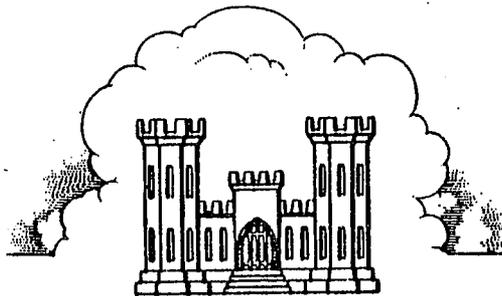


SUPPLEMENT TO STANDARD  
OPERATION AND MAINTENANCE  
MANUAL

SACRAMENTO RIVER  
FLOOD CONTROL PROJECT

UNIT NO. 162

KNIGHTS LANDING OUTFALL GATES  
SACRAMENTO RIVER, CALIFORNIA



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

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CORPS OF ENGINEERS  
U. S. ARMY

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

UNIT NO. 162  
KNIGHTS LANDING OUTFALL GATES  
SACRAMENTO RIVER, CALIFORNIA

SACRAMENTO DISTRICT  
CORPS OF ENGINEERS  
U. S. ARMY  
MARCH 1957

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<u>Exhibit</u>	<u>Description</u>	
A	Flood Control Regulations	Unattached
	(Contained in Standard Manual)	
A-1	Location Map	1 Sheet
B	"As Constructed" Drawings	Unattached
C	Plates of Suggested Flood Fighting Methods	Unattached
	(Contained in Standard Manual)	
D	Check List No. 1 - Levee Inspection Report	Unattached
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F	Letter of Acceptance by State Reclamation Board	Sheets 1 and 2
G	Semi-annual Report Form	Sheets 1 and 2

REVISIONS OR ADDITIONS	DATE
*Paragraph 2-02 - - - Revised subparagraph d.	October 1975
EXHIBIT F - - - - - Add copy of letter of request dated 8 August 1975	October 1975

\*This revision was made at the request of the State Reclamation Board by letter dated 8 August 1975, to change the operating criteria of the Knights Landing Outfall Gates, from pool elevation 24.5 to 25.0 USED Datum (see Exhibit F).

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

UNIT NO. 162  
KNIGHTS LANDING OUTFALL GATES  
SACRAMENTO RIVER, CALIFORNIA

SECTION I - INTRODUCTION

1-01. Location. The improvement covered by this manual is that part of the Sacramento River Flood Control Project which comprises the Knights Landing Outfall Gates, also referred to as the Sycamore Slough Outfall Gates. These gates are located in the improved channel of Sycamore Slough at the town of Knights Landing in Yolo County, California near the right bank of the Sacramento River. The Knights Landing Outfall Gates constitute a control structure in the short channel which connects the Sacramento River at Knights Landing with the main drainage channel of Colusa Basin. The connection is made at the head of the Knights Landing Ridge Cut.

1-02. Project Works. The Knights Landing Outfall Structure consists of a concrete slab foundation having a center section 84 feet wide with concrete abutments and wing walls on each side. The space between the abutments is closed to elevation 43.5 by a buttressed reinforced concrete wall and ten flap gate outlets. Flow is controlled by eight 66" and two 42" screw operated slide gates on the Colusa Drain side and by eight 66" and two 42" combination flap and slide gates on the Sacramento River side. This arrangement allows manual control for flows in either direction and permits automatic outfall from the Colusa Drainage Area during low water stages in the Sacramento River. A cat-walk with handrail is built across the top of the structure and all gates have extension stems for manual control from the walkway. The gates on the Colusa Drain side are operated by hand wheels and those on the Sacramento River side are operated by hand cranks through bevel gears in cast iron pedestal mounts. For more complete details of this structure see drawings of Exhibits B.

1-03. Protection Provided. The Knights Landing Outfall Gates are designed to protect the Lower Colusa Drainage Basin from backwater of the Sacramento River and to assist in control of water levels in Colusa Basin during the irrigation season. The operation of the gates is predominately an irrigation and drainage function. Flood waters of the tributary drainage area are by necessity normally channeled to Yolo By-Pass via Knights Landing

Ridge Cut. Preceding the winter runoff in the Sacramento River, the riverside slide gates are closed and no operation occurs until the river stage permits operation during the irrigation season.

1-04. Construction Data. Since construction of the Knights Landing Outfall Gates was developed during three different periods of time its progress will be described briefly:

The structure was originally built by local interests in the year 1914 or 1915 and consisted of a concrete slab floor 84 feet wide with abutments at either side 30 feet high. The space between the abutments was closed by two gate leaves working on vertical hinges at the abutment ends, and each leaf provided with eight large flap gates, hinged at the top and arranged to open towards the river. The main gate leaves and the flap gates were constructed of timber put together with straps and bolts.

During 1929 and 1930 the movable gate leaves were replaced with a permanent concrete buttress wall supporting steel flap gates. Construction of this replacement was performed by Morris A. Jenkins under Contract No. W-1105-eng-398.

During 1949 the steel flap gates referred to above were replaced by control gates as described in paragraph 1-02. Materials for these gates were furnished by the Corps of Engineers and installation was performed by the State of California.

1-05. Flood Flows. For purposes of this manual, the term "flood" or "high water period" shall refer to flows when the river water surface reaches or exceeds the reading of 37.0 on the continuous water stage recorder and staff gage located on the abutment of the Knights Landing Outfall Gates structure (U. S. Corps of Engineers datum). At the end of the irrigation season and preceding the winter runoff in the Sacramento River the riverside slide gates will be closed regardless of the gage reading.

1-06. Assurances Provided by Local Interests. Assurances 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).

1-07. 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 12 September 1944, as shown on the attached letter of acceptance, Exhibit F.

1-08. Superintendent. The name and address of the Superintendent appointed by the State or acting as a representative of the State Division of Water Resources for the continuous inspection, operation and maintenance of the Project works shall be furnished the District Engineer, and in case of any change of of Superintendent, the District Engineer shall be so notified.

SECTION II  
FEATURES OF THE PROJECT SUBJECT TO FLOOD CONTROL REGULATIONS

2-01. Levees.

a. Description. Maintenance of levees along Sycamore Slough will not be described in this manual as adjoining reclamation districts are responsible for their maintenance.

2-02. Drainage and Irrigation Structures.

a. Description. The Knights Landing Outfall Gates are located in the channel of Sycamore Slough at the town of Knights Landing. The project works is described in paragraphs 1-01, 1-02, and 1-03 of this manual.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

- (1) Maintenance - Paragraph 5-02 of the Standard Manual.
- (2) Check Lists - Exhibit E of this Supplement Manual.
- (3) Operation - Paragraph 5-04 of the Standard Manual.
- (4) Additional Requirements - Paragraph 5-05 of the Standard Manual.
- (5) Safety Requirements - Paragraph 5-06 of the Standard Manual.

c. Special Maintenance Requirements.

(1) All eroded concrete shall be repaired as soon as any 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 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 District 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 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 low-lying pockets in back of the levee. Plans for the maintenance of drainage facilities at any such points should be submitted to the District Engineer for approval before such is started.

d. Special Operating Requirement.

(1) Preceding winter runoff in the Sacramento River, the riverside slide gates will be closed. No operation of these gates will occur until the river stages have receded to such a point that operation is possible. During the irrigation season, the gates will be regulated by local interests to hold a pool elevation of 25.0 on the gage located at the Knights Landing Outfall Gates on the Colusa Drainage side.



2-03. Channel.

a. Description. - For purposes of this manual the channel will be considered as that portion which extends along Sycamore Slough from the Sacramento River to a point about 200 feet beyond the Knights Landing Outfall Structure, or that portion of the channel which directly affects operation of the structure. Beyond this point channel maintenance is covered by other manuals.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

- (1) Maintenance - paragraph 6-02 of the Standard Manual.
- (2) Check Lists - Exhibit E of this Supplement Manual.

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 low-lying pockets in back of the levee. Plans for the maintenance of drainage facilities at any such points should be submitted to the District Engineer for approval before such work is started.

d. Special Operating Requirement.

(1) Preceding winter runoff in the Sacramento River, the riverside slide gates will be closed. No operation of these gates will occur until the river stages have receded to such a point that operation is possible. During the irrigation season, the gates will be regulated by local interests to hold a pool elevation of 24.5 on the gage located at the Knights Landing Outfall Gates on the Colusa Drainage side.

2-03. Channel.

a. Description. - For purposes of this manual the channel will be considered as that portion which extends along Sycamore Slough from the Sacramento River to a point about 200 feet beyond the Knights Landing Outfall Structure, or that portion of the channel which directly affects operation of the structure. Beyond this point channel maintenance is covered by other manuals.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

- (1) Maintenance - paragraph 6-02 of the Standard Manual.
- (2) Check Lists - Exhibit E of this Supplement Manual.

- (3) Operation - paragraph 6-04 of the Standard Manual.
- (4) Safety Requirements - paragraph 6-05 of the Standard Manual.

It shall be the duty of the Superintendent to maintain a patrol of the project works during all periods of flood in excess of a reading of 37.0 on the continuous water stage recorder and staff gage located on the abutment of the Knights Landing Outfall Gate Structure, as indicated in paragraph 1-05 of this manual. The Superintendent shall cause readings to be taken at the gage, or at a more convenient temporary staff gage, at intervals of two to four hours during the period when the water surface is above flood-flow stage and record the time of observations. One copy of the readings shall be forwarded to the District Engineer immediately following the flood and a second copy transmitted as an inclosure to the semi-annual report in compliance with paragraph 3-05 of the Standard Manual.

#### 2-04. Miscellaneous Facilities.

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

(1) Hydrographic Facilities. Continuous water stage recorder and staff gages as described in paragraph 1-05; to be maintained by the State.

b. For pertinent Requirements of the Code of Federal Regulations and other requirements see the following:

- (1) Maintenance - paragraph 7-02 of the Standard Manual.
- (2) Check Lists - paragraph 7-03 of the Standard Manual.
- (3) Operation - paragraph 7-04 of the Standard Manual.

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

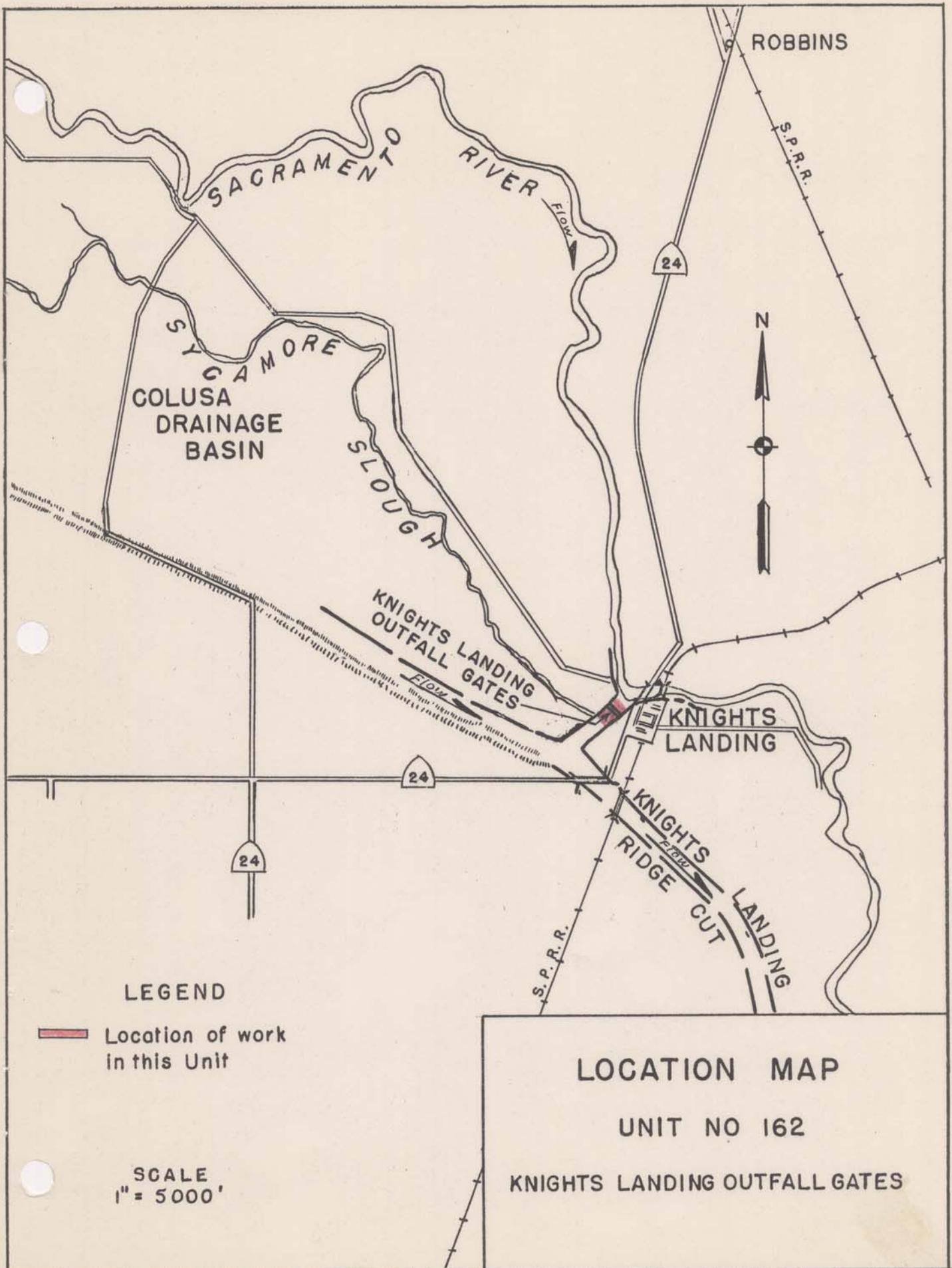
3-01. Repair of Damage. - In the event of serious damage to the project works, whether due to flood conditions or other causes, and which may be beyond the capability of local interests to repair, the Superintendent will contact a representative of the Division of Water Resources, State of California, 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 VIII of the Standard Manual, revised May 1955, where the subject is fully covered.

EXHIBIT A

FLOOD CONTROL REGULATIONS  
(See Standard Manual)

EXHIBIT A  
Unattached



## LOCATION MAP

UNIT NO 162

KNIGHTS LANDING OUTFALL GATES

EXHIBIT B

"AS CONSTRUCTED"  
DRAWINGS

See separate folder for the following drawings:

<u>File No.</u>	<u>Title</u>
50-25-1203A	Outfall Gate Structure near Knights Landing, Sheets 1 and 2.
50-4-3035	Detail of Alterations, 1 sheet.

EXHIBIT B  
Unattached

EXHIBIT C

PLATES OF SUGGESTED FLOOD FIGHTING METHODS  
(See Standard Manual)

EXHIBIT C  
Unattached

EXHIBIT D

CHECK LIST NO. 1  
LEVEE INSPECTION REPORT  
(see Standard Manual)

EXHIBIT D  
Unattached

EXHIBIT E

CHECK LISTS OF LEVEES, CHANNEL  
AND STRUCTURES

For definition of "flood" or "high water period"  
(See paragraph 1-05 of this manual)

CHECK LIST NO. 2

KNIGHTS LANDING OUTFALL GATES

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	
(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

KNIGHTS LANDING OUTFALL GATES

Inspector's Report Sheet No. \_\_\_\_\_ Inspector \_\_\_\_\_

Date \_\_\_\_\_ Superintendent \_\_\_\_\_

Item	Remarks
(a) Name of channel and location by stations	
(b) Vegetal 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 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, fouling of the tainter gates, or the bridges over the channel.
- Item (d) Report any construction along or above the diversion works that has come to the attention of the inspector and 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

KNIGHTS LANDING OUTFALL GATES

Inspector's Report Sheet No. \_\_\_\_\_

Inspector \_\_\_\_\_

Date \_\_\_\_\_

Superintendent \_\_\_\_\_

(a) Location by Station	Sycamore Slough
(b) Debris or Other Obstruction to Flow	
(c) Damage or Settlement of Pipe or Conduit	
(d) Condition of Concrete Headwall or Invert Paving	
(e) Condition of Right-of-way Adjacent to Structure	
(f) Repair Measures Taken Since Last Inspection	
(g) Comments	(8-66" and 2-42" gates)

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 (b).
- (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. Record observations under Column (c).
- (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 (d).
- (5) Inspect backfill area adjacent to structure for evidence of erosion caused by overflow of the drainage structure and note conditions in Column (e).
- (6) Under Column (f) 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 (g) 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

EXHIBIT F

C  
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Y

THE RECLAMATION BOARD  
STATE OF CALIFORNIA

C  
O  
P  
Y

8 August 1975

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

Dear Sir:

Attached is a copy of a letter from Mr. Layton Knaggs requesting that the operating criteria for the Knights Landing Outfall Gates be changed from elevation 24.5 feet, USED Datum to 25.0 feet, USED Datum during the irrigation season, April 20th to September 30th each year.

At present, your operation and maintenance manual, "Unit No. 162, Knights Landing Outfall Gates, Sacramento River", requires that the gates be regulated by local interests to hold a pool elevation of 24.5 on the gage located at the Knights Landing Outfall Gates on the Colusa drainage side during the irrigation season.

It should be pointed out that for three weeks in May and two weeks in June the Department of Water Resources operated the Knights Landing Outfall Gates with a pool elevation of 25.0. This was done to provide more water for irrigation pumps along a portion of the Colusa Basin Drain and the Knights Landing Ridge Cut because some of the pumps were cavitating due to the lack of water. There were no adverse problems observed or reported during the five week period when the higher pool elevation was maintained.

Please review this request and notify us as soon as possible whether this revised elevation is acceptable.

Sincerely,

/s/ P. C. Walters  
P. C. WALTERS  
Chief Engineer and  
General Manager

EXHIBIT F

C O P Y

824.3 (Sacramento R.) PADKO-A  
Completed construction, Sacramento River  
Flood Control Project.

9 September 1944

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

Gentlemen:

This office has been directed by the Office of the Chief of Engineers to determine which items of levee construction, weirs and pumping plants constructed under the Sacramento River Flood Control Project should be considered fully complete in accordance with the terms of the project as it now exists.

In compliance with this directive the inclosed map, file No. 50-11-2206B, has been compiled which delineates all project levees that are considered complete. In addition, Sacramento, Frement, Tisdale, Colusa and Moulton Weirs, Knights Landing and Butte Slough Outfall Gates, and Pumping Plants Nos. 1 and 3 have been completed.

It is requested that your Board review the map and data advanced herein and advise if you concur with the findings of this office are completed items of construction under the Flood Control Project.

Prompt reply would be appreciated so that a minimum of delay will be experienced by this office in complying with the desires of the Chief of Engineers.

Very truly yours,

1 Incl

R. C. Hunter  
Colonel, Corps of Engineers  
District Engineer

EXHIBIT F  
Sheet 1 of 2

C O P Y

THE RECLAMATION BOARD

of the

STATE OF CALIFORNIA

September 12, 1944

Secretary  
California Debris Commission  
Wright Building  
1209 - 8th Street  
Sacramento, California (8)

Dear Sir:

Reference is made to your file No. 824.3 (Sacramento R.) PADKO-A, subject completed construction Sacramento River Flood Control Project, dated September 9, 1944.

We have reviewed the map and data available and concur with your findings on the completed items under the flood control project as shown on the map file No. 50-11-2206B.

Very truly yours,

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

By /s/ G. F. Mellin  
G. F. MELLIN

EXHIBIT G

SUGGESTED SEMI-ANNUAL REPORT FORM

EXHIBIT G

CORPS OF ENGINEERS, U. S. ARMY  
Office of the District Engineer  
SACRAMENTO DISTRICT  
Wright Bldg., 1209-8th St.  
Sacramento, California

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\_\_\_\_) Sacramento River Flood Control Project, Knights Landing Outfall Gates 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 our 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 level at 37.0 on the gage on the abutment of the Knights Landing Outfall Gated) 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