

THE TOR HILL RESERVOIR, REGINA

DETAILS OF DESIGN AND CONSTRUCTION OF ONE OF
REGINA'S TWIN RESERVOIRS FOR WATER SUPPLY—CONNECTIONS
FOR INLET AND OUTLET MAINS—ITEMS OF COST.

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THE city council of Regina, on the recommendation of Mr. A. J. McPherson, then city commissioner, now chairman of the Provincial Board of Highway Commissioners, decided to adopt a scheme which the writer had submitted, whereby an ultimate daily supply of ten million gallons of water can be made available, at an expenditure of about \$2,000,000.

Such scheme included two five-million-gallon reservoirs. The construction of the first of these was commenced last summer, but owing to unforeseen delays in the supply of certain materials, it was found impossible to complete the work before the winter had set in. Immediately it was safe to proceed in the spring, the structure was finished as quickly as possible, and the reservoir has now been in use some four months. No signs of defects have been observed and the depth of water has been maintained at about 23 feet for about a month.

heterogeneous character, common to glacial formation, ranging from fine sand to heavy clay. This was excavated by horse-drawn wheel scrapers and the material deposited at convenient points, to be afterwards utilized in forming an embankment round the reservoir, in which work ordinary scrapers were employed. The quantity handled was about 12,500 cubic yards.

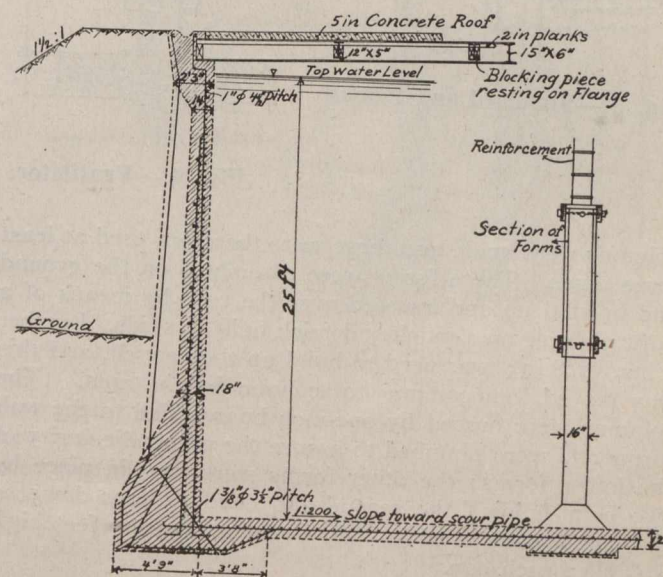


Fig. 2.—Section Through Wall, Roof and Base.

Footings of Walls.—The footings were first laid. They are one foot lower than the underside of the floor, except where the pipe connections are located, where the thickness was made two feet beneath the underside of the pipes. The footings extend for a distance of 3 ft. 8 ins. from the inner face of the wall under the floor, and are reinforced with half-inch round bars laid radially and circumferentially, and also a diagonal brace laid radially, at six-inch centres so as to form a strong tie between the wall and the floor.

Floor.—The reservoir floor is 12 inches thick, having a crossfall of one foot to the scour pipe, which is laid to a sump-hole at a depth of 2 ft. 3 ins. below the floor level. The floor was laid in two layers, each six inches thick, and between them were laid half-inch mild steel bars at six-inch centres, in two directions, at right angles to each other, tied together at every fifth intersection in one way and at every intersection in the other direction. The top surface of the concrete was worked to a fine close texture.

Columns.—There are 69 reinforced concrete columns, each 16 ins. by 16 ins., supported on truncated pyramidal bases 4 ft. by 4 ft., and 1 ft. 3 ins. high, which, with 6-inch sub-base, form an integral part of the floor. The sub-base was reinforced with half-inch bars laid at six-inch centres in cross directions.

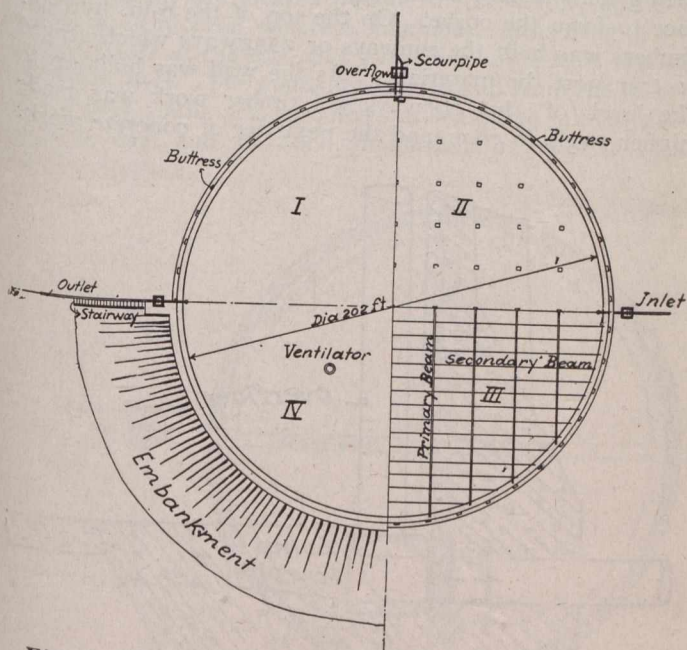


Fig. 1.—Floor and Walls (I.); Columns (II.); Roof-Beams (III.); and Cover (IV.).

Tor Hill reservoir is 202 feet in diameter, holds 25 feet depth of water, and its capacity is five million imperial gallons. This reservoir is circular in plan, reinforced concrete, and is located on a hill close to Boggy Creek waterworks, at an elevation of about 105 feet above the city; the top water line being about 120 feet above Regina level. It is so situated that it will answer in connection with future extensions of the water collecting works into five other watersheds.

The following is a description of the work as carried out:—

Excavations and Embankment.—The excavations averaged $9\frac{1}{2}$ feet deep, the material removed was of a