

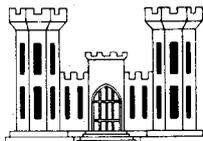
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SERIAL NO.

**EAST WEAVER CREEK
LOCAL FLOOD PROTECTION PROJECT
TRINITY COUNTY**

**OPERATION AND MAINTENANCE
MANUAL**

AUGUST 1966



**U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA**

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FOREWORD

This manual has been prepared by the District Engineer, U.S. Army Engineer District, San Francisco, Corps of Engineers, to acquaint responsible local interests with the requirements of maintaining the levee system, including riprap protection, drainage culverts and miscellaneous structures completed by the Corps of Engineers in October 1963 and repaired in October 1965. Timely effective maintenance is required to assure the continuation of beneficial results from the work.


FRANK C. BOERGER
Lt. Colonel, CE
District Engineer

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LOCAL FLOOD PROTECTION PROJECT
OPERATION AND MAINTENANCE
MANUAL**

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OPERATION AND MAINTENANCE MANUAL

LOCAL FLOOD PROTECTION PROJECT EAST WEAVER CREEK WEAVERVILLE, TRINITY COUNTY, CALIFORNIA

INTRODUCTION

1. AUTHORIZATION

The East Weaver Creek Flood Control Project was authorized under the authority contained in Section 205 of the Flood Control Act, approved 30 June 1948, as amended by Public Law 685, 84th Congress, adopted 11 July 1956. The project was approved for construction by the Office of the Chief of Engineers' 2d Indorsement dated 10 July 1962 to the Detailed Project Report, East Weaver Creek, Trinity County, California (Public Law 685) dated 6 February 1962.

2. LOCATION

The East Weaver Creek project is located at Weaverville in Trinity County, California, near where U.S. Highway 299 crosses the creek about 50 miles northwest of Redding. The East Weaver Creek basin drains approximately 14 square miles, joining with the west branch a short distance below the bridge on U.S. Highway 299 to form a tributary of the Trinity River, which it enters at Douglas City, California, about six miles south of Weaverville. The Trinity River in turn, is a tributary of the Klamath River. A vicinity map of the basin is shown as Sheet 1 of the Appendix. East Weaver Creek Basin proper varies in elevation from 2,000 to 7,500 feet mean sea level, over a stream distance of nine miles.

3. PROJECT DESCRIPTION

The project consists of channel improvements as shown on the appended plans Sheets 1 through 13, File 101-45-17. The downstream end of the project is at Station 7+00, approximately 250 feet downstream from the present U.S. Highway 299 Bridge. This is a new 86-foot triple-span bridge which replaces the former 12-foot by 9-foot triple box culvert and has a cross section capable of passing the project flood discharge. Beginning at Station 7+00 and continuing upstream to Station 30+00, the creekbed has been realigned and improved to provide a trapezoidal channel. Levees have been constructed on both banks, beginning at Station 7+00 on the right bank. The improved trapezoidal channel extends from Station 7+00 to Station 27+00, has a uniform bottom width of 40 feet and 1 vertical on 3 horizontal channel side slopes, extending to form the streamside slopes

of the levees. Both levees have a crown width of 12 feet, with landside slope of 1 vertical on 2 $\frac{1}{2}$ horizontal. From Station 27+00 to Station 30+00 the channel bottom flares to meet the natural bottom width and both levees tie into high ground at Station 31+65 on the centerline of the channel. Riprap was required both on the channel bottom and side slopes from Station 8+46 to Station 26+00 due to expected high velocities of flow within the confined channel, 36 inches thick on bottom and 24 inches thick on both side slopes. A bedding layer was not required since the channel and both side slopes are sand and gravel. From Station 26+00 to Station 31+65 the existing channel bottom is bedrock and only the side slopes of channel and levees are protected by riprap.

In the upper reaches of the project above Station 31+65, the natural channel is such that only two short levee sections on the left bank were required, at low areas to prevent flanking of the improved channel. A short break was repaired at Station 37+00 on the centerline referred to as Offset Levee "A" on the appended plans. This section is not riprapped. Offset Levee "B", constructed between Stations 38+33 and 43+33, also was not riprapped as it is exposed to velocities of 6 feet per second or less. Since the setback levee (Offset Levee "C") constructed between Stations 50+70 and 54+00 will be exposed to velocities of up to 15 feet per second, a 24 inch layer of riprap was provided. The upper end of the project is at Station 54+04.

ACCOMPLISHMENT OF WORK

4. COMPLETION

Work on the project was initiated in May 1963 and the completed protective works were turned over to Trinity County for operation and maintenance in November 1963. The flood of December 1964 caused erosion of riprap and slopes at isolated points. Under the provisions of Public Law 99 the project was restored to its original condition as shown on the appended plans. The restoration was completed in October 1965 and turned over to Trinity County for operation and maintenance.

LOCAL COOPERATION

5. ASSURANCE OF COOPERATION

The Board of Supervisors of the County of Trinity, on 4 October 1960, passed Resolution No. 35-60 relating to the East Weaver Creek Flood Control Project (Exhibit B) wherein they agreed to meet all conditions of local cooperation of the project and will:

a. Provide, without cost to the United States, all lands, easements and rights-of-way necessary for construction of the project.

b. Hold and save the United States free from damages due to the construction works.

c. Maintain and operate all works after completion in accordance with regulations prescribed by the Secretary of the Army.

d. Rebuild or improve all bridges and culverts in the project reach. Relocate all utilities that might interfere with project construction and future operation. The work to be accomplished in accordance with plans approved by the Chief of Engineers. In lieu of performing the required construction, contribute in cash the cost of making these modifications and relocations.

e. Prevent any encroachment on the project channels which might interfere with their functioning for flood control.

f. Contribute in cash prior to initiation of construction, an amount of money required to prevent federal expenditures for the project from exceeding the \$400,000 statutory limitation under Public Law 685, 84th Congress, 2d Session, or in lieu thereof, perform construction equivalent to that amount in accordance with plans approved by the Chief of Engineers.

MAINTENANCE AND OPERATION

6. PURPOSE

The purpose of this manual is to assist the responsible local authorities in carrying out their obligations through provision of information and advice as to the operation and maintenance requirements of the project. The appended construction plans are included as an aid in proper maintenance and should be adhered to.

7. REGULATIONS

Section 208.10, Title 33 of the Code of Federal Regulation contains rules for the maintenance and operation of local flood protection works approved by the Secretary of the Army in accordance with authority contained in Section 3 of the Flood Control Act of 22 June 1936, as amended and supplemented. A copy of the complete regulations will be found in Exhibit A. Compliance with these regulations is one of the requirements of local cooperation. Applicable portions of the regulations are as follows:

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 ~~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 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 semi-annual 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, to assist them in carrying out their obligations under these regulations."

e. Proposed Improvements or alterations. Drawings or prints of proposed improvements or alterations to the existing Flood Control Works must be submitted for approval to the District Engineer, U.S. Army Engineer District, San Francisco, Corps of Engineers, San Francisco, California, sufficiently in advance of the proposed construction to permit adequate study and consideration of the work. The Trinity County Road Department shall review all proposed plans of improvement for appropriateness and assurance that the improvements are located on the plans with proper reference to project centerline station. This review will be accomplished prior to submittal to the District Engineer. Drawings or prints, in duplicate, showing any improvements or alterations as finally constructed should be furnished to the District Engineer, U.S. Army Engineer District, Corps of Engineers, after completion of work.

9. LEVEES

Inspection and maintenance of levees shall be in accordance with paragraph 208.10 (a) General, (see paragraph 7 of this manual) and 208.10 (b) which states:

"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 exterminate burrowing animals, and to provide for routine 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 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) Drains through the levees and gates on said drains are in good working condition;
- (v) No revetment work or riprap has been displaced, washed out, or removed;
- (vi) Access roads to and on the levee are being properly maintained;
- (vii) Cattle guards and gates are in good condition;

(viii) Crown of levee is shaped so as to drain readily, and roadway thereon, if any, is well shaped and maintained;

(ix) There is no unauthorized vehicular traffic on the levees;

(x) 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 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 contingences. Immediate steps will be taken to control any condition which endangers the levee and to repair the damaged section."

Compliance with the provisions prescribed is essential for the efficient maintenance of the levee system and the successful operation of the project. Check lists suggested under Exhibit C should be used in each inspection to insure that no feature of the protective works are overlooked. Items requiring maintenance should be noted thereon; if items are found satisfactory they should be so indicated by a check.

10 DRAINAGE STRUCTURES

Inspection and maintenance of drainage structures shall be in accordance with paragraph 208.10 (a) General, (see paragraph 7 of this manual) and 108.10 (d) which states:

"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 at least once each year. Periodic inspections shall be made by the Superintendent to be certain that:

(I) Pipes, gates, operating mechanism, riprap, and head-walls 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 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."

Levee failure 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.

11. CHANNELS AND FLOODWAYS

Inspection and maintenance of channels and floodways shall be in accordance with paragraph 208.10 (a) General, (see paragraph 7 of this manual) and 208.10 (g) which states:

"Channel 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 are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works."

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank slopes.

(2) Operation. The bank of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. 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 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 banks, riprap, drainage outlets, or other flood control structures repaired.

12. MISCELLANEOUS FACILITIES

Inspection, maintenance and operation of miscellaneous facilities shall be in accordance with paragraph 208.10 (a) General, (see paragraph 7 of this manual) and 208.10 (h) which states:

"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 repaired or replaced without delay. The superintendent shall take proper steps to prevent restriction of bridge openings.

(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."

METHODS OF COMBATting FLOOD CONDITIONS

13. SUGGESTED METHODS

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 District Engineer, U.S. Army Engineer District, San Francisco, Corps of Engineers, San Francisco, California, 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.

a. Levees. A levee is in possible danger whenever there is water against it. This danger varies with the height of the water, the duration of the flood stage, and the intensity of the current. A well-constructed levee of proper section should, if maintained and not overtopped, 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. Exhibit D, Plates 1 - 5 are attached to aid in flood emergency construction.

b. Premeditated Damage. The Superintendent should continually guard against premeditated damage to the levee.

c. Security. Personnel of the Corps of Engineers, U.S. Army, 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. In the event local law enforcement agencies prove inadequate, local interests can request the aid of State Forces, and if additional support becomes necessary, Federal troops can be requested as provided by law.

d. Human element. Panic does not directly endanger the levee, but psychological fear due to ignorance of actual conditions may seriously affect the high-water fight during a critical moment. This fact may be considered in organization for emergency work. Confidence, engendered by an efficient organization, free from local jealousies, is the best guard against panic.

REVISION COPY

e. Inspection of Flood Control Works. As soon as heavy rains that could result in flood flows is forecast, the Superintendent should form a skeleton organization, capable of quick expansion, and assign individuals (Sector Foremen) 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:

- (1) Sector limits; ascertain that the dividing line between sectors is plainly determined and, if necessary, marked.
- (2) Condition of new levees and recent repairs.
- (3) Condition of culverts, flap gates.
- (4) Transportation facilities; roads and rail.
- (5) Material supply; quantity, location, and condition.
- (6) Communications; locate and check all necessary telephones in the sector.

f. 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:

- (1) Fill up holes or washes in the levee crown and slopes. 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.
- (2) 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.
- (3) Repair and close all flap gates on culverts and see that they are seated properly before they are covered with flood waters.
- (4) 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.
- (5) Locate necessary tools and materials (sacks, sandbags, brush, lumber, lights, etc.), and distribute and store the same at points where active maintenance is anticipated.

(6) Check and obtain repair of all telephone lines necessary for operation, obtain lists of all team forces, motorcars, and truck transportation that can be made available.

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

(8) Investigate all drainage ditches on the landside of the levee and open these drains when obstructions exist.

(9) Remove all dynamite and explosives of any kind from the vicinity of the levee.

g. Disaster Relief. It is the responsibility of local, state, and 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.

h. Flood fight. After the above preliminary organization and precautions have been completed, the "Flood fight" itself commences. The methods of combatting 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.

(1) Sandboils. These danger spots are serious if discharging material. The common method of controlling sand boils consists of walling up a watertight sack ring around the boil up to a height necessary to reduce the velocity of flow to a point at which material is no longer discharged from the boil. See Exhibit D 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.

(2) Scours. A careful observation should be made of the riverside of the levee at all localities where high current velocities are observed. Trouble may be looked for at road-crossing ramps and places where pipes, sewers and other structures penetrate the levee. The approved method to check scours or erosion on the slope is to dump large rock (100 to 500 pounds) as soon as the erosion becomes evident.

i. Topping. Immediate consideration should be given the grade line of each levee section by comparison of existing grades with those shown on the appended drawings. 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 Engineer, U.S. Army Engineer District, San Francisco, Corps of Engineers, San Francisco, California, as follows:

(1) Sack topping. Sack topping may be used to raise the crown of the levee about three feet. The sacks should generally 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 1/4-inch either way and well mauled into place. When properly sacked and tamped, one sack will give about three to four inches of topping. See Exhibit D, Plate 4.

(2) 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 the 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 D, Plate 5.

j. Transportation. In 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.

k. Check lists. The inspection list in Exhibit C is furnished for reproduction and use by the local interests as a check list for inspections and also for use in making the required semi-annual reports. This list should be used in each inspection to insure that no feature of the protective system is overlooked. Items requiring repairs should be noted thereon; if items are satisfactory, they should be indicated as such.

l. Use of Government Plant. The District Engineer, U.S. Army Engineer District, San Francisco, Corps of Engineers, 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.

m. Flood Emergency Manual. The most recent "Flood Emergency Manual" published by the U.S. Army Engineer District, San Francisco, Corps of Engineers, should be used to supplement the information furnished in this Operation and Maintenance Manual.

Title 33—Navigation and Navigable Waters

Chapter II—Corps of Engineers

Part 208—Flood Control Regulations

Sec.

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

§ 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, to 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 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.

(c) *Closure structures—(1) Maintenance.* Closure structures for traffic openings shall be inspected by the superintendent every 90 days to be certain that:

(i) No parts are missing;

(ii) Metal parts are adequately covered with paint;

(iii) All movable parts are in satisfactory working order;

(iv) Proper closure can be made promptly when necessary;

(v) Sufficient materials are on hand for the erection of sand bag closures and that the location of such materials will be readily accessible in times of emergency.

Tools and parts shall not be removed for other use. Trial erections of one or more closure structures shall be made once each year, alternating the structures chosen so that each gate will be erected at least once in each 3-year period. Trial erection of all closure structures shall be made whenever a change is made in key operating personnel. Where railroad operation makes trial erection of a closure structure infeasible, rigorous inspection and drill of operating personnel may be substituted therefor. Trial erection of sand bag closures is not required. Closure materials will be carefully checked prior to and following flood periods, and damaged or missing parts shall be repaired or replaced immediately.

(2) *Operation.* Erection of each movable closure shall be started in sufficient

time to permit completion before flood waters reach the top of the structure sill. Information regarding the proper method of erecting each individual closure structure, together with an estimate of the time required by an experienced crew to complete its erection will be given in the *Operation and Maintenance Manual* which will be furnished local interests upon completion of the project. Closure structures will be inspected frequently during flood periods to ascertain that no undue leakage is occurring and that drains provided to care for ordinary leakage are functioning properly. Boats or floating plant shall not be allowed to tie up to closure structures or to discharge passengers or cargo over them.

(f) *Pumping plants—(1) Maintenance.* Pumping plants shall be inspected by the Superintendent at intervals not to exceed 30 days during flood seasons and 90 days during off-flood seasons to insure that all equipment is in order for instant use. At regular intervals, proper measures shall be taken to provide for cleaning plant, buildings, and equipment, repainting as necessary, and lubricating all machinery. Adequate supplies of lubricants for all types of machines, fuel for gasoline or diesel powered equipment, and flash lights or lanterns for emergency lighting shall be kept on hand at all times. Telephone service shall be maintained at pumping plants. All equipment, including switch gear, transformers, motors, pumps, valves, and gates shall be trial operated and checked at least once every 90 days. Megger tests of all insulation shall be made whenever wiring has been subjected to undue dampness and otherwise at intervals not to exceed one year. A record shall be kept showing the results of such tests. Wiring disclosed to be in an unsatisfactory condition by such tests shall be brought to a satisfactory condition or shall be promptly replaced. Diesel and gasoline engines shall be started at such intervals and allowed to run for such length of time as may be necessary to insure their serviceability in times of emergency. Only skilled electricians and mechanics shall be employed on tests and repairs. Operating personnel for the plant shall be present during tests. Any equipment removed from the station for repair or replacement shall be returned or replaced as soon as practicable and shall be trial operated after reinstallation. Repairs requiring removal of equipment from the plant shall be made during off-flood seasons insofar as practicable.

(2) *Operation.* Competent operators shall be on duty at pumping plants whenever it appears that necessity for pump operation is imminent. The operator shall thoroughly inspect, trial operate, and place in readiness all plant equipment. The operator shall be familiar with the equipment manufacturers' instructions and drawings and with the "Operating Instructions" for each station. The equipment shall be operated in accordance with the above-mentioned "Operating Instructions" and care shall be exercised that proper lubrication is being supplied all equipment, and that no overheating, undue vibration or noise is occurring. Immediately upon final recession of flood waters, the pumping station shall be thoroughly cleaned, pump house sumps flushed, and equipment thoroughly inspected, oiled and greased. A record or log of pumping plant operation shall be kept for each station, a copy of which shall be furnished the District Engineer following each flood.

(g) *Channels and Floodways—(1) Maintenance.* Periodic inspections of improved channels and floodways shall be made by the Superintendent to be certain that:

(i) The channel or floodway is clear of debris, weeds, and wild growth;

(ii) The channel or floodway is not being restricted by the depositing of waste materials, building of unauthorized structures or other encroachments;

(iii) The capacity of the channel or floodway is not being reduced by the formation of shoals;

(iv) Banks are not being damaged by rain or wave wash, and that no sloughing of banks has occurred;

(v) Riprap sections and deflection dikes and walls are in good condition;

(vi) Approach and egress channels adjacent to the improved channel or floodway are sufficiently clear of obstructions and debris to permit proper functioning of the project works.

Such inspections shall be made prior to the beginning of the flood season and otherwise at intervals not to exceed 90 days. Immediate steps will be taken to remedy any adverse conditions disclosed by such inspections. Measures will be taken by the Superintendent to promote the growth of grass on bank slopes and earth deflection dikes. The Superintendent shall provide for periodic repair and cleaning of debris basins, check dams, and related structures as may be necessary.

(2) *Operation.* Both banks of the channel shall be patrolled during periods of high water, and measures shall be taken to protect those reaches being attacked by the current or by wave wash. Appropriate measures shall be taken to prevent the formation of jams of ice or 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 banks, riprap, deflection dikes and walls, drainage outlets, or other flood control structures repaired.

(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 repaired or replaced without delay. Areas used for ponding in connection with pumping plants or for temporary storage of interior run-off during flood periods shall not be allowed to become filled with silt, debris, or dumped material. The Superintendent shall take proper steps to prevent restriction of bridge openings and, where practicable, shall provide for temporary raising during floods of bridges which restrict channel capacities during high flows.

(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.

(Sec. 3, 49 Stat. 1571, as amended; 33 U. S. C. 701c) [9 F. R. 9999, 10203]

**RESOLUTION
OF THE BOARD OF SUPERVISORS
OF THE COUNTY OF TRINITY**

RESOLUTION NO. 35-60 RELATING TO THE EAST WEAVER CREEK FLOOD CONTROL PROJECT

WHEREAS, the Corps of Engineers of the United States Army is preparing to develop final construction plans and specifications for the East Weaver Creek Flood Control Project upon receipt of assurances satisfactory to the Secretary of the Army that local interests will meet the conditions of local cooperation on said project;

NOW, THEREFORE, IT IS HEREBY RESOLVED, ORDERED AND DECLARED that in connection with said project the County of Trinity will:

(a) Provide, without cost to the United States, all lands, easements and rights-of-way necessary for construction of the project.

(b) Hold and save the United States free from damages due to the construction works.

(c) Maintain and operate all the works after completion in accordance with regulations prescribed by the Secretary of the Army.

(d) Rebuild or improve all bridges and culverts in the project reach. Relocate all utilities that might interfere with project construction and future operation. The work to be accomplished in accordance with plans approved by the Chief of Engineers. In lieu of performing the required construction, contribute in cash the cost of making these modifications and relocations.

(e) Prevent any encroachment on the project channels which might interfere with their functioning for flood control.

(f) Contribute in cash prior to initiation of construction, an amount of money required to prevent federal expenditures for the project from exceeding the \$400,000 statutory limitation under Public Law 685, 84th Congress, 2d Session, or in lieu thereof, perform construction equivalent to that amount in accordance with plans approved by the Chief of Engineers.

Resolution of the Board of Supervisors of the County of Trinity
Resolution No. 35-60 relating to the East Weaver Creek
Flood Control Project (continued)

Adopted in regular session, assembled this 4th day of October 1960.

s/ John K. McDonald
Supervisor - 1st District

s/ George K. Loomis
Supervisor - 2d District

s/ Ralph D. Hollinger
Supervisor - 3d District

s/ Lloyd L. McKnight
Supervisor - 4th District

s/ Roy H. Gallagher
Supervisor - 5th District

NOES: None
ABSENT: None
ATTEST:

s/ Marion Keesling
County Clerk and Ex-Officio Clerk
of the Board of Supervisors, County
of Trinity, State of California

EXHIBIT C SHEET 1 OF 3

SEMI-ANNUAL REPORT FOR
INSPECTION, MAINTENANCE, AND OPERATION OF
FLOOD CONTROL PROJECT
EAST WEAVER CREEK, TRINITY COUNTY, CALIFORNIA

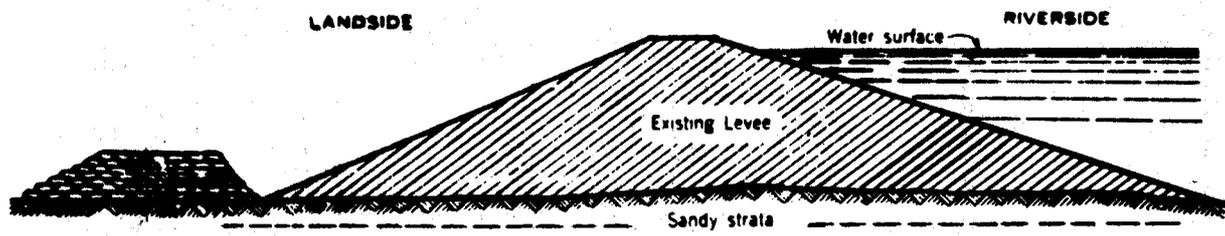
Period from _____
to _____

Submitted by _____
Date _____

INSPECTION

ITEM NO.	FEATURE	LOCATION AND EXTENT OF MAINTENANCE REQUIRED
1	Settlement, sloughing, or loss of grade	
2	Graveled roadway on crown of levee	
3	Access road ramps	
4	Fences and gates	
5	Erosion of levee slopes	
6	Riprap	
7	Seepage	
8	Weeds or undesirable vegetation	
9	Accumulation of drift, trash, or debris	
10	Animal burrows	
11	Unauthorized grazing or traffic	
12	Unauthorized encroachment on rights-of-way	
13	Unauthorized excavation and loose backfill	
14	Drainage culverts	
15	Channel	

EXHIBIT D PLATE 1

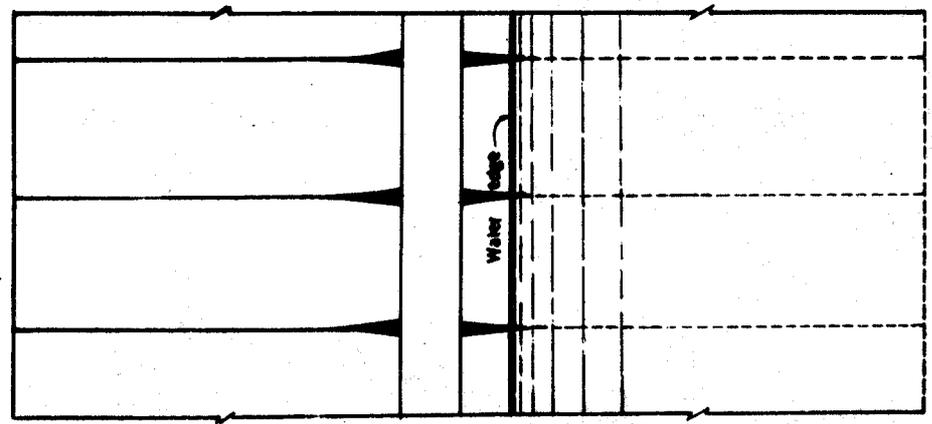
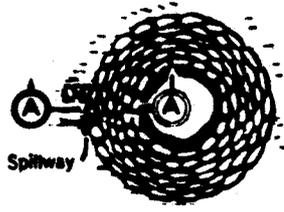


Note:
 Bottom width to be no less than 1 1/2 times height
 Be sure to clear sand discharge
 Tie into levee if boil is near toe.

ELEVATION



SECTION A-A



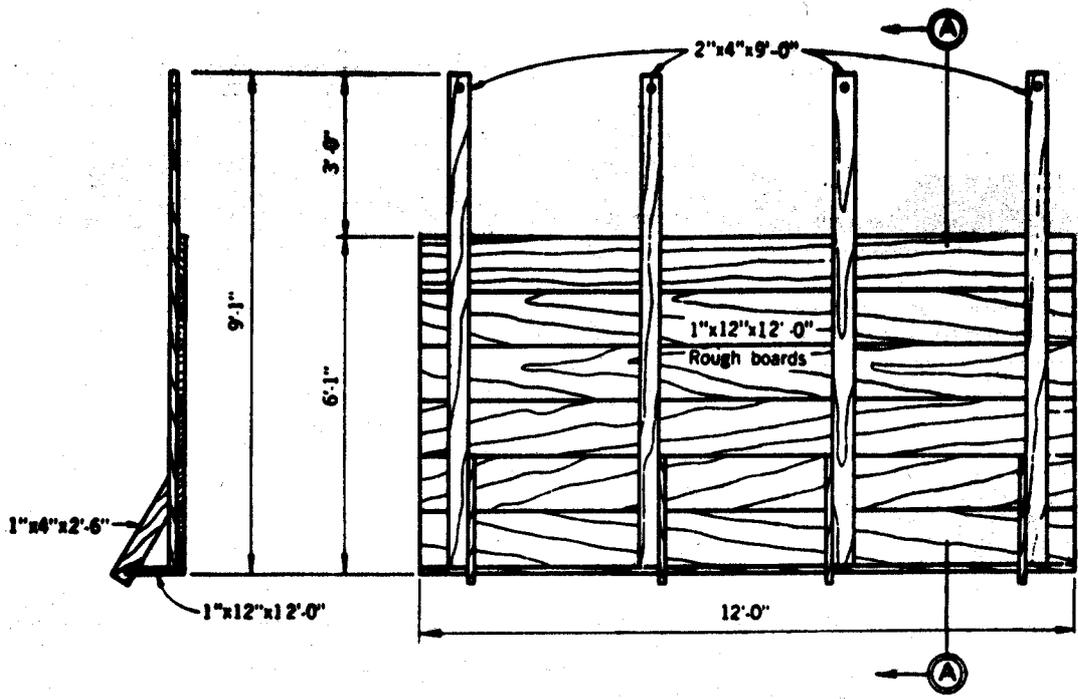
PLAN

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.

**FLOOD EMERGENCY
 CONSTRUCTION**

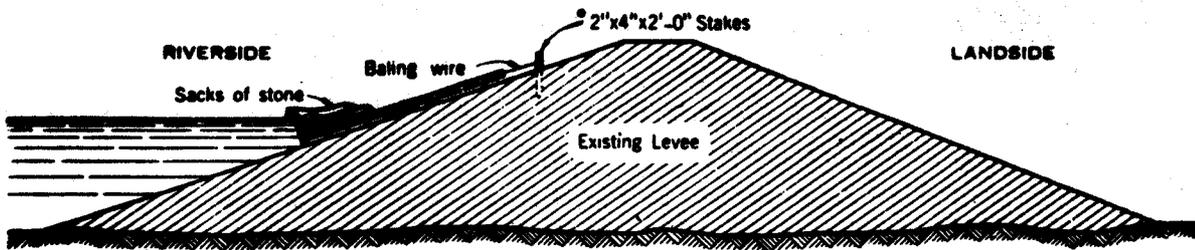
CONTROL OF SAND BOILS

U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
 CORPS OF ENGINEERS
 SAN FRANCISCO, CALIFORNIA



SECTION A-A

PLAN

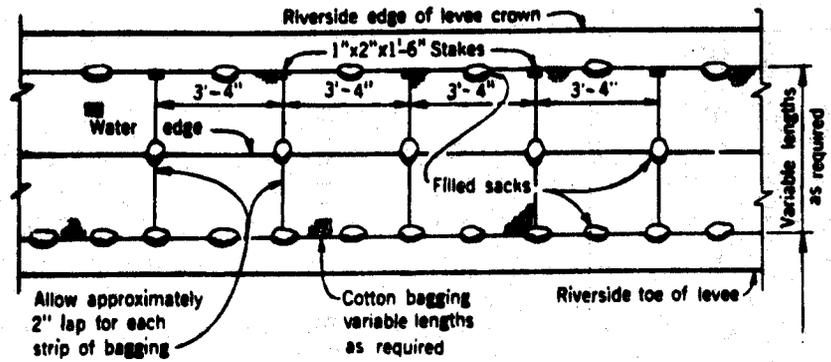


SECTION

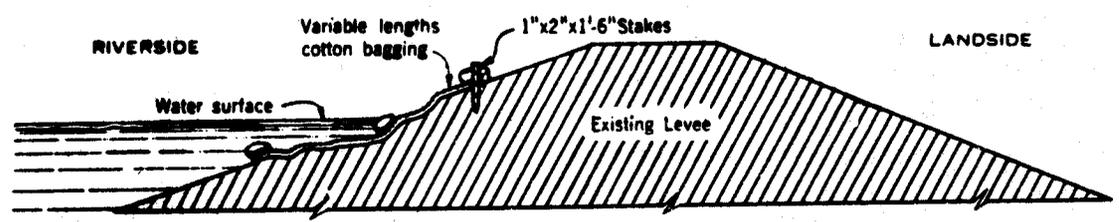
BILL OF MATERIAL FOR 100 FEET	
LUMBER	
56 pieces	1"x12"x12'-0"
32 pieces	1"x4"x2'-6"
32 pieces	2"x4"x9'-0"
• 32 pieces	2"x4"x2'-0"
•	(Sharpened)
WIRE	
200'	baling wire
NAILS	
4 1/2 lbs.	8d nails

**FLOOD EMERGENCY
 CONSTRUCTION**
**MOVABLE
 WAVE WASH PROTECTION**
 U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
 CORPS OF ENGINEERS
 SAN FRANCISCO, CALIFORNIA

FLOOD CONTROL



PLAN



SECTION

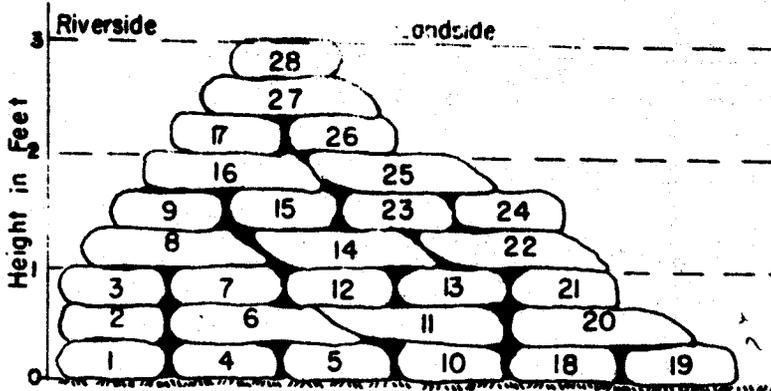
Note:
 Lay lengths as required of cotton bagging approximately parallel with levee slope and across damaged section. Weight top and edges of bagging with filled sacks as shown above. The filled sacks should be wired or tied to each strip before laying in place. Stake the corners of each strip above water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

MATERIAL REQUIRED FOR 100 LINEAR FEET OF LEEVE
LUMBER
<ul style="list-style-type: none"> ∨ 30 Stakes 1"x2"x1'-6" ∗ (Sharpened)
SANDBAGS
<ul style="list-style-type: none"> 120 sand bags Cotton bagging as required

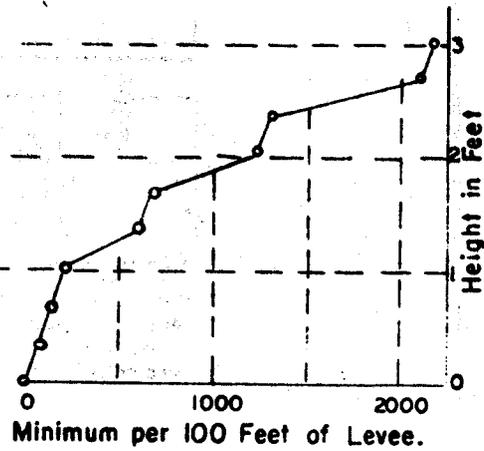
**FLOOD EMERGENCY
 CONSTRUCTION**

WAVE WASH PROTECTION

 U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
 CORPS OF ENGINEERS
 SAN FRANCISCO, CALIFORNIA



SANDBAG LEVEE CROSS SECTION



NUMBER OF SANDBAGS

Notes:

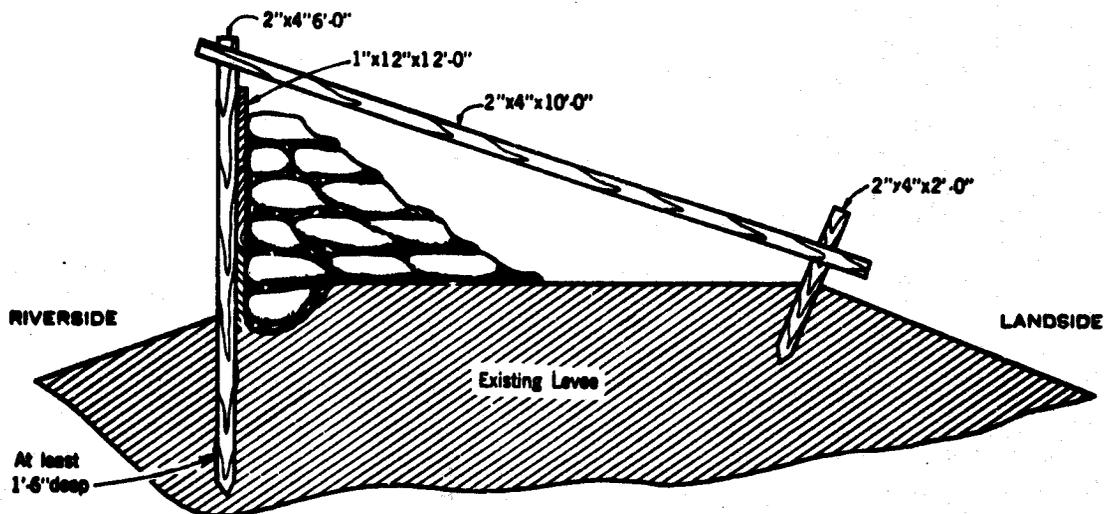
1. Entire base to be cleared and scarified.
2. Best material for filling sandbags is a fine sand or coarse silt. Avoid, as much as possible, the use of coarse gravel and heavy clays.
3. Fill sandbags 1/2 to 2/3 full, 50 to 60 pounds, and leave enough flap to turn under. Do not tie.
4. Numbers shown on the sandbags are for the general order of placing the sandbags to give the highest protection with the minimum number of sandbags.
5. When bags are placed, flatten out and fill voids by mashing bags with feet and vigorously tramping each course of the levee section. Provide a levee section as impervious to water as possible. Alternate direction of sacks and stagger joints wherever practical.
6. The above section is based upon an average in place sandbag section of 4" x 12" x 18".

**FLOOD EMERGENCY
CONSTRUCTION**

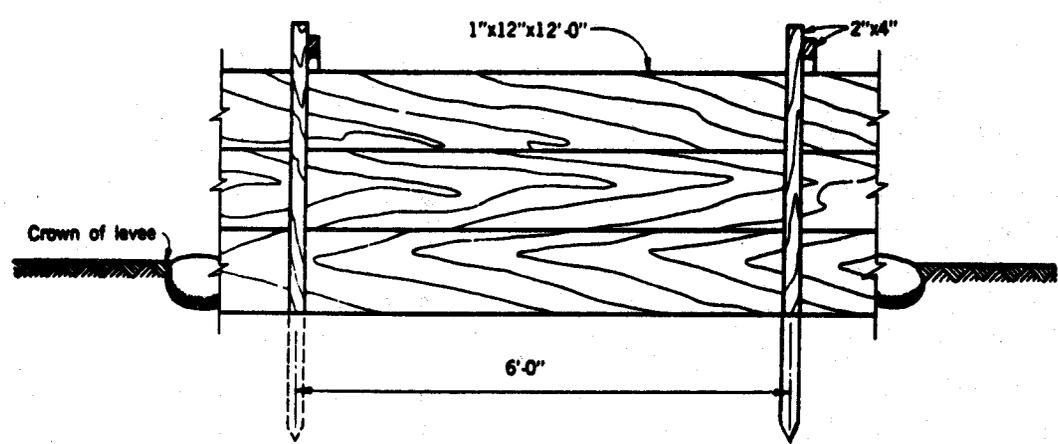
SACK TOPPING

U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

10000-10000



SECTION



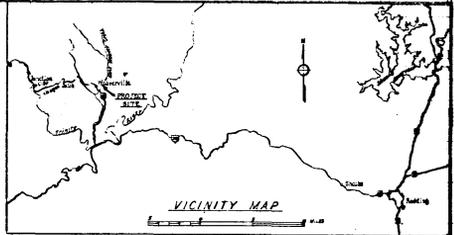
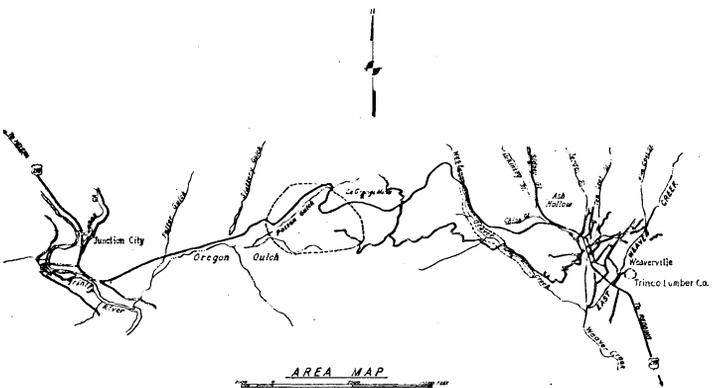
FRONT ELEVATION

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

**FLOOD EMERGENCY
CONSTRUCTION**

LUMBER AND SACK TOPPING

U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO
CORPS OF ENGINEERS
SAN FRANCISCO, CALIFORNIA

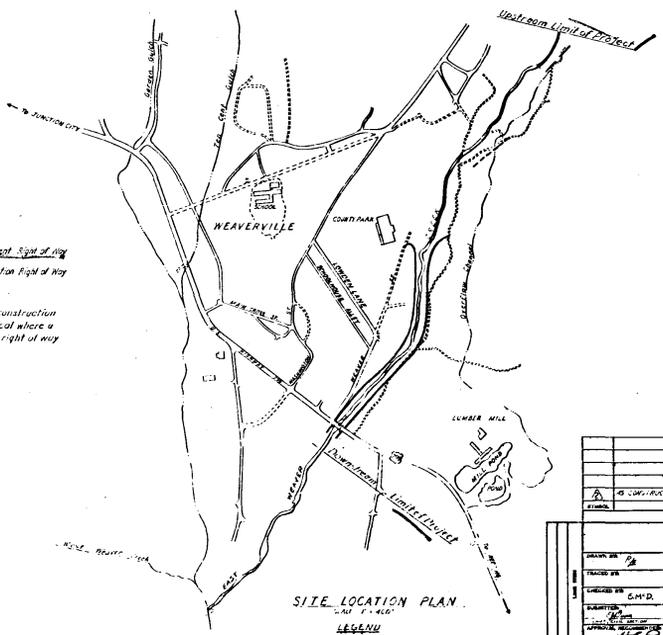


DRAWING NO.		SHEET NO.	TITLE OF DRAWINGS
101-45-17	1	1	AREA MAP, VICINITY MAP, SITE LOCATION PLAN & SCHEDULE OF DRAWINGS
101-45-17	2	2	PLAN AND PROFILE STA. 1+00 TO STA. 2+00
101-45-17	3	3	PLAN AND PROFILE STA. 2+00 TO STA. 3+00
101-45-17	4	4	PLAN AND PROFILE STA. 3+00 TO STA. 4+00
101-45-17	5	5	PLAN AND PROFILE STA. 4+00 TO STA. 5+00
101-45-17	6	6	CROSS SECTIONS STA. 1+00 TO STA. 2+00
101-45-17	7	7	CROSS SECTIONS STA. 2+00 TO STA. 3+00
101-45-17	8	8	CROSS SECTIONS STA. 3+00 TO STA. 4+00
101-45-17	9	9	CROSS SECTIONS STA. 4+00 TO STA. 5+00
101-45-17	10	10	CROSS SECTIONS STA. 5+00 TO STA. 6+00
101-45-17	11	11	TYPICAL SECTIONS & DETAILS
101-45-17	12	12	COLVERT DETAILS
101-45-17	13	13	COLVERT DETAILS

LEGEND

- Permanent Right of Way
- Construction Right of Way

NOTE:
The permanent and construction right of way are identical where a separate construction right of way is not shown.



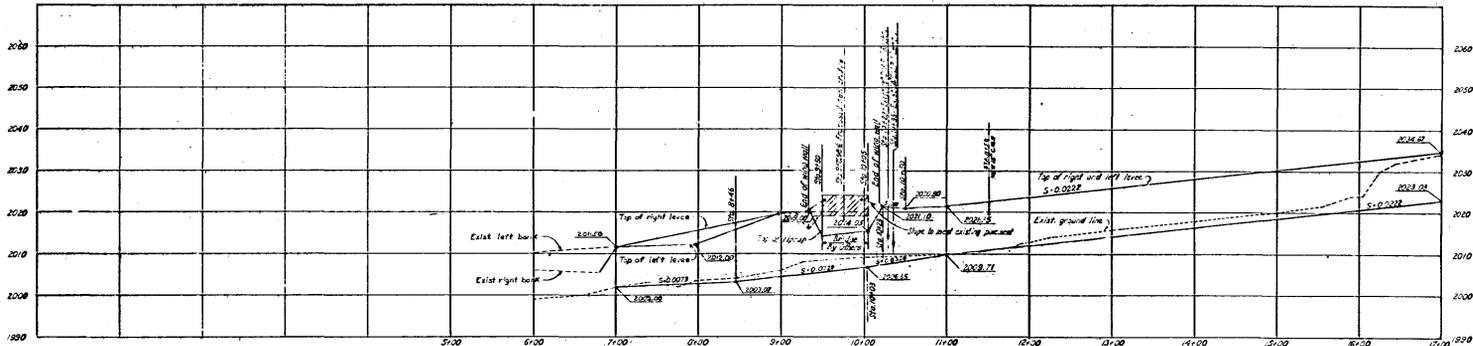
SITE LOCATION PLAN
SCALE 1" = 400'

LEGEND
 Unimproved Road Lanes
 Improved Road Lanes
 Other Road Lanes
 Other Road Lanes

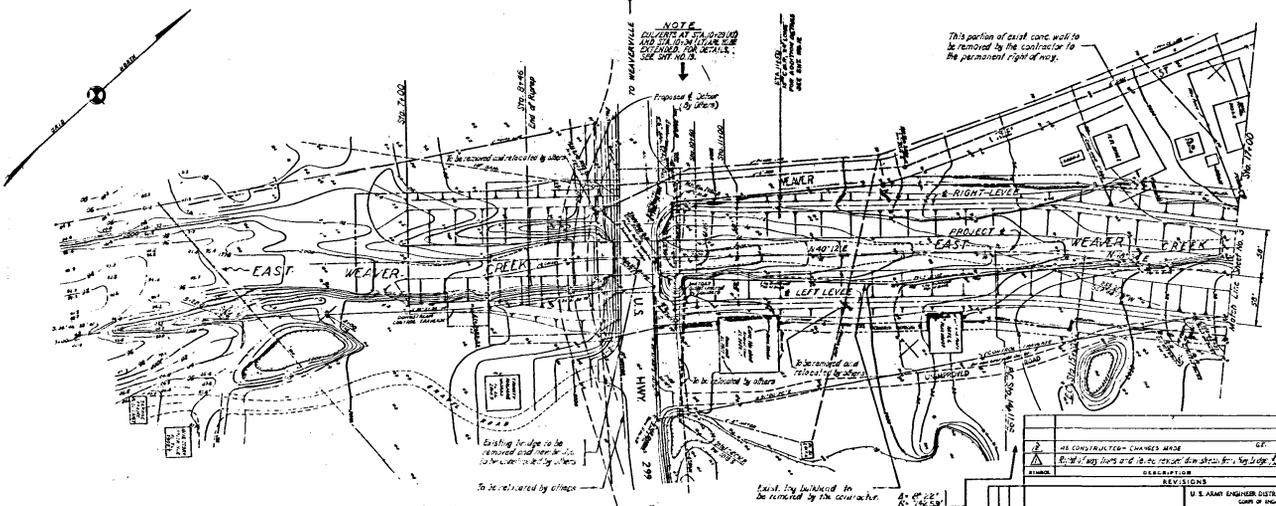
NO CORRECTIONS OR CHANGES MADE		DATE	APPROVED
REVISIONS		DATE	APPROVED
U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO			
CORP. OF ENGINEERS SAN FRANCISCO, CALIFORNIA			
DRAWN BY	DESIGNED BY	CHECKED BY	DATE
TRACED BY	PROJECT NO.	PROJECT NAME	DATE
APPROVED BY	PROJECT NO.	PROJECT NAME	DATE
PREPARED UNDER THE DIRECTION OF COLONEL, C.E., DISTRICT ENGINEER			
SHEET 1		101 45 17	

EWEL01 0037

ELEVATIONS IN FEET - M.S.L.



PROFILE - PROJECT #
 Scale: Horiz. 1" = 50'
 Vert. 1" = 10'



PLAN
 Scale: 1" = 50'

NOTE:
 EXCESS EXCAVATION MAY BE DISPOSED OF BY
 WHEEDING TOP OF LEFT BANK LEVEE AND 2
 STRIPS PROVIDED FOR PLEACE REMAINS
 WITHIN RIGHT OF WAY

NO. 1	AS CONSTRUCTION CHANGED MAKE	OK	3/21/44	F. C. B.
NO. 2	REVISIONS			
NO. 3	REVISIONS			
NO. 4	REVISIONS			
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NO. 99	REVISIONS			
NO. 100	REVISIONS			

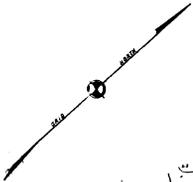
1. Property from plane survey of June 1st and Feb 1st 1943, 266
 and record by title which dated 11 June 1929 and 10 June 1933
 2. Elevation on basis of old datum of Mean Sea Level

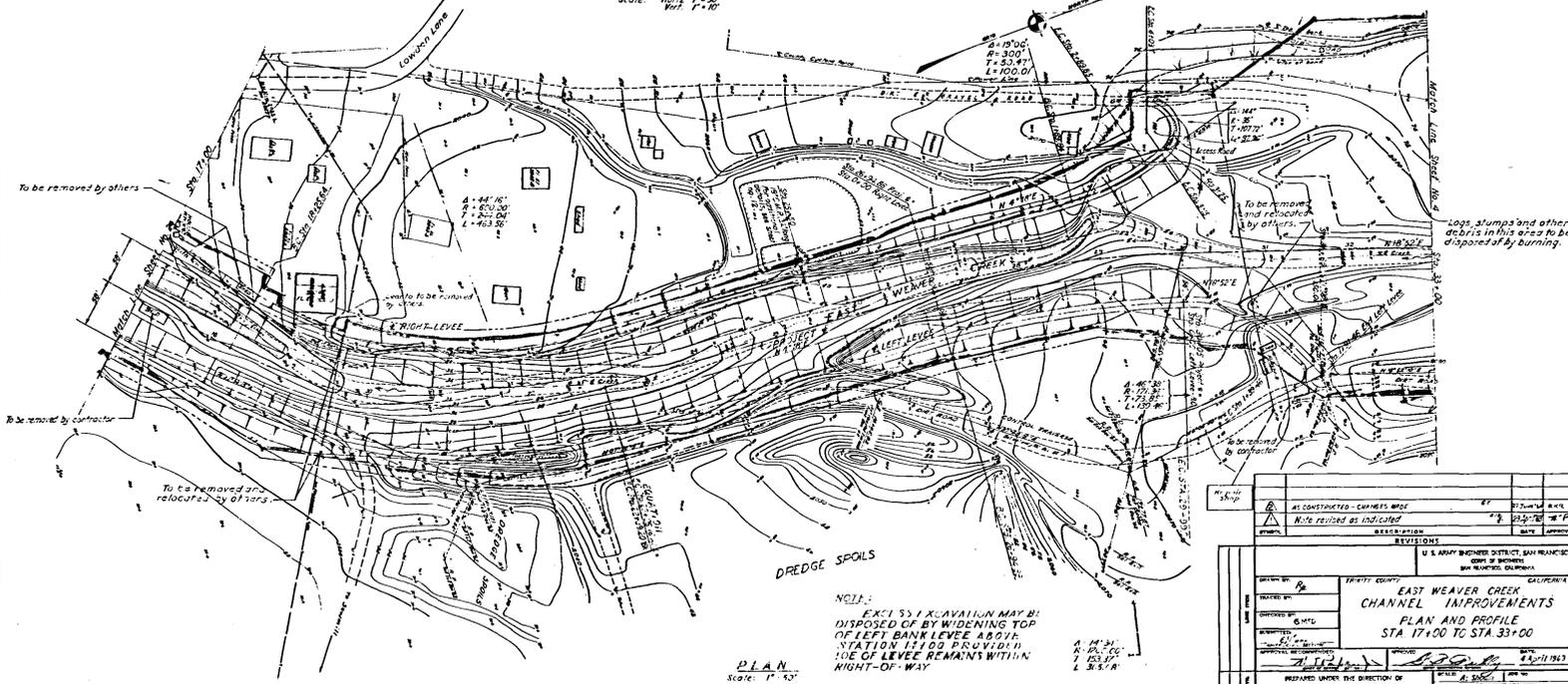
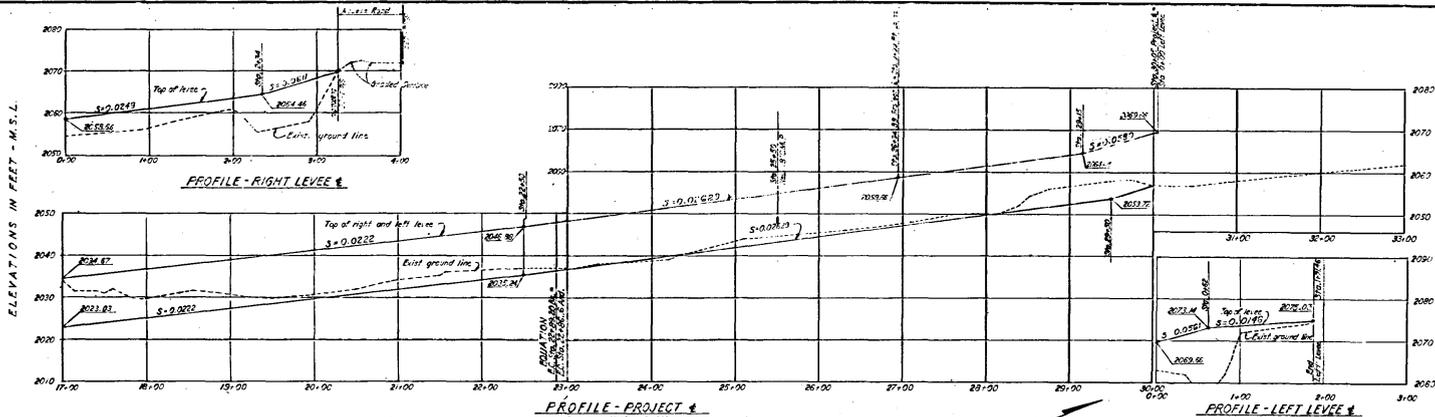
Exist. by indicated on
 the contract by the contractor. A-40-281
 P-1-143-259
 P-1-143-259
 L-1-108-44

To be retained by others
 To be removed by others

This portion of exist canal wall to
 be removed by the contractor to
 the permanent right-of-way.

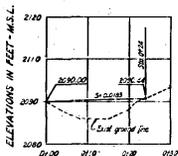
NOTE
 EXISTING AT STA. 10100 TO
 10200 TO BE REMOVED
 BY CONTRACTOR FOR DETAILS,
 SEE CONTRACT DRAWINGS.



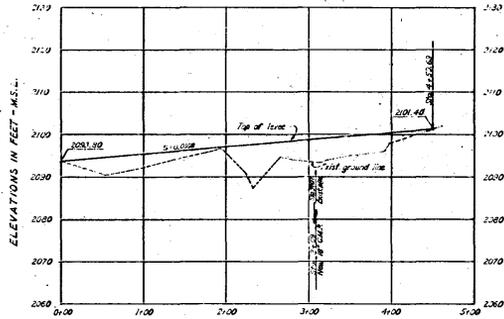


AS CONSTRUCTED - CHANGES MADE	BY	DATE	BY	DATE
NOTE: Revised as indicated				
APPROVED	DESCRIPTION	DATE	APPROVAL	
REVISIONS				
U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO OFFICE OF RECORDS SAN FRANCISCO, CALIFORNIA				
EAST WEAVER CREEK CHANNEL IMPROVEMENTS PLAN AND PROFILE STA 17+00 TO STA 33+00				
DESIGNED BY	PROJECT COUNTY	CALIFORNIA	DATE	8-20-1963
DRAWN BY				
CHECKED BY				
APPROVED BY				
PREPARED UNDER THE DIRECTION OF COLONEL C. E. DISTRICT ENGINEER				
DRAWING NUMBER 3 101 43 17				

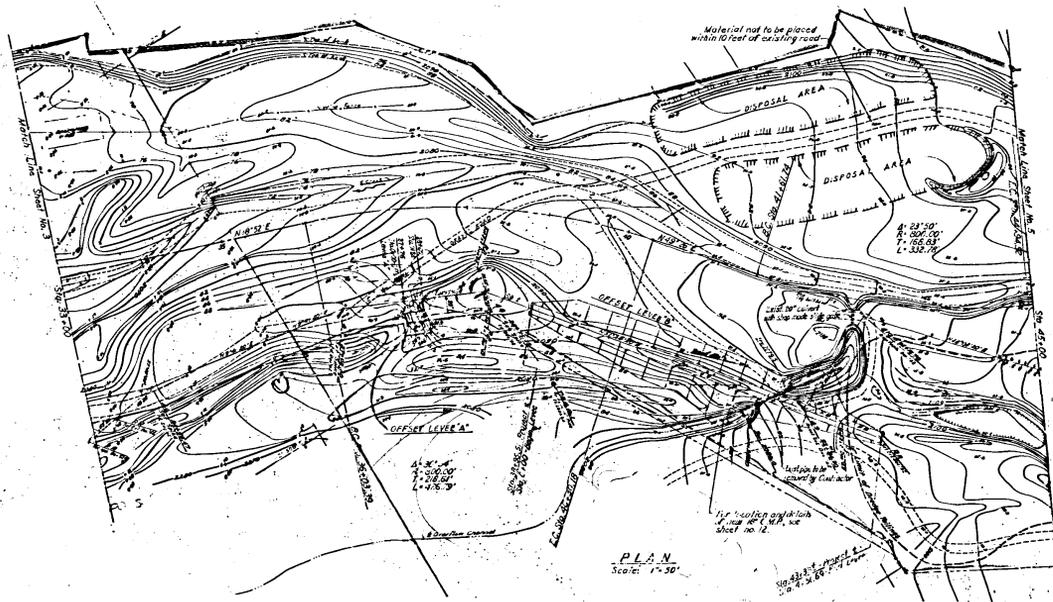
EWEL01 0041



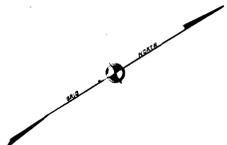
PROFILE & OFFSET LEVEL 'A'
Scale: Horiz. 1"=10'
Vert. 1"=10'



PROFILE & OFFSET LEVEL 'B'
Scale: Horiz. 1"=30'
Vert. 1"=10'

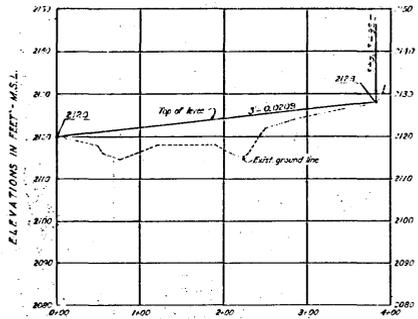


PLAN
Scale: 1"=30'

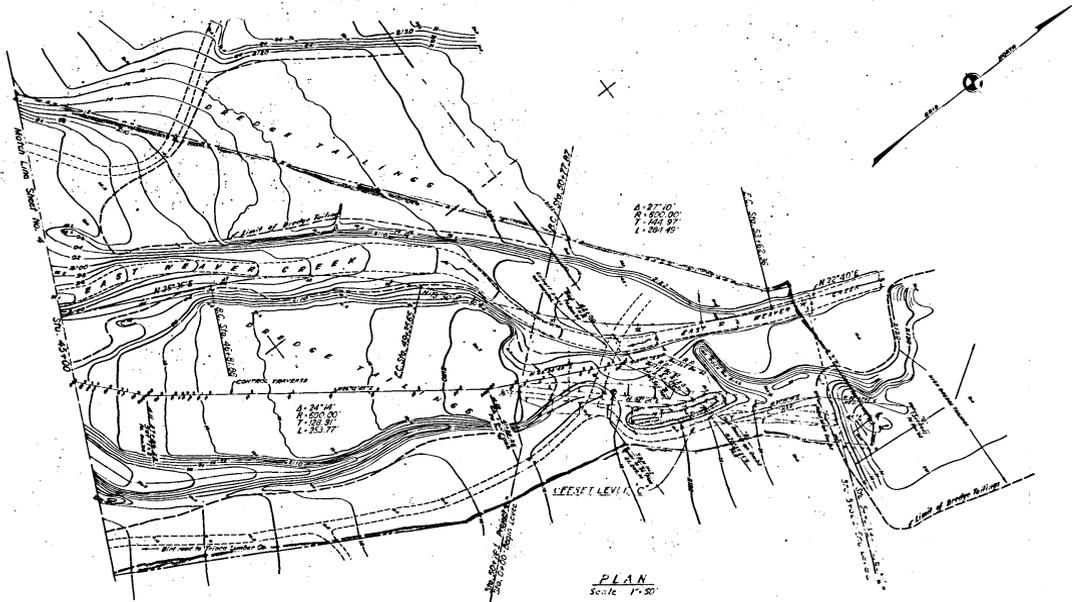


AS CONSTRUCTED - NO CHANGE MADE		DATE	BY
PLAN OF '01' LEVEL 'B' SHOWN IN PLAN		DATE	BY
REVISION	DESCRIPTION	DATE	APPROVED
U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO OFFICE OF CHIEF ENGINEER SAN FRANCISCO, CALIFORNIA			
PROJECT NO.	TRAVEL COUNTY	CALIFORNIA	
STATIONED BY	EAST WEAVER CREEK CHANNEL IMPROVEMENTS		
DESIGNED BY	PLAN AND PROFILE		
CONSTRUCTED BY	STA. 33+00 TO STA. 45+00		
DATE	APPROVED	DATE	BY
PREPARED UNDER THE DIRECTION OF	CHIEF ENGINEER	DATE	BY
COOKING, E. C., DISTRICT ENGINEER	DATE	BY	BY

EW101 0043

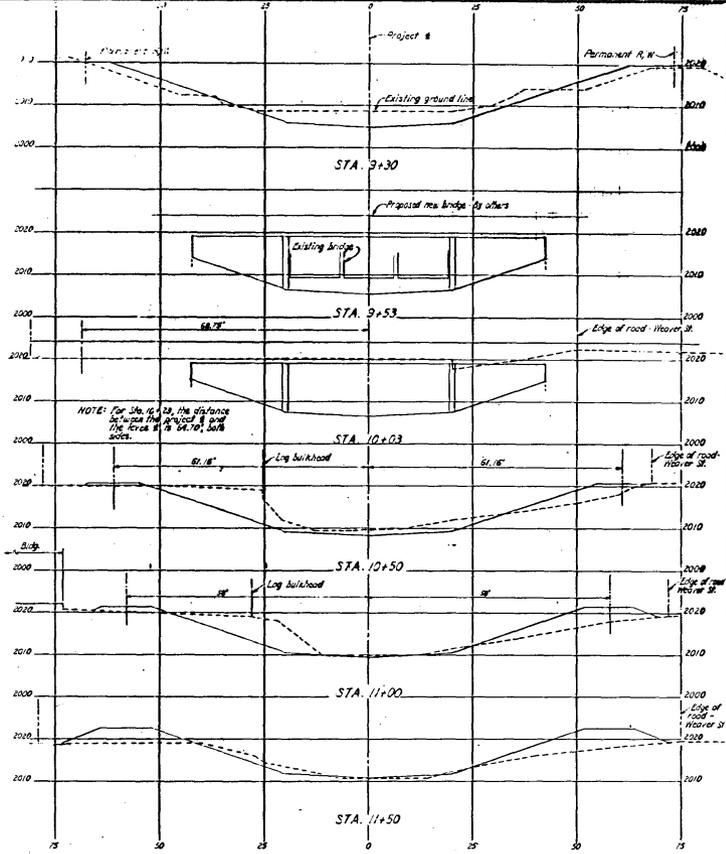
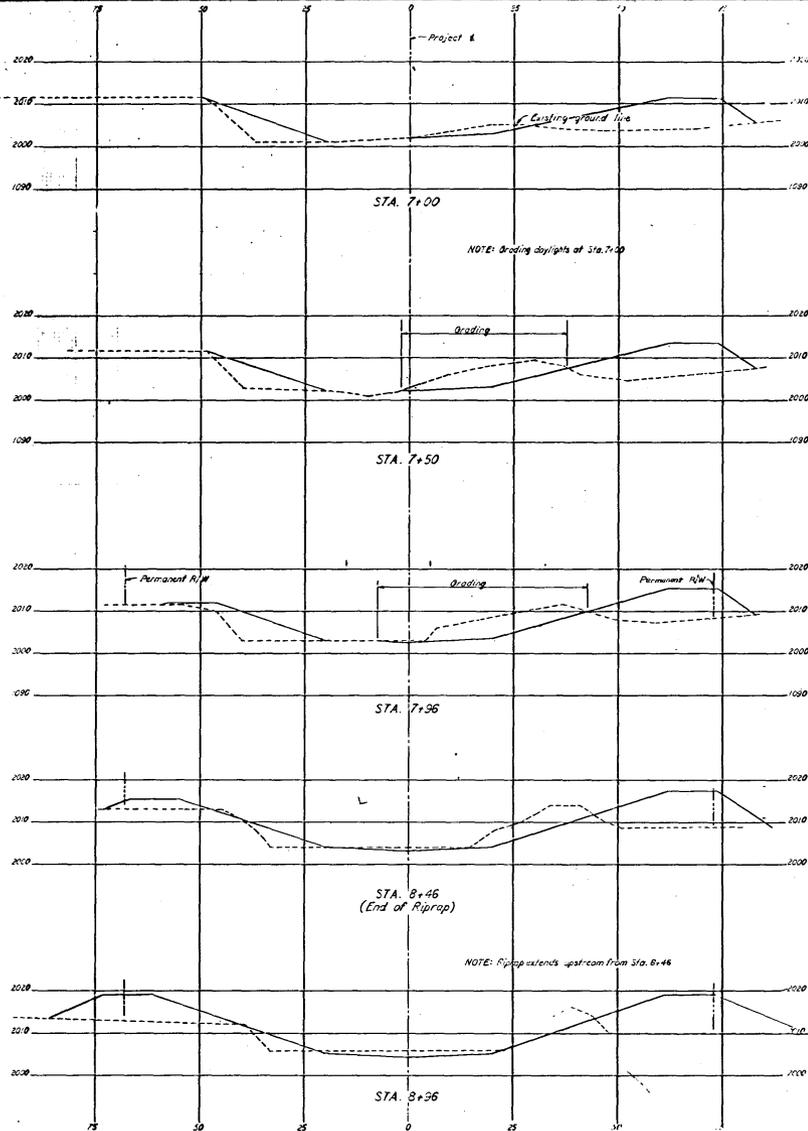


PROFILE - OFFSET LEVEL C
 Scale, Horz. 1"=50'
 Vert. 1"=20'



PLAN
 Scale 1"=50'

DESIGNED BY: [Signature]		CHECKED BY: [Signature]	
DRAWN BY: [Signature]		SCALE: AS SHOWN	
DATE: 3/11/43		JOB NO. 101 45 17	
PREPARED UNDER THE DIRECTION OF COLONEL C.E. DISTRICT ENGINEER			
U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO OFFICE OF CHIEF ENGINEER SAN FRANCISCO, CALIFORNIA		EAST WEAVER CREEK CHANNEL IMPROVEMENTS PLAN AND PROFILE STA 45+00 TO STA 54+00	
PROJECT: [Blank]		SHEET: 5 OF 5	

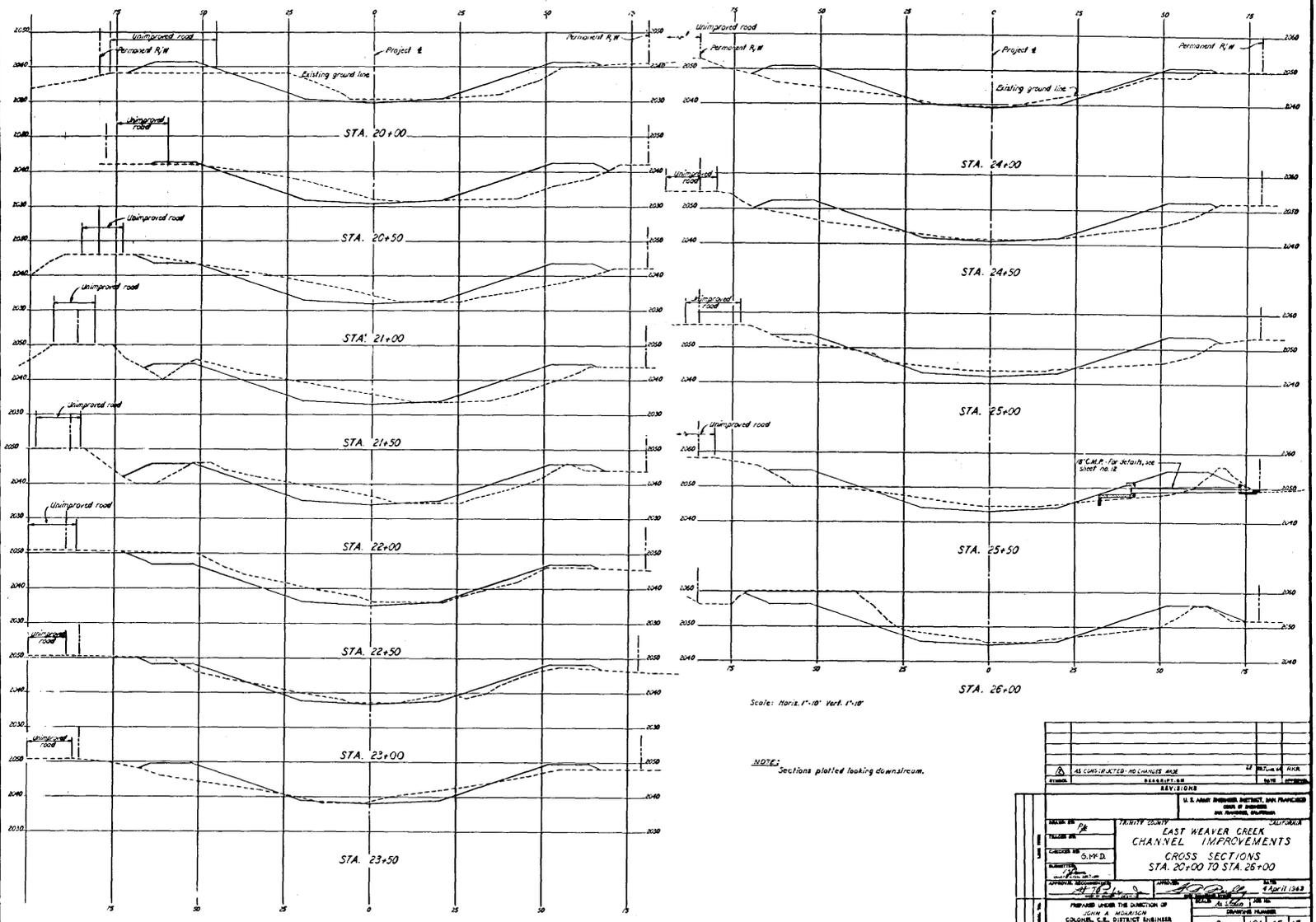


Scale: Horiz. 1" = 10' Vert. 1" = 10'

NOTES:
1. Location and construction of embankment to rough right bank between Sta. 7+00 to Sta. 8+36 and at the structure locations to be subject to future work to be done. Sta. 8+36 to Sta. 8+46 is to be rough grade (rough) for channel bottom and slope with the intent of this project.
2. We have placed bulkhead downstream.

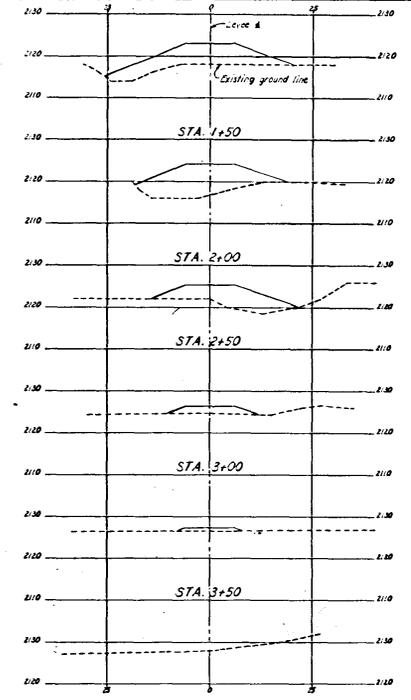
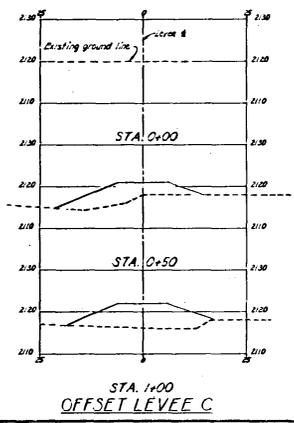
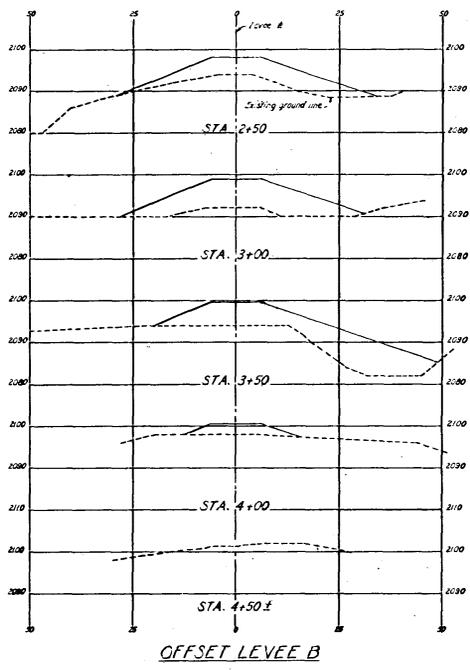
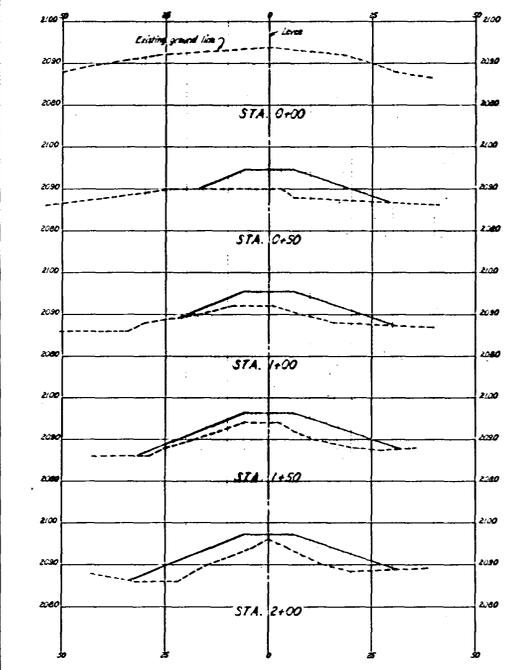
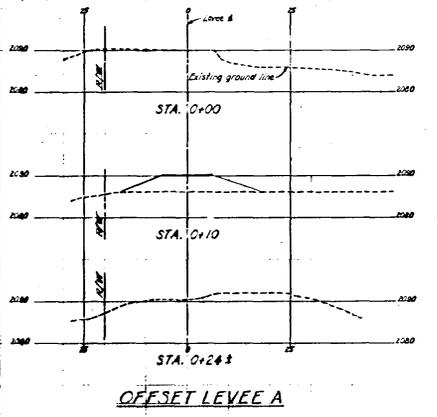
AS CONSTRUCTED - CHANGES MADE DATE OF DEPOSIT 35 8 1914 BY THE DISTRICT ENGINEER		DATE 11 21 1914	DRAWN BY J. H. ...
REVISIONS			
SHEET NO. 56	TRINITY COUNTY	U. S. ARMY ENGINEER DISTRICT SAN FRANCISCO OFFICE OF ENGINEERS SAN FRANCISCO, CALIFORNIA	
PROJECT NO. 53412	EAST WEAVER CREEK CHANNEL IMPROVEMENTS CROSS SECTIONS STA. 7+00 TO STA. 11+50		
DATE 4 April 1913	PREPARED UNDER THE DIRECTION OF COLONEL C. R. DISTRICT ENGINEER		
SHEET 6	101	45	17

EWEL01 0049



AS CONSTRUCTED - NO CHANGES MADE		12	REVISION
REVISION		DATE	BY
U. S. ARMY DISTRICT ENGINEER, SAN FRANCISCO DISTRICT			
SAN FRANCISCO DISTRICT			
PROJECT NO.	1471	PROJECT TITLE	EAST WEAVER CREEK CHANNEL IMPROVEMENTS
SECTION NO.	5147	DATE	10/11/43
DESIGNED BY	W. J. BROWN	CHECKED BY	W. J. BROWN
APPROVED BY	W. J. BROWN	DISTRICT ENGINEER	W. J. BROWN
DATE	10/11/43	BY	W. J. BROWN
PREPARED UNDER THE DIRECTION OF	W. J. BROWN	DATE	10/11/43
COLONEL A. McGUIRE	DISTRICT ENGINEER	DATE	10/11/43
NO. 8	101	45	17

EWEL01 0053



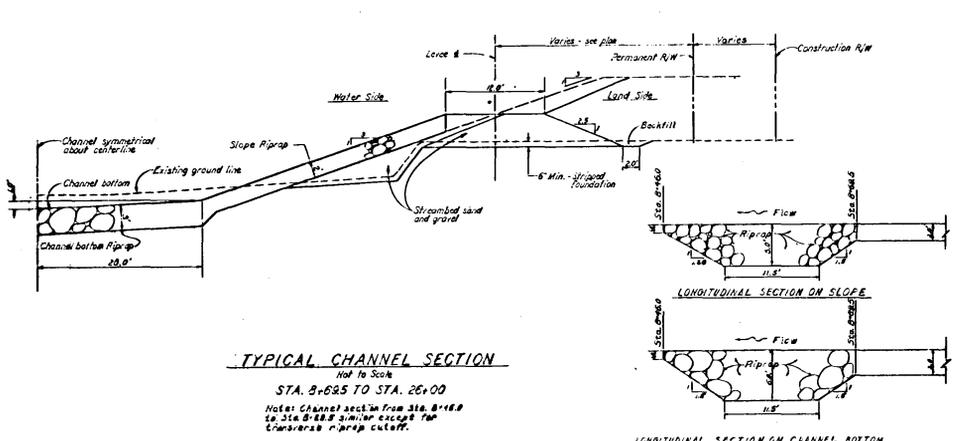
STA. 3+82±
OFFSET LEVEL C

Scale: Horiz. 1"=10' Vert. 1"=10'

NOTE: Sections plotted looking downstream.

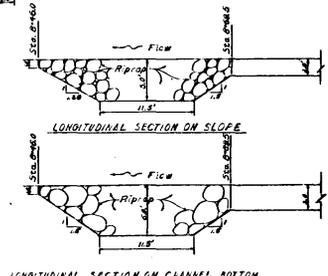
AS COMPLETED - NO CHECKS MADE		DATE	BY
REVISIONS		DATE	BY
U. S. ARMY DISTRICT, SAN FRANCISCO			
EAST HEAVER CREEK			
CHANNEL IMPROVEMENTS			
CROSS SECTIONS			
OFFSET LEVELS			
PROJECT NO.	25	DATE	4 April 1942
DESIGNED BY	SHD	PLANNED BY	SHD
CHECKED BY	SHD	APPROVED BY	SHD
PREPARED UNDER THE DIRECTION OF		COLONEL, U. S. DISTRICT ENGINEER	
DRAWN BY		DATE	
NO. 10		101 45 17	

EWELO1 0085



TYPICAL CHANNEL SECTION

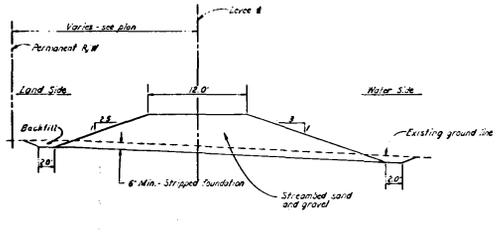
Not to Scale
 STA. 8+685 TO STA. 26+00
 Note: Channel section from Sta. 8+685 to Sta. 8+688 is similar except for transverse riprap cutoff.



LONGITUDINAL SECTION ON CHANNEL BOTTOM

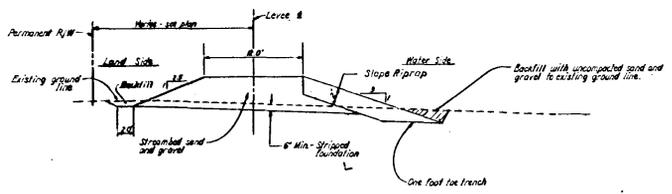
RIPRAP CUTOFF

Scale: 1"=5'
 STA. 8+600 TO STA. 8+685



TYPICAL SECTION - LEVEES A & B (UNREVETTED)

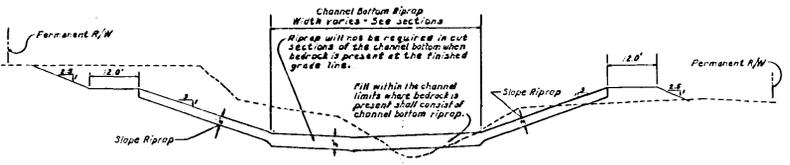
Not to Scale



TYPICAL SECTION - LEVEL C (REVETTED)

Not to Scale

Note: Levees between Sta. 26+50 & 3+65 shall conform to the above section where channel bottom construction does not affect the toe and where bedrock is encountered. When bedrock is not encountered or if the toe riprap layer shall be covered to a depth of 5 ft. below the existing ground line and backfilled as shown above.



TYPICAL CHANNEL SECTION

Scale: Horiz. 1"=10' Vert. 1"=10'
 STA. 26+00 TO STA. 30+00

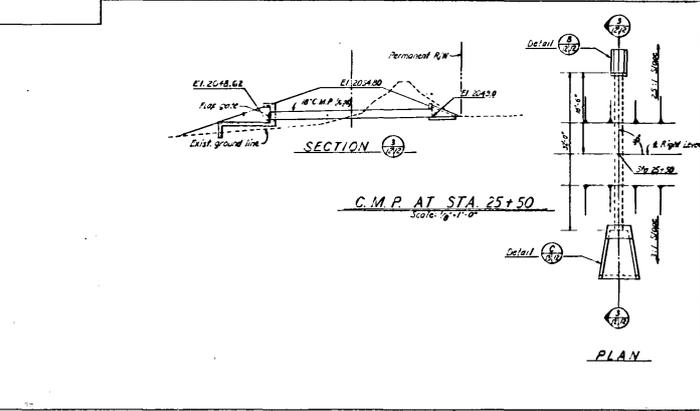
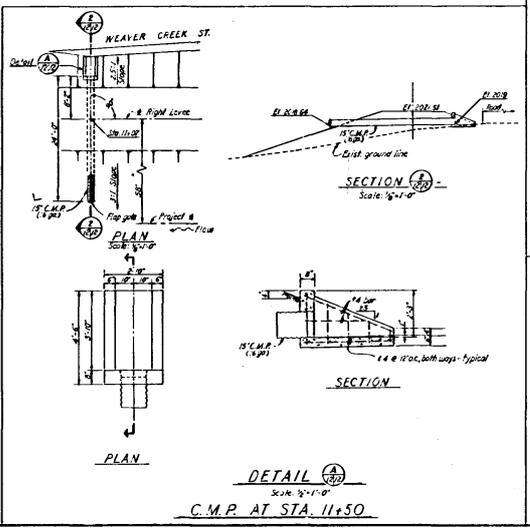
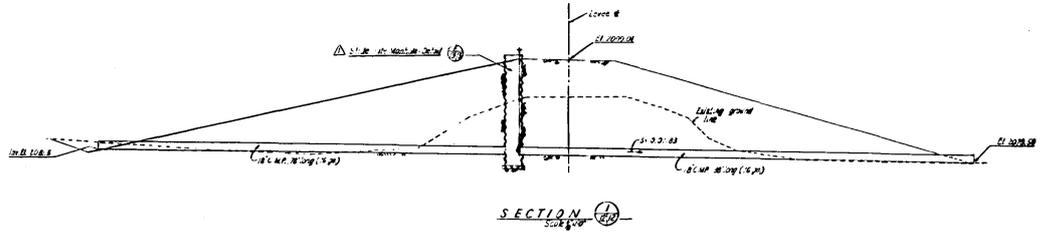
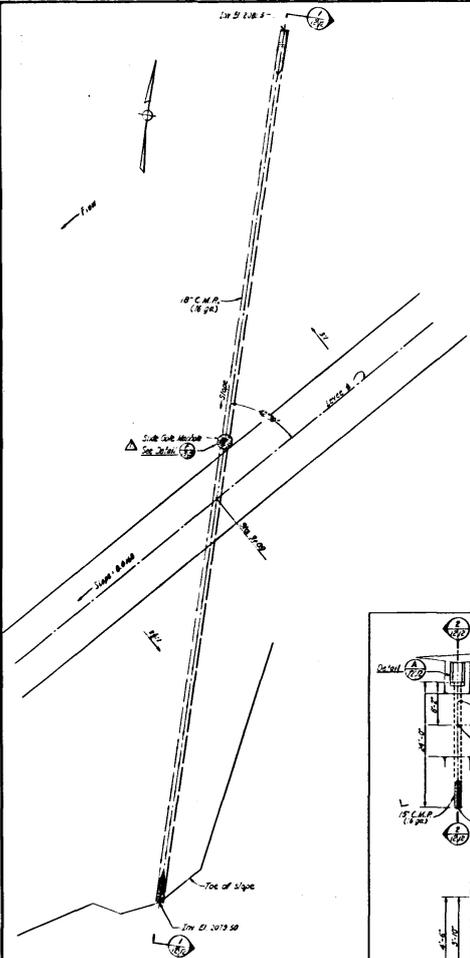
Note: Shaped channel bottom varies from full width at Sta. 26+50 to existing ground line at approx. Sta. 30+00

NOTE

All stationing shown on this sheet is Project Centerline stationing.

AS CONSTRUCTED - NO CHANGES MADE		DATE	BY
SUBMITTED FOR REVIEW		DATE	BY
APPROVED	DESCRIPTION	DATE	BY
U. S. ARMY ENGINEER DISTRICT, SAN FRANCISCO DISTRICT ENGINEER			
DESIGNED BY	PROJECT COUNTY	DATE	BY
TRACED BY	EAST HEAVER CREEK	4.8.56	WJL
CHECKED BY	CHANNEL IMPROVEMENTS		
DRAWN BY	TYPICAL SECTIONS & DETAILS		
SCALE	AS SHOWN	DATE	BY
APPROVED UNDER THE DIRECTION OF	DATE	BY	DATE
COLUMER, C. L. DISTRICT ENGINEER	4.8.56	WJL	4.8.56
DATE	BY	DATE	BY
11	701	45	17

EWELO1 0057



DATE	BY	CHECKED	APPROVED	DATE
U.S. ARMY ENGINEER DISTRICT SAN FRANCISCO EAST WEAVER CREEK CHANNEL IMPROVEMENTS CULVERT DETAILS				
PREPARED UNDER THE DIRECTION OF COLONEL C.E. DISTRICT ENGINEER				
REVISIONS				DATE 12 April 1963
DRAWING NUMBER 101 45 17				SHEET NO. 12

