

Gower, Cosburn and Gamble, Plains road and Don Mills road.

This scheme would cost approximately as follows:—

Woodbine—	
Trunks	\$ 289,000
Laterals	264,000
Disposal works	140,000
	<hr/> \$ 693,000
Todmorden—	
Trunks	\$ 991,000
Laterals	40,000
	380,000
Disposal works	300,000
	<hr/> 1,711,000
Total	<hr/> \$2,404,000

The above costs do not include relief sewers, which will parallel the trunk sewers and can be built when the streets are about to be paved and when the existing trunk sewers are working to their full capacities. It is not anticipated that relief sewers will be necessary for many years after the original ones have been constructed.

Scheme CE

Scheme CE would provide a sewerage system with two outfall works, one at the Woodbine site, and the other at the St. Clair site. The trunk sewers in the Woodbine district would be the same as already described in Scheme E, and the trunk sewers in the Todmorden district will be the same as described in Scheme C.

The cost of this scheme is estimated as follows:—

Woodbine—	
Trunks	\$ 289,000
Laterals	264,000
Disposal works	140,000
	<hr/> \$ 693,000
Todmorden—	
Trunks	\$1,176,000
Less relief sewers	142,000
	<hr/> 1,034,000
Laterals	488,000
Less relief sewers	158,000
	<hr/> 330,000
Disposal works	300,000
	<hr/> \$2,357,000
Total	

In Scheme CE, the present savings which would be effected by providing future relief sewers are deducted so as to make a fair comparison with Scheme E, and it will be observed that these two schemes will cost about the same amount.

If the area south of Sammon avenue, be drained to the city, as the engineers think it should, then it will be possible to effect a tangible reduction in the cost of the remainder of the entire schemes. In view of the fact that the proposed schemes will dispose of sewage and storm water, and will thus relieve the city of the future disposal of storm water from the major part of the eastern division, it is recommended that the city be asked to deal with both sewage and storm water from the area south of Sammon and Cronyn avenues. It is also recommended that the subdivision of Davies Estate, adjoining Don Mills road and Cambridge avenue, be drained into the city sewers, for the reason that such method would be cheaper than connecting to the township sewers. The outlets can be arranged to suit city arrangement of sewers.

The engineers point out that in Scheme E, practically the whole of the sections west of Leslie street can be sewered without building the trunk sewer, but the latter must be constructed before the sewers in this section are fully developed, or the sections east of Leslie street can be undertaken.

In Scheme CE, the Leslie street trunk sewer must be built first, because it would be the only outlet for the sewage and storm water. Attention is also drawn to the fact that the construction of any portion of the system may be undertaken provided the works commence at the outfall ends.

Approximate annual capital costs of the two schemes, E and CE, have been computed on the basis of repayment, in the case of trunk sewers and disposal works, at 6% in 30 years, and in the case of laterals under 27 ins. diameter at 6% in 10 years.

In Scheme E, the total fixed charges amount to \$215,600 per annum, or, on a frontage basis, an annual average cost of 55 cents per foot. In Scheme CE, the fixed charges total \$207,097, or an annual average cost of 52.8 cents per foot. A tangible saving is shown when the figures are based on 30-year debentures at 6% for all works. Scheme E then totals \$174,330, or 44.5 cents per foot; and Scheme CE, \$171,075, or 43.6 cents per foot.

For purposes of comparison, it is interesting to note that the annual cost of different sewers excluding trunk sewers, already constructed in the township, ranged from 23.6 cents per foot seven years ago, to 53.31 cents per foot in 1917.

In making their recommendations as to which is the best scheme to adopt, Messrs. Barber and Wynne-Roberts state:—

"The problem of selecting the scheme which will be best adapted for future extensions, depends upon what new subdivisions will be placed on the market and what transportation facilities are available in the near future. For example, if the land along Independent road be subdivided, and a street railway is extended thereto, it would be necessary to anticipate the needs of that locality, and consequently the St. Clair site would be suitable. Furthermore, when the subdivision north of the Canadian National railway and east and west of Davies road, calls for sewers, then the Woodbine site will probably be suitable for most of it.

Scheme CE is Recommended

"For immediate development, the brickyard site offers some advantages. The Scheme E is more flexible, and it is the more natural outlet, and is accessible. It is, however, unfortunate that it is so near the residential portion, but for immediate purposes, it would be the one we would recommend. On the other hand, having regard to the future extensions of the populated areas, which of necessity must tend toward the north, we are prepared to recommend Scheme CE.

"If the brickyard site of Scheme E be carried out, it would be suitable for the future subdivision of the 80 acres west of Davies Estate homestead, and also for the parts lying off Todmorden road, but in the event of St. Clair site being adopted, it would be necessary to have a small independent plant for these areas."

Since 1912, \$635,000 have been expended on London's sewer system. The city engineer's plans call for an additional \$250,000 for 1920.

The eighteenth annual convention of the Canadian National Clay Products Association will be held at the Prince George Hotel, Toronto, January 20th to 22nd, 1920.

The engineer's report to the Vancouver and District Sewerage Board, presented recently, shows that the total expenditure since the inception of the board has been \$2,253,915.

The Modern Housing Corporation, 435 Woodward Ave., Detroit, Mich., which is a subsidiary of the General Motors Corporation, is contemplating a housing scheme in Ontario and would be glad to receive catalogues from manufacturers of building materials.

Among the papers read before the Canadian Mining Institute recently in Vancouver, B.C., was one by William E. Greenwalt, of Denver, on the application of his process of electrolytic smelting of copper ores. Mr. Greenwalt predicted that in the near future electro-metallurgical methods will be so well established in connection with the copper industry as to compete successfully with the present system of smelters. The chief advantages of the process would be the elimination of the high cost of shipping ore from the mine to the smelter.