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Moore Park Drainage System, Toronto

Special Culvert-Type Design Used in Toronto for the First Time—Comparisons With Other Sections—4 ft. 3 in. by 4 ft. 9½ in. Special Section in Tunnel Required 13½ cu. ft. of Concrete and 30 cu. ft. of Excavation per Lineal Foot

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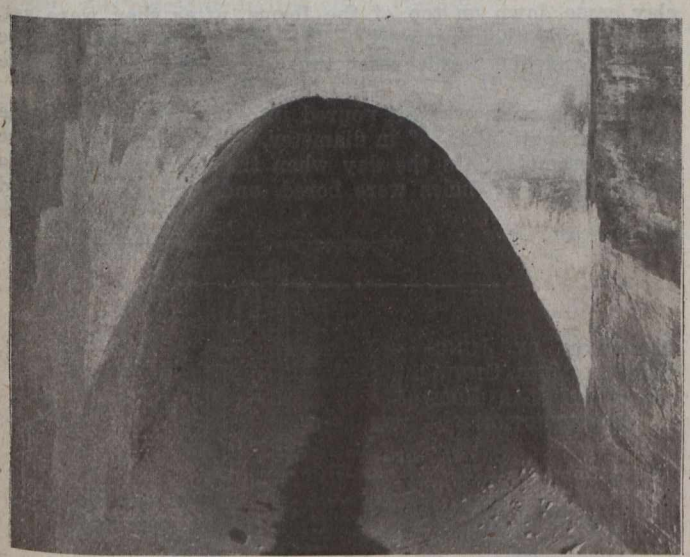
WHEN the main part of the Moore Park drainage system was completed in 1916, provision was made for a storm-water outlet. The need for it, however, at that time, was not pressing and the construction was postponed until a later date to make way for other work more urgently required. Construction was started on this sewer in the latter part of 1917 and is now completed.

The district in Moore Park to be drained, comprised an area of 233.5 acres. After the usual calculations were made for the maximum run-off, etc., it was decided that a sewer with 173 c.f.s. would be required. It had to be considered that this sewer was to be built in tunnel and head room for the miners, etc., was a very important consideration.



SOUTH END OF JUNCTION CHAMBER, LOOKING INTO COMPLETED SEWER

The most economical shape to construct had then to be decided upon, and was arrived at by a consideration of circular, egg and special designs.

	Special Shape 4′ 3″ x 4′ 9″	Equivalent Egg Shape 3′ 8″ x 5′ 6″	Equivalent Circular 4′ 5″
Excavation per lin. ft.	27.2 c.f.	30.02 c.f.	27.49 c.f.
Concrete per lin. ft.	11.68 c.f.	13.15 c.f.	12.17 c.f.
Excavation per lin. ft.	3′ 9½″ x 4′ 3″ 22.88 c.f.	3′ 4″ x 5′ 0″ 24.46 c.f.	3′ 11″ 23.04 c.f.
Concrete per lin. ft.	10.6 c.f.	11.69 c.f.	10.99 c.f.
Excavation per lin. ft.	3′ 7″ x 4′ 0″ 21.36 c.f.	3′ 2″ x 4′ 9″ 22.68 c.f.	3′ 9″ 21.65 c.f.
Concrete per lin. ft.	10.24 c.f.	11.15 c.f.	10.61 c.f.

The circular shape was eliminated. The two remaining shapes are considered in detail in the table at the top of the next page.

The sewer was built from Beaumont Rd. to Summerhill Ave. along Glen Rd. in tunnel throughout its entire course. The material used was 1:3:5 concrete, and the shape was of the culvert type as shown on the next page, which is a design adopted for the first time in Toronto.

The ground, through which the tunnel passes, is mostly (or to speak exactly, from station 3 + 01 to station 21 +00) a soft, dry blue clay. Through this, good progress was made, 10 lin. ft. per day being mined with ease. The advance accomplished daily was between 8′ and 12′, depending entirely on the amount of time required for concreting.

The amount of concreting, in its turn, was determined to a great extent by the conditions of the weather which, it will be remembered, was of an unprecedented inclemency during the winter of 1917-1918, when part of this work was under construction. During the nights, which is the time usually chosen for concreting, the cold was frequently so intense that materials could not, for any long period, be kept sufficiently warm. It accordingly became necessary to construct in short lengths, or to alter the shifts so that mining operations might be carried on during the night and concreting done in the day, when the temperature was more moderate.

NORTH END OF CHAMBER, WITH CONNECTIONS FOR EAST AND WEST EXTENSIONS

Between station 21 + 00 and station 23 + 31, progress became less rapid owing to a change in the nature of the ground traversed. The elevation of the sewer was raised by a ramp and the ground at the higher level was found to be in some places a dry, hard, sandy clay and in others of a very sandy quality. In the former, 8′ was considered a