

Calgary laid the water supply pipe to the edge of the rating station property. Everything else was included in the contract except some small electrical fittings which were installed after the work was completed under the writer's supervision. The total cost of the station and equipment was \$4,475.39. The total estimated cost for the station was \$4,690.24.

In designing the work the aim was to gain the most perfect apparatus possible for rating the current meters and to create a permanent structure so that it was early decided to use concrete in the construction of the necessary tank.

As no stretch of still water having a suitable length and depth was available, it was necessary to create a tank, and in studying its design two points had to be principally considered. First, as the water supply had to be taken from the city mains the tank had to be made proof against any leakage, as the city authorities were not willing to guarantee any large supply of water such as might be required if any serious leakage from cracks developed in the tank. Secondly, the cross-sectional water area was required as small as possible and yet of sufficient dimensions to guard against any following on movement of the water, in running the meters through the tank. To overcome the first difficulty a heavily reinforced structure was designed, such that being emptied and exposed to the weather in winter no temperature cracks could develop and the inside faces of the tank were water-proofed by Sylvester's process. In deciding on the proper cross-section of the tank to overcome the second difficulty no data were obtainable, but with the tank as constructed no following on movement or undue disturbance of the water has been observed, even with the largest meters tested at velocities as high as 10 feet per second. The length of the tank (250 feet) was adopted in order to bring the cost of the structure within the limits of the amount of money available, but provision has been made in locating the tank for its future extension to a length of 500 feet, which is desirable in order to attain the highest degree of accuracy.

A description of the station will be given, the various points of which will be made clear by referring to the several plates.

The main feature of the station is a car to which the current meter is attached and carried through the water in the tank at different uniform rates of speed. The three elements, the distance, the time, and the number of revolutions of the meter, are mechanically measured and from these, the velocity of travel of the current meter through the water is related to the revolution per second of the meter, which relation of revolutions to velocity constitutes the rating of the meter.

The concrete tank is 250 feet long with an inside width and depth of 6 feet by 5 feet 6 inches, and the depth of water to be maintained is 5 feet. The floor and walls are 8 inches thick and are reinforced heavily, longitudinally and transversely, with  $\frac{1}{2}$  inch round mild steel rods, in order to absolutely preclude any temperature cracks in the concrete.