

Bell Island and the mainland. As Bell Island is at low elevation, the bridge had necessarily to be continued over it. The two piers are each 16 ft. wide, each located in 19 feet of water, on rock bottom. In building these piers, two temporary wooden cribs were loaded with stone and sunk, their upstream ends being connected with framing in the shape of a V. This produced still water within the caisson area and also reduced the span needed to be bridged for carrying the arch centering, as ordinary methods could not be used on account of the impossibility of driving temporary piling. Between these temporary piers and the abutments, two more temporary piers were sunk, one in the centre of each span. This reduced the clear span of 106 feet to two spans of about 40 feet each, allowing for the length of the temporary piers.

The pier caissons were made of 10-in. x 10-in. timber, bound by steel rods. They were sunk into position and sheeted by divers. The concrete for the piers was deposited through still water by means of a 15-inch pipe. This pipe was kept partly filled so that its mouth was always in freshly laid concrete, there being practically no water action.

The arches are of the solid slab type, three feet thick at the crown and five feet thick at the haunches. The



Fig. No. 5.—Pumping Plant at Lemieux Island

arches are circular in shape and have a rise of 12 feet from the springing line to the intrados at the crown. The radius of the intrados is 123 feet and of the extrados, 171.25 feet.

The reinforcing consists of $\frac{7}{8}$ -inch square bars placed longitudinally at 6-inch centres and 3 inches from the face of the intrados, and $\frac{1}{4}$ -inch square bars placed transversely at 18-inch centres, intrados only, for a third of the distance from each end, the remaining third having $\frac{3}{4}$ -inch bars top and bottom at 6-inch centres. Stirrups at 12-inch centres are used throughout the whole length of the longitudinal reinforcement.

The roadway slab on the bridge is carried by means of a central beam and short column to the transverse wall.

For placing the concrete on all parts of the bridge a cableway system was constructed, the towers of which were placed on Lemieux Island and the mainland, a distance of 700 lin. ft. This worked very satisfactorily.

A septic tank has been constructed to take care of the sewage from the pumping station. It is fitted with a pump which operates automatically when the tank fills to a certain level. From the tank, the sewage is pumped to a flush tank at the middle of the Island, each flush filling a set of porous tile. The liquid soaks into the ground from the tile, thus removing any danger which might be caused by sewage seeping into the intake basin.

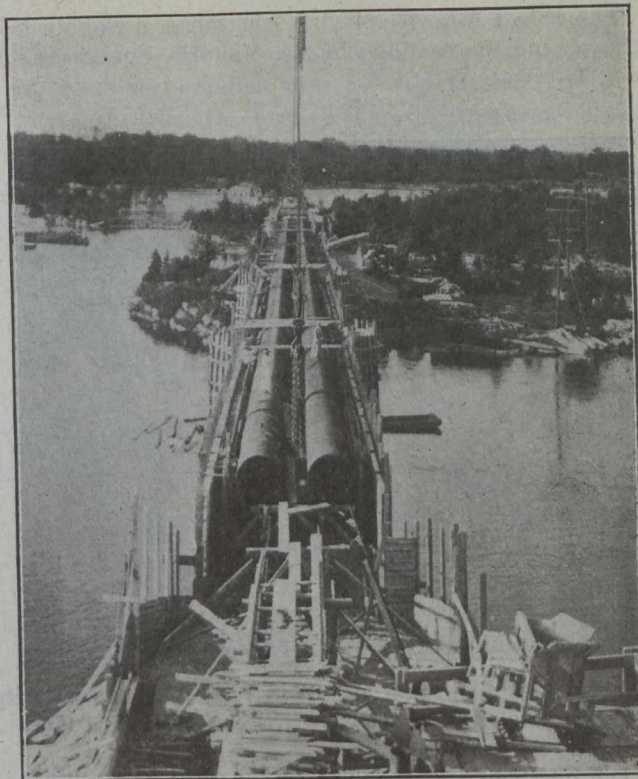


Fig. No. 6.—Twin Pipes Laid Across Lemieux Island Bridge

The bridge contract was carried out by Thomas McLaughlin at a cost of \$59,500.

The contract for supplying the pipes was carried out by Laurin & Leitch, of Montreal, at \$208,800 and the trenching was done by Thomas McLaughlin at \$63,514.

The pumps were manufactured by Escher Wyss & Company, of Switzerland, and are of the three-stage, double-suction turbine type.



Fig. No. 7.—Riveting Pipe in Trench