation Board

Letter No. 12

12

m. Southerly levee of the American River.

Reach
No. 25 ✓

- ✓ 179. (1) Sixteenth Street Bridge to the S.N.R.R. 118.1
- ✓ 180. (2) From a point 800 feet easterly from the W.P.R.R. to Mayhew Station. 118.1

n. Westerly levee of the Yolo Bypass.

- ✓ 181. (1) Sacramento River to Knights Landing Ridge Cut. 127
- ✓ 182. (2) Knights Landing Ridge Cut to the northeast corner of the Cache Creek Settling Basin. 126
- 28 ✓ 183. (3) S.N.R.R. Woodland Branch to a point 1.6 miles southerly from said railroad. 121
- 28 ✓ 184. (4) From a point 1.6 miles southerly from the S.N.R.R. Woodland Branch to the Willow Slough Pipes. 121
- 28 ✓ 185. (5) From a point 1.48 miles southerly from the Willow Slough Pipes to a point 1.9 miles southerly from said pipes. 121
- 28 ✓ 186. (6) From a point 1.9 miles southerly from the Willow Slough Pipes to the Willow Slough Interceptor. 121
- 28 ✓ 187. (7) From the Willow Slough Interceptor to Highway U.S. 40. 120
- ✓ 24 ✓ 188. (8) From Highway U.S. 40 to Putah Creek. 119

27 ✓ 189 o. Easterly and Westerly training levees of Cache Creek Settling Basin from Cache Creek southerly. 126

28 ✓ 190 p. Northerly and Southerly levees of the Willow Slough Interceptor from the S.P.R.R. to the Yolo Bypass. 120

29 ✓ 191 q. Northerly levee of Putah Creek from Yolo Bypass westerly to high ground. 119

✓ 192 r. Southerly levee of Putah Creek from high ground on Dixon Ridge westerly to high ground. 119

s. Southerly levee of Knights Landing Ridge Cut. 127

- 26 ✓ 193 (1) From Yolo Bypass westerly 600 feet. Also covered under Unit 96-A
- 26 ✓ 194 (2) { From a point 2,500 feet westerly from Yolo Bypass to a point 2,900 feet westerly from Yolo Bypass. 127
Also covered under 96-A

12

SPKKA 824.3(Sac.Riv.F.C.P.)
The Reclamation Board

Letter No. 12

12

s. Southerly levee of Knights Landing Ridge Cut. (cont'd)

- 26 ✓ 195 (S) { From a point 3,300 feet westerly from Yolo Bypass to a point 7,100 feet westerly from Yolo Bypass. 127
Also covered under Unit No. 96-A
- 35 ✓ 196 t. That portion of the back or westerly levee of Hastings Tract which runs east and west along the County Road for a distance of approximately one mile. 107
- ✓ 197 u. Northerly levee of Sycamore Slough from Sacramento River to Knights Landing Outfall Gates. 130
- ✓ 198 v. Southerly levee of Sycamore Slough from Sacramento River to Knights Landing Outfall Gates. 132

The records of this office show that your Board has accepted the levees and/or works covered by Items b.(1), b.(2), b.(3), c.(2), c.(4), c.(8), c.(11), c.(12), c.(14), d.(1), d.(3), d.(4), f.(3), f.(5), g., h., i., l., m., n.(1), n.(2), n.(3), n.(6), n.(7), n.(8), o., p., q., r. and s.(1) above, as complete. Accordingly the waterway bank contiguous to said Items is hereby transferred to the State of California for maintenance and operation.

The levee covered by Items a., b.(4), c.(1), c.(3), c.(5), c.(6), c.(7), c.(9), c.(10), c.(13), c.(15), d.(2), e., f.(1), f.(2), f.(4), f.(6), j., k., n.(4), n.(5), s.(2), s.(3), t., u. and v., above, although complete has not been formally transferred as contemplated by the Project documents. Accordingly the levee covered by said Items, together with the waterway bank contiguous thereto, is hereby transferred to the State of California for maintenance and operation.

The maintenance work required under the provisions of the Sacramento River Flood Control Project shall be performed in accordance with existing Flood Control Regulations which have been prescribed by the Secretary of the Army pursuant to Section 3 of the Act of Congress approved 22 June 1936, as amended and supplemented. As provided under paragraph 208.10(10) of these regulations, a maintenance manual covering these works is in process of preparation and will be furnished your Board upon completion.

A copy of this letter is being transmitted to the State Engineer.

FOR THE DISTRICT ENGINEER:

Sincerely yours,

Copy Furnished:
Office, Chief of Engrs.
So. Pac. Div. Engr.
State Engineer
Engr. Div. (2)
C. de Arrieta

H. R. Reifsnnyder
Lt. Colonel, Corps of Engineers
Executive Officer

12

EARL WARREN
GOVERNOR

M. R. GALLAWAY, JR., SACRAMENTO
PRESIDENT

GROVER SHANNON, YUBA CITY
VICE PRESIDENT

GEO. H. HOLMES, CLARKSBURG
SECRETARY

W. P. HARKEY, GRIDLEY
GEO. R. WILSON, WALNUT GROVE
GEO. E. LODI, ARBUCKLE
DOUGLAS B. COHEN, BANTA

THE RECLAMATION BOARD

OF THE

STATE OF CALIFORNIA

1100 O STREET

SACRAMENTO 14, CALIFORNIA

TELEPHONE: GILBERT 3-4671

A. M. BARTON
CHIEF ENGINEER AND GENERAL MANAGER

FRED N. HOWSER, ATTORNEY GENERAL
LEGAL ADVISER

G. F. MELLIN
ASSISTANT ENGINEER AND APPRAISER

S. A. HONAKER
ASSISTANT SECRETARY

April 20, 1951

District Engineer
Sacramento District
U. S. Corps of Engineers
P. O. Box 1739
Sacramento, California

Dear Sir:

Reference your file PSKKO-P 824.3 (Sac. Riv.)
19 March 1951.

The Reclamation Board at its meeting April 18,
1951, accepted from the United States the levee along
the left bank of the Sacramento River from the mouth
of the American River to Natomas Cut, along Reclamation
District No. 1000, for maintenance and operation by
the State of California.

Yours very truly

THE RECLAMATION BOARD
A. M. BARTON
Chief Engineer and General Manager

By



S. A. HONAKER
Assistant Secretary

SAH:emw

124

Unit No. 55-A

*Prepared
16 March 1951*

Mailed 19 March 1951

*Accepted by the Board
18 April 1951*

The Reclamation Board
State of California
1100 "O" Street
Sacramento, California

Gentlemen:

Reference is made to recent conferences held with your Board and representatives of your staff on the status of the Sacramento River Flood Control Project. During these discussions it was established that those locally constructed levees which meet present standards and which form a part of the project works would be turned over to the State for maintenance and operation.

Pursuant to the above, investigation has been made of the levee along the left bank of the Sacramento River from the mouth of the American River to Natomas Cut and it has been found that this section of levee conforms to present standards.

Accordingly, the levee unit referred to above, which forms an integral part of the Sacramento River Flood Control Project, is hereby turned over to the State of California for maintenance and operation. Acknowledgement of acceptance at an early date would be appreciated.

The required maintenance work shall be performed in accordance with existing Flood Control Regulations which have been prescribed by the Secretary of the Army pursuant to Section 3 of the Act of Congress approved 22 June 1936, as amended and supplemented. As provided under paragraph 208.10 (10) of these regulations a maintenance manual covering this levee unit is in process of preparation and will be furnished your Board upon completion.

A copy of this letter is being transmitted to the State Engineer.

- cc: Engineering Div. (2)
- Office, Chief of Engr.
- Div. Engr.
- State Engr.
- Sacto. Field Office
- Service Sect.
- Barsdale
- Chas. de Arieta

*Not covered by
reference on the map.
C. de A.*

124

Unit 55-A

141

Chas. de Arieta

C
O
P
Y

The Reclamation Board
of the
State of California

C
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Y

March 11, 1953

District Engineer
Sacramento District
Corps of Engineers, U. S. Army
P. O. Box 1739
Sacramento 8, California

Dear Sir:

Reference your letters, file number SPKKO-P 824.3 (Sac R.F.C.P.) dated 1 December 1951, 3 December 1951, 4 December 1951; three letters dated 6 December 1951, 7 December 1951, and six letters dated 8 December 1951. Subject letters transferred to the Reclamation Board for operation and maintenance, various levee units of the Sacramento River Flood Control Project.

The Reclamation Board at its 18 December 1951 meeting, on behalf of the State of California, accepted certain of the transferred units together with their contiguous waterway banks for operation and maintenance, and rejected others. A tabulation of the units so accepted or rejected is attached hereto.

Yours very truly,

THE RECLAMATION BOARD

A. M. BARTON
Chief Engineer and General Manager

By /s/ D. M. Carr
D. M. CARR

EXHIBIT F
Sheet 1 of 4

C
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C
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December 18, 1951

The Board accepted the transfer from the Corps of Engineers, in letters of dates listed below, the following reaches of levees and their contiguous waterway banks where applicable for flood control operation and maintenance, as complete and meeting the requirements of the Sacramento River Flood Control Project.

<u>No.</u>	<u>Date of Letter</u>	<u>Levee Location</u>	<u>Remarks</u>
1.	1 Dec 1951	- - - - -	- - - - -
11.	8 Dec 1951	N. levee American River from Jibboom St. Bridge to Sacramento River	Maintained by R. D. No. 1000.
11.	8 Dec 1951	E. levee Sacramento River, American River to Natomas Cut.	Maintained by R. D. No. 1000.

Note: Only items pertaining to Operation and Maintenance Manual No. 124 are included in the above copy.

C
O
P
Y

The Reclamation Board
of the
State of California

C
O
P
Y

May 22, 1952

District Engineer
Sacramento District
Corps of Engineers, U. S. Army
P. O. Box 1739
Sacramento 8, California

Dear Sir:

Reference is made to your letter (1) SPKKO-P 824.3 (Sac. Riv. F.C.P.) 13 December 1951, (2) your letter SPKKO-P 824.3 (Sac. Riv. F.C.P.) 19 December 1951, and (3) your letter SPKIA 824.3 (Sac. Riv. F.C.P.) 13 December 1951, transferring 101 reaches of levee and contiguous banks to the Reclamation Board for flood control operation and maintenance.

On January 2, 1952, the Reclamation Board accepted the transfer of the reaches of levee listed in first tabulation attached and did not accept those reaches of levee and contiguous bank in the second tabulation.

Yours very truly,

THE RECLAMATION BOARD

By /s/ A. M. Barton
A. M. BARTON

Encl.

Chief Engineer and General Manager

C
O
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Y

January 2, 1952

The Board accepted the transfer from the Corps of Engineers, in letters as listed below, the following reaches of levees and their contiguous waterway banks, where applicable, for flood control operation and maintenance, as complete and meeting the requirements of the Sacramento River Flood Control Project:

<u>No.</u>	<u>Date of Letter</u>	<u>Levee Location</u>	<u>Remarks</u>
3.	13 Dec 1951	(j) North levee American River from Jibboom St. Bridge to El Camino Avenue	Constructed by and maintained by R. D. No. 1000

Note: Only item pertaining to Operation and Maintenance Manual No. 124 is included in the above copy.

TO: The District Engineer
Sacramento District
Corps of Engineers
1209-8th Street
Sacramento, California

(1 May 19__)
(1 Nov. 19__)

Dear Sir:

The semi-annual report for the period (1 May 19__ to 31 October 19__)
(1 November 19__ to 30 April 19__) on the North Levee of the American
River from Natomas East Canal to the Sacramento River and East Levee of the
Sacramento River from Natomas cross canal to the American River (Unit No.
124 of the Sacramento River Flood Control Project), is as follows:

a. The physical condition of the protective works is indicated by the
inspector's report, copies of which are inclosed, and may be summarized as
follows:

(Superintendent's summary of conditions)

It is out intention to perform the following maintenance work in
order to repair or correct the conditions indicated:

(Outline the anticipated maintenance operations for the following
6 months.)

b. During this report period, major high water stages (water
surface at the "I" Street Bridge in Sacramento reached or exceeded 25.0
on the U. S. Weather Bureau gage or above a reading of 40.00 on the
Division of Water Resources gage on the American River Bridge at "H"
Street) occurred on the following dates:

<u>Dates</u>	<u>Maximum Elevation</u>
_____	_____
_____	_____
_____	_____

Comments on the behavior of the protective works during such high water periods are as follows:

(Superintendent's log of flood observations)

During the high water stages when the water level reached a height of _____, on the gage or excess thereof (dates) _____, it was necessary to organize and carry out flood operations as follows:

(See Maintenance Manual _____.)

c. The inspections have indicated (no) or (the following) encroachments or trespasses upon the project right-of-way.

d. (No) (_____) permits have been issued for (the following) improvements or construction within the project right-of-way.

Executed copies of the permit documents issued are transmitted for your files.

e. The status of maintenance measures, indicated in the previous semi-annual report as being required or as suggested by the representatives of the District Engineer, is as follows:

(Statement of maintenance operations, item by item with percent completion.)

f. The fiscal statement of the Superintendent's operations for the current report period is as follows:

	<u>Labor</u>	<u>Material</u>	<u>Equipment</u>	<u>Overhead</u>	<u>Total</u>
1. Inspection					
2. Maintenance					
3. Flood fighting operations					
TOTAL					

Respectfully submitted,

Superintendent of Works

EXHIBIT G

SUGGESTED SEMI-ANNUAL REPORT FORM

TO: The District Engineer
Sacramento District
Corps of Engineers
1209-8th Street
Sacramento, California

(1 May 19__)
(1 Nov. 19__)

Dear Sir:

The semi-annual report for the period (1 May 19__ to 31 October 19__)
(1 November 19__ to 30 April 19__) on the North Levee of the American
River from Natomas East Canal to the Sacramento River and East Levee of the
Sacramento River from Natomas cross canal to the American River (Unit No.
124 of the Sacramento River Flood Control Project), is as follows;

a. The physical condition of the protective works is indicated by the
inspector's report, copies of which are inclosed, and may be summarized as
follows:

(Superintendent's summary of conditions)

It is out intention to perform the following maintenance work in
order to repair or correct the conditions indicated:

(Outline the anticipated maintenance operations for the following
6 months.)

b. During this report period, major high water stages (water
surface at the "I" Street Bridge in Sacramento reached or exceeded 25.0
on the U. S. Weather Bureau gage or above a reading of 40.00 on the
Division of Water Resources gage on the American River Bridge at "H"
Street) occurred on the following dates:

Dates

Maximum Elevation

Comments on the behavior of the protective works during such high water periods are as follows:

(Superintendent's log of flood observations)

During the high water stages when the water level reached a height of _____, on the gage or excess thereof (dates) _____, it was necessary to organize and carry out flood operations as follows:

(See Maintenance Manual _____.)

c. The inspections have indicated (no) or (the following) encroachments or trespasses upon the project right-of-way.

d. (No) (_____) permits have been issued for (the following) improvements or construction within the project right-of-way.

Executed copies of the permit documents issued are transmitted for your files.

e. The status of maintenance measures, indicated in the previous semi-annual report as being required or as suggested by the representatives of the District Engineer, is as follows:

(Statement of maintenance operations, item by item with percent completion.)

f. The fiscal statement of the Superintendent's operations for the current report period is as follows:

	<u>Labor</u>	<u>Material</u>	<u>Equipment</u>	<u>Overhead</u>	<u>Total</u>
1. Inspection					
2. Maintenance					
3. Flood fighting operations					
TOTAL					

Respectfully submitted,

Superintendent of Works

**SUPPLEMENT TO
STANDARD OPERATIONS AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT**

**UNIT NO. 124, NORTH LEVEE OF AMERICAN RIVER FROM NATOMAS EAST
CANAL TO THE SACRAMENTO RIVER AND EAST LEVEE OF THE SACRAMENTO
RIVER FROM NATOMAS CROSS CANAL TO AMERICAN RIVER,**

**PART NO. 2 for
VEGETATION ON MITIGATION SITES**

**Sacramento District
Corps of Engineers
U.S. Army
June 2002**

SUPPLEMENT TO
STANDARD OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 124, NORTH LEVEE OF AMERICAN RIVER FROM NATOMAS EAST
CANAL TO THE SACRAMENTO RIVER AND EAST LEVEE OF THE SACRAMENTO
RIVER FROM NATOMAS CROSS CANAL TO AMERICAN RIVER,

PART NO. 2 for
VEGETATION ON MITIGATION SITES

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SUPPLEMENT FORMAT & CONTENT

The organization and format of this exhibit is written to be consistent with the Standard Operations & Maintenance Manual for the Sacramento River Flood Control Project (Revised May 1955), and is intended to provide supplemental information that is not presently addressed.

TABLES

Table 1 Sac Bank - Separable Element 42, Lower American River Site 5, _____ 2
List of Site Acreage

EXHIBITS

<u>Exhibit</u>	<u>Description</u>	<u>Location</u>
A	Flood Control Regulation (contained in Standard Manual)	Unattached
A1	Location Map	1 Sheet
B	"As Constructed" Drawings	Unattached
C	Check List - Vegetation on Mitigation Area	1 Sheet
D	Letter of Transfer to or Acceptance by the Reclamation Board	Unattached
E	Pest Ratings of Noxious Weed Species & Noxious Weed Seed	in 8 Sheets
F	"As-Built" Final Report - Mitigation Planting, LAR, Site 5 Offsite Mitigation	Unattached
G	Monthly Maintenance Log Form	1 Sheet
H	Example of Sampling Transect Locations	1 Sheet
I	Example of Rounding Out Plant Canopies for Line-Transect Measurements	1 Sheet
J	Performance Standards and Goals	1 Sheet
K	Table of Environmental Commitments	1 Sheet

SUPPLEMENT TO THE
STANDARD OPERATION AND MAINTENANCE MANUAL
SACRAMENTO RIVER FLOOD CONTROL PROJECT

UNIT NO. 124, NORTH LEVEE OF AMERICAN RIVER FROM NATOMAS EAST
CANAL TO THE SACRAMENTO RIVER AND EAST LEVEE OF THE SACRAMENTO
RIVER FROM NATOMAS CROSS CANAL TO AMERICAN RIVER,

PART NO. 2 for
VEGETATION ON MITIGATION SITES

SECTION I

INTRODUCTION

1-01 AUTHORITY

This work was performed under the Second Phase of the Sacramento River Bank Protection Project, authorized by the Flood Control Act of 14 July 1960, Eighty Sixth Congress, Second Session, Senate Document No. 103 Project authorization was supplemented by the River Basin Monetary Authorization Act of 1974, approved by the Second Session of the 93rd Congress as Public Law 93-251. In 1982, the project authorization was further supplemented by a joint resolution of Congress as Public Law 97-377.

Additional information pertaining to authority for this project, project works, and the protection to be provided by this project are provided in the Standard Operations and Maintenance Manual and the Supplement To Standard Operation and Maintenance Manual, Sacramento River Flood Control Project, Unit No. 124, North Levee of American River from Natomas East Canal to the Sacramento River and East Levee of the Sacramento River from Natomas Cross Canal to American River.

1-02 PURPOSE OF THIS SUPPLEMENT: This is a supplement, part 2, to the Sacramento River Flood Control Project Standard Operation and Maintenance Manual for the portion of the Sacramento River Flood Control Project, Unit No. 124, North Levee of American River from Natomas East Canal to the Sacramento River and East Levee of the Sacramento River from Natomas Cross Canal to American River. This supplement is intended to provide information and guidance to maintenance personnel to the mitigation sites described herein. This supplement addresses vegetation on mitigation areas, including vegetation placed in rock revetment on berms, and does NOT address vegetation on levees. These guidelines reflect a change in the value and acceptance of certain vegetation within the flood control channel in light of changed environmental values and regulations. These guidelines shall be used in place of the Standard Operation and Maintenance Manual (1955) when managing mitigation sites. The 1955 Standard Operation and Maintenance Manual will continue to provide primary guidance for all public safety issues and decisions.

1-03 LOCATION AND DESCRIPTION:

a. Description of Mitigation Planting Surfaces In general, the revegetation program at each site was designed to establish a self-sustaining, mixed-canopy riparian forest and riparian scrub habitat on waterside river bank berms. The revegetation program at each site also includes creating shaded riverine aquatic (SRA) habitat. Vegetation has been planted on a number of revetment planting surfaces and non-reveted planting surfaces. Each site and project may vary due to unique conditions and goals for each project or site.

(1) Site 5 Off-site Mitigation (river mile 0.9 RT) is located on the north bank between Interstate 5 and Highway 160. It is about 800 lineal feet in length. Mitigation features at Site 5 were constructed in September 2001 through January 2002 . Mitigation features include an excavated undulating low berm surface; woody and herbaceous planting on the low berm surface, biotechnical brush layer applications in the slope above; an excavated upper berm with woody overstory and understory plantings, a 15' wide barrier planting of thorny native species above the excavated area; riparian tree and native grass plantings 30' wide behind the barrier plantings. Existing large cottonwood trees are preserved in two "islands" of undisturbed bank which are protected by brush mattress biotechnical applications.

The following table constitutes project sites, their location and the reclamation district or maintenance area within which they are located.

Table 1 Sac Bank - Site 5 Mitigation List of Site Acreage				
Unit No.	Site	Reclamation District	Existing vs New Berm	Acreage
	Site 5 offsite mitigation at Rm 0.9 Right	RD 1000	New berm	3.26
TOTAL FOR ALL SITES				3.26

1-05 CONSTRUCTION DATA AND CONTRACTOR: The contractor and construction data for the project sites are listed in the following paragraphs.

a. Site 5, Offsite Mitigation at RM 0.9

(1) Excavation: Excavation of Sacramento River Bank Protection, Site 5, Phase 3, offsite mitigation at the location as shown on Exhibit A-1, was accomplished under contract No. DACW05-00- R-0021 by Geocon Inc., during the period from May 2001 to July 2001. File No. 1-04-477 and Specifications No. 1140.

(2) Mitigation Planting: Construction of Sacramento River Bank Protection Contract, Lower American River Site 5 Offsite Mitigation Revegetation at the location as shown on Exhibit A-1, was accomplished under contract No. DACW05-01-C-0002 by Sierra View Landscape

during the period from September 2001 to January 2002. File No. 1-25-475 and Specifications No. 1105.

SECTION II

LOCAL COOPERATION

2-01 FEDERAL REQUIREMENTS: Federal responsibility shall include the following:

a. Prepare the appropriate environmental documentation (EA or EIS), when requested by, and in cooperation with, the Non-Federal Sponsor. Coordinate with U.S. Fish & Wildlife Service and National Marine Fisheries Service and determine mitigation requirements in consultation with these agencies using the Habitat Evaluation Procedure or other methodology.

b. Prepare wildlife habitat mitigation design, oversee implementation, and ensure maintenance of plants has achieved root establishment and obtained other success criteria prior to turnover to Non-Federal Sponsor. Refer to Section 9-02 for exceptions.

c. Prepare a wildlife habitat mitigation report. This report shall document, with text, photographs and when appropriate, as built plans, existing conditions of site and plants at time of turnover to Non-Federal Sponsor. The report may be part of post construction reports required at the time of turnover to the Non-Federal Sponsor. The report shall be distributed to the Non-Federal Sponsor, the Corps' Environmental Resources Branch (CESPK-PD-R) and the Corps' Project Manager (CESPK-PM).

d. In joint responsibility with Non-Federal Sponsor, ensure that environmental commitments such as riparian mitigation measures and monitoring requirements are successfully implemented in accordance with National Environmental Policy Act (NEPA), Federal Endangered Species Act (ESA) and the California Environmental Quality Act (CEQA). (Refer to exhibit K for environmental commitments.)

e. Provide As-Constructed drawings.

f. Prepare project Operations & Maintenance Manual revisions as they apply to each mitigation project.

g. Coordinate appointment of a Mitigation Evaluation Team by the Army Corps of Engineers. The MET shall consist of representatives of the Army Corps of Engineers, the State of California Reclamation Board and the Sacramento Flood Control Agency in coordination with the U.S. Fish and Wildlife Service and the State Department of Fish and Game.

2-02 STATE LEGISLATION (NON-FEDERAL REQUIREMENTS): Non-Federal responsibility shall include the following:

a. Protect and preserve all mitigation vegetation on site that has been turned over to the Non-

Federal Sponsor, including desirable vegetative growth as it "volunteers" throughout the life of the project. Allow vegetation to grow to maturity within mitigation areas.

b. Make semi-annual inspections and submit annual reports (which shall include text and a photographic documentation of plant progress). Refer to section 3-09.

c. Perform all operations, maintenance, monitoring and remedial requirements as stated herein.

d. Over the life of the project (as defined in the EA), replant and replace all vegetation that has died as a direct result of vandalism, public use (accidental damage) and negligent maintenance practices, for example, herbicide overspray, lack of beaver cage maintenance, and fire damage, other than 'Acts of God' to plants. All 'Acts of God' damage shall be revisited by all concerned agencies and decisions, relative to replanting, made on a case by case basis.

e. Refer to section 9-02 for a list of projects/sites that the Non-Federal Sponsor has agreed to take responsibility for the plant establishment period.

f. The local sponsor for each site listed in table 1, pg 2 are as follows:

(1) Site 5 On-site Mitigation: Reclamation Board. Contact the General Manager of the Reclamation Board through the California State Department of Water Resources.

SECTION III

GENERAL

3-05 ANNUAL REPORT: The Non-Federal Sponsor shall prepare an annual report for the mitigation areas for submittal to the District Engineer. The Non-Federal Sponsor shall provide a copy of the report submitted to the District Engineer to the Corps' Environmental Resources Branch (CESPK-PD-R), and the Corps' Project Manager (CESPK-PM). The annual report shall compile information from the checklists that are prepared for the semi-annual inspections (refer to section 3-09). The annual report shall address all significant events that took place during the previous 12 months and shall include: the checklists for the semi annual inspections, a photographic record of overall conditions, a photographic record of specific significant damage and a summary statement of general vegetation conditions for the period of time from the preceding report. During monitoring years, the annual monitoring report may serve as the annual report.

3-09 PERIODIC SEMI-ANNUAL INSPECTIONS: Inspections of mitigation areas shall be initiated by the Non-Federal Sponsor and made with interested agencies at the times specified below to compare progress with the goals of the mitigation plans as stated in the environmental documentation and other project documents. Provide the Corps written notice 30 days prior to all inspections and invite the Corps to participate in the inspection.

a. Spring Inspection: At a minimum, inspection shall occur during April through June.

Leaves emerge from buds at this time making it a good time for visual plant identification, and a good time for evaluating general plant health and mortality.

b. **Fall Inspection:** At a minimum inspection shall occur during September through October, just prior to the rainy season, typically when plant stress is most prevalent. Some plants may appear dead during this time of the year, but are actually alive. These plants may be exhibiting a physiological response to stress, such as early leaf fall, during prolonged drought conditions. Therefore, survival counts taken during the spring inspection are generally more accurate.

3-10 CHECK LISTS: A specific check list form for reporting results of inspections of these mitigation areas is contained in this supplement as Exhibit C. These checklists shall be completed during each semi-annual inspection.

3-11 DRAWINGS: Exhibit B, As-built drawings (unattached).

3-12 FINAL REPORTS: Final Reports/Revegetation Project Summaries are provided as Exhibit F.

SECTION IX

VEGETATION ON MITIGATION AREAS

9-01 DESCRIPTION: This section addresses maintenance requirements for vegetation and associated items on the above mentioned mitigation areas. The contents in this exhibit are general in nature and apply to all mitigation project sites. Site-specific revisions to this exhibit addressing requirements unique to each site will be provided as new sites are completed. The format of revisions shall conform to, and be consistent with, this exhibit.

9-02 ESTABLISHMENT OF VEGETATION ON THE MITIGATION AREAS: For some projects the Non-Federal Sponsor has agreed to take on the "Establishment" responsibility of the vegetation. These projects shall include all effort, in addition to section 9-03 Plant Establishment Period (Short Term Operations and Maintenance), necessary to establish the vegetation. When required, the establishment of vegetation on the mitigation areas shall be specified in each revision to the exhibit. Refer to the following list for projects for which the Non Federal Sponsor has agreed to be responsible for the Plant Establishment Period:

- a. Site 5 offsite mitigation at RM 0.9 Right

9-03 PLANT ESTABLISHMENT PERIOD (PEP), OR SHORT-TERM OPERATIONS AND MAINTENANCE General. The PEP will start at the turnover of the project to the Non-Federal Sponsor and be a minimum of 36 months in duration if no significant replanting is required. Throughout this period, operations and maintenance requirements are expected to be relatively intense compared to the requirements of the following post-PEP. During the PEP, the Non-Federal Sponsor will be responsible for performing the operations and maintenance requirements listed below. At the end of the PEP, the mitigation sites will be considered

successful if they are self-sustaining (refer to section 9-04) and provide adequate compensation as outlined in the performance standards (Exhibit J) to offset habitat losses associated with the project. If the performance standards are not met the Non-Federal Sponsor will consult with the mitigation evaluation team on possible remedial measures [refer to paragraph 2-06, e]. The Non-Federal Sponsor will be responsible for determining maintenance methods and schedules needed to perform these maintenance requirements. Operations and maintenance requirements of revegetation features during the PEP will include but are not limited to the following:

a. Site assessments of overall planting areas to determine plant condition, weed growth, and other revegetation-related site conditions.

(1) Regular Inspections. The Non-Federal Sponsor will inspect mitigation areas. The inspections will be concurrent with maintenance activities during the PEP to ensure that plant materials are in a healthy and vigorous condition.

(2) Clean up. The Non-Federal Sponsor will maintain the site in a natural-appearing condition throughout the PEP. Site cleanup will occur at a minimum, at all scheduled irrigation events. All garbage, construction debris, excess plants, and dirt left over from replanting or site repair operations, other discarded materials, and extraneous equipment will be removed from the site in accordance with state and local regulations.

(3) Woody Debris and Felled Trees. Natural woody debris (i.e., logs, branches, or uprooted trees), whether from mitigation plantings or other sources, shall not be removed, unless it poses a threat to public safety, including river users, or if it promotes local scour (i.e., movement or loss of stone or mats along bank protection features, including the upper slope, the low berm and low berm face).

(4) Damage and Repair. Maintenance, repair, or replacement of all revegetation features will be the responsibility of the Non-Federal Sponsor through the duration of the PEP. This includes maintenance, repair, or replacement of rock structures and erosion control measures required for mitigation habitat creation. Repair of rock structures and erosion control measures required for flood protection and public safety shall be governed by the standard operations and maintenance manual and subsequent supplements. Refer to section 1-01 and 1-02.

b. Installation, maintenance, operation, and removal of the irrigation system at each site.

(1) Irrigation System. The Non-Federal Sponsor will be responsible for the installation, operation, maintenance, and removal of the irrigation system and application of irrigation as described in the following paragraphs. The system must be capable of providing an adequate and equivalent quantity of irrigation to each planting site.

(a) First Year irrigation schedule and Rate: Each plant shall receive a minimum of one (1) application every seven (7) days during the months of April through October. Each application shall include a minimum of five (5) gallons per plant, or a sufficient quantity of water applied by overhead spray to uniformly wet the soil in the entire planting area to a minimum depth of 18 inches. Additional applications shall be required during November

through March , if a minimum of 1/2 inch of precipitation does not fall on the plants during any six week period.

(b) Second Year irrigation schedule and Rate: Each plant shall receive a minimum of one (1) application every seven (7) days during the months of April through October. Each application shall include a minimum of fifteen (15) gallons per plant, or a sufficient quantity of water applied by overhead spray to uniformly wet the soil in the entire planting area to a minimum depth of 24 inches.. Additional applications shall be required during November through March , if a minimum of 1/2 inch of precipitation does not fall on the plants during any six week period.

(c) Third Year irrigation schedule and Rate: Each plant shall receive a minimum of one (1) application every fourteen (14) days during the months of April through October. Each application shall include a minimum of thirty (30) gallons per plant, or a sufficient quantity of water applied by overhead spray to uniformly wet the soil in the entire planting area to a minimum depth of 36 inches.. Additional applications shall be required during November through March , if a minimum of 1/2 inch of precipitation does not fall on the plants during any six week period.

If a new system is used, the Non-Federal Sponsor will install the entire system on the project site at the beginning of each irrigation season. At the end of each irrigation season, the Non-Federal Sponsor will remove the entire system from the project site. The Non-Federal Sponsor will be responsible for maintaining the irrigation system in a fully operational condition throughout the irrigation season defined herein. The Non-Federal Sponsor will hand water the plant materials when the irrigation system is not in place, if necessary, as determined by the Non-Federal Sponsor.

(2) Irrigation Season. The irrigation season will be April 1 through October 31 of each year of the PEP. The irrigation season may be adjusted at the Non-Federal Sponsor's discretion based on site-specific conditions (e.g., high or low water surface elevations, prolonged or delayed rainy seasons).

(3) Irrigation Applications. The beginning and shutdown dates for the irrigation schedule are dependent on weather conditions. If most of the plant material appears to be stressed (e.g., water stress [over-watering], stunted growth, wilting, premature leaf loss, and yellowing of leaves [deciduous spp.]) and in danger of perishing or becoming severely damaged, the Non-Federal Sponsor will adjust the frequency and duration of watering. The Non-Federal Sponsor will be responsible for applying irrigation at the rates specified in the original construction documents, or at a similar rate if a different irrigation system design is used.

c. Weed Control

(1) Requirements. Weed control will consist of hand-pulling, mechanical removal, or spot applications of herbicide to maintain a minimum 2-foot diameter weed-free zone around each individual planting location. Weeds will include all woody and herbaceous plants occurring within a 1-foot radius around each plant. Weed control may also involve the removal or control

of particularly invasive non-native species outside of the 2-foot diameter around each plant. Refer to exhibit E for guidance and a list of weeds to be controlled. Weeds will also be controlled on all access roads and ramps.

(2) **Herbicides.** If herbicides are used, they will be non-selective, broad-spectrum, post-emergent, translocating herbicides approved for use in and around aquatic habitats by the U.S. Environmental Protection Agency. Herbicides, fertilizer, or other chemical-based materials will not be stored on the project site. Herbicides will be applied to avoid drift outside the designated revegetation planting areas and will protect existing plants to remain or to be transplanted from herbicide drift. Herbicides shall be applied in accordance with all State and local regulations.

(3) **Elderberry (*Sambucus* sp.) plantings or naturally occurring elderberries.** At no time will herbicides be sprayed onto undesired vegetation within 100 feet of any elderberry plantings or naturally occurring Elderberry plants at onsite or offsite mitigation planting areas. Although these plantings are not considered to be in a designated elderberry shrub mitigation site they will provide valley elderberry longhorn beetle (VELB) habitat. Weeds must be mechanically or manually within 100 feet of elderberry plants. However, in order to control particularly invasive non-native weed species (e.g., *Arundo donax*), where herbicide application is the only viable means of weed eradication, herbicides may be applied by "painting" the cut stem or portions of the foliage. Minimal painting will occur to limit the quantity of applied herbicides. This method will be used as a means of preventing elderberry shrubs from competition from weed species.

(a) **Elderberry plantings at Site 5 offsite mitigation:** At the time of project construction, Site 5 offsite mitigation was not considered to be an elderberry replacement area. No elderberries were planted at the site 5 offsite mitigation site at RM 0.9R.

d **Replacement Planting.** Replacement of plant material, and/or implementation of other remedial measures, to meet performance standards in years 3 and 8. Replacement planting of woody or herbaceous plant material is required if there is high plant mortality and the site is not achieving, or is not trending toward achieving, the performance standards outlined in Section 9-05. Plant mortality may be the result of numerous factors, including but not limited to, acts of nature, site suitability for the species planted, or insufficient maintenance activities. The quantity of replacement plants during a given maintenance year, if necessary, will be determined based on the monitoring results and an estimation by the Non-Federal Sponsor of the quantity of plants required to meet the performance standards.

(1) **Woody Plant Species.** During the PEP, individual plant counts (summarized as percent survival values) will be performed for all woody tree species, with the exception of biotechnical installations of live cuttings for erosion control, such as brush layers and mattresses. If individual plant counts are infeasible based on site conditions (e.g., dense vegetative growth) a cover based monitoring method will be used. The target performance goals for survival of woody plant material during years 1, 2, and 3 of the PEP are 70 percent, 60 percent and 50 percent survival, respectively, based on original population at time of turnover to the Non-Federal Sponsor. If the recommended performance goal for plant survival is not met, the Non-Federal Sponsor may elect to replant all or a portion of the planting sites needed to increase the

percent survival to the required level.

Replacement planting will be performed in the fall or winter of each maintenance year. Plants of the same species and planting size as were originally installed will be installed unless it is determined that another species is better suited to a particular site condition. Replacement plants will be installed according to the original construction documents unless another viable alternative should be considered based on the cause of mortality or future site conditions. Dead plants will be completely removed before installation of replacement plants and will be removed from the site.

If replacement plants are required, all replacement plant propagation materials will be collected from local genetic stock from within the project site region as outlined in the original construction documents. Refer to Section 1-05 Construction Data and Contractor. Adjustments to the original planting design will be recorded on the as-maintained drawing and in the annual reports.

(2) Herbaceous Species on the Low Berm. Herbaceous species on the low berm surface with sparse cover or bare areas greater than 100 square feet in area will be re-seeded with the original seed mix and application rates as specified in the original construction documents, refer to section 1-05 Construction Data and Contractor, modified as necessary, or re-plugged with container stock of the herbaceous plants originally installed. If an area has sparse or bare areas, but has an overstory of woody plant growth (e.g., willows, blackberries, native roses) reseeded/replanting will occur at the discretion of Non-Federal Sponsor. If significant loss of vegetation or damage to the site occurs, the Non-Federal Sponsor will discuss potential remedial measures with the mitigation evaluation team.

e. Biotechnical plantings. The integrity of the biotechnical plantings, which are a feature of some of the mitigation planting surfaces, shall be maintained during the PEP. This will include regularly checking the integrity of the wooden stakes, ropes securing the brush mattress and ensuring that the edges of erosion control fabric are secure. The Non-Federal Sponsor will be responsible for repairing damage to the mat system caused by vandalism, fire, debris, or other causes during the PEP.

f. Maintenance of signs. The Non-Federal Sponsor will maintain the revegetation and VELB signs throughout the PEP. Maintenance will include replacing lost, stolen, or damaged signs; and performing any corrective actions required to maintain desired sign conditions.

g. Preparation of project documentation, including submittals. The Non-Federal Sponsor will be responsible for documenting project conditions and progress throughout the Plant Establishment Period (PEP). Documentation will include monthly maintenance logs, and annual monitoring reports, which are described in the following section.

(1) Plant Establishment Form (Monthly Maintenance Log). Throughout the PEP, the Non-Federal Sponsor will be responsible for daily (monthly logs) record keeping of the maintenance activities, including but not limited to irrigation, weed control (i.e., types of herbicides used, application rates, personnel performing work), and replacement planting. The

Non-Federal Sponsor will compile all data recorded during the plant establishment activities on a form similar to the example in Exhibit G. The Non-Federal Sponsor will compile and present the forms for that year (one form for each month) in the annual reports. Refer to page 4 paragraph 3-05 for requirements of the Annual Report.

h. Providing site surveillance and other measures to protect vegetation from vandalism following installation and during the establishment period.

i. Some sites have been provided with temporary beaver barrier fencing. This fencing is intended to reduce but not completely eliminate beaver damage. For the duration of the PEP the fencing may be removed at the discretion of the local sponsor at the threat of inundation by high river flows in winter and spring and shall be reinstalled in late spring after the threat of high river flows are over. The posts on which the fences are installed are intended to remain in place until the fencing is permanently removed. Safety caps have been provided on the fence posts. The Non-Federal Sponsor shall promptly replace caps that are missing. The following sites have been provided with temporary beaver fencing.

(1). Site 5 offsite mitigation at RM 0.9 Right

9- 04 MAINTENANCE OF THE MITIGATION AREAS (LONG TERM OPERATION AND MAINTENANCE): Plants that have established themselves will continue to live without any artificial support by maintenance personnel. "Establishment" is defined herein as *"sustained self-sufficiency where the plant is able to sustain growth without additional artificial watering, fertilizing, herbicide spraying, weeding, pruning, cultivation, or other general maintenance practices normally associated with sustaining ornamental vegetation"*. The following items address impacts that shall be addressed by, and are the responsibility of, the Non-Federal Sponsor in maintaining acceptable site and plant conditions so that vegetative growth will not be impeded. All maintenance activities, outside of the mitigation site carried out by the Non-Federal sponsor such as spraying and debris removal, shall be carried out in a manner which avoids impact to threatened and endangered species.

a. General Plant Care: "Park-like" conditions shall be avoided in the mitigation areas. Greater habitat value is afforded by those conditions that might be unsightly in a park situation, for example, downed trees, broken branches, unmowed grass, etc. No removal of vegetation shall occur without prior written approval from the Federal Sponsor except as defined below in paragraph d. Weed Control.

b. Tree Preservation: Preserve ALL existing trees on mitigation areas except as defined below in paragraph d. Weed Control. Only those trees that directly interfere with levee or revetment maintenance shall be removed.

c. Volunteer Growth: Preserve all native volunteer growth that is consistent with requirements and objectives of mitigation site plans and environmental documentation. The design concept on most sites includes developing the upperstory, which provides a seed source for most "successional growth" understory vegetation. The upperstory reduces the air and soil temperature, which creates a microenvironment at the understory level that is more conducive to

volunteer growth. This design concept encourages, and is dependent upon, volunteer growth to achieve the objectives of the environmental documentation. Volunteer growth will achieve the regeneration of "successional growth" desired in mitigation plans required of most projects. Mowing these areas will suppress this growth and is not recommended. Ensure that all maintenance practices of adjoining lands owned or maintained by the Reclamation District, Flood Control Agency, State of California or County of Sacramento do not negatively affect the mitigation site.

d. **Weed Control:** General weed control on the mitigation sites is not desirable and could cause more destruction to the desirable vegetation than the benefits received by its eradication. Whenever weed control is permitted, care shall be taken to isolate the spray (or other method if used) so that only the targeted plant is affected. Ensure weed growth is controlled on the firebreaks at each site. The maintenance districts will be allowed to control noxious weeds within the guidelines of the State of California, Department of Food and Agriculture, Division of Plant Industry. The maintenance district shall notify the Department of Water Resources, Flood Control Project Branch before taking any action. For guidance refer to, Pest Ratings of Noxious Weed Species and Noxious Weed Seed, Exhibit E. Herbicides shall be applied in accordance with all State and local regulations.

e. **Selective Clearing/Pruning:** Downed trees and branches, dead limbs, and dead trees provide habitat for numerous wildlife species. Therefore, clearing and pruning shall not occur unless such materials restrict site access from the ramps, prove to be detrimental to the integrity of the bank protection structure, present a risk to public safety, or overhang firebreaks. Pruning is permitted to maintain design hydraulic flows. Due to the different physical characteristics of mitigation sites, visual access of the levees shall be maintained. Levee slopes shall be visible from the levee tops.

f. **Human Impacts:** Some sites are located near population centers and are impacted by both legitimate and non-legitimate uses. All damage as a result of these activities is the responsibility of the Non-Federal Sponsor and shall be repaired and replanted the by the Non-Federal Sponsor as required to meet environmental commitments. The following categorizes the greatest potential for damage from human impacts and shall be policed by the Non-Federal Sponsor:

(1) Public Use: The public's impact on a site will continue to be potentially disruptive to the vegetation. Ensure recreational activities do not impact the plants. If public use becomes destructive, the Non-Federal Sponsor shall take corrective measures to replace plants and to ensure their survival.

(2) Local Maintenance District Damage: Standard maintenance practices may pose a threat to the mitigation vegetation. Each district shall assess its present maintenance practices and determine if it can continue these practices or if it needs to adjust these methods to be less detrimental to the vegetation. Some traditional practices are not be appropriate for some sites and different methods shall be implemented. Local maintenance personnel are the people most involved with the sites on a day to day basis and therefore stand the greatest risk of inadvertently damaging them. Current levee maintenance practices, such as burning, can quickly destroy years of mitigation work, if maintenance procedures get out of control. The

most common methods used to control vegetative growth on the levee structure (not the berm) are evaluated as follows:

- * **Mowing:** Mowing is by far the safest method used to control vegetative growth and limit potential damage, and should be encouraged, where feasible.
- * **Discing:** Discing is another preferred method, but is not as widely used due to its limited application to levee maintenance. Discing is most effective in maintaining a firebreak along the toe of the levee structure.
- * **Spraying:** Chemical spraying is commonly used. Care shall be taken to prevent spray drift onto adjoining areas in accord with all applicable local, State and Federal laws.
- * **Burning:** Burning is the least preferred. The potential for damage is great.

(3) Vandalism: Vandalism is always a potential threat but generally decreases over time. Most vandalism involves the theft of planting stock while young (usually the first year after planting). As the plant root systems develop, the plants become hard to remove, and are no longer a desirable target. Cutting of trees for firewood is another long-term threat. Vandalism damage to signs, fences, gates, and beaver barrier cages are long term problems and shall be repaired or replaced by the Non-Federal Sponsor in a timely fashion.

(4) Trash: Trash is disruptive to plant growth and wildlife. Trash shall be promptly removed from the site and discarded properly.

g. Wildlife and Domestic Animal Caused Damage: Beaver, deer, rabbit, and gopher damage is an ongoing threat to the vegetation. Beaver damage is the most common of these. On some sites, beaver barrier cages and/or fences have been installed to protect a percentage of the highly susceptible species and shall be checked at each inspection. Repair of these items shall be made on a timely basis to ensure further damage does not continue. These cages provide additional protection from deer browse. Even though small trees are the beavers' preferred food, they will damage the larger trees as well. Cottonwood and willows are the beavers' preferred species, however beavers are also known to fell other species of trees. The beaver barrier cages shall not be removed at any time, except when it would girdle the plant. Deer, rabbit, and gopher damage are prevalent while the vegetation is young but will have less of an impact over time. Wildlife damage is considered as an 'Act of God' and shall be revisited by all concerned agencies and decisions, relative to replanting, made on a case by case basis. Cattle, horses, sheep and goats shall be kept off the site and damage caused by domestic animals shall be the responsibility of the Non-Federal Sponsor.

The Non-Federal Sponsor may elect to reduce herbivore browse by planting thorny native plants such as *Rubinus ursus* and *Rosa Californica* to provide a barrier to the susceptible plants. Cages should not be removed until this strategy has proved effective over a number of years at a particular site

h. Natural Environmental Damage: Natural processes are inevitable and could occur at any time during the course of re-establishing the vegetation. However, over time the damage will likely be less, due to the maturity of the vegetation. Windthrow of trees may increase over time as trees mature and provides beneficial habitat and should not be removed as a measure of routine maintenance, refer to paragraph J below for information regarding fallen trees and safety issues. All 'Acts of God' damage shall be revisited by all concerned agencies and decisions, relative to replanting, made on a case by case basis. Environmental damage caused by human impacts are events other than 'Acts of God' even though the results could be the same, i.e., a lightning fire versus a cigarette caused fire.

(1) Flood & Erosion: Flood and erosion damage could be an annual occurrence, such occurrences shall be documented in each annual report. Damage due to flooding will impact both vegetation and soil erosion.

(2) Fire & Wind: Fire and wind damage shall be documented in each annual report. Fire is a potential threat from both maintenance practices and public carelessness. Wind damage occasionally occurs but generally does not result in large-scale damage.

i. Vegetation Free Zone: Where applicable, the vegetation free zone is an area adjacent to the landside and/or waterside toe of the levee where no type of woody vegetation is permitted. This zone is required for maintenance and floodfighting activities and must be accessible at all times. Maintain a 15-foot-wide firebreak at the toe of the levee on all berm sites with average berm widths of 30 feet or greater and around perimeter of site where possible and so designated. Occasionally firebreaks have been provided on berms of less width and will be designated as such in the mitigation as-built drawings. Most berm sites less than 30 feet in width generally do not have a firebreak, due to lack of space. These firebreaks shall be kept clear of vegetative growth at all times. Tree limbs shall be pruned so that the air space above firebreak is also kept clear. Coordinate with and follow fire districts' recommendation for road maintenance and fire prevention.

j. Woody Debris and Felled Trees: Woody debris washing down the river during high flows tends to settle out as water levels recede. As a result, it is possible for debris or snags to accumulate in or around the bank protection features at the project sites. While there are certain advantages provided by such materials (e.g., wildlife habitat and shelter), the presence of woody debris can pose a threat to public safety. The issue of public safety will be the overriding consideration for deciding when to remove debris and woody debris or felled trees will be removed at Non-Federal Sponsor's discretion.

k. Beaver Barrier Cage, Signage, Fencing, and Access Gate Maintenance: Beaver barrier cages and/or fencing have been provided on some of the mitigation areas. All cages and fences shall be maintained in an effective condition, which will deter beavers from damaging the vegetation. Signs and access gates shall be maintained in a readable and operable condition, respectively. Signs shall be checked annually. Any sign found to be damaged or unreadable shall be replaced or repaired to its original condition.

l. Public Health and Safety: Vegetation will be managed to meet operation, maintenance,

repair, replacement and rehabilitation (OMRRR) requirements of authorized flood control and other authorized project features. Vegetative management may include partial or complete removal of vegetation for OMRRR purposes. Local maintenance entities shall coordinate with the Non-Federal Sponsor and receive the Non-Federal Sponsor's approval prior to undertaking any action. Contact the California State Department of Water Resources, Flood Control Project Branch.

m. Other Miscellaneous Items: Ensure access roads are kept in good passable order. Ensure that all other items associated with individual projects are maintained as per mitigation plans. Maintenance records of these items shall be presented as applicable in each annual report.

9-05 MANAGEMENT AND OPERATION OF THE MITIGATION SITES (Adaptive Management)

a. General. The operations and maintenance manual assumes the mitigation features will function as a self-sustaining established site, capable of natural regeneration and not requiring additional irrigation after the PEP. However, in the event of a structural failure, or if the vegetation fails to meet long-term performance standards or is otherwise in noncompliance with project requirements the procedures and standards required by this operations and maintenance manual may be insufficient or ineffective. In such cases, the mitigation evaluation team will be responsible for reviewing monitoring reports, evaluating results, and recommending remedial measures to be implemented by the Non-Federal Sponsor. This process is known as "Adaptive Management". The remedial measures would provide information for the repair, replacement, or rehabilitation of vegetation and structural features required for creation of mitigation habitat. Structural features required for flood control and public safety are governed by the standard operation and maintenance manual, refer to section 1-01 and 1-02..

Because the factors that might require remediation can not be identified specifically, some potential factors will be briefly summarized herein. If it should become necessary, more specific information pertaining to the cause of the problem and the proposed adaptive management technique will be prepared by the mitigation evaluation team.

b. Determination of the Need for Adaptive Management. The monitoring results and visual observations that are made during the annual and semi-annual inspections will determine noncompliance with long-term performance standards for all revegetation or problems regarding bank or other site features. The Non-Federal Sponsor will report this information to the mitigation evaluation team. Based upon review of the report, the current understanding about system dynamics, current site conditions, and the project's performance standards, the mitigation evaluation team will recommend what actions, if any, may be required.

c. Selection of Critical Areas. The project site may be affected by a number of natural events or human impacts. Remedial action may be necessary throughout the revegetation areas or in specific areas. The selection of specific or critical areas will be based on the following considerations, or other factors not listed below that may effect project performance:

(1) After remediation, is the area capable of achieving self-sufficiency in a reasonable period of time?

(2) If original mortality was a result of inappropriate species composition within a microhabitat condition, would modifying the plant palette result in greater plant survival rates?

(3) If original mortality was a result of berm or bank failure, would modifying the structures result in greater survival rates?

d. Potential Reasons for Implementing Adaptive Management Actions. There are a number of possible circumstances that may require adaptive management actions. Such circumstances may include the following:

- (1) Berm or bank failure resulting from high flow events or other causes.
- (2) Excessive wildlife damage.
- (3) Competition with invasive, non-native weed species.
- (4) Human impacts, including vandalism, arson or inadvertent impacts.
- (5) Natural events, such as floods or wildfire.
- (6) Unforeseen hazardous condition arising in association with mitigation features, practices or development.

9-06. VEGETATION MONITORING AND REPORTING

The goal of wildlife habitat mitigation projects is to create self-sustaining habitats per the specific requirements of the environmental documentation done in accordance with the National Environmental Policy Act (NEPA) and the U.S. Fish and Wildlife Service's biological opinion (if any) issued pursuant to the Federal Endangered Species Act (ESA) for that project. The mitigation will be considered self-sustaining if the site achieves, or is trending toward achieving, the performance standards at the end of the monitoring program and is determined successful in providing adequate compensation to offset losses from project construction. Vegetation monitoring will occur in June of each of the designated monitoring years.

Following mitigation project construction, the Corps will transfer the responsibilities for monitoring and reporting for the biological resources monitoring programs to the Non-Federal Sponsor. Monitoring shall be supervised or conducted by a qualified biologist, botanist or habitat restoration specialist having a minimum four year degree from an accredited university in the following subjects: biology, botany, environmental sciences, forestry or a minimum 10 years experience in habitat restoration. The Non-Federal Sponsor shall be responsible for attaining the performance standards (See exhibit J) for the monitoring program.

a. **Performance Standards and Goals.** Performance standards are minimum vegetation reestablishment objectives that must be achieved in monitoring years designated in the monitoring schedule to meet project objectives. Failure to achieve performance standards may necessitate implementation of additional remedial measures to mitigate project impacts. In addition to performance standards for the completion of the PEP and at the end of the designated monitoring period. Interim performance goals have been established for post PEP monitoring years as designated in the monitoring schedule to identify the need for management changes to improve the success of riparian vegetation and ensure compliance with performance standards at the end of the designated monitoring period. If implementation of remedial measures is required at, or towards the end of the monitoring period, monitoring would be performed for a least 5 years after measures are implemented. Refer to Exhibit J for performance standards.

b. **Monitoring Schedule.**

(1) **Site 5 offsite mitigation at RM 0.9 Right:** The site will be monitored in June in year 1, 2, 3, 5, and 8, which will begin the year following installation of the mitigation features. For offsite mitigation at RM 0.9 Right, the monitoring period is expected to begin in June 2002 and end in year 2009

(2) **Future Sites**

c. **Monitoring Methods.**

(1) **Site 5 offsite mitigation at RM 0.9 Right:** Individual plant counts will be used in monitoring years 1-3. In subsequent monitoring years tree canopy cover will be measured by aerial photography or, alternately by data collected along permanent transects to be established perpendicular to the riverbank. The transects will be sequentially numbered and established at 150-foot intervals starting from the upstream end of the project site and will extend the width of the project site (Exhibit H). The beginning and end of each transect will be permanently marked to allow replication of surveys in subsequent monitoring years. The monitors will measure the canopy width of trees and shrubs with foliage that intersects the transect line (Exhibit I). Percent tree canopy cover will be determined by measurement of the length of the transect intersected by overhanging tree cover.

(2) **Future Sites**

d. **Photographic Documentation.** A sufficient number of permanent photographic sampling points will be established by the Non-Federal Sponsor at each of the project sites so that a visual record of habitat development can be provided. The sampling points will be established during the first year monitoring surveys and the locations will be identified in the first year monitoring report. Photographs taken from each of these locations will be included in subsequent monitoring reports.

e. **Monitoring Reports.**

(1) Site 5 onsite mitigation and offsite mitigation: Annual monitoring reports for Site 5 onsite Mitigation and offsite mitigation shall be submitted to the Non-Federal Sponsor, the Corps' Environmental Resources Branch (CESPK-PD-R), and the Corps' Project Manager (CESPK-PM) by December 31 of each monitoring year. Monitoring is expected to begin in year 2000 and end in year 2007. Monitoring reports will include the following:

- (a) Aerial photographs taken for the survey (if used).
- (b) Percent tree canopy cover over each site.
- (c) Maps showing the survey transect locations (if used).
- (d) A summary of monitoring data for the project site by transects (if used).
- (e) Photographic documentation of site from permanent sampling points.
- (f) Qualitative description of the growth and vigor of vegetation.
- (g) A qualitative description of the low berm substrate and depositional features, if applicable.
- (h) A qualitative description of the establishment of volunteer vegetation.
- (i) A description of how plantings are performing relative to performance standards and goals.
- (j) A description of how each species planted is performing.
- (k) A description of environmental factors that may be adversely affecting planting success.
- (l) A description of proposed and implemented remedial measures.

(2) Future Sites

f. Remedial Measures. If riparian vegetation reestablished on the project site fails to meet performance standards, mitigation may be required. The Mitigation Evaluation team will advise the Non federal sponsor as to specific remedial measures. The level of effort required will be determined based on the magnitude and causes of failure. Potential remedial measures that may be implemented to achieve performance standards include the following:

- (1) Planting additional plants at the project site.
- (2) Extending the irrigation period.

(3) Planting additional riparian plants at off-site locations.

(4) Additional practices including but not limited to additional weed abatement and wildlife grazing measures.

If implementation of remedial measures is required, monitoring would be performed in the areas of the mitigation site affected by remedial measures for a 5-year period after measures are implemented.

EXHIBIT A

EXHIBIT A

FLOOD CONTROL REGULATIONS
(See Standard Manual)

EXHIBIT A1
LOCATION MAP

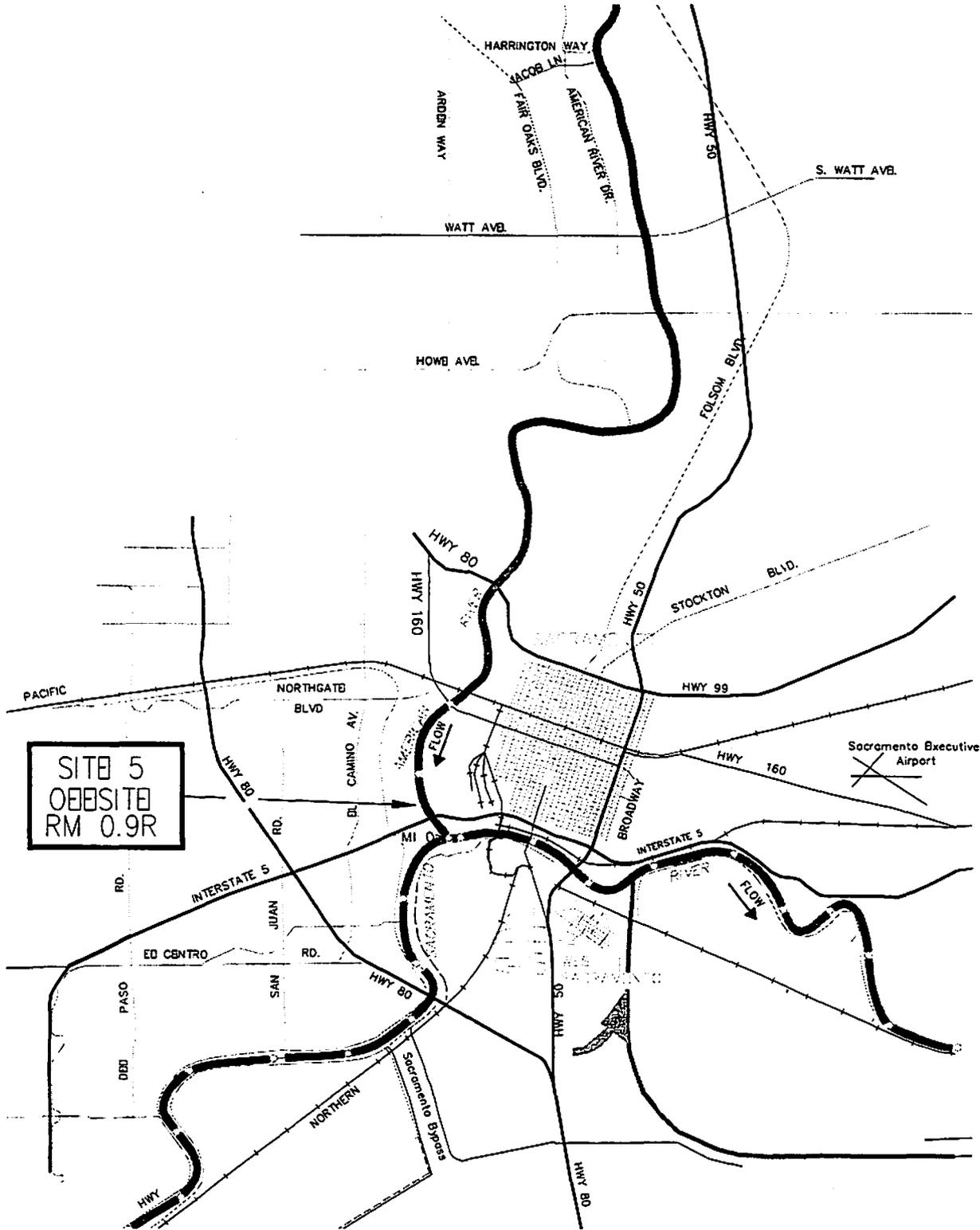


EXHIBIT B

EXHIBIT B

“AS CONSTRUCTED” DRAWINGS

SEE SEPARATE FOLDER FOR THE FOLLOWING DRAWINGS:

Title: Sacramento River Bank Protection Project, Lower American River Site 5 Offsite
Mitigation

File No. 1-25-475

ADDITIONAL DRAWINGS OF CROSS-SECTIONS, STRUCTURES, AND
MISCELLANEOUS FACILITIES ARE AVAILABLE IN THE OFFICE OF THE DISTRICT
ENGINEER.

EXHIBIT B

EXHIBIT B

“AS CONSTRUCTED” DRAWINGS

SEE SEPARATE FOLDER FOR THE FOLLOWING DRAWINGS:

Title: Sacramento River Bank Protection Project, Lower American River Site 5 Offsite
Mitigation

File No. 1-25-475

ADDITIONAL DRAWINGS OF CROSS-SECTIONS, STRUCTURES, AND
MISCELLANEOUS FACILITIES ARE AVAILABLE IN THE OFFICE OF THE DISTRICT
ENGINEER.

EXHIBIT C

CHECK LIST NO. 1

VEGETATION ON MITIGATION AREA
SEMI ANNUAL INSPECTION FORM

Location of Area Inspected: Part No. __, Unit No.'s: _____ Date: _____
(including river mile(s)) _____
Inspected by: _____

Report below the condition of the site and those items requiring maintenance work. Opposite each item listed, indicate the appropriate response, yes or no, in the area provided. Provide an attachment, if necessary, describing the negative significant conditions and any proposed/implemented maintenance work for each item. Note any changes, positive or negative, from the previous inspections.

Reference O&M Unit No.

Item No.	Description	Response	Yes	No*
1:	Mitigation area erosion free.....	_____	_____	_____
2:	Vegetation is free of fire damage.....	_____	_____	_____
3:	Vegetation is free of flood damage.....	_____	_____	_____
4:	Vegetation is free of wind damage.....	_____	_____	_____
5:	Vegetation is free of herbicide damage.....	_____	_____	_____
6:	Vegetation is free of wildlife damage.....	_____	_____	_____
7:	Vegetation & equipment is free of vandalism.....	_____	_____	_____
8:	Site is free of trash.....	_____	_____	_____
9:	Fire-break plowed and clear of growth.....	_____	_____	_____
10:	Access roads clear.....	_____	_____	_____
11:	Access gate barriers & locks in good working order.....	_____	_____	_____
12:	Beaver barrier cages or fencing in good condition.....	_____	_____	_____
13:	New volunteer growth (trees, shrubs) observed.....	_____	_____	_____
14:	Perimeter fencing in good working condition.....	_____	_____	_____
15:	Other items: _____	_____	_____	_____

COMMENTS _____

*Requires explanation

EXHIBIT C

CHECK LIST NO. 1

VEGETATION ON MITIGATION AREA
SEMI ANNUAL INSPECTION FORM

Location of Area Inspected: Part No. __, Unit No.'s: _____ Date: _____
(including river mile(s)) _____
Inspected by: _____

Report below the condition of the site and those items requiring maintenance work. Opposite each item listed, indicate the appropriate response, yes or no, in the area provided. Provide an attachment, if necessary, describing the negative significant conditions and any proposed/implemented maintenance work for each item. Note any changes, positive or negative, from the previous inspections.

Reference O&M Unit No.

Item No.	Description	Response	Yes	No*
1:	Mitigation area erosion free.....	_____	_____	_____
2:	Vegetation is free of fire damage.....	_____	_____	_____
3:	Vegetation is free of flood damage.....	_____	_____	_____
4:	Vegetation is free of wind damage.....	_____	_____	_____
5:	Vegetation is free of herbicide damage.....	_____	_____	_____
6:	Vegetation is free of wildlife damage.....	_____	_____	_____
7:	Vegetation & equipment is free of vandalism.....	_____	_____	_____
8:	Site is free of trash.....	_____	_____	_____
9:	Fire-break plowed and clear of growth.....	_____	_____	_____
10:	Access roads clear.....	_____	_____	_____
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12:	Beaver barrier cages or fencing in good condition.....	_____	_____	_____
13:	New volunteer growth (trees, shrubs) observed.....	_____	_____	_____
14:	Perimeter fencing in good working condition.....	_____	_____	_____
15:	Other items: _____	_____	_____	_____

COMMENTS _____

*Requires explanation

EXHIBIT D
Unattached

EXHIBIT D

LETTER(S) OF TRANSFER TO AND/OR ACCEPTANCE
BY THE RECLAMATION BOARD

EXHIBIT E

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
DIVISION OF PLANT INDUSTRY

PEST RATINGS OF NOXIOUS WEED SPECIES
AND NOXIOUS WEED SEED

PURPOSE

To advise commissioners as to the Department's policy regarding any pest action.

DEFINITIONS

"A" An organism of known economic importance subject to state (or commissioner when acting as a state agent) enforced action involving: eradication, quarantine regulation, containment, rejection, or other holding action.

"B" An organism of known economic importance subject to: eradication, containment, control or other holding action at the discretion of the individual county agricultural commissioner.

or

An organism of known economic importance subject to state endorsed holding action and eradication only when found in a nursery.

"C" An organism subject to no state enforced action outside of nurseries except to retard spread. At the discretion of the commissioner.

GUIDANCE

The district will be allowed to control noxious weeds classified as "A" and identified by the Department of Food and Agriculture as "(an) organism of known economic importance to state (or commissioner when acting as a state agent) enforced action involving: eradication, quarantine regulation, containment, rejection, or other holding action."

The district will be allowed to control noxious weeds classified as "B" and identified by the Department of Food and Agriculture as (an) organism of known economic importance subject to: eradication, containment, control or other holding action at the discretion to the individual county agricultural commissioner.

Before the district eradicates any plant belonging to either class "A" or "B", the plant to be eradicated must be identified as a noxious weed in either class "A" or class "B" by a qualified biologist or a representative of the county agricultural commissioner's office. The district shall notify the Department of Water Resources, Flood Control Project Branch before taking action.

"A" SPECIES

***Eradication, containment, rejection or other holding action at the state-county level.
Quarantine interceptions to be rejected or treated at any point in the state.***

<u>Acaena anserinifolia</u>	biddy biddy
<u>Acaena novae-zelandiae</u> (- <u>A anserinifolia</u> in part as used previously and of British and Australian authors.)	biddy biddy
<u>Acaena pallida</u> (- <u>A anserinifolia</u> in part as used previously.)	biddy biddy
<u>Achnatherum brachychaetum</u> (- <u>Stipa brachychaeta</u>)	punagrass
<u>Albagi maurorum</u> (- <u>A pseudalhagi</u>)	camelthorn
<u>Alternanthera philoxeroides</u>	alligatorwood
<u>Arctotheca calendula</u>	capeweed, as seed or fertile plants

"A" - Pests Continued

<u>Carduus acanthoides</u>	plumeless thistle
<u>Carduus nutans</u>	musk thistle
<u>Carthamus leucocaulos</u>	whitestem, distaff thistle
<u>Centaurea diffusa</u>	diffuse knapweed
<u>Centaurea iberica</u>	Iberian starthistle
<u>Centaurea maculosa</u>	spotted knapweed
<u>Centaurea squarrosa</u>	squarrosa knapweed

<u>Chondrilla juncea</u>	skeletonweed
<u>Cirsium ochrocentrum</u>	yellowspine thistle
<u>Cirsium undulatum</u>	wavyleaf thistle
<u>Crupina vulgaris</u>	bearded creeper
<u>Cucumia melo</u> var. <u>dudain</u>	dudain melon
<u>Cuscuta reflexa</u>	giant dodder
<u>Euphorbia esula</u>	leafy spurge
<u>Euphorbia serrata</u>	serrate spurge
<u>Halimodendron halodendron</u>	Russian salttree
<u>Halogeton glomeratus</u>	halogeton
<u>Helianthus ciliaris</u>	blueweed
<u>Heteropogon contortus</u>	tanglehead
<u>Hydrilla verticillata</u>	hydrilla
<u>Linaria gonistifolia</u> spp. <u>dalmatica</u> (- <u>L. dalmatica</u>)	Dalmatian, toadflax
"A" - Pests Continued	
<u>Onopordum</u> spp.	onopordum thistles
<u>Orobanche ludoviciana</u> var. <u>cooperi</u> (- <u>O cooperi</u> (Gray) Heller, as used in Munz', A Flora of Southern California.)	Cooper's broomrape
(- <u>O multiflora</u> Nutt., as used in Correll and Johnston's Manual of the Vascular Plants of Texas.)	desert broomrape
<u>Orobanche ramosa</u>	branched, broomrape
<u>Peganum harmala</u>	harmel
<u>Physalis virginians</u> var. <u>sonorae</u> (- <u>p subglabrata</u> as used previously.)	smooth groundcherry

EXHIBIT E

<u>Prosopis strombulifera</u>	creeping mesquite
<u>Salsola vermiculata</u>	wormleaf salsola
<u>Salvia virgata</u> (- <u>S pratensis</u> as used previously.)	meadow sage
<u>Scolymus hispanicus</u>	golden thistle
<u>Solanum cardiophyllum</u> nightshade	heartleaf
<u>Solanum dimidiatum</u>	Torrey's nightshade
<u>Sonchus arvensis</u>	perennial sowthistle
<u>Sphaerophysa salsula</u>	Austrian peaweed
<u>Striga lutea</u> (- <u>S asiatica</u>)	witchweed
<u>Tagetes minuta</u>	wild marigold
<u>Zygophyllum fabago</u>	Syrian beancaper

"B" SPECIES

Eradication, containment, control or other holding action at the discretion of the commissioner.

<u>Acacia paradoxa</u> (- <u>A armata</u>)	kangaroothorn
<u>Acronitlon repens</u> (- <u>Centaurea repens</u>)	Russian knapweed
<u>Aegilops cylindrica</u>	jointed goatgrass
<u>Aegilops ovata</u> (- <u>A geniculata</u> and <u>A neglecta</u> in part)	ovate goatgrass
<u>Aegilops triuncialis</u>	barb goatgrass
<u>Aeschynomene rudis</u>	rough jointvetch
<u>Agropyron repens</u>	(see <u>Elytrigia repens</u>)

<u>Allium paniculatum</u>	panicked onion
<u>Allium vineals</u>	wild garlic
<u>Ambrosia trifida</u>	giant ragweed
<u>Araujia sericofera</u>	bladderflower
<u>Cardaria chalepensis</u>	lens-podded hoarycress
<u>Cardaria drabs</u>	heart-poddedhoarycress
<u>Cardaria pubescens</u>	globe-podded hoarycress
<u>Carthamus baeticus</u>	smooth distaff thistle
<u>Carthamus lanatus</u>	woolly distaff thistle
<u>Centaurea calcitrapa</u>	Purple starthistle
<u>Centaurea repens</u> "B" - <i>Pests continued</i>	(See <u>Acroptilon repens</u>)
<u>Centaurea sulphurea</u>	Sicilian thistle
<u>Chorispora tenella</u>	purple mustard
<u>Cirsium arvense</u>	Canada thistle
<u>Coronopus squamatus</u>	swinecress
<u>Cucumis myriocarpus</u>	paddy melon
<u>Cynara cardunculus</u>	artichoke thistle
<u>Cyperus esculentus</u>	yellow nutsedge
<u>Cyperus rotundus</u>	purple nutsedge
<u>Elytrigia repens</u> (- <u>Agropyron repens</u>)	quackgrass
<u>Euphorbia oblongata</u>	oblong spurge
<u>Gaura coccinea</u>	scarlet gaura
<u>Gaura drummondii</u>	scented gaura

(- G odorata)Gaura sinuata

wavyleaf gaura

Gypsophila paniculata

baby's breath

Imperata brevifolia

satintail

Isatis tinctoria

dyer's woad

Lepidium latifolium

perennial peppergrass

Lythrum salicaria

purple loosetrife

Muhlenbergia schreberi

nimblewill

Nothoscordum inodorum

false garlic

"B" - Pests continuedNymphaea mexicana

banana waterlily

Oryza rufipogon

red rice

Panicum antidotale

blue panicgrass

Physalis viscosa

grape groundcherry

Polygonum cuspidatum

Japanese

Polygonum polystachyum

Himalayan knotweed

Polygonum sachalinonae

giant knotweed

Rorippa austriaca

Austrian fieldcress

Salvia aethiopis

Mediterranean sage

Senecio Jacobaea

tansy ragwort

Senecio squalidus

Oxford ragwort

Sesbania punicea

Scarlet Wisteria, Rattlebox

Setaria faberi

giant foxtail

Solanum carolinense

Carolina horsenettle, knotweed

Solanum elaeagnifolium

white horsenettle

<u>Solanum lanceolatum</u>	lanceleaf nightshade
<u>Solanum marginatum</u>	white-margined nightshade
<u>Symphytum asperum</u>	rough comfrey
<u>Ulex europaeus</u>	gorse
<u>Viscum album</u>	European mistletoe

"C" SPECIES

State endorsed holding action and eradication only when found in a nursery: action to retard spread outside of nurseries at the discretion of the commissioner: reject only when found in a cropseed for planting or at the discretion of the commissioner.

<u>Carduus pycnocephalus</u>	Italian thistle
<u>Carduus tenuiflorus</u>	Italian thistle
<u>Cenchrus echinatus</u>	Southern sandbur
<u>Cenchrus incertus</u>	coast sandbur
<u>Cenchrus longispinus</u> (- <u>C pauciflorus</u> as used previously)	mat sandbur
<u>Centaurea solstitialis</u>	yellow starthistle

“As-Built”

Final Report

**Sacramento River Bank Protection Contract, Lower American River
Site 5 Offsite Mitigation**

Prepared for

**U.S. Army corps of Engineers
Sacramento District
1325 J Street
Sacramento, CA 95814**

Contract No. DACW05-01- C-0002

Prepared by

(_____), Principal

**(Contractor’s Company Name
Address &
Phone No.)**

(_Date_)

Exhibit G. Sample Format for Daily Log Form
 Plant Establishment Form to Record Irrigation, Weed Control, and Plant Mortality

Project: _____ Sheet no. _____ of _____

Note: Designate river and river mile for site location. Check or indicate the appropriate responses.

Date _____		Site Location _____					
Purpose of Visit	inspection	irrigation	weeding	mowing	repair	census	
weather conditions	cloudy	rainy	clear	hot	warm/mild	cool	
irrigation info	flushed system	repairs	duration/amount	personnel _____			
Weed Control	chemical type _____		manual	personnel _____			
Damage to	fences/gates	beaver cages	irrigation equip.	signs	plants	other _____	
Damage from	vandalism	flood	fire	herbicide	wildlife _____		
	livestock	RD work _____		other _____			
Plant Mortality	species _____	quantity _____	species _____	quantity _____	species _____	Quantity _____	
	species _____	quantity _____	species _____	quantity _____	species _____	Quantity _____	
Items to be addressed next visit _____							
Problems, Observations, Comments: _____							

Date _____		Site Location _____					
Purpose of Visit	inspection	irrigation	weeding	mowing	repair	census	
weather conditions	cloudy	rainy	clear	hot	warm/mild	cool	
irrigation info	flushed system	repairs	duration/amount	personnel _____			
Weed Control	chemical type _____		manual	personnel _____			
Damage to	fences/gates	beaver cages	irrigation equip.	signs	plants	other _____	
Damage from	vandalism	flood	fire	herbicide	wildlife _____		
	livestock	RD work _____		other _____			
Plant Mortality	species _____	quantity _____	species _____	quantity _____	species _____	Quantity _____	
	species _____	quantity _____	species _____	quantity _____	species _____	Quantity _____	
Items to be addressed next visit _____							
Problems, Observations, Comments: _____							

EXHIBIT H

**EXAMPLE OF SAMPLING
TRANSECT LOCATIONS**

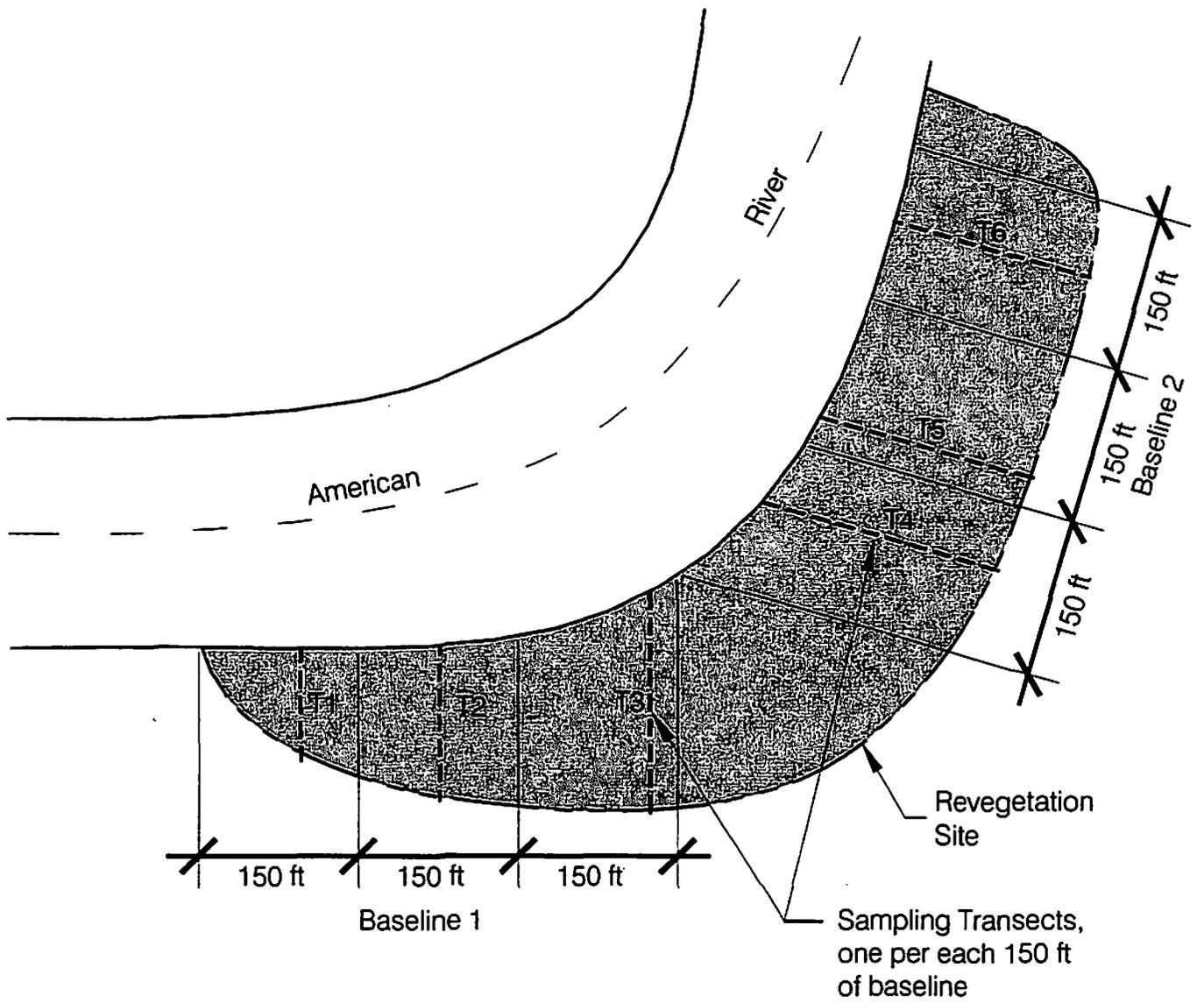


EXHIBIT I

EXAMPLE OF ROUNDING OUT PLANT CANOPIES FOR
LINE-TRANSECT MEASUREMENTS

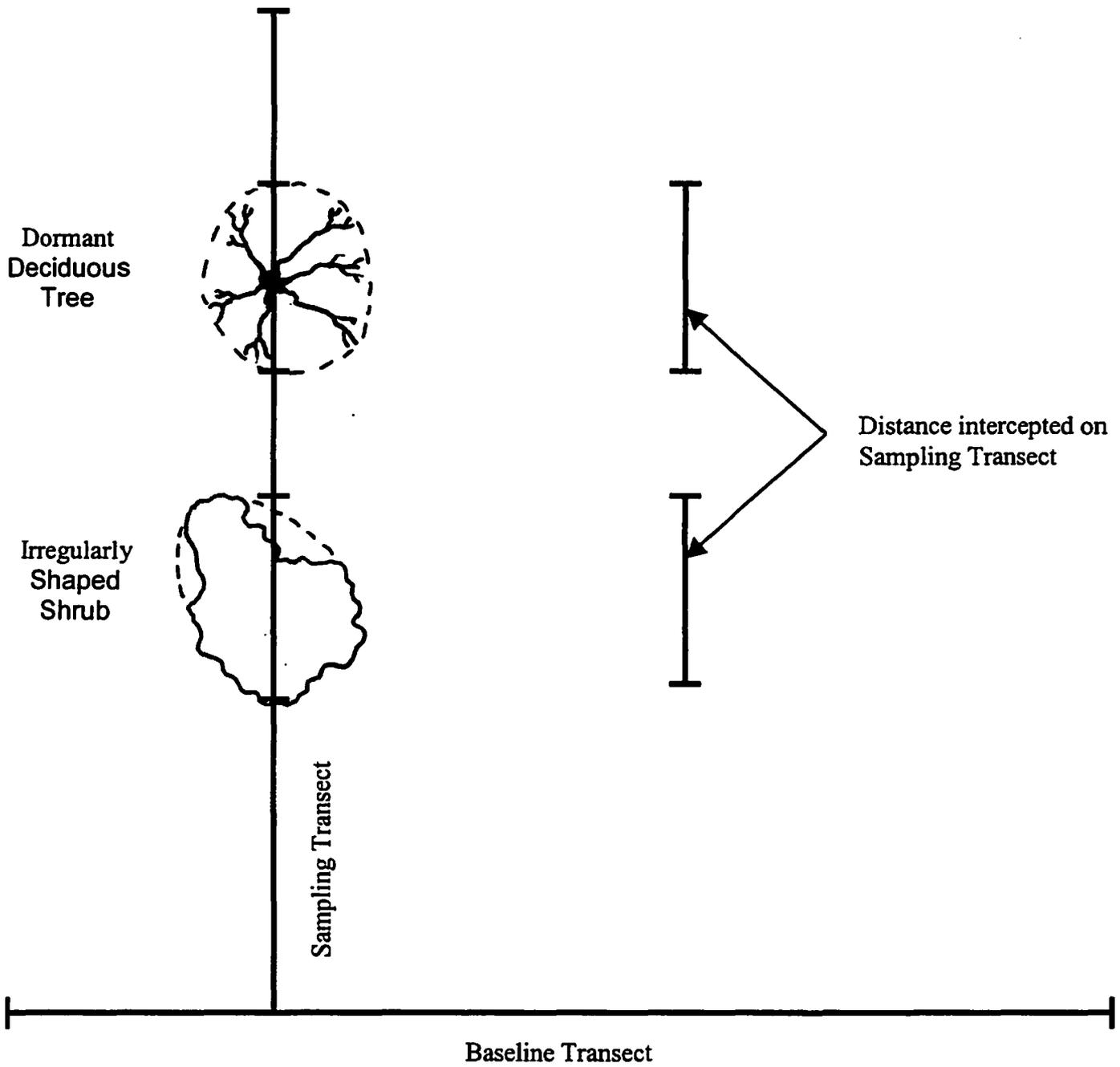


EXHIBIT J

**Performance Standards and Recommended Performance Goals for
Site 5 offsite mitigation at RM 0.9 Right**

Site 5 Mitigation Performance Standards

monitoring regime	plant establishment period			post establishment period	
performance criteria	survival rate			canopy cover	
monitoring year	year 1	year 2	year 3	year 5	year 8
percentage required	70%	60%	50%	30%	60%

1. Survival rates are based on percentage of plants surviving based on the number of plants originally installed at final acceptance of project by the Federal Sponsor .
2. Canopy cover can be measured by percent of shoreline covered by vegetative canopy as measured from aerial photographs or by using sampling transects as shown on exhibit H &I;
3. Plant survival rates apply for tree species only, understory (shrub) and biotechnical plantings will not have survival rates measured.

EXHIBIT K

EXHIBIT K

**Table of Environmental Commitments
From
Stream bank Protection for the Lower American River
Final EIR and Supplemental EIR Statement V
for the Sacramento River Bank Protection Project**

Non-Federal Local Sponsor:

1. Ensure that revegetation meets objective criteria established in the Stream bank Protection for the Lower American River Final EIR and Supplemental EIR Statement V for the Sacramento River Bank Protection Project based on habitat evaluation procedures (HEP) analysis, for full mitigation of project impacts*. This includes protecting establishing plants, planting media and the irrigation system from vandalism using security patrols as necessary during a 3 year plant establishment period.

Federal Sponsor

1. Conducting post-construction assessment of expected impacts on riparian habitat and SRA cover over the project life, and providing compensating mitigation if substantial net losses onsite are predicted
2. Survey for nesting raptors and bank swallows prior to any activity during the nesting season
3. Avoid disturbance of existing vegetation at each bank protection site to the degree possible consistent with the selected alternative.
4. Replace elderberry stems that cannot be avoided at a ratio determined in consultation with the Endangered Species Office of USFWS.
5. Ensure compliance during construction with local ordinances governing daily hours of construction activity.
6. Employ contractual provisions to prevent traffic safety, noise and air quality impacts from occurring.
7. Ensure compliance during construction with state requirements for stream turbidity monitoring and control
8. Stop work if buried cultural resources are encountered.

This list is provided for the sake of convenience and is condensed and abbreviated for the subject at hand. Refer to the Stream bank Protection for the Lower American River Final EIR and Supplemental EIR Statement V for the Sacramento River Bank Protection Project for comprehensive coverage of environmental commitments.

*Site 5 on the Lower American River was constructed as part of emergency levee repair work and as such no base line hep study could be made. Mitigation for Site 5 is based on agreement between the Corps of Engineers and USFWS to fully mitigate impacts offsite.

REFERENCES

- Jones & Stokes Associates, Inc, 1996. Adopted final environmental assessment and initial study of streambank protection at River Park - lower American River. June. (JSA 96-099.) Sacramento, CA. Prepared for U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA, and State of California, The Reclamation Board, Sacramento, CA. With technical assistance from Ayres Associates, Fort Collins, CO.
- U.S. Army Corps of Engineers, 1955. Standard operation and maintenance manual for the Sacramento River flood protection project. Revised version. May. Prepared by the U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.
- U.S. Army Corps of Engineers, 1996. Addendum to the Standard Operation and Maintenance Manual for the Sacramento River Flood Protection Project. Revised version. October. Prepared by the U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA.
- U.S. Army Corps of Engineers and State of California Reclamation Board 1998. Final. Environmental Impact Report and Supplemental Environmental Impact Statement V for the Sacramento River Bank Protection Project. March. Prepared by the U.S. Army Corps of Engineers, Sacramento District, Sacramento, CA; and State of California, The Reclamation Board, Sacramento, CA.

EXHIBIT C

CHECK LIST NO. 1

VEGETATION ON MITIGATION AREA
SEMI ANNUAL INSPECTION FORM

Location of Area Inspected: Part No. __, Unit No.'s: _____ Date: _____
(including river mile(s)) _____
Inspected by: _____

Report below the condition of the site and those items requiring maintenance work. Opposite each item listed, indicate the appropriate response, yes or no, in the area provided. Provide an attachment, if necessary, describing the negative significant conditions and any proposed/implemented maintenance work for each item. Note any changes, positive or negative, from the previous inspections.

Reference O&M Unit No.

Item No.	Description	Response	Yes	No*
1:	Mitigation area erosion free.....	_____	_____	_____
2:	Vegetation is free of fire damage.....	_____	_____	_____
3:	Vegetation is free of flood damage.....	_____	_____	_____
4:	Vegetation is free of wind damage.....	_____	_____	_____
5:	Vegetation is free of herbicide damage.....	_____	_____	_____
6:	Vegetation is free of wildlife damage.....	_____	_____	_____
7:	Vegetation & equipment is free of vandalism.....	_____	_____	_____
8:	Site is free of trash.....	_____	_____	_____
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10:	Access roads clear.....	_____	_____	_____
11:	Access gate barriers & locks in good working order.....	_____	_____	_____
12:	Beaver barrier cages or fencing in good condition.....	_____	_____	_____
13:	New volunteer growth (trees, shrubs) observed.....	_____	_____	_____
14:	Perimeter fencing in good working condition.....	_____	_____	_____
15:	Other items: _____	_____	_____	_____

COMMENTS _____

*Requires explanation

EXHIBIT D
Unattached

EXHIBIT D

LETTER(S) OF TRANSFER TO AND/OR ACCEPTANCE
BY THE RECLAMATION BOARD

EXHIBIT E

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
DIVISION OF PLANT INDUSTRY

PEST RATINGS OF NOXIOUS WEED SPECIES
AND NOXIOUS WEED SEED

PURPOSE

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