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OPERATION AND MAINTENANCE  
MANUAL  
FOR  
LITTLEJOHN CREEK CHANNELS  
A UNIT OF THE  
FARMINGTON RESERVOIR PROJECT

*ALSO REFER TO DUCK CREEK DIVERSION S/M*



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

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CORPS OF ENGINEERS

U.S. ARMY

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LITTLEJOHN CREEK AND CALAVERAS RIVER

STREAM GROUPS

OPERATION AND MAINTENANCE MANUAL

FOR

LITTLEJOHN CREEK  
CHANNELS

A UNIT OF

FARMINGTON RESERVOIR PROJECT

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS, SACRAMENTO,  
CALIFORNIA - MAY 1963

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# OPERATION AND MAINTENANCE MANUAL

## FOR LITTLEJOHN CREEK CHANNELS

### SECTION I

#### INTRODUCTION

1-01. Authorization. The project works covered by this manual were authorized by Act of Congress (Public Law No. 534, Seventy-eighth Congress, second session, H.R. 4485), approved 22 December 1944. This act authorized improvement of Littlejohn Creek and its tributaries in accordance with recommendations contained in the report of the Chief of Engineers dated 14 January 1944 (House Document No. 545, Seventy-eighth Congress, second session). Littlejohn Creek is a part of the Framington Project that includes the Framington Dam and the Duck Creek Diversion Channel.

1-02. Location. The Littlejohn Creek Channel unit of the Framington Project is located generally west of Framington, California, and extends from Framington Dam to French Camp, California, a distance of about 22.7 miles. Included in this unit are the North and South Branches of Littlejohn Creek and their branches. The extent of the project is shown on the locality map of Exhibit A-1 herewith. For more complete details see the "As Constructed" drawings of Exhibit B.

1-03. Description of Project Works. The project works covered by this manual include the cleared and excavated channel of South Littlejohn Creek and both channels of the North and South Branches. On the south side (left bank) a levee was built from station 1+85 to 137+50, a distance of about 2.57 miles. On the north side of South Littlejohn Creek (right bank) a levee was built from station 0+00 to 35+00 and from station 91+70 to 176+90 "N", a total distance of about 2.28 miles. From French Camp upstream, a distance of about 2.23 miles, the bottom of the channel was excavated to width of 35 feet. On the North Branch of South Littlejohn Creek, the channel was excavated to a bottom width of 15 feet, on the South Branch the width was 20 feet with 1 on 2 side slopes. From the bifurcation of the North and South Branches to Framington, California, the channel bottom width varied from 35 feet at the bifurcation to 10 feet at the upper end near Framington. Existing irrigation structures were built or modified as required by local owners. Also low water crossings were provided. North Littlejohn Creek extends westerly from its bifurcation with South Littlejohn Creek near Framington to the junction of both its North and South Branches with French Camp Slough.

On North Littlejohn Creek the channel was excavated with a varying bottom width from the bifurcation of Littlejohn Creek to station 18+90. Diversion works were constructed at station 9+25.3 on North Littlejohn Creek to control the flow downstream from the diversion works to 250 cubic feet per second which is estimated as the non-damaging capacity. The diversion works consist of an earth embankment through which four 42-inch

diameter corrugated metal pipes are placed. Two of these pipes are provided with slide gates to obtain some flexibility in discharge control. Bulkhead gates on the other two pipes were later installed by local interests for additional control. Capacity of 2,000 cubic feet per second in Littlejohn Creek above the head of North and South Littlejohn with 250 cubic feet per second to be diverted into North Littlejohn Creek and 1750 cubic feet per second into South Littlejohn Creek and its branches.

1-05. Construction Data and Contractor. Construction required by the U. S. Corps of Engineers to complete the project work as described under paragraph 1-03 of this manual was accomplished under the following contract and work orders:

a. The major portion of the work was accomplished under Contract No. DA-04-167-eng-1185 by Slough Construction Co., Contractor, during the period from 12 July 1954 to 11 May 1955.

b. Miscellaneous work was also performed under Work Orders No. 312A7742-90A and 804A7762 (Hired Labor Specification No. 1383), during the period from 25 July 1955 to 19 September 1955.

Copies of the contract and work orders together with specifications are on file in the office of the District Engineer, Sacramento District, Corps of Engineers, Sacramento, California.

1-06. Flood Flows. For purposes of this manual, the term "Flood" or "high water period" for Littlejohn Creek shall refer to flows when the water surface in the creek reaches or exceeds the reading of 8.0 on the gage located at Station 1006+00 on Littlejohn Creek downstream from the Escalón-Bellota Road Bridge.

## SECTION II

### LOCAL COOPERATION REQUIREMENTS

2-01. Applicable Portions of Flood Control Act. Section 10 of the Act approved 22 December 1944, which authorized construction of the project works, reads in part as follows:

#### "SACRAMENTO - SAN JOAQUIN RIVER BASIN

. . . . . The plan of improvement for flood control and other purposes on the Calaveras River and Littlejohn Creek and tributaries, California, is hereby authorized substantially in accordance with the recommendations of the Chief of Engineers in House Document Numbered 545, Seventy-eighth Congress, second session. . . . ."

2-02. Project Document. The work included herein is described in the following project document: H. R. Document No. 545, Seventy-eighth Congress, second session, in which the following conditions of local cooperation are set forth:

- "(1) Provide without cost to the United States all lands, easements, and rights-of-way necessary for construction of the works.
- (2) Make all necessary bridge and utility alterations.
- (3) Hold and save the United States free from damages due to the construction works.
- (4) Maintain and operate all works after completion in accordance with regulations prescribed by the Secretary of War."

2-03. Assurances Provided by Local Interests. Construction of the improvement was undertaken by the United States subject to the condition specified in the law that local interests would comply with the conditions as set forth in paragraph 2-02 above. 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.

2-04. Transfer to the State Reclamation Board. That portion of the Farmington Flood Control Project on Littlejohn Creek as described in copy of letter, Exhibit F, was transferred to The Reclamation Board of the State of California by letter dated 11 October 1955.

## SECTION III

### MAINTENANCE AND OPERATION - GENERAL PROCEDURE

3-01. Reference to Approved Regulations. This manual is submitted in accordance with provisions of Title 33, Navigation and Navigable Waters, Chapter II, Corps of Engineers, Department of the Army, Part 208 - Flood Control Regulations, Maintenance and Operation of Flood Control Works, as of 1 January 1962, a copy of which is included as Exhibit A, Sheets 1 and 2.

3-02. Intent of Regulations. The general intent of the regulations approved by the Secretary of the Army is stated in paragraph 208.10(a)(1) as follows: "The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits."

The principle mission of the Corps of Engineers, during flood emergencies, is to insure that flood control works are properly operated and maintained and offer technical advice to enable local interests to obtain maximum flood protection. All other matters become secondary and will yield precedence to the accomplishment of the above-stated missions. During flood periods local interests maintain close liaison with the office of the District Engineer, Corps of Engineers. However, in the event it is evident that all available county and local resources are insufficient to cope with the situation and the necessity for an emergency proclamation is anticipated, requests for State assistance in flood fighting should properly be made direct to the Division of Water Resources, which is the State agency designated by the Directors of Public Works, to receive requests from local agencies for assistance in flood fighting. This agency is authorized to request Federal assistance from the Corps of Engineers when State and local resources are insufficient to cope with the situation. Therefore, it is desired to emphasize that requests for Federal assistance in flood fighting should be made only when it is evident that County, State and/or other local equipment and manpower will be exhausted and local resources are insufficient to cope with the flood emergency situation.

3-03. Purpose of this Manual. In view of the large number of local flood protection projects authorized by Congress and the repetitious nature of regulations to govern maintenance and operation of each individual project, and in order that local interests may be fully aware of the extent of the obligations assumed by them in furnishing assurances of local cooperation for projects to be constructed in the future, the general regulations described above were established by the Secretary of the Army. The general regulations approved by the Secretary of the Army, August 1944, were intended to be sufficiently broad in scope and general in nature as to be applicable to all flood-protect-projects for which such regulations are required by law.

Section 208.10(a)(10) of the regulations read as follows: "The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, to assist them in carrying out their obligations under this part." This manual has, therefore, been prepared to furnish local interests with information on the project works and advise as to the details of the operation and maintenance requirements applicable to this particular project, to state procedure required by the Department of the Army, and to indicate satisfactory methods of flood-fighting operations and emergency repairs. The project works are to be maintained and operated in accordance with the Flood Control Regulations referred to above and interpretations thereof contained herein.

3-04. Definitions. As used hereinafter, the term "Superintendent" shall be defined to mean the person appointed by the local agency to be directly in charge of an organization which will be fully responsible for the continuous operation and inspection of the project works; the term "District Engineer" shall be defined to mean the District Engineer of the U. S. Army Engineer District, Sacramento, or his authorized representative. The term "flood" shall mean any creek stage which exceeds a reading of 8.0 on the recording gage at station 1006+00 on Littlejohn Creek downstream from the Escalon-Bellota Road Bridge. The term "right bank" or "left bank" shall be defined to mean the right or left bank or side, respectively, of a stream or channel facing downstream. The term "operating personnel" shall be defined to mean the superintendent and his key assistants individually or collectively when operating the flood control works.

3-05. General Provisions of Regulation. In addition to that quoted in paragraph 3-02 above, the general provisions of the Flood Control Regulations, contained in paragraphs 208.10(a)(2), to 208.10(a)(9), both inclusive, are quoted as follows:

- "(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of, or headed by an official hereinafter called the "Superintendent", who shall be responsible for the development and maintenance of, and directly in charge of an organization responsible for the efficient operation and maintenance of all structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.
- (3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

- (4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the rights-of-way for the protective facilities.
- (5) No improvement shall be passed over, under or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any features of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvements, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer, or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the works.
- (6) It shall be the duty of the Superintendent to submit a semi-annual report to the District Engineer covering inspection, maintenance, and operation of the protective works.
- (7) The District Engineer or his authorized representative shall have access at all times to all portions of the protective works.
- (8) Maintenance measures or repairs which the District Engineer deems necessary, shall be promptly taken or made.
- (9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods."

3-06. Assistance to be Furnished by the District Engineer. The District Engineer will:

- a. Furnish to local interests "As Constructed" drawings of the project works at the time they are transferred.

b. Make periodic inspections of the project works and notify local interests of any repairs or maintenance measures which the District Engineer deems necessary in addition to measures taken by the Superintendent.

c. Submit to the Office, Chief of Engineers, all cases of non-compliance with full details thereof for determination of corrective measures to be taken.

d. Make prior determination that any proposed encroachment, improvement, excavation, or construction within the right-of-way, or alteration of the project works, will not adversely affect the functioning of the protective facilities, and to furnish the Superintendent with an approval thereof in writing.

e. Assist local interests as may be practicable, in their duties of ascertainign storm developments having flood-producing potentialities, assembling flood-fighting forces and materials, and initiating and carrying out flood-fighting operations.

3-07. Responsibilities of the Superintendent. In line with the provisions of the Flood Control Regulations, the general duties of the Superintendent include the following:

a. Training of Key Personnel. Key personnel shall be trained in order that regular maintenance work may be performed efficiently and to insure that unexpected problems related to flood control may be handled in an expeditious and orderly manner. The Superintendent should have available the names, addresses, and telephone numbers of all his key men and a reasonable number of substitutes. These key men should, in turn, have similar data on all of the men who will assist them in the discharge of their duties. The organization of key men should include the following:

- (1) An assistant to act in the place of the Superintendent in case of his absence or indisposition.
- (2) Sector foremen in sufficient number to lead maintenance patrol work of the levee, inspect the channel, and operate the gate structures properly during flood periods. High qualities of leadership and responsibility are necessary for these positions.

b. Files and Records. The Superintendent shall maintain a file of reports, records, and drawings concerning the project works, readily available at all times to the District Engineer.

c. Encroachment or trespass on Right-of-Way. In accordance with the provisions of Flood Control Regulations 208.10(a)(4), no encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted on the rights-of-way for the protective facilities. The superintendent will, therefore, cause

notices to be posted at conspicuous places along the project right-of-way directing public attention to this regulation. The Superintendent shall arrange for the prosecution of offenders under local ordinances and report action taken to the State Reclamation Board.

d. Permits for Right-of-Entry or Use of Portion of Right-of-Way. Permits for temporary right-of-entry or use of portion of the right-of-way shall not be issued without prior determination by the State Reclamation Board sufficiently in advance of issuance to permit adequate study and consideration and determination of conditions to be embodied in the permit document. Executed copies, in triplicate, of the permit document as issued shall be furnished the State Reclamation Board. See Exhibit G for sample permit of right-of-entry.

e. Permits for Improvements or Construction within the Project Right-of-Way. All requests for permits for construction of any improvements of any nature within the limits of the project right-of-way shall be referred to the District Engineer through the State Reclamation Board for determination that such construction will not adversely affect the stability, safety, and functioning of the protective facilities, and for definition of conditions under which permit should be granted. These conditions will include, among others, the following items:

- (1) That all work shall be performed:
  - (a) In accordance with standard engineering practice and in accordance with plans and specifications approved by the District Engineer or his authorized representative; drawings or prints of proposed improvements or alterations to the existing flood control works must be submitted for approval to the State Reclamation Board sufficiently in advance of the proposed construction to permit adequate study and consideration of the work.
  - (b) To the satisfaction of the District Engineer.
- (2) After completion of the work, "As Constructed" drawings or prints, in duplicate showing such improvements as finally constructed shall be furnished the District Engineer.

f. Coordination of Local Activities. In accordance with the provisions of Flood Control Regulations, paragraph 208.10(a)(9), the Superintendent will, during periods of flood flow, coordinate the functions of all agencies, both public and private, that are connected with the protective works. Arrangements shall be made with the local law enforcement agencies, street departments, and railroad and utility companies for developing a coordinated flood-fighting program; and an outline of this program shall be filed with the District Engineer.

g. Inspection.

- (1) Flood Control Regulations, paragraph 208.10(b)(1), are quoted in part as follows:

"(b) Levees (1) Maintenance ... Periodic inspections shall be made by the Superintendent to insure that . . . maintenance measures are being effectively carried out . . . 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."

(2) For sake of uniformity, and to the extent practicable, the dates of inspection shall be as follows: 1 December, 1 March, 1 June, 1 September, and immediately following each flood in excess of a reading of 8.0 on the recording gage at station 1006+00 on Littlejohn Creek.

(3) Check Lists. The check lists and instructions shown in Exhibit C, sheets 1 to 10 inclusive, are to be explicitly followed in each inspection to insure that no features of the protective system are overlooked. Check lists locally printed in conformity with sheets 2, 4, 6, 7, 8, and 9 shall have printed on the reverse side the applicable instructions shown on sheets 3, 5, and 10, Exhibit C. Carbon copy of the inspector's original field notes as recorded on the check list shall be transmitted to the District Engineer immediately following each inspection, and one copy included as an inclosure to the semi-annual report as provided in paragraph 3-07 i of this manual.

h. Maintenance.

- (1) Flood Control Regulations, paragraph 208.10 (b) (1), are quoted as follows:

"(b) (1) Maintenance. The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces . . . Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accomplished during the appropriate season as scheduled by the Superintendent."

(2) Full responsibility for making the repairs and the methods used is placed on the Superintendent, but the experience and facilities of the Corps of Engineers will be available to him for advice and consultation.

(3) All repairs shall be made in accordance with standard engineering practice, to line and grade and in accordance with details shown on the construction drawings for the project works, copies of which are included in Exhibit B. No change or alteration shall be made in any feature of the project works without prior determination by the District Engineer that such alteration will not adversely affect the stability and functioning of the protective facilities. Plans and specifications of all changes or alterations that may be proposed by the Superintendent shall be submitted to the District Engineer for investigation and approval before prosecution of the work.

1. Reports.

Semi-annual Report. In accordance with the provisions of the Flood Control Regulations paragraph 208.10 (a) (6), the Superintendent shall submit, within a 10-day period following 1 December and 1 June of each year, a semi-annual report to the District Engineer covering inspection, maintenance, and operation of the protective works. This report will present a statement of:

(1) The physical condition of the protective works as summarized from the logs of inspection.

(2) Flood behavior of the protective works and flood-fighting activities during the period.

(3) Prosecutions for encroachment or trespass.

(4) Permits issued for right-of-entry or use of right-of-way.

(5) Permits issued for improvements of construction within the project right-of-way.

(6) Maintenance measures taken; nature, date of construction, and date of removal of temporary repairs; date of permanent repairs.

(7) Fiscal statement of cost of maintenance and operation for the period. (A suggested form for submission of the semi-annual report is included as Exhibit D, sheets 1 and 2.)

3-08. Inspection Procedure. Since the enactment of State Legislation of Chapter 1528, Statutes of 1947, the Department of Water Resources, State of California, has made semi-annual inspections of all levees of authorized

flood control projects in the Sacramento-San Joaquin drainage basin pursuant to the Federal Regulations of 16 August 1948 (Title 33), and reports its findings to the local agency, the State Reclamation Board and the District Engineer of the U. S. Army Engineer District, Sacramento. This activity, initiated pursuant to Section 208.10 (a) of the Federal Regulations, has in effect provided for transfer from the local agencies to the State Department of Water Resources the obligation of compliance with Sections 8371, 8372, and 8373 of the Water Code of the State of California. These sections of the Code require the local responsible agencies to submit a report to the State Department of Water Resources on or before 1 June of each year on the condition of the levees within their jurisdiction. Supervisory powers and duties of the Department are applicable to all works of the Sacramento River Flood Control Project maintained and operated by the local agencies without regard to status of completion, or expenditure of Federal funds on the construction of such works.

The following procedure is used in inspecting the levees of the responsible maintaining agency:

Personnel of the State Department of Water Resources make a detailed inspection in the spring and fall of each year and make a report on any required maintenance. The inspection objectives are to determine if the following items, which are a condensation of Federal Regulations, are being adhered to:

- a. That all brush, trees and wild growth other than sod are removed from the levee crown and slopes.
- b. That all weeds, grass and debris on the levee have been burned during the appropriate season, where not dangerous or impractical.
- c. That all grass and weeds on the levee have been mowed where removal by burning is dangerous or impracticable. This applies only on peat levees or where burning would constitute a hazard to improvements.
- d. That all burrowing animals have been exterminated.
- e. That all caves, sloughs, burrows, holes, slips or other damaged portions of the levee have been repaired.
- f. That all irrigation and drainage structures through the levee are in good working condition.
- g. That no revetment work or riprap have been displaced, washed out or removed.
- h. That the crown of the levee is well shaped and maintained and that unauthorized vehicular travel is restricted.
- i. That stock grazing on the levee is restricted to conditions and seasons when the levee would not be seriously scarred or otherwise damaged thereby.

j. That encroachments are not being erected on the levee which would hinder travel by authorized patrol vehicles.

k. Prevent the erection of structures on, additions to, or alterations of, the levee unless authorized by permit from the State Reclamation Board.

Following this detailed inspection a joint field inspection is made with representatives of the responsible maintaining agency and the State Department of Water Resources to review and discuss the inspection report.

Upon completion of the fall inspection the State Department of Water Resources publishes an annual report entitled, "Status of Project Levee Maintenance" which indicates the degree of proficiency attained by each obligated local agency in providing required maintenance.

## SECTION IV

### FEATURES OF THE PROJECT SUBJECT TO FLOOD CONTROL REGULATIONS

4-01. Project Works. The Littlejohn Creek Channel Project covered by this manual comprises Littlejohn Creek, North and South Littlejohn Creek and their branches as described in paragraph 1-03. For further details see Location Map, Exhibit A-1, and drawings of Exhibit B. The enlarged channel of South Littlejohn Creek and levees are designed to convey flood flows up to 1,750 cubic feet per second without danger of overflow to adjacent areas. The design capacity of the North Branch of South Littlejohn Creek is 800 cubic feet per second, and the design capacity of the South Branch of South Littlejohn Creek is 950 cubic feet per second. Also the channels of North Littlejohn Creek, including its North and South Branches, from the upper end at South Littlejohn Creek to the downstream end at French Camp Slough have a total capacity of 250 cubic feet per second that should be maintained from the division point to French Camp Slough. DCT 67

#### 4-02. Channels.

a. Description. The channel improvement of this project consists of enlargement of the channels by excavation or the clearing of the waterways of trees and brush in the reach extending from Farmington, California to French Camp, California, a distance of about 19.1 miles as described in paragraph 1-03. The excavated material from the channels enlargement was placed in levees or spoil banks. The project also includes the channels of North Littlejohn Creek, including its North and South Branches as described in paragraph 4-01 above. Regulations regarding inspection, maintenance and operation of channels will be found in paragraph 4-02b, c, d, e and f which follow:

#### b. Inspection.

Flood Control Regulations. Applicable portions of the Flood Control Regulations, paragraph 208.10 (g) (1) pertaining to channels are quoted 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. . . ."

c. Maintenance Requirements. The purpose of the flood flow channels inspection and maintenance is to insure that conditions which affect the channel capacity will remain substantially the same as those considered in the design assumptions and that no new conditions develop that may affect the stability of the project structures. Particular attention will, therefore, be given the following:

(1) 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.

(2) Operations of any nature upstream from the project that would affect flow conditions.

(3) 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.

(4) 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.

(5) 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.

(6) 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.

(7) 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.

(8) On low water crossings where scour, wash, settlement or failure of a portion of the originally provided stone paving has been noted, provision shall be made to replace the same with stone similar to the kind and gradation as originally used and shall be placed to the thickness as shown on the drawings of Exhibit B.

d. Check Lists. A form suggested as a check list for reporting inspections of the channel will be found in Exhibit C, sheet 4. As many copies of the form as necessary to record all needed maintenance should be used for reporting such inspections.

e. Operation.

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

"(g) Channels and floodways . . . . (2) Operations. 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."

f. Safety Requirements. Clearing of channels present hazards which, unless foreseen and guarded against, may result in serious consequences. Clearing the channel of growing vegetal matter involves the use of axes, brush hooks or other sharp edged hand tools. In order that the work may be accomplished with a minimum of exposure, the following precautions should be observed:

- (1) Instruct employees in proper use of tools and equipment.
- (2) Keep tools sharp and inspect tools for possible loose or warped handles or lack of proper wedges.
- (3) Allow sufficient distance between workers.
- (4) Clear area of branches or vines which might deflect swing of axe.

(5) When clearing channel of debris, workmen should be cautioned to keep a sharp lookout for poisonous snakes.

(6) Extra care should be taken to prevent exposure of susceptible workmen to poison oak.

(7) Should it become necessary to remove large objects which have lodged against the bank or which are causing an obstruction to the flow, during the period of high water, workmen who may be exposed to water hazards should be provided with life vests and, if necessary, should have a safety line attached to their person, attended by another worker.

#### 4-03. Levees.

a. Description. Levees within this unit consist of uncompacted embankments along the right bank of French Camp Slough from station 0+00 to 35+00 and the left bank from station 1+85 to 32+80; levees along the right bank of South Littlejohn Creek from station 91+70 to 118+00 and along the left bank from station 32+80 to 118+00; a levee along the right bank of the North Branch of South Littlejohn Creek from station 118+00 to 176+90 "N"; and a levee along the left bank of the South Branch of South Littlejohn Creek from station 118+00 to 137+50, all as shown on drawings of Exhibit B. In general, levees as described above have a crown width of 12 feet and slopes of 1 on 3 waterside and 1 on 2 landside. Spoil banks extend upstream from station 176+90"N" and 137+80"S" to station 635+00"S" which may serve the purpose of levees but were not constructed as such. The levee grade provides for a freeboard of 3 feet above the adopted flood plane profile. Patrol roads, earthen ramps, low water crossings and turn-outs have been constructed at intervals where required throughout the length of the project.

b. Maintenance. Applicable portions of the Flood Control Regulations, paragraph 208.10 (b) (1), pertaining to maintenance are quoted as follows:

"(b) Levees - (1) Maintenance. The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces. \* \* \* \* Periodic inspections shall be made by the Superintendent to insure that the above maintenance measures are being carried out and further, to be certain that:

(i) No unusual settlement, sloughing, or material loss of grade or levee cross section has taken place;

- (ii) No caving has occurred on either the land side or the river side of the levee which might affect the stability of the levee section;
- (iii) No seepage, saturated areas, or sand boils are occurring;
- (iv) Toe 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; (see also paragraph 4-05 a).
- (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 paragraph 4-05 b)
- (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 . . ."

c. Check Lists. A suggested check list form for reporting inspections of the levee is contained in this manual as Exhibit C. As many copies of the form as are necessary to record all needed maintenance should be used for reporting such inspections.

d. Operation. Applicable portions of the Flood Control Regulations, paragraph 208.10 (b) (2), are quoted as follows:

"(2) Operation. During flood periods the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope and 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 over-topped;
- (iv) No other conditions exist which might endanger the structure.

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."

It shall be the duty of the local agency responsible for maintenance to keep in contact with the State Department of Water Resources' Flood Operation Center during all periods of flood danger as necessary to take advantage of its forecasts and maintain a patrol of the project works in their area during periods of flood in excess of reading of 8.0 on the gage located on Littlejohn Creek downstream from the Escalon-Bellota Road Bridge.

The Flood Operations Center is responsible for data collection and issuance of a joint stream forecast with the U. S. Weather Bureau and coordinates with the Sacramento District Engineer, and other agencies to keep appraised of the current situation in accordance with terms of the memorandum of Understanding dated 1 November 1956 between the Division Engineer U. S. Army Engineer Division South Pacific and the Director, Department of Water Resources, State of California for cooperative action during flood emergencies.

e. Special Instructions.

Low Water Crossings. Due to the fact that several low water crossings have been paved with cobbles, the provisions of paragraph 4-03 (b) (vi) are expanded to include the following:

(1) Where scour, wash, settlement or failure of a portion of the originally provided cobble paving has been noted, provision should be made to replace the same with stone similar to the kind and gradation as originally used and shall be placed to the thickness as shown on the drawings of Exhibit B. If necessary, the scour or wash shall first be filled with earth free from brush roots, sod or other unsuitable material before stone is added. In case of emergency, when stone is not available, sandbags or bags filled with gravel may be used for temporary repair measures.

(2) In the event an inspection reveals that due to scour, settlement or other causes, stone protection on the levee or stream channel is required beyond the limits of the original construction, local interests will provide additional placement of stone protection as needed to protect the completed work. The work will be done in a manner acceptable to standard engineering practice. Drawings or prints showing such improvements or alterations shall be furnished the District Engineer after completion of the work.

f. Care of Vegetation on Levee. Due to conditions peculiar to this area, the growth of sod on the levee slope is not practicable. Accordingly, the following special instructions are furnished in lieu of paragraph 4-02 (b) (vii) of the prescribed general regulations:

(1) The Superintendent shall provide for clearing of brush, trees, and other wild growth from the levee crown and slopes. Brush and small trees may be retained on the waterward slope where desirable for the prevention of erosion and wave wash.

(2) Weeds, grasses, and debris on the levee may be burned during appropriate season, 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. Grass and weeds on levee slopes should be mowed where removal by burning is dangerous or impracticable, such as on peat levees or where burning would constitute a hazard.

g. 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, sod or other unsuitable matter. If of larger extent, the fill should be made in the same manner as the original construction, of selected material from borrow pits approved for the project, placed in uniform layers of loose material and not more than 6 inches in depth and

compacted in accordance with the specifications under which the work was completed or compacted according to approved construction practices.

h. Depredations of Burrowing Animals. Dens and runways formed within the levee 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 tupe 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.

i. 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.

Compliance with the provisions prescribed in the general regulations quoted in paragraph 4-03 above and with the special instructions is essential for the efficient maintenance of the levee system covered by this manual.

#### 4-04. Drainage and Irrigation Structures.

a. Description. Drainage and irrigation structures which extend through or across the levees and spoil banks are listed as follows:

(See Drawings File No. CA-2-6-147)

Location : (Station):	Bank	Size & Kind: : of Pipe :	Other structure description	Elev.of Pipe : at invert
<u>South Littlejohn Creek</u>				
4+00	Lt	24" CMP	#102 gate 2CM cutoff walls	16.5
28+65		20" steel	half round flume across channel	
50+00	Lt	24" CMP	#102 gate 1CM cutoff wall	18.5
68+90		21" Concr.	Siphon across channel	
76+60		12" Steel	Siphon across channel	
76+60	Lt	24" CMP	#102 gate 1CM cutoff wall	20.2
83+00	Rt	30" CMP	#102 gate 2CM cutoff walls	16.5
91+80	Rt	12" steel	#102 gate	18.5
93+00	Rt	24" CMP	#102 gate 2CM cutoff walls	18.8
94+40	Lt	36" CMP	#102 gate 1CM cutoff wall	20.5
98+65	Lt	24" CMP	#101 slide gate 1CM cutoff wall	23.0
100+60	Rt	30" CMP	with 42" CMP riser 2CM cutoff walls	12.6
101+50		16" steel	Siphon across channel	
103+00		12" Concr.	Sheet metal gate	
104+00	Rt	24" CMP	#102 gate 2CM cutoff walls	22.0
114+50	Rt	24" CMP	#102 gate 2CM cutoff walls	22.0
544+72.58	Rt	18" Concr.	Valve R.S.	52.9

Location : (Station):	Bank :	Size & Kind: of Pipe :	Other structure description	Elev.of Pipe at invert
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South Littlejohn Creek (Continued)

545+70S		16" steel	Siphon across channel	
613+45S		12" steel	Siphon across channel	
613+80S	Lt	12" CMP	#102 gate	
624+53S	Rt	12" CMP	#102 gate	69.0
637+70S		8" steel	Pipe crosses over channel	
645+20S	Lt	15" CMP	#102 gate	67.0

South Littlejohn Creek - North Branch

129+55N	Rt	24" CMP	#102 gate 2CM cutoff walls	21.0
146+40N	Rt	24" CMP	#102 gate 2CM cutoff walls	24.0
148+18N	Rt	(10" steel 24" CMP	Gate valve R.S.--pump L.S. #102 gate	23.6 22.5
176+80N	Rt	24" CMP	#102 gate 2CM cutoff walls	25.0
177+70N	Lt	24" CMP	#102 gate 1CM cutoff wall	26.0
178+00N	Lt	24" CMP	#102 gate 1CM cutoff wall	25.5
264+50N	Lt	15" CMP	#102 gate 1CM cutoff wall	36.5
317+00N	Rt	12" CMP	#102 gate	42.0
326+50N	Lt	24" CMP	#102 gate	42.0
339+05N	Rt	12" CMP	#102 gate	44.0
367+40N	Rt	12" CMP	#102 gate	47.0
371+90N		22" steel	Siphon across channel	
372+50N	Rt	18" CMP	#102 gate	46.0
392+20N	Rt	18" CMP	#102 gate	
411+90N	Rt	12" CMP	#102 gate	50.0
421+40N	Rt	12" CMP	#102 gate	52.0
429+50N	Rt	12" CMP	#102 gate	51.0
439+70N	Rt	12" CMP	#102 gate	52.6
499+00N	Rt	8" steel	#102 gate	58.7

South Littlejohn Creek - South Branch

131+25S	Lt	24" CMP	#102 gate 1CM cutoff wall	23.0
175+90S	Rt	24" CMP	#102 gate 1CM cutoff wall	25.0
176+56.5S	Rt	24" CMP	#102 gate 1CM cutoff wall	24.5
263+00S		30" steel	Siphon across channel	
265+00S	Lt		timber flume	
273+85S	Lt	15" CMP	#102 gate	37.5
285+95S	Lt	15" CMP	#102 gate	37.0
294+85S	Rt	18" CMP	#102 gate	40.0
306+00S	Rt	18" CMP	#102 gate	41.0
320+50S		22" steel	Siphon across channel	
420+50S	Lt	18" Concr.	#102 gate	49.4
430+10S		10" Concr.	Siphon across channel	
435+40S	Rt	15" Concr.	#102 gate	52.0
447+40S	Lt	15" Concr.	#102 gate	55.0
459+00S	Rt	15" Concr.	#102 gate	55.0
461+50S		(18" concr. 1" steel	Pipe across channel Pipe across channel	
466+15S	Lt	12" concr.	#102 gate	51.7

Location : (Station):	Bank :	Size & Kind: : of Pipe :	Other structure description	:Elev.of Pipe : at invert
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North Littlejohn Creek

9+25.3		4-42" CMP	2 slide gates	84.5
9+25.3	Rt	24" CMP		92.6

00767 4-04. (page 22) --- The gates on the four pipes through the dike shall be operated as prescribed in the Farmington Reservoir Regulation Manual. The north Littlejohn Channel shall be maintained to carry at least 250 c.f.s. at all times. The North Littlejohn channel shall be maintained to carry at least 250 c.f.s. at all times.

Notes pertaining to gates and abbreviations:

Gate Model No. 101 is a Calco slide gate which operates by hand screw on a steel frame.

Gate Model No. 102 is a Calco automatic flap gate which closes against face pressure and opens to permit outflow when pressure is released.

Abbreviations are as follows:

CM = Corrugated Metal  
 CMP = Corrugated Metal Pipe  
 Concr. = Concrete  
 Lt. = Left bank (looking downstream)  
 Rt. = Right bank (looking downstream)  
 R.S. = Riverside

b. Inspection.

(1) Flood Control Regulations. Applicable portions of the Flood Control Regulations, paragraph 208.10 (d) (1) pertaining to maintenance of irrigation or drainage structures are quoted 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 structures 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 inspection."

(2) At each inspection as required above, the following items, if applicable, shall be particularly noted:

- (a) Debris or other obstructions to flow.
- (b) Damage or settlement of pipe.
- (c) 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 or any reinforcing steel is exposed. All evidences of settlement, uplift, or failure of concrete 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 low-lying pockets in back of the levee. Plans for the maintenance of drainage facilities at any such points should be submitted to the State Reclamation Board for approval before such work is started.

d. Check Lists. A form suggested as a check list for reporting inspections of drainage structures will be found in the ~~Supplement~~ ~~Manual~~, Exhibit C. As many copies of the form as necessary to record all needed maintenance should be used for reporting such inspections.

e. Operation. Applicable portions of the Flood Control Regulations, paragraph 208.10 (d) (2), are quoted 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 any object which might prevent closure of the gate shall be removed. Automatic gates and valves shall be closed as necessary to prevent inflow of flood water. All drainage structures in 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 condition."

f. Additional Requirements.

Inspection. Periodic inspections should be made to insure that all facilities are in good operating condition as follows:

- (1) Since the outlets of pipes crossing under the levee are inundated at relatively low river stages, all pipes crossing under the levee should be inspected considerably in advance of the beginning of the flood season. The gates on these pipes should be checked at the same time.
- (2) Inspection of all drainage structures should also be made following each major high water period.
- (3) Otherwise at periods not exceeding 90 days.

g. Check Lists for Inspection of Drainage Structures. Check lists suggested under Exhibit C of this manual should be used in each inspection to insure that structures are kept in working condition at all times.

h. Positive Closure Devices. It is essential that the prime function of the flood protection works cannot be nullified by back flow through irrigation and drainage structures. Accordingly, a reliable means of positive closure of conduits must be provided on the riverside of the protective works and such closure devices must be accessible during flood periods. Conduits through the flood protection works fall into two categories and the requirements for each are as follows:

(1) Those located through the levee above the project flood plane. - Emergency closure devices will not be required on those structures where they connect canals and drains which have ample capacity to handle any flow which might pass through the pipe during floods. Where such outlets are not connected to canals or drains of ample capacity an accessible closure device will be required on the riverside.

(2) Those located through the levee below the project flood plane. - All structures installed by the Federal Government and all new structures to be installed under permit by local interests will be required to have an accessible closure device on the riverside of the levee. All existing structures which do not have an accessible closure device on the riverside of the levee will be modified by local interests to meet that criteria when the structure is rebuilt or modified in any way. Where it is evident that it may be some years before riverside closures will be provided on existing outlets which are at present ungated on that side, it is essential that local interests place, at an early date, an emergency flap gate on the riverside of each outlet now ungated on that side. The flap gate is to be equipped with a cable extension to the levee crown, or other device to hold it open except when necessary to be released for emergency closure of the pipe.

1. Safety Requirements. In removing large objects which have lodged against gate structures during periods of high water exposed workmen should be provided with life vests and, if necessary, should have a safety line attached to their person attended by another worker. Similar hazardous work in the vicinity of structures should not be attempted unless two or more persons are present.

Compliance with the maintenance provisions prescribed in this above paragraph 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.

#### 4-05. Miscellaneous Facilities.

a. Description. Miscellaneous structures or facilities which were constructed as a part of, or exist in conjunction with, the protective works, including bridges, utility crossings, hydrographic facilities, and other structures not classified as drainage or irrigation facilities, include the following:

(1) Bridges. (For further details see drawings of Exhibit B.)

(a) W.P.R.R. trestle at about station 0+00 across South Littlejohn Creek.

(b) Sharps Lane Bridge at about C/L station 69+40 across South Littlejohn Creek.

(c) Tidewater Southern R.R. trestle at about station 92+20 across South Littlejohn Creek.

(d) U. S. Highway 99 Bridge at about station 177+20"N" across North Branch of South Littlejohn Creek.

(e) U. S. Highway 99 Bridge at about station 175+20"S" across South Branch of South Littlejohn Creek.

(f) Austin Road Bridge at about station 309+20"N" across North Branch of South Littlejohn Creek.

(g) Austin Road Bridge at about station 294+85"S" across South Branch of South Littlejohn Creek.

(h) Kaiser Road Bridge at about station 372+40"N" across North Branch of South Littlejohn Creek.

(i) Kaiser Road Bridge at about station 351+50"S" across South Branch of South Littlejohn Creek.

(j) Jacktone Road Bridge at about station 439+30"N" across North Branch of South Littlejohn Creek.

(k) Jacktone Road Bridge at about station 420+20"S" across South Branch of South Littlejohn Creek.

(l) Santa Fe R.R. trestle at about station 459+10"N" across North Branch of South Littlejohn Creek.

(m) Santa Fe R.R. trestle at about station 467+00"S" across South Branch of South Littlejohn Creek.

(n) Mariposa Road Bridge at about station 546+10 across South Littlejohn Creek.

(o) Van Allen Road Bridge at about station 792+30 across South Littlejohn Creek.

(p) Mobley Road Bridge at about station 895+50 across Littlejohn Creek.

(2) Utility Relocations.

(a) Stockton Radio Range Station cable crossing lowered at station 226+00"N" across North Branch of South Littlejohn Creek.

(b) Stockton Radio Range Station cable crossing lowered at station 271+50"S" across South Branch of South Littlejohn Creek.

(3) Hydrographic Facility. An automatic stream gaging station located at about station 1006+00 on Littlejohn Creek to be maintained by the Corps of Engineers (downstream from Escalon-Bellota Road Bridge).

b. Inspection and Maintenance.

(1) Applicable portions of the Federal Regulations, paragraph 208.10 (h) (1), are quoted 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 and maintenance requirements 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 Exhibit C.

(3) The interest of the Corps of Engineers and the responsibility of the local interests in the existing highway and railroad bridges is primarily confined to their effect on the safety and functioning of the flood control works. However, 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 responsible agencies. 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.

c. Operation.

Flood Control Regulations. Applicable portions of the Federal 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."

## SECTION V

### SUGGESTED METHODS OF COMBATING FLOOD CONDITIONS

5-01. Methods Suggested. Most of the methods described herein have been developed during years of experience with the various problems that often come up during periods of high water, and they are not intended to restrict the Superintendent, or others concerned, to a rigid set of rules for every condition that may arise. The remarks are primarily concerned with the earthen portions of the levee system. If problems not covered by these suggestions arise, where the Superintendent is in doubt as to the procedure to be taken, he will be expected to consult the State Department of Water Resources, and follow standard engineering practices in meeting the situation. It should be noted that it is much better to be over-prepared for a "flood fight" than to find at the last moment that preparations were incomplete or unsatisfactory. Confidence of the protected persons and firms is a valuable asset that should not be carelessly lost through inefficient operation of the protection system in time of emergency.

5-02. Earthen Levees. An earthen levee is in danger whenever there is water against it. This danger is directly proportional to the height of the water, the duration of the flood state, and the intensity of either the current or wave action. The danger is inversely proportional to the cross-sectional area of the levee, the levee's height, and the degree of maintenance. A well constructed levee of proper section should, if maintained and not overtopped, will hold throughout any major flood. However, a serious accident may result in a break. Foundation troubles result in sand boils or a sinking levee, and the local use of unsatisfactory materials causes slides and sloughs. However, such threatened failures can be met if prompt action is taken and proper methods of treatment are used. Wave wash is to be expected whenever the levee is exposed to a wide stretch of open water and is serious if permitted to continue over a considerable length of time.

5-03. Premeditated Damage. The Superintendent should continually guard against premeditated damage to the levee. In the event of an extraordinary flood requiring a fight over long stretches of levee on both sides of the river, there is a natural temptation to relieve the strain by premeditated breaking of the opposite levee.

5-04. Security. Personnel of the Corps of Engineers, whether military or civilian, are not vested with any civil police authority in the performance of their engineering duties, and they will not attempt to exercise any such authority. The responsibility for protecting flood control works against sabotage, acts of depredation, or other unlawful acts rests with the local interests through local and State Governmental agencies.

5-05. Inspection of Flood Control Works. Immediately upon receipt of information that a highwater is imminent, the Superintendent should form a skeleton organization, capable of quick expansion, and assign individuals (Sector Foreman) to have charge of definite sections of levees. As his

initial activity, each Sector Foreman should go over his entire sector and parts of adjacent sectors, making a detailed inspection, particularly with reference to the following matters:

- a. Sector limits; ascertain that the dividing line between sectors is plainly determined and, if necessary, marked.
- b. Condition of new levees and recent repairs.
- c. Condition of culverts, flapgates, and sluice gates.
- d. Transportation facilities; roads, rail and water communications.
- e. Material supply; quantity, location, and conditions.
- f. Communications; locate and check all necessary telephones in the sector.

5-06. Preliminary Repair Work. After the initial inspection has been made, each Sector Foreman should recruit a labor crew and provide it with tools such as shovels, axes, wheelbarrows, etc. In addition, bulldozers, scrapers, trucks, etc., should be located and made ready for use in case of emergency. Then immediate action should be taken to perform the following work:

- a. Fill up holes or washes in the levee crown, slopes, and landside berms. Where new construction has been completed during the year, rain washes and deep gullies may have developed. While the levee is new, preparations should be made in advance to combat wave wash along the exposed reaches.
- b. Repair gaps where road crossings have been worn down and the levee is below grade. In filling the road crossings, it may be necessary to obtain material from landside borrow pits, in which case excavation for the material should be kept at least 50 feet from the toe of levee. Any filling done in this connection should be tamped in place and, if in an exposed reach, subject to wave wash, the new section should be faced with bags of sand.
- c. Repair and close all flap gates on culverts and see that they are seated properly before they are covered with flood waters.
- d. Ascertain that all roads to and along the levee are in a good state of repair. The Superintendent should obtain assistance from the county road forces to have all roads put in first-class condition.
- e. Locate necessary tools and materials (sacks, sandbags, brush, lumber, lights, etc.), and distribute and store the same at points where active maintenance is anticipated.

f. Check and obtain repair of all telephone lines necessary for operation, obtain lists of all team forces, motorboats, motor cars, and truck transportation that can be made available.

g. Make thorough arrangements with reliable citizens of the community for the supply transportation, subsistence, and shelter for the necessary labor.

h. Communicate directly with owners of all stock pastured on the levee and direct that all stock be removed from the levee right-of-way. Cut all fences crossing the levee that do not have gates provided.

i. Investigate all drainage ditches on the landside of the levee and open these drains when obstructions exist. Prepare to cut the necessary seep drainage ditches; however, no attempt should be made to drain the levee slope until actual seepage takes place.

j. Remove all dynamite and explosives of any kind from the vicinity of the levee.

5-07. Disaster Relief. It is the responsibility of local, state, municipal authorities, supported by and/or working in connection with the American Red Cross to adopt measures for the relief of flood disaster victims. Relief measures can be undertaken by the Department of the Army through its Army Area Commander under existing Army Regulations, but such measures will be undertaken only as a last resort, in extreme cases and under compelling circumstances where local resources are clearly inadequate to cope with the situation.

5-08. Flood Fight. After the above preliminary organization and precautions have been completed, the "flood fight" itself commences. The methods of combating various defects in the earthen levee described in the following paragraphs have been proved effective during many years of use by the Department of the Army.

a. Drainage of Slopes. This work can be done economically while awaiting developments and will serve to make the levees more efficient. Crews should be organized to cut seep drains at all places on the levee and berm when seepage appears. The drains should be V-shaped, no deeper than necessary, and never more than 6" deep. Care must be taken not to cut the sod unnecessarily. In all instances, drains should be cut straight down the levee slope or nearly so. Near the toe of the slope the small drains should be Y'd together and led into larger drains, which, in general, should lead straight across the landside berm into the landside pits or nearest natural or artificial drain.

b. Sand Boils. These danger spots are serious if discharging material. The common method of controlling sand boils consist of walling up a watertight sack ring around the boil up to a height necessary to reduce the velocity of flow to point at which material is no longer discharged from the boil. See EXHIBIT G, plate 1. The sack ring around the boil

should be large enough to protect the defective area immediately surrounding the boil. If several boils of sufficient force to displace sand are observed, a sack sublevee may be built around the entire nest of boils, rising to such a height that none of the boils will discharge with enough force to displace sand.

c. Wave Wash. The Superintendent and Sector Foremen should study the levee beforehand to determine the possibility of wave wash. All such reaches will be located well in advance and for use in emergency, a reserve supply of filled sacks and rolls of cotton bagging will be kept on board flats. If the slope is well sodded, a storm of an hour duration should cause very little damage. During periods of high wind and high water, ample labor should stand by and experienced personnel should observe where the washouts are beginning by sounding or by actually wading along the submerged slope. Sections of cotton bagging should be placed over the washed areas, as shown on EXHIBIT G, plate 3. As an alternative, filled sacks should be placed in the cut in an effective manner and as soon as possible. The filled sacks should be laid in sections of sufficient length to give protection well above the anticipated rise. Bagging so laid must be thoroughly weighted down to be effective. Plate 2, EXHIBIT G shows a movable type of wave wash protection, also used with good results. Its advantage is that it can rapidly be built at any convenient place and easily set in place on the job.

d. Scours. A careful observation should be made of the river-side of the levee at all localities where a current of more than two feet per second is observed, or where the profiles show a high water slope of two feet per mile or greater. Trouble may be looked for at the ends of old levee dikes, road-crossing ramps, old traverses, and places where pipes, sewers and other structures penetrate the levee. If any sign of scour is observed in the pits or at the ends of the dikes, soundings should be taken to observe the amount and progress of the scour. The approved method of construction to check scour in the pits, on the slopes, or at the ends of dikes will be to construct deflection dikes using brush, treetops, or lumber, driving stakes and wiring together, and filling in between with brush and filled sacks or stone.

e. Caving Bank Protection. As protection against active caving of riverbanks, rock-filled cribs are very effective if properly placed. Cribs are usually 14 by 14 feet in plan by 10 to 14 inches in inside depth. The cribs are constructed on a double thickness of 1" x 4" x 14' lumber, equivalent to 2" x 4" pieces, lapped rail fence fashion at all corners and intersections. They are divided into four compartments of about equal area by two perpendicular cross walls constructed in the same manner as the side walls. The floors and covers are built up of double 1" x 4" boards spaced about 9" center-to-center. Under the floor and perpendicular to the direction of the floor boards are five equally spaced pairs of 1" x 4" boards spaced about 3 feet center-to-center. On top of the cover, perpendicular to the direction of the cover boards, are three pairs of top boards, one over each of the side walls and one over the central division wall. All intersections are nailed with one 20d nail. The compartments are filled with rock before covering. Each wall intersection of the fabricated cribs is securely fastened by a loop of No. 9 wire. See EXHIBIT G, plate 4.

5-09. Topping. Immediate consideration should be given the grade line of each levee section by comparison of existing grades with those shown on the drawings, EXHIBIT B. If any reaches show a grade below the previous highest water, emergency topping should be undertaken at once to such a grade as may be established by the District Engineers, U. S. Engineer Office, Sacramento, California, as follows:

a. Sack Topping. Sack topping may be used to raise the crown of the levee about three feet. The sacks should be laid stretcherwise or along the levee for the first layer, crosswise for the second layer, and so on. Sacks should be lapped at least 1/3 either way and well mauled into place. When properly sacked and tamped, one sack will give about three to four inches of topping. If gravel is available, it should be used for the front facing so as to avoid washing out.

b. Lumber and Sack Topping. This is the most commonly used method of raising low reaches in emergencies. In putting on this topping, as well as other topping, a careful line of levels should be run and grade stakes set in advance. 2" x 4" x 6' stakes should then be driven on the riverside of the crown six feet apart, and 1" x 12" boards nailed to the landside of the stakes. This wall, backed with a single tier of sacks, will hold out at least one foot of water. If a second foot is necessary, the layers of sacks will have to be increased in number and reinforced. The stakes should be driven three feet in the ground, and should project out three feet, thus providing, in extreme cases, a three-foot topping if properly braced behind with sacks and earth. In some instances, it may be practicable to back up the planking with tamped earth obtained in the vicinity in lieu of the sacks shown in the drawing, EXHIBIT G, plate 5.

5-10. Transportation. Instances where it is necessary to send equipment over roads that are impassable due to mud or sand, their passage may be provided by the use of a plank road or by means of steel or wire mats. Telephone communication should be provided along dangerous stretches of the levee when travel or other satisfactory means of communication cannot be maintained.

5-11. Use of Government Plant. The District Engineer is authorized to use or loan Government property and plant in cases of emergency where life is in danger and there is no opportunity to secure prior authority for such use. The authority also extends to saving of property where no suitable private equipment is available, provided that such use is without detriment to the Government.

EXHIBIT A  
FEDERAL FLOOD CONTROL REGULATIONS

**TITLE 33 - NAVIGATION AND  
NAVIGABLE WATERS  
(as of 1 January 1962)**

**Chapter II - Corps of Engineers  
Department of the Army**

**PART 208 - Flood Control Regulations  
MAINTENANCE AND OPERATION OF FLOOD  
CONTROL WORKS**

Pursuant to the provisions of section 3 of the Act of Congress approved June 22, 1936, as amended and supplemented, (Sec. 3, 49 Stat. 1871 as amended; 33 U.S.C. 701c), the following regulations are hereby prescribed to govern the maintenance and operation of flood control works:

**AUTHORITY:** 16 208.10 to 208.91 issued under Sec. 7, 58 Stat. 690; 33 U.S.C. 709. Additional authority is cited in parentheses following the sections affected.

**§ 208.10 Local flood protection works; maintenance and operation of structures and facilities.**

(a) *General.* (1) The structures and facilities constructed by the United States for local flood protection shall be continuously maintained in such a manner and operated at such times and for such periods as may be necessary to obtain the maximum benefits.

(2) The State, political subdivision thereof, or other responsible local agency, which furnished assurance that it will maintain and operate flood control works in accordance with regulations prescribed by the Secretary of the Army, as required by law, shall appoint a permanent committee consisting of or headed by an official hereinafter called the "Superintendent," who shall be responsible for the development and maintenance of, and directly in charge of, an organization responsible for the efficient operation and maintenance of all of the structures and facilities during flood periods and for continuous inspection and maintenance of the project works during periods of low water, all without cost to the United States.

(3) A reserve supply of materials needed during a flood emergency shall be kept on hand at all times.

(4) No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project works shall be permitted upon the right-of-way for the protective facilities.

(5) No improvement shall be passed over, under, or through the walls, levees, improved channels or floodways, nor shall any excavation or construction be permitted within the limits of the project right-of-way, nor shall any change be made in any feature of the works without prior determination by the District Engineer of the Department of the Army or his authorized representative that such improvement, excavation, construction, or alteration will not adversely affect the functioning of the protective facilities. Such improvements or alterations as may be found to be desirable and permissible under the above determination shall be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice shall be obtained from the District Engineer or, if otherwise obtained, shall be submitted for his approval. Drawings or prints showing such improvements or alterations as finally constructed shall be furnished the District Engineer after completion of the work.

(6) It shall be the duty of the superintendent to submit a semiannual report to the District Engineer covering inspection, maintenance, and operation of the protective works.

(7) The District Engineer or his authorized representatives shall have access at all times to all portions of the protective works.

(8) Maintenance measures or repairs which the District Engineer deems necessary shall be promptly taken or made.

(9) Appropriate measures shall be taken by local authorities to insure that the activities of all local organizations operating public or private facilities connected with the protective works are coordinated with those of the Superintendent's organization during flood periods.

(10) The Department of the Army will furnish local interests with an Operation and Maintenance Manual for each completed project, or separate useful part thereof, in assist them in carrying out their obligations under this part.

(b) *Levees.*—(1) *Maintenance.* The Superintendent shall provide at all times such maintenance as may be required to insure serviceability of the structures in time of flood. Measures shall be taken to promote the growth of sod, exterminate burrowing animals, and to provide for routine mowing of the grass and weeds, removal of wild growth and drift deposits, and repair of damage caused by erosion or other forces. Where practicable, measures shall be taken to retard bank erosion by planting of willows or other suitable growth on areas riverward of the levees. Periodic inspections shall be made by the Superintendent to insure that the above maintenance measures are being effectively carried out and, further, to be certain that:

(i) No unusual settlement, sloughing, or material loss of grade or levee cross section has taken place;

(ii) No caving has occurred on either the land side or the river side of the levee which might affect the stability of the levee section;

(iii) No seepage, saturated areas, or sand boils are occurring;

(iv) Toe 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;

(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. Immediate steps will be taken to correct dangerous conditions disclosed by such inspections. Regular maintenance repair measures shall be accomplished during the appropriate season as scheduled by the Superintendent.

(2) *Operation.* During flood periods the levee shall be patrolled continuously to locate possible sand boils or unusual wetness of the landward slope and 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 structure.

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.

(c) *Flood walls.*—(1) *Maintenance.* Periodic inspections shall be made by the Superintendent to be certain that:

(i) No seepage, saturated areas, or sand boils are occurring;

(ii) No undue settlement has occurred which affects the stability of the wall or its water tightness;

(iii) No trees exist, the roots of which might extend under the wall and offer accelerated seepage paths;

(iv) The concrete has not undergone cracking, chipping, or breaking to an extent which might affect the stability of the wall or its water tightness;

(v) There are no encroachments upon the right-of-way which might endanger the structure or hinder its functioning in time of flood;

(vi) Care is being exercised to prevent accumulation of trash and debris adjacent to walls, and to insure that no fires are being built near them;

(vii) No bank caving conditions exist riverward of the wall which might endanger its stability;

(viii) Toe drainage systems and pressure relief wells are in good working condition, and that such facilities are not becoming clogged.

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. Measures to eliminate encroachments and effect repairs found necessary by such inspections shall be undertaken immediately. All repairs shall be accomplished by methods acceptable in standard engineering practice.

(2) *Operation.* Continuous patrol of the wall shall be maintained during flood periods to locate possible leakage at monolith joints or seepage underneath the wall. Floating plant or boats will not be allowed to lie against or tie up to the wall. Should it become necessary during a flood emergency to pass anchor cables over the wall, adequate measures shall be taken to protect the concrete and construction joints. Immediate steps shall be taken to correct any condition which endangers the stability of the wall.

(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. Where drainage structures are provided with stop log or other emergency closures, the condition of the equipment and its housing shall be inspected regularly and a trial installation of the emergency closure shall be made at least once each year. 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) *Operation.* Whenever high water conditions impend, all gates will be inspected a short time before water reaches the invert of the pipe and any object 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. Manually operated gates and valves shall be closed as necessary to prevent inflow of flood water. All drainage structures

EXHIBIT B

"AS CONSTRUCTED"  
DRAWINGS

See separate folder for the following drawings:

<u>File No.</u>	<u>Title</u>
CA-2-6-147	Channel Improvement & Clearing South Littlejohn Creek (No. & So. Branches) from Farmington to French Camp, sheets 1 to 29, incl.

EXHIBIT C  
CHECK LISTS OF LEVEES, CHANNELS,  
AND STRUCTURES

CHECK LIST NO. 3

CHANNEL AND RIGHT-OF-WAY

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 C  
(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 birdges over the channel.
- Item (d) Report any construction along the diversion channel or above the diversion channel 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

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

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

(a) Location by Station	(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	(h) Comments
4+00	It				<u>South Littlejohn Creek</u>		
28+65	It						
50+00							
68+90							
76+60	It						
76+60	Rt						
83+00	Rt						
91+80	Rt						
93+00	Rt						
94+40	It						
98+65	It						
100+60	Rt						
101+50							
103+00							
104+00	Rt						

CHECK LIST NO. 4

DRAINAGE AND IRRIGATION STRUCTURES

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

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

(a) Location by Station	(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	(h) Comments
114+50	Rt						
544+72.58	Rt						
545+70S							
613+45S	It						
613+80S	Rt						
624+53S							
637+70S	It						
645+20S							
129+55N	Rt						
146+40N	Rt						
148+18N	Rt						
176+80N	Rt						
177+70N	It						
178+00N	It						
South Littlejohn Creek, Cont'd.							
South Littlejohn Creek - North Branch							

CHECK LIST NO. 4

DRAINAGE AND IRRIGATION STRUCTURES

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

Inspector \_\_\_\_\_

Date \_\_\_\_\_

Superintendent \_\_\_\_\_

(a) Location by Station	(b) Bank	(c) Debris or other obstruction to flow	(d) Damage or settlement of pipe or conduit	(e) Condition of concrete head- wall or invert paving	(f) Condition of right-of-way adjacent to structure	(g) Repair Measures Taken Since last Inspection	(h) Comments
264+50N	Lt						
317+00N	Rt						
326+50N	Lt						
339+05N	Rt						
367+40N	Rt						
371+90N							
372+50N	Rt						
392+20N	Rt						
411+90N	Rt						
421+40N	Rt						
429+50N	Rt						
439+70N	Rt						
499+00N							
131+25S	Lt						
175+90S	Rt						
176+56.5S	Rt						
		South Littlejohn Creek - North Branch, Cont'd.					
		South Littlejohn Creek - South Branch					

CHECK LIST NO. 4

DRAINAGE AND IRRIGATION STRUCTURES

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

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

(a) Location by Station	(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	(h) Comments
263+00S	Lt.						
265+00S	Lt						
273+85S	Lt						
285+95S	Rt						
294+85S	Rt						
306+00S							
320+50S	Lt						
420+50S	Rt						
430+10S	Lt						
435+40S	Rt						
447+40S	Rt						
459+00S	Lt						
461+50S	Lt						
466+15S	Lt						
9+25.3	Rt						
9+25.3	Rt						

South Littlejohn Creek - South Branch, Cont'd.  
North Littlejohn Creek

INSTRUCTIONS FOR COMPLETING SHEET 6, EXHIBIT C  
(To be printed on back of Sheets 6, 7, 8, & 9)

- (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. Record observations under Column (d).
- (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 D

SUGGESTED SEMI-ANNUAL REPORT FORM

TO: The District Engineer  
U. S. Army Engineer District  
District, Sacramento  
650 Capitol Avenue  
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\_\_ 30 April 19\_\_) Littlejohn Creek levees and channels, San Joaquin County, 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 periods (water level at 8.0 on the Littlejohn Creek gage or higher) 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 (date) \_\_\_\_\_, 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

CHECK LIST NO. 2

LEVEES AND SPOIL BANKS

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 C  
(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 gullying of the section has occurred.
- Item (c) If sufficient erosion or gullying 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.

EXHIBIT E

REGULATIONS GOVERNING ISSUANCE OF PERMITS  
AND SUGGESTED PERMIT FORM

EXHIBIT E

PERMIT

---

(Name of Levee Commission or City)

---

(Location)

Permission is hereby granted to:

---

(Name of Firm or Individual)

---

(Address)

TO: (Describe in these spaces the proposal, including kind and type of construction, purpose intended, location by stationing. Indicate passageway provided by means of gates, etc. Use separate sheets if necessary, identifying each by reference herein).

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Provided that:

Upon termination or expiration of this permit (whether by voluntary relinquishment by the grantee, by revocation by the grantor or otherwise) the grantee shall remove all structures, improvements, or appurtenances which may have been erected or constructed under this permit, and shall repair or replace any portion of the flood protection structure or right-of-way which may have been damaged by his operations (including grading and seeding, or sodding, if necessary), to the satisfaction of the grantor.

The structure or operation for which this permit is issued shall be maintained by the grantee in such manner as shall not injure or damage the flood protection structure, or interfere with its operation and maintenance in accordance with regulations of the Secretary of the Army.

The structure or operation covered by this permit may be damaged, removed or destroyed by the grantor to be necessary in order to preserve life or property or prevent damage or impairment to the use or safety of the flood protection structure, and the grantor shall not be liable to the grantee for such damage or destruction.

Unless otherwise specifically provided herein, this permit may be cancelled at any time by the grantor upon 10 days written notice mailed to the address shown above. During such 10 day period, (or such other period as may be provided herein), the grantee will be permitted to remove any property or improvements installed under this permit, and to repair or replace any damage to the flood protection right-of-way or structures resulting from his use or operations. At the end of such period, or improvements remaining upon its right-of-way, and may proceed to repair or replace any such damage, and the grantee herein shall be liable to the grantor for the full cost of such repairs or replacements.

The construction, installation and maintenance of the structure or structures covered by this permit shall be subject to inspection by representatives of the grantor and the United States at all reasonable times.

In the event the work covered by this permit consists of or includes major construction, the cost of inspection thereof by the grantor and/or the United States shall be paid by the applicant.

Grantee agrees that it will not use the area or facilities covered by this permit, or permit such area to be used, for any purpose other than is specifically covered by this permit.

(Use these spaces for special conditions applicable to this permit.)

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THIS PERMIT SHALL NOT BE VALID UNTIL APPROVED BY THE DISTRICT ENGINEER OF THE U. S. ARMY ENGINEER DISTRICT, SACRAMENTO, OR HIS AUTHORIZED REPRESENTATIVE.

	_____ Signature (Grantor)	_____ (Title)	_____ (Date)
Terms of this permit are hereby accepted	Approved:		

_____ Signature (Grantee)	_____ (Date)	_____	_____ (Date)
------------------------------	-----------------	-------	-----------------

District Engineer

REGULATIONS GOVERNING ISSUANCE OF PERMITS FOR USE OF  
RIGHTS-OF-WAY FOR FLOOD PROTECTION PROJECTS

As the flood protection works and rights-of-way are owned by the Local Interests and will be operated and maintained by them in accordance with the Regulations of the Secretary of the Army, and issuance of any permits to use any part of the rights-of-way will be handled by the Local Interests, with the restriction that no such permits may be issued without the approval of the District Engineer, as stated in Paragraph No. 208.10 (a) General, (5) of the Regulations, a copy of which is attached hereto.

Applications for use of the rights-of-way should be addressed to the City or Levee Commission having jurisdiction over the local flood protection project. The City or Levee Commission will then forward the application to the District Engineer, of the U. S. Army Engineer District, Sacramento, California, with its recommendation, with reasons for such recommendation. It is suggested that the application and recommendations be forwarded with a draft copy of the permit, in order that all objectionable features may be eliminated prior to its proffer to the applicant as this may prevent misunderstandings and arguments. If for any reason it is desired to forward the permit itself without this intervening step, five copies of the proposed permit should be included on which is stated the exact use of the rights-of-way, for which permission is being requested, together with any condition or restriction of the permit. The permit should be signed by the applicant and an official of the Local Interests. A drawing, sketch or detail plans as may be required to show the exact location, nature of work and proposed method of construction should be attached to each copy of the permit. If the permit is approved by the District Engineer, three copies will be returned. This will enable each party concerned to have a copy of the approved permit.

In any case where a permit is requested for any purpose which might cause disfigurement or damage to the flood protection rights-of-way or structure in its erection, use, or removal, it is suggested that the applicant be required to pose a bond of sufficient amount to protect the Local Interests from any cost of repair or removal, and to guarantee faithful performance of the permit conditions. In such cases the permit should state the amount and conditions of the bond.

In cases involving major construction or other work which may directly affect the flood protection structure, it will be necessary that the United States inspect the work and the Local Interests may also desire to inspect it. As stated in the permit form, such inspection will be at the expense of the grantee, and this should be called to his attention. Except in cases of known financial security, arrangements should be made with the grantee for an advance deposit or bond to cover such costs.

There is attached hereto a copy of a permit form which has been successfully used by a number of cities and levee committees.

EXHIBIT F

LETTER OF TRANSFER TO  
THE STATE RECLAMATION BOARD

EXHIBIT F

11 October 1955

The Reclamation Board  
State of California  
1215 "O" Street  
Sacramento 14, California

Gentlemen:

Reference is made to letter from this office dated 10 March 1955, wherein it was proposed to transfer to the jurisdiction of the State of California, when completed, certain units of work pertaining to the Farmington Flood Control Project on Littlejohn Creek near Farmington, California. Reference is also made to the joint inspection of these units of work made on 15 March 1955. The location and description of work of these units are described as follows:

<u>Unit No.</u>	<u>Location and Description of Work</u>
3-F	French Camp Slough: Channel Excavation and Channel Clearing from Sta. 0+00 to 32+80. Also Levee Construction on the right bank from Sta. 0+00 to 35+00, and on the left bank from Sta. 1+85 to 32+80.
4-F	South Littlejohn Creek: Channel Excavation and Channel Clearing from Sta. 32+80 to 118+00. Also Levee Construction on the right bank from Sta. 91+70 to 118+00, and on the left bank from Sta. 32+80 to 118+00.

SPKKO-P 800.5 (Littlejohn Cr.)  
The Reclamation Board

<u>Unit No.</u>	<u>Location and Description of Work</u>
5-F	North Branch of the South Littlejohn Creek: Channel Excavation and Channel Clearing from Sta. 118+00 to 505+15. Also Levee Construction on the right bank from Sta. 118+00 to 176+90.
6-F	South Branch of the South Littlejohn Creek: Channel Excavation and Channel Clearing from Sta. 118+00 to 505+15. Also Levee Construction on the left bank from Sta. 118+00 to 137+50.
7-F	South Littlejohn Creek: Channel Excavation and Channel Clearing from Sta. 505+15 = 494+60 "S" to 635+00 "S" and Channel Clearing only from 635+00 "S" to 871+20.
8-F	North Littlejohn Creek: Channel Excavation and Channel Clearing from its junction with South Littlejohn Creek at Sta. 871+20 "S" = 0+00 downstream to Sta. 18+90.
9-F	Littlejohn Creek: Channel Excavation from Sta. 871+20 at its junction with North Littlejohn Creek to Sta. 1007+70.

The work referred to above has been completed on 19 September 1955, in accordance with Specification No. 1848, under Contract No. DA-04-167-eng-1185 and Drawing No. CA-2-6-147, and meets with the requirements of the Flood Control Project for the Calaveras River and Littlejohn Creek and Tributaries which is covered in House Document No. 545, 78th Congress, 2nd Session, approved by the Flood Control Act of 22 December 1944. Therefore, said units of work, No. 3-F to 9-F inclusive, are hereby transferred to the State of California for operation and maintenance.

The maintenance work required shall be performed in accordance with existing Flood Control Regulations, inclosed herewith, 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

SPKKO-P 800.5 (Littlejohn Cr.)  
The Reclamation Board

provided under Paragraph 208.10(10 of these regulations, a maintenance manual covering these units of work 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.

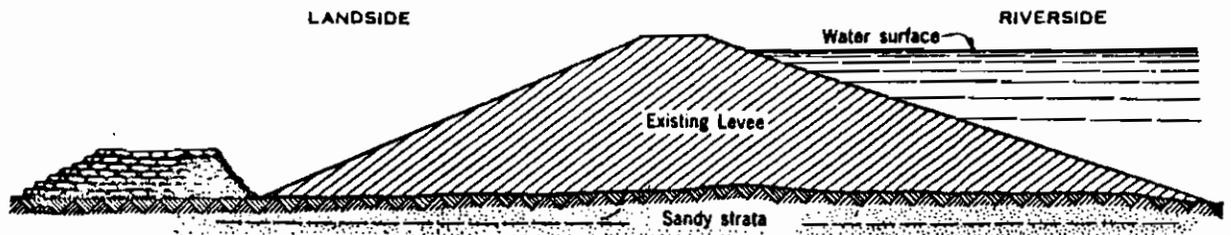
Sincerely yours,

1 Incl  
1. F. C. Reg.

/s/ Wm J. Ely  
WM J. ELY  
Col, CE  
District Engineer

EXHIBIT G

PLATES SHOWING SUGGESTED METHODS  
OF COMBATING FLOOD CONDITIONS

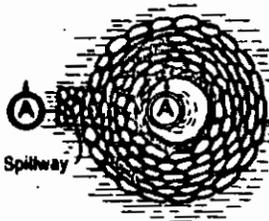


**Note:**  
 Bottom width to be no less than 1½ times height.  
 Be sure to clear sand discharge.  
 Tie into levee if boil is near toe.

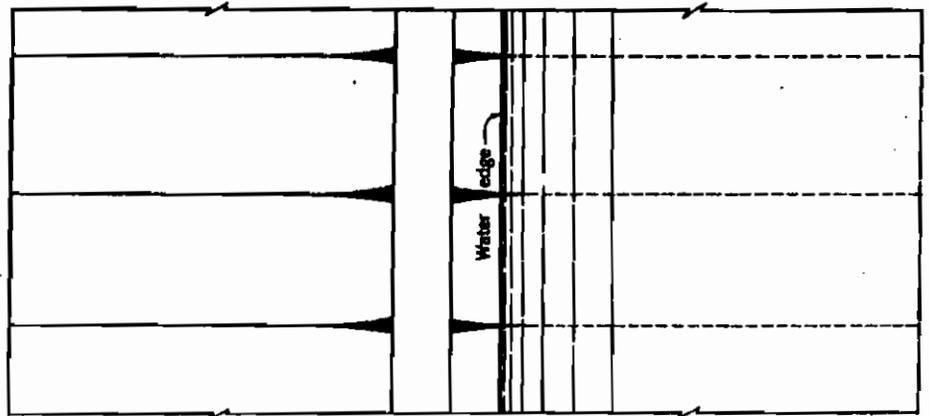
**ELEVATION**



**SECTION A-A**



**Spillway**



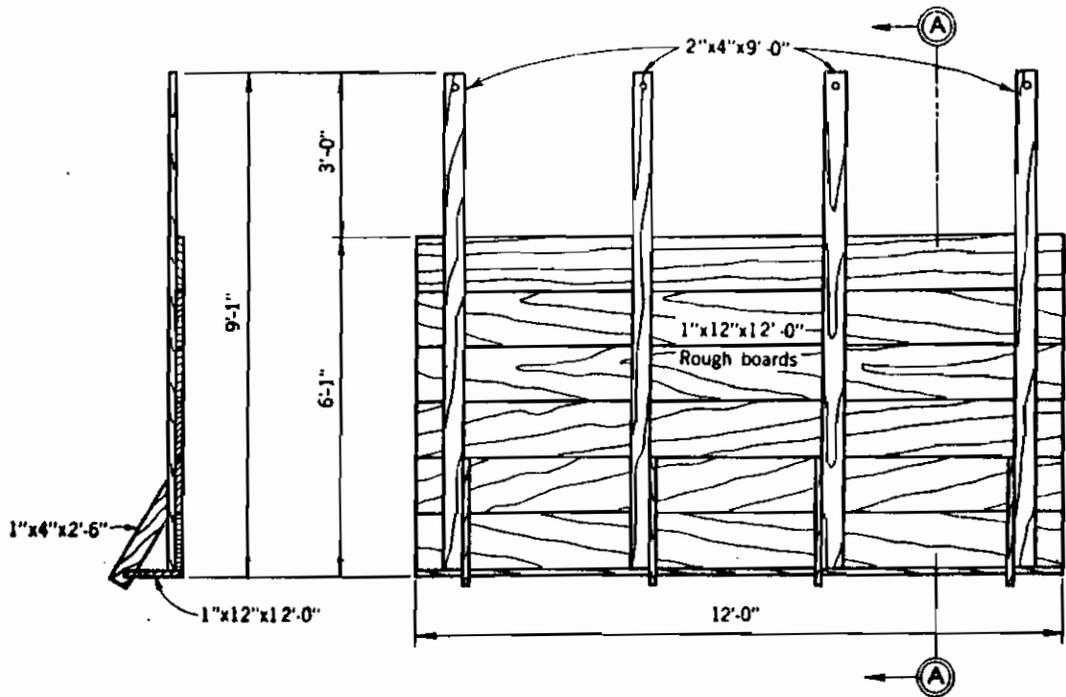
**PLAN**

**Note:**  
 Do not sack boil which does not put out material.  
 Height of sack loop or ring should be only sufficient to create enough head to slow down flow through boil so that no more material is displaced and boil runs clear.  
 Never attempt to completely stop flow through boil.

LITTLEJOHN CREEK, CALIFORNIA  
 FLOOD CONTROL PROJECT

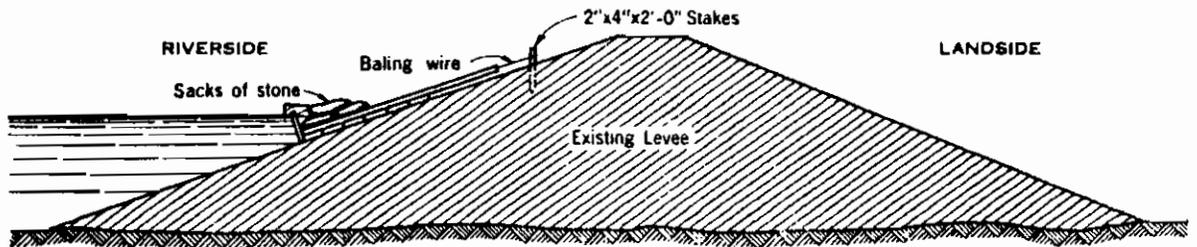
**CONTROL OF SAND BOILS**

U.S. ENGINEER OFFICE, SACRAMENTO, CALIF.  
 MAY, 1946



SECTION A-A

PLAN



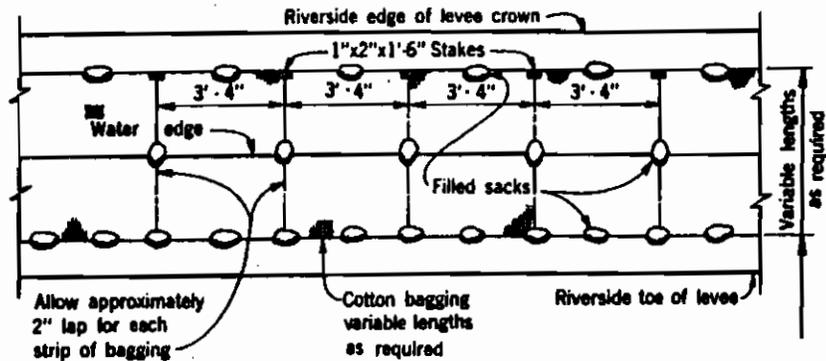
SECTION

BILL OF MATERIAL FOR 100 FEET	
LUMBER	
56 pieces	1" x 12" x 12'-0"
32 pieces	1" x 4" x 2'-6"
32 pieces	2" x 4" x 9'-0"
• 32 pieces	2" x 4" x 2'-0"
•	(Sharpened)
WIRE	
200'	baling wire
NAILS	
4 1/2 lbs.	8d nails

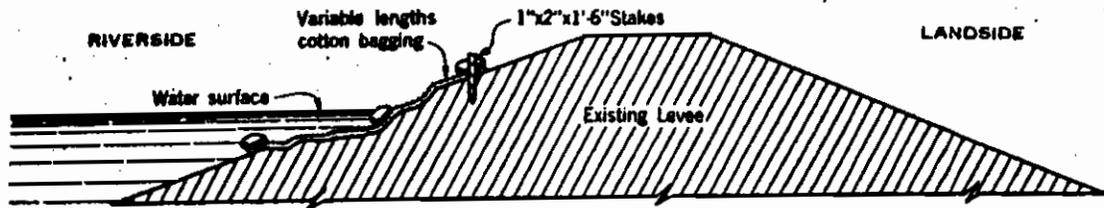
LITTLEJOHN CREEK, CALIFORNIA  
 FLOOD CONTROL PROJECT

**MOVABLE  
 WAVE WASH PROTECTION**

U. S. ENGINEER OFFICE, SACRAMENTO, CALIF.  
 MAY, 1946



PLAN



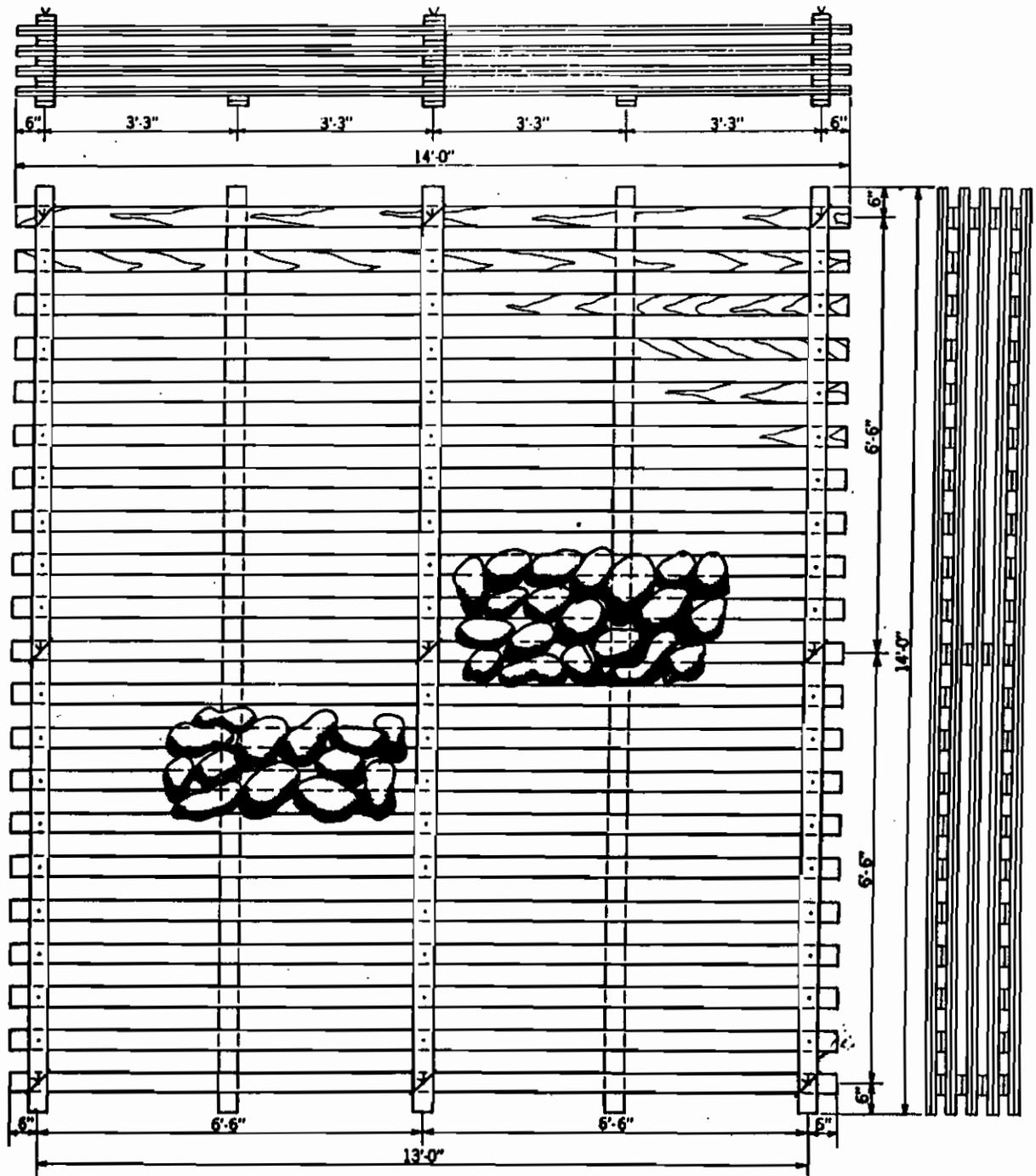
SECTION

Note:

Lay lengths as required of cotton bagging approximately parallel with levee slope and across damaged section. Weight top and edges of bagging with filled sacks as shown above. The filled sacks should be wired or tied to each strip before laying in place. Stake the corners of each strip above water surface. Where cotton bagging is not available burlap sacking may be substituted.

MATERIAL REQUIRED FOR 100 LINEAR FEET OF LEVEE
LUMBER
• 30 Stakes 1"x2"x1'-6"
• (Sharpened)
SANDBAGS
120 sand bags
Cotton bagging as required

LITTLEJOHN CREEK, CALIFORNIA  
 FLOOD CONTROL PROJECT  
**WAVE WASH PROTECTION**  
 U. S. ENGINEER OFFICE, SACRAMENTO , CALIF.  
 MAY, 1946

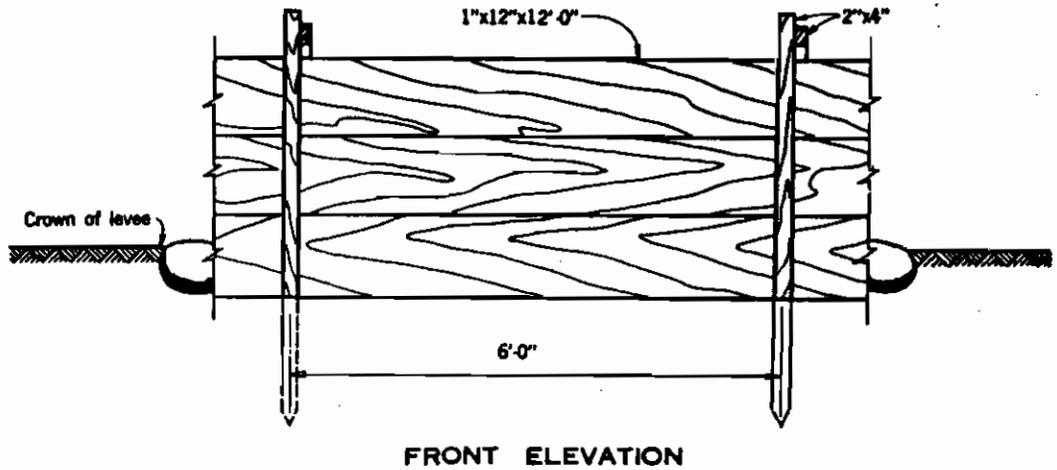
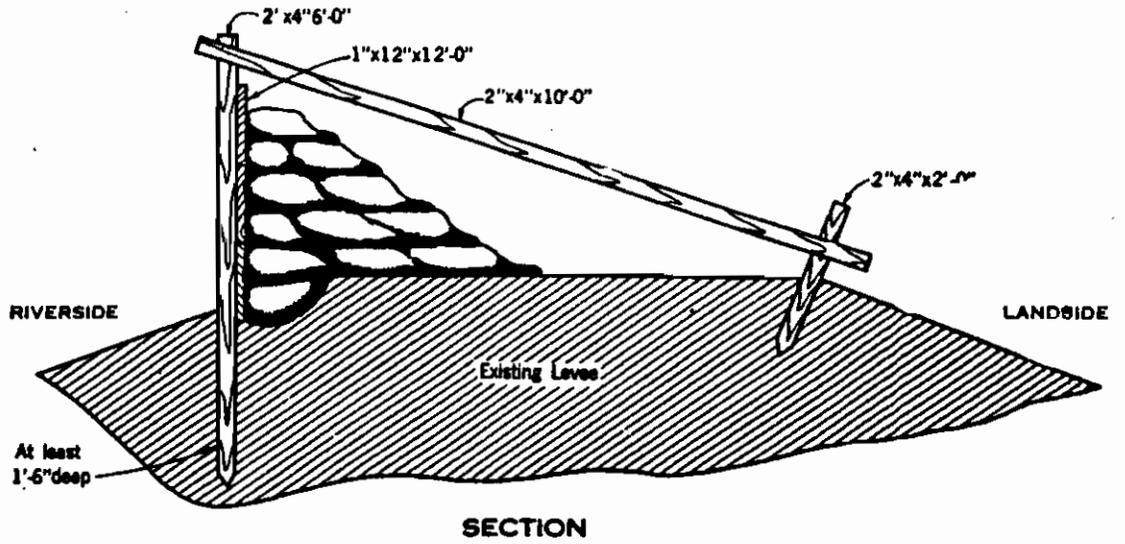


**Notes:**

Cribs constructed of double thickness of 1"x4"x14'-0" lumber. Nail all intersections with 1-20d nail. Each intersection of walls securely fastened by a loop of No. 9 wire, tightly twisted.

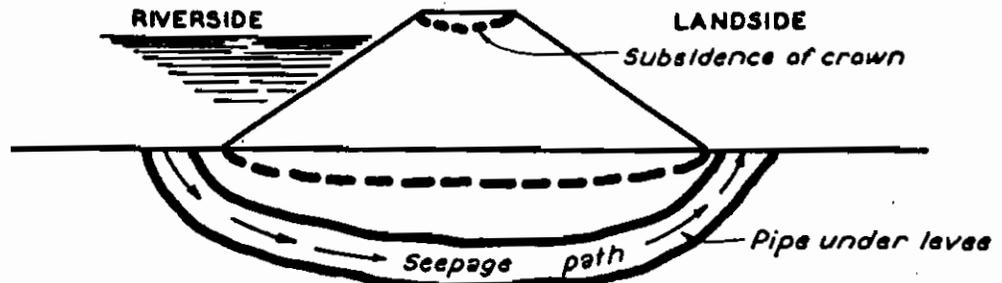
<b>BILL OF MATERIAL FOR ONE CRIB 13'-0"</b>
<b>LUMBER</b>
130 pieces 1"x4"x14'-0"
<b>WIRE</b>
30' No. 9 wire
<b>NAILS</b>
12} lbs. 20d nails

LITTLE JOHN CREEK, CALIFORNIA  
 FLOOD CONTROL PROJECT  
**CAVING BANK PROTECTION**  
 U. S. ENGINEER OFFICE, SACRAMENTO, CALIF.  
 MAY, 1946



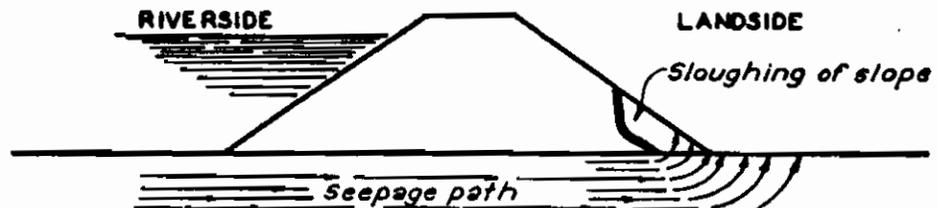
BILL OF MATERIAL FOR 100 LINEAR FEET OF LEVEE	
LUMBER	
25 pieces	1" x 12" x 12'-0"
17 pieces	2" x 4" x 10'-0"
• 17 pieces	2" x 4" x 6'-0"
• 17 pieces	2" x 4" x 2'-0"
•	(Sharpened)
NAILS	
1 lb.	-8d nails
2 lbs.	-16d nails
SANDBAGS	
1100	bags

LITTLEJOHN CREEK, CALIFORNIA  
 FLOOD CONTROL PROJECT  
**LUMBER AND SACK TOPPING**  
 U. S. ENGINEER OFFICE, SACRAMENTO, CALIF.  
 MAY, 1946



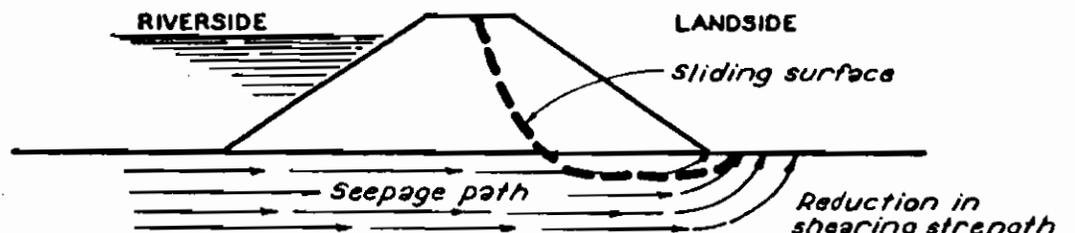
DEVELOPMENT OF PIPE UNDER LEVEE

FIG. 1



SLOUGHING OF LANDSLIDE SLOPE DUE TO  
RAVELLING AND UNDERCUTTING OF TOE

FIG. 2

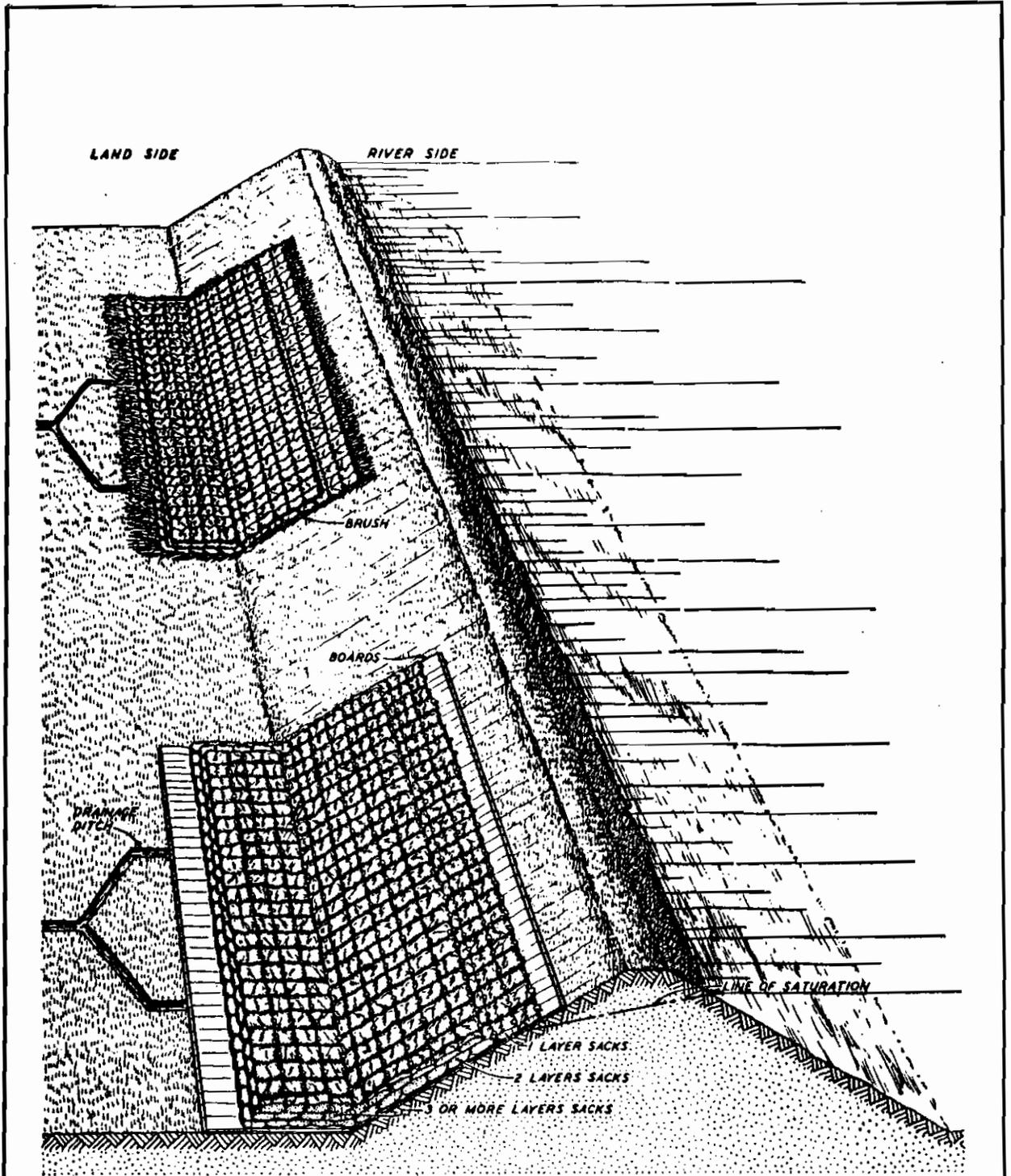


DEVELOPMENT OF SHEAR SLIDE

FIG. 3

LITTLEJOHN CREEK, CALIFORNIA  
FLOOD CONTROL PROJECT  
EFFECTS OF SAND BOILS  
ON LEVEE

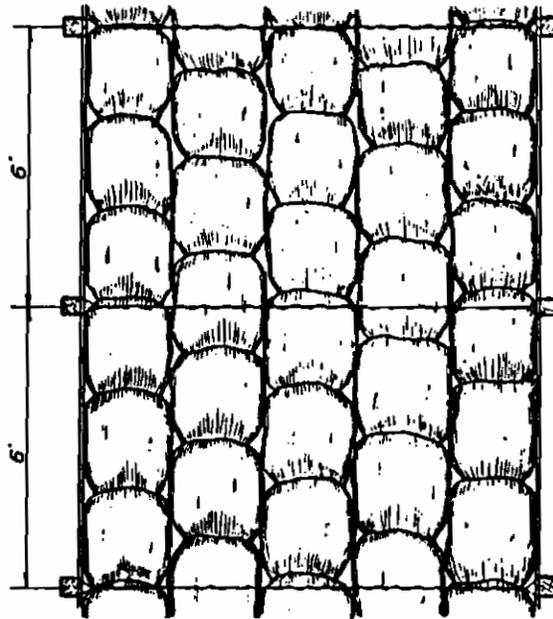
U.S. CORPS OF ENGINEERS, SACRAMENTO, CALIF.



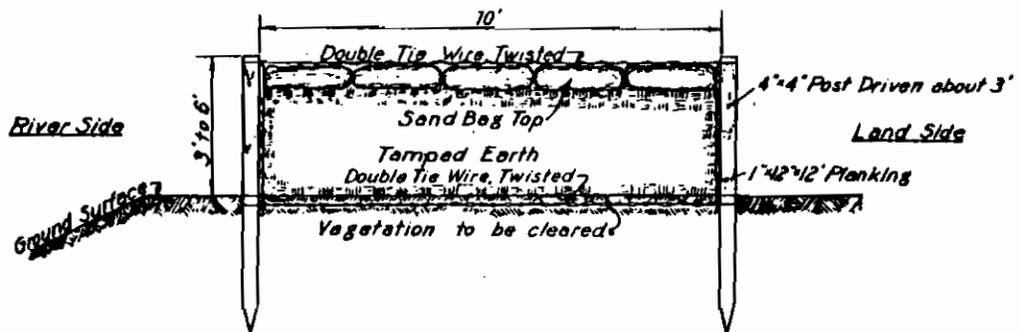
LITTLEJOHN CREEK, CALIFORNIA  
FLOOD CONTROL PROJECT

**BRUSHING AND SACKING  
THE LANDSIDE SLOPE**

U.S. CORPS OF ENGINEERS, SACRAMENTO, CALIF.



PLAN



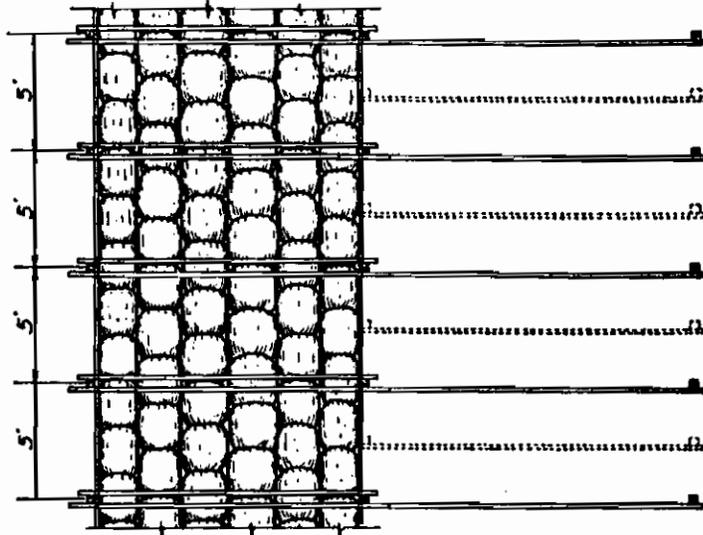
END ELEVATION

MATERIAL REQUIRED FOR 100 LINEAR FEET OF LEVEE		
4 FT HIGH	5 FT HIGH	6 FT HIGH
34 pieces 4"x4"x7' (sharpened) 1122	34 pieces 4"x4"x8' (sharpened) 1371	34 pieces 4"x4"x9' (sharpened) 1608
67 pieces 1"x12"x12' board feet	84 pieces 1"x12"x12' board feet	100 pieces 1"x12"x12' board feet
25 lbs. wire #12 gage	25 lbs. wire #12 gage	25 lbs. wire #12 gage
13 lbs. 10d nails	15 lbs. 10d nails	17 lbs. 10d nails
600 sand bags	600 sand bags	600 sand bags
148 cu. yds. earth	185 cu. yds. earth	222 cu. yds. earth

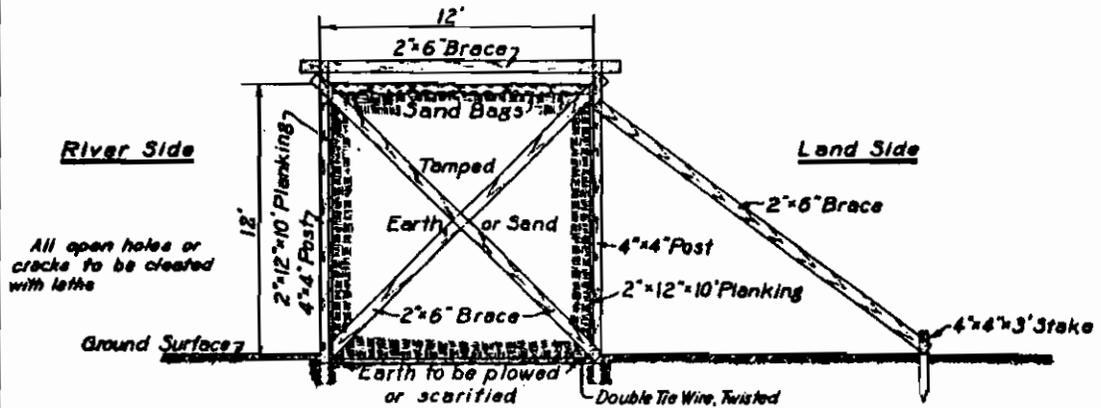
LITTLEJOHN CREEK, CALIFORNIA  
FLOOD CONTROL PROJECT

**3-6FT. MUD BOX LEVEE  
CONSTRUCTION DETAILS**

U.S. CORPS OF ENGINEERS, SACRAMENTO, CALIF.



PLAN



END ELEVATION

MATERIAL REQUIRED FOR 100 LINEAR FEET OF LEVEE			
LUMBER	SAND BAGS	NAILS	EARTH or SAND
40 Posts 4"x4"x14'	700	120 lbs.-20d	534 cu. yds.
240 Planks 2"x12"x10'		4 lbs.-3d fine	
20 Braces 2"x8"x14'		WIRE	
60 Braces 2"x6"x18'		20 lbs.#2 gage	
* 20 Stakes 4"x4"x3'			
5 bundles laths			

Total Lumber 6987 board feet.

ADDITIONAL MATERIAL FOR BRACING BACK SIDE IN BETWEEN BENTS			
LUMBER	SAND BAGS	NAILS	EARTH or SAND
20 Posts 4"x4"x14'		6 lbs.-20d	
20 Braces 2"x6"x18'			
* 20 Stakes 4"x4"x3'			

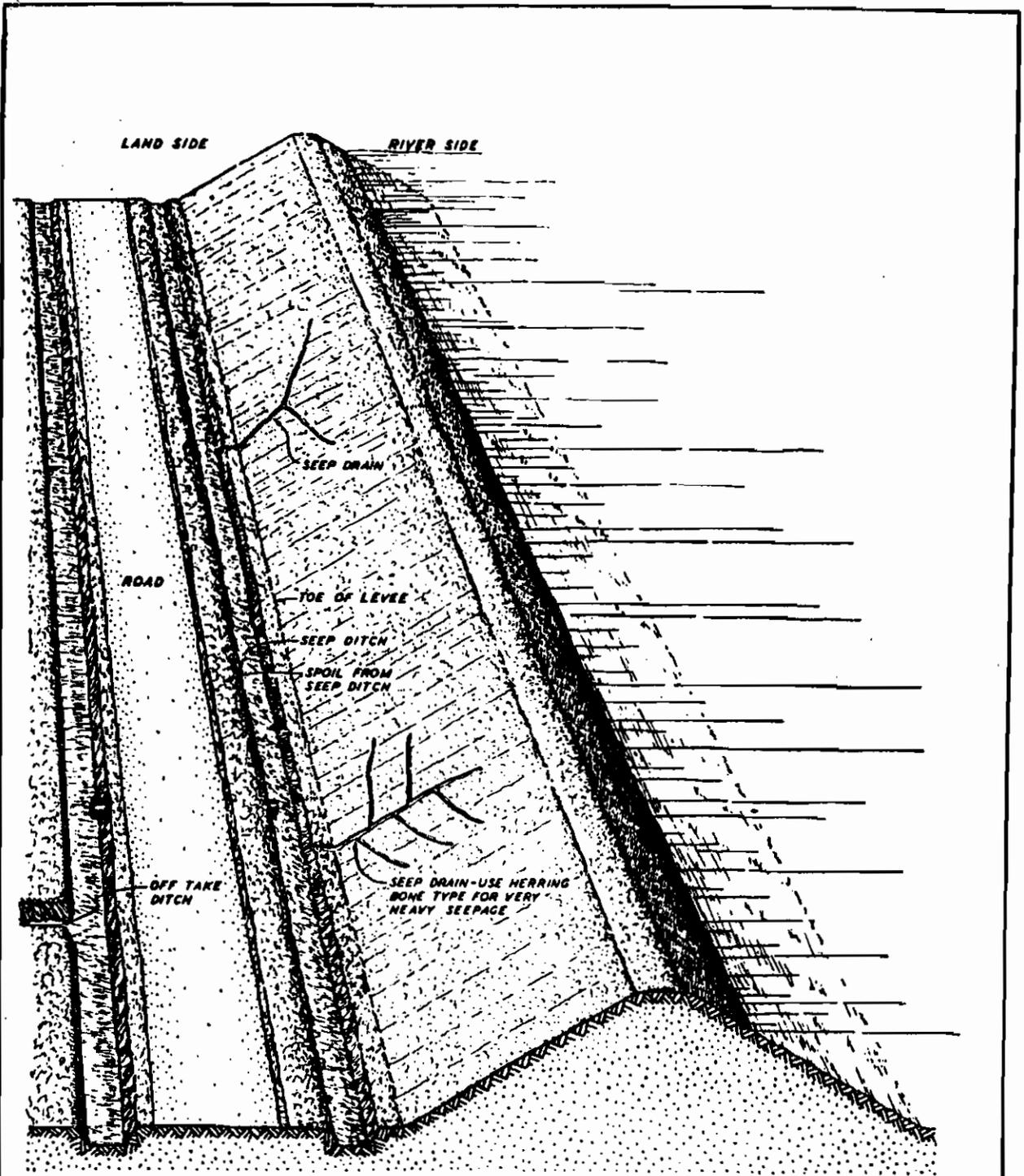
Total Lumber 813 board feet.

\* Sharpened

LITTLEJOHN CREEK, CALIFORNIA  
FLOOD CONTROL PROJECT

**MUD BOX BULKHEAD LEVEE  
CONSTRUCTION DETAILS**

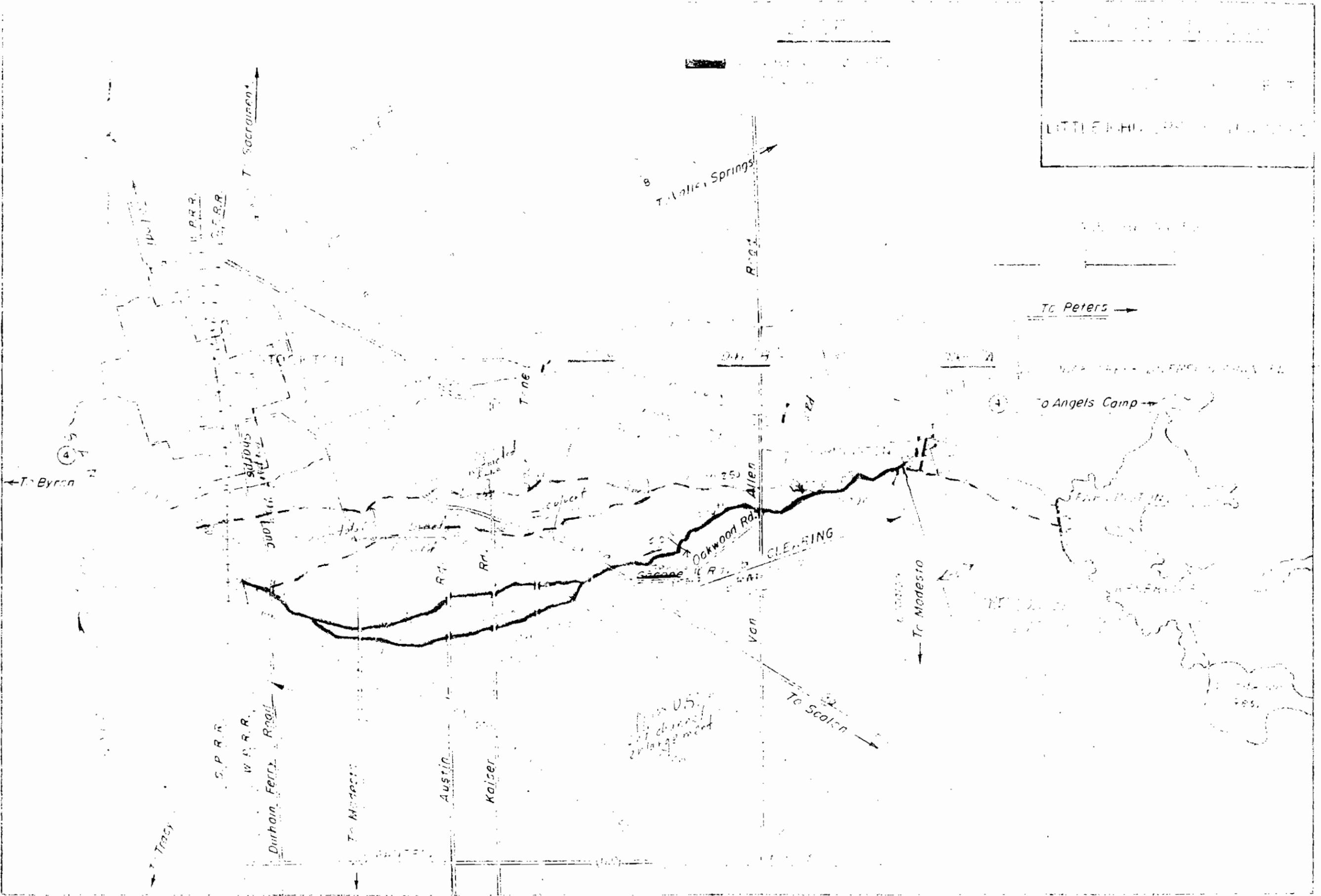
U.S. CORPS OF ENGINEERS, SACRAMENTO, CALIF.



LITTLEJOHN CREEK, CALIFORNIA  
FLOOD CONTROL PROJECT

### METHOD OF DRAINING LEVEE SLOPE

U.S. CORPS OF ENGINEERS, SACRAMENTO, CALIF.



LITTLEFIELD, TEXAS

To Peters →

④ To Angels Camp →

← To Byron

→ Tracy

→ To Modesto

→ To Scalen

→ To Modesto

U.S. Army  
Quartermaster

CLEANING

Oakwood Rd.

Van Allen

Austin

Kaiser

Durham Ferry Road

W.P.R.R.

S.P.R.R.

5007

W.P.R.R.

C.F.R.R.

To Sacramento

8 To Dallas Springs

R.R.

Trone

Rd.

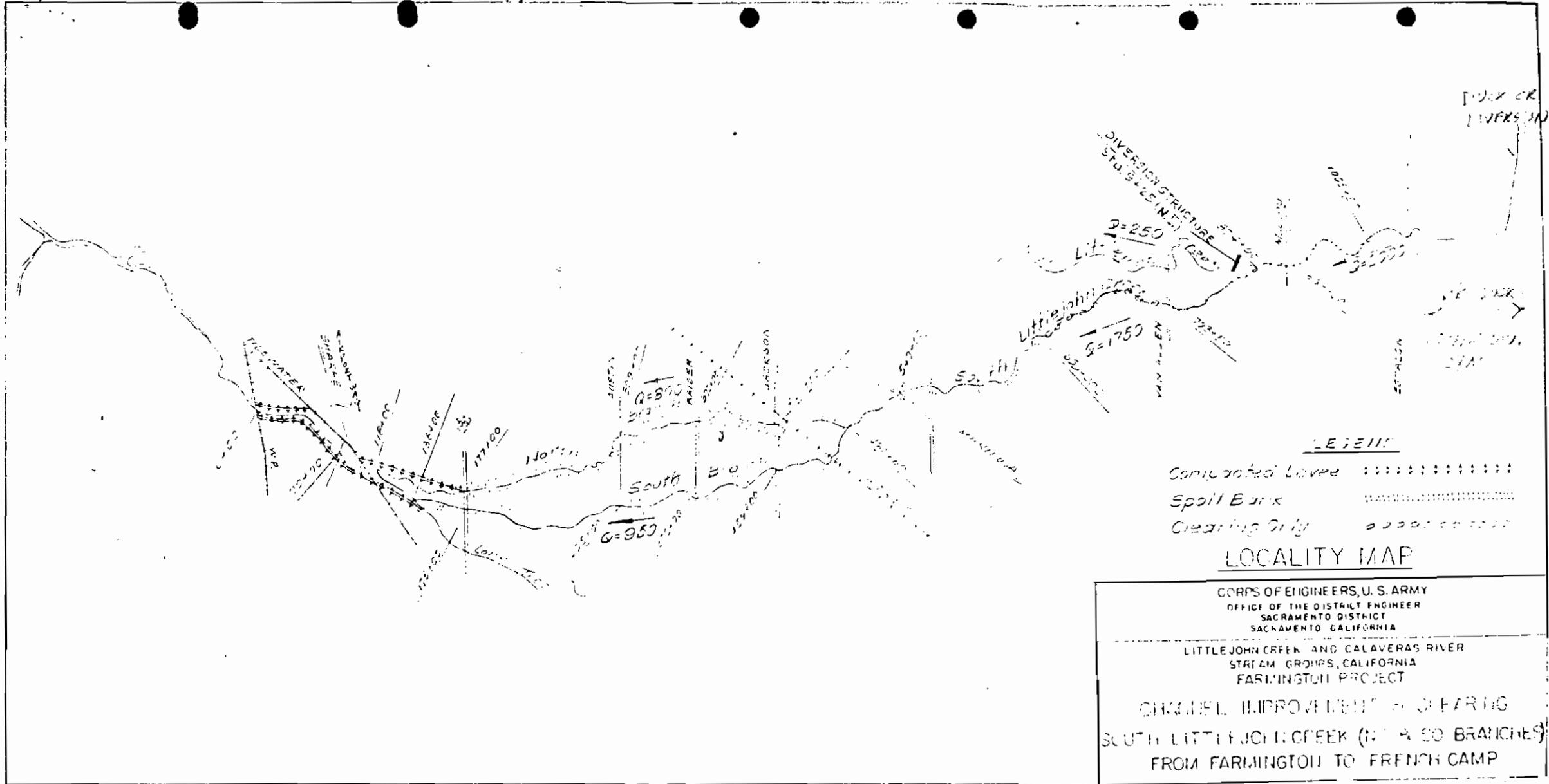
Rd.

collect

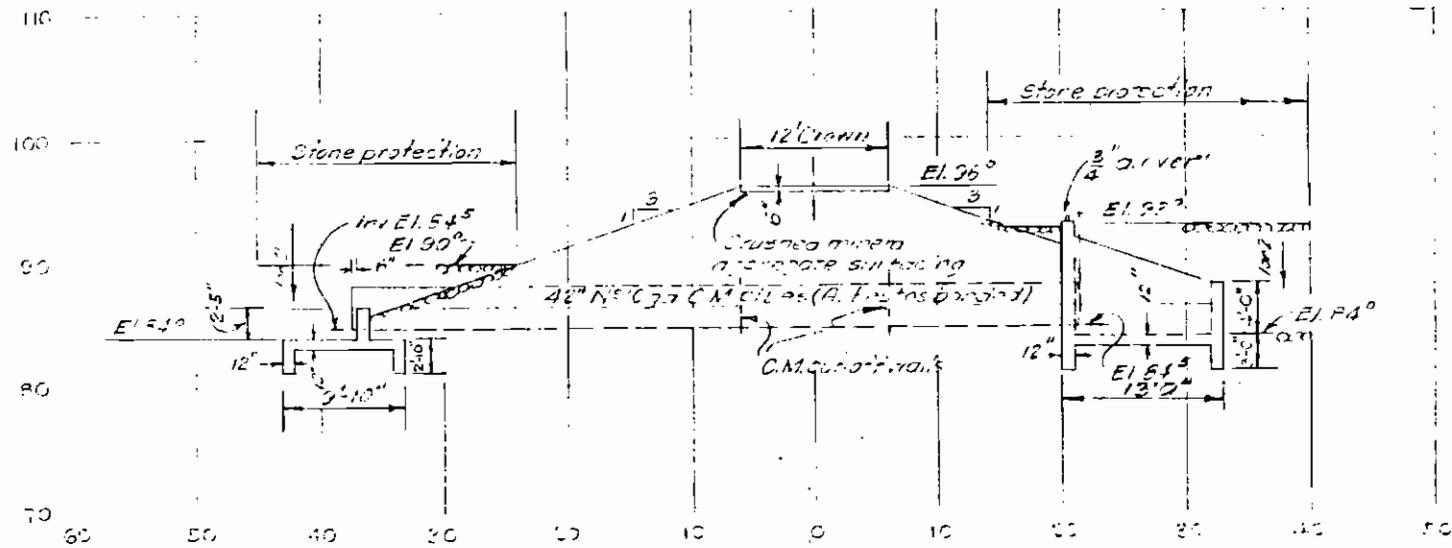
Map A

Map B

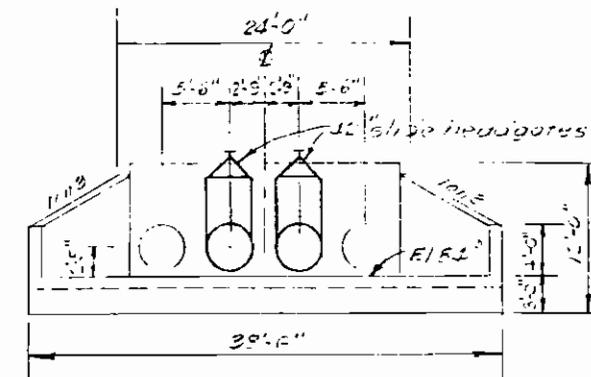
Map C



CORPS OF ENGINEERS, U. S. ARMY  
 OFFICE OF THE DISTRICT ENGINEER  
 SACRAMENTO DISTRICT  
 SACRAMENTO, CALIFORNIA  
 LITTLE JOHN CREEK AND CALAVERAS RIVER  
 STREAM GROUPS, CALIFORNIA  
 FARMINGTON PROJECT  
 CHANNEL IMPROVEMENT & CLEARING  
 SOUTH LITTLE JOHN CREEK (N1 & S0 BRANCHES)  
 FROM FARMINGTON TO FRENCH CAMP



SIDE ELEVATION  
Scale: 1"=10' Horiz, 8' Vert.



UPSTREAM PLAN VIEW  
Scale: 1"=10'

NO. LITTLEJOHN DIVERSION WORKS

CORPS OF ENGINEERS, U. S. ARMY  
OFFICE OF THE DISTRICT ENGINEER  
SACRAMENTO DISTRICT  
SACRAMENTO, CALIFORNIA

LITTLEJOHN CREEK AND CALAVERAS RIVER  
STREAM GROUPS, CALIFORNIA  
FARMINGTON PROJECT

CHANNEL IMPROVEMENT & CLEARING  
SOUTH LITTLEJOHN CREEK (NO. 30. BRANCH)  
FROM FARMINGTON TO FRENCH CAMP

CA 2-6-163 SHEET 10 OF 11 11-57

DESIGN FLOWS

<u>Stream</u>	<u>Location</u>	<u>Design Flow (c.f.s.)</u>	<u>Approximate Water Surface Elevation (Ft., m.s.l.)</u>
French Camp Slough	Confluence with Walker Slough	3,000	9.0
Littlejohns Creek	W.P.R.R.	1,750	17.3
South Branch of Littlejohns Creek	Hwy 99	950	27.6
North Branch of Littlejohns Creek	Hwy 99	800	29.1
South Branch of Littlejohns Creek	Austin Road	950	38.8
North Branch of Littlejohns Creek	Austin Road	800	41.9
South Branch of Littlejohns Creek	Jack Tone Road	950	53.1
North Branch of Littlejohns Creek	Jack Tone Road	800	55.0
Littlejohns Creek	Van Allen Road	1,750	85.1

OCUR ON AN AVE OF SINCE EVERY 10 TO 15 YEARS

Service Sect.

REGISTERED MAIL  
Return Receipt  
Requested

SPKKO-P 824.3(Littlejohn Cr.)

19 JUN 1952

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

Gentlemen:

Reference is made to letter from this office dated 24 August 1951, wherein it was proposed to transfer to the jurisdiction of the State of California completed units of work pertaining to the Farmington Flood Control Project on Littlejohn Creek near Farmington, California. Reference is also made to the joint inspection of these units of work which was made on 12 September 1951 and to letter from this office dated 15 October 1951, outlining additional work to be performed at the request of local interests. The work, now completed, is described as follows:

- a. Construction of a diversion channel from Duck Creek to Littlejohn Creek, including a diversion structure, dikes and related works.
- b. Channel clearing along Littlejohn Creek from the lower end of the diversion channel, at Station 50/14, downstream to the Southern Pacific Railroad Bridge, at Station 10/10, at Farmington, California.

The work referred to above has been performed in accordance with Specification No. 1491 and Drawings Nos. CA-2-13-101, CA-2-25-102, and 50-4-1825, and meets with the requirements of the Flood Control Project for the Calaveras River and Littlejohn Creek and Tributaries, which is covered in House Document No. 545, 78th Congress, 2nd Session, approved by the Flood Control Act of 22 December 1944. Therefore, said work is hereby transferred to the State of California for maintenance and operation.

Ass. No. 75-A

SPKCO-P 824.3 (Littlejohn Dr.)  
The Reclamation Board

The maintenance work required 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 unit of work 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, C. of E.  
So. Pac. Divn. Engr.  
State Engineer

R. A. Reifsnryder  
Lt. Colonel, Corps of Engineers  
Executive Officer

cc: Engineering Div.  
Stockton Field Off.  
C. de Arrieta

C O P Y

THE RECLAMATION BOARD  
OF THE  
STATE OF CALIFORNIA  
1100 "O" Street  
SACRAMENTO 14, CALIFORNIA

July 3, 1952

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

Dear Sir:

Reference your letter SPKKO-P 824.3 (Littlejohn Cr.) dated 19 June 1952, in which letter you transferred to the State of California for maintenance and operation the completed units of work pertaining to the Farmington Flood Control Project on Littlejohn Creek near Farmington consisting of a diversion channel from Duck Creek to Littlejohn Creek, including a diversion structure, dikes and related works, and channel clearing along Littlejohn Creek from the lower end of the diversion channel, Station 50 + 14, downstream to the Southern Pacific Railroad Bridge at Station 10 + 10.

The Reclamation Board accepted said transfer, for maintenance and operation of the project as outlined, and it is requested that you furnish this office with sufficient copies of the maintenance manual covering the work in order that we may provide the maintenance agency with two copies and have one available in this office.

Yours very truly

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

/s/ S. A. HONAKER  
Assistant Secretary

SAH:emw  
cc: State Engineer

Unit No. 75-A