SPECIFICATIONS FOR EARTHEN DAM

Date Sept. 21, 1951

Name of Dam Cole & Forrester... Location: Sec. 7 A S, Tp. 4 S., R 3 W.

Owner (s) E. P. Cole & Loyd Forrester Willamette Meridian

D.L.C.: Franklin Martin D..

DIMENSIONS

1. Height of Dam ..... 38 feet
2. Width of Dam, at top ..... 18 feet
3. Length of Dam, at top ..... 327 feet
4. Length of Dam, at bottom ..... 25 feet
5. Slope downstream ..... 2 to 1
6. Slope upstream ..... 2.5 to 1
7. Depth of water at Dam ..... 34 feet
8. Area under water ..... 10 Acres
9. Capacity of Reservoir ..... 122 Acre feet

SOURCE OF WATER

1. Name of stream ..... Unnamed .....
2. Average rate of discharge: (Approximate)
   a. Maximum (flood stage)..... 20 c.f.s
   b. Minimum ..... Dry c.f.s.

C Drainage Area 1.57 sq. mi.

PERFORMANCE OF WORK

1. Clearing and Grubbing: All clearing and grubbing shall be done between the toe stakes of the embankment, as established by the height and slopes. All stumps, roots, brush and other debris shall be removed and deposited above the high water line of the reservoir.

2. Keyway and Stripping: In order to obtain a thorough bond between the new material placed in the embankment and the present ground, the base for the embankment shall be prepared in the following manner: The present ground shall be stripped to a depth of one (1) foot, or a depth so as to remove all sod, roots, and other debris, that would interfere with the proper bonding of the embankment with the foundation. After the stripping, a keyway shall be excavated to a depth of one and one-half (1½) feet and ranging in width from twelve (12) to twenty (20) feet, throughout the length of the embankment. All material above described shall either be deposited above the high water line of the reservoir or if designated by the Engineer as suitable, may be placed in the embankment. (See Page 6 for typical sketch.)

3. Outlet Works: The outlet pipe shall consist of an asphalt covered, corrugated iron pipe, equipped with a head-gate designed for the depth of water of this reservoir. Said outlet pipe shall be installed after the stripping and keyway have been completed and before work has commenced on the embankment. The earth shall be thoroughly compacted by hand around the pipe, up to a point of at least one third (1/3) of the diameter. (See Page 7 for type, model, and dimensions; Page 8 for typical sketch.)

4. Embankment: Soils in the vicinity of the dam site shall be inspected to secure the best possible materials for the dam construction and such materials shall be taken from borrow pits which will permit the shortest possible haul to said dam

site. Preference shall be given to the use of materials from the reservoir side of the dam and points below the maximum water line, if said soil is suitable for the dam construction. All roots, brush, and other debris shall first be stripped from the borrow pits and no such materials shall be placed in the embankment. All materials shall be placed in said embankment in four (4) to eight (8) inch horizontal layers, and each layer shall be thoroughly and completely compacted by tractor and carryall, or other means designated by the Engineer as suitable. During the construction, the material in each layer of earth shall have the optimum practicable moisture content required for compaction purposes. Should there be a deficiency of moisture, some manner of watering device shall be used to replace the moisture in the earth at the time, or before, it is placed in the embankment.

5. Spillway: The spillway shall be built in solid and undisturbed earth around one end of the dam and said spillway shall be lined with concrete at the point where it passes the end of the dam. The spillway shall be of sufficient size to accomodate runoffs in excess of normal and shall be built to accomodate a plank gate, so constructed, that it may be closed to bring the water level of the reservoir to its maximum height, which maximum height shall be two (2) feet below the designed top of the dam. (See Page 9 for spillway detail.) A plank flume may be constructed in the spillway, from the end of the concrete to the point where the water returns to the natural stream--this to be left to the discretion of the

Engineer.

6. Concrete: All concrete required to be placed under these specifications will have a three (3) to five (5) inch slump and shall develop a compressive strength of four thousand (4,000) pounds per square inch or more in twenty-eight days. The Engineer at any time may take test samples of the concrete, and should these samples not meet the above requirements, he may reject that batch or the entire job lot. Forms shall be used, wherever necessary to confine the concrete and hold it to required lines. Said concrete shall be deposited, in all cases as nearly as practicable, directly in its final position and shall not be caused to flow in a manner to cause segregation. Exposed surfaces of said concrete, shall be protected from the direct rays of the sun for at least three (3) days, and all concrete shall be kept continuously moist for at least ten (10) days after it has been placed.

7. Engineering: The term "Engineer" as used in these specifications shall mean the registered professional engineer, or his authorized representative, who shall supervise the work to be performed in the construction of the dam and appurtenant works. The engineering shall consist of the following:

a. Making a preliminary study and survey of the reservoir and dam sites.

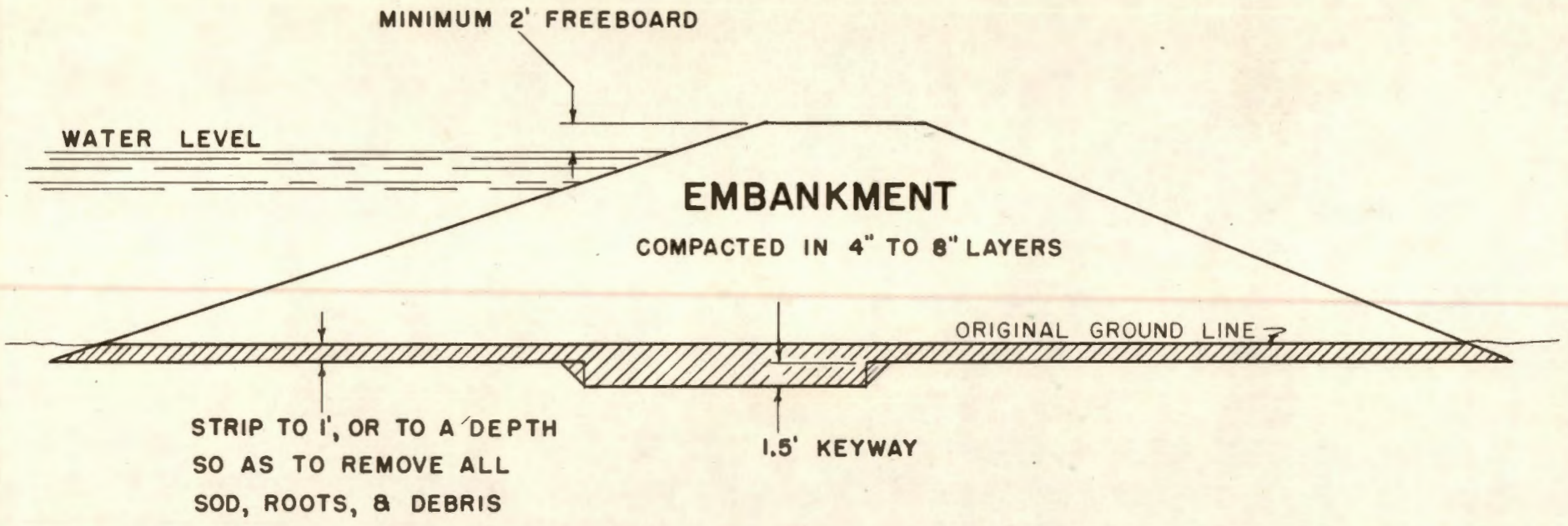
b. Preparing all plans and specifications required by the State Engineer for constructing said dam.

c. Making and submitting the required maps and applic-

ations for "Construction Permit" and "Permit to Appropriate the Waters of the State of Oregon" and shall include payment of all fees required for such applications and permits.

d. Daily inspections of the job during construction to make certain that said dam is being built in conformity with specifications here before stated.

Note: Any details not given in these specifications shall be shown on the accompanying drawings.



KEYWAY & STRIPPING

TYPICAL SKETCH

OUTLET WORKS

A. Outlet Pipe:

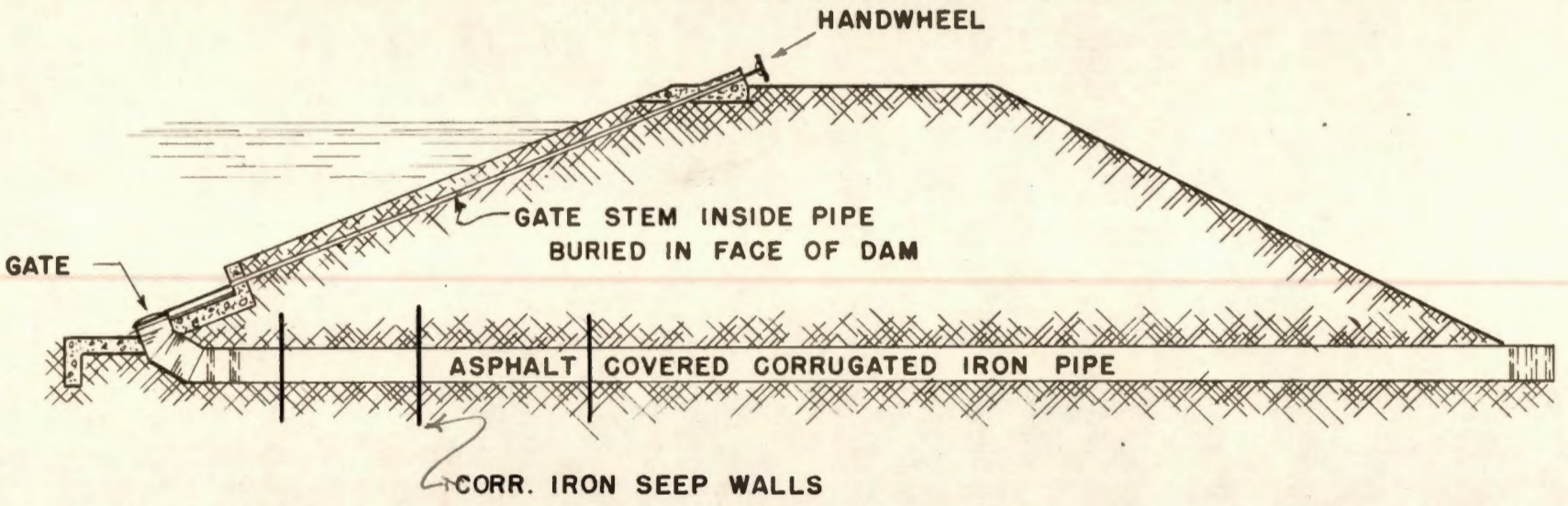
1. Diameter ..... 12 inches
2. Material ..... 16 gage, corrugated iron
3. Protective Coating ..... asphalt coated

B. Connecting Bands:

1. Material ..... 16 gage, corrugated iron
2. Protective coating ..... asphalt coated
3. Diameter ..... for 12 inch pipe
4. Width ..... 12 inches

C. Headgate:

1. Model Number ..... Armco Model 108
2. Type ..... Circular Gate
3. Diameter ..... 12 inches
4. Type of lift ..... Calco no. 162
5. Height of frame ... 3 feet 6 inches
6. Width of frame ..... 19 inches
7. Secured to pipe by ..... Connector band, with entire end encased and mounted in concrete

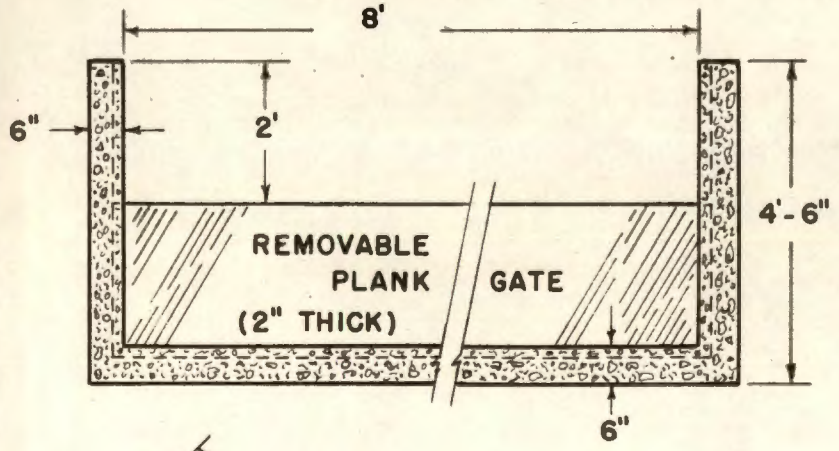


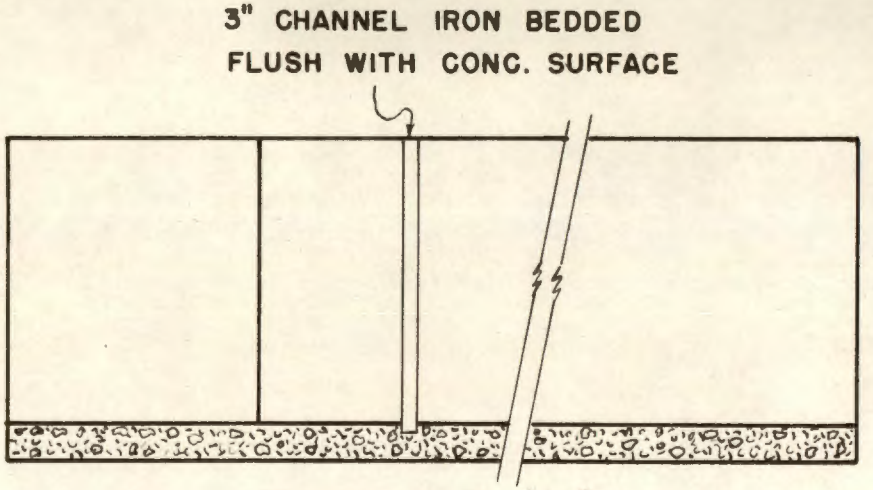
RESERVOIR GATE

INSTALLED ON SLOPE

TYPICAL SKETCH

SECTION "A"





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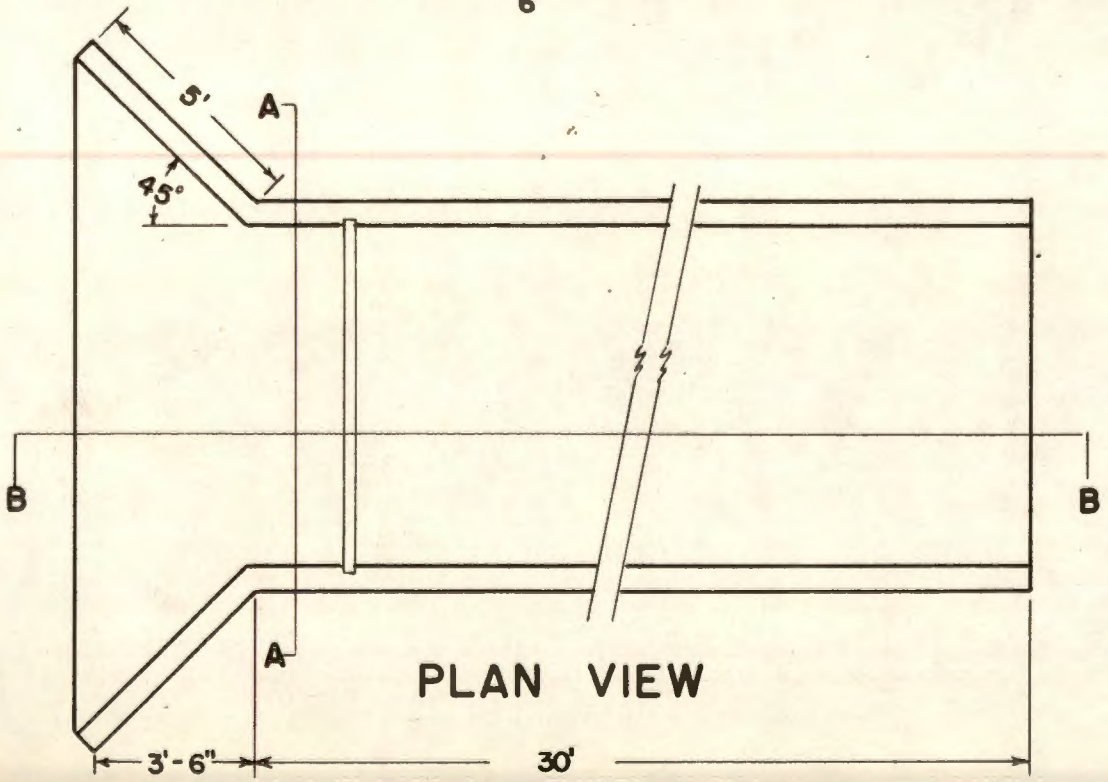

PLAN VIEW

CONCRETE SPILLWAY

DIMENSIONS AS SHOWN NO SCALE