The Geotechnical Challenges for the Toronto Subway System

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Abstract:
As with other major cities, the Province of Ontario and Metro Toronto are planning to expand the Toronto subway system. The Toronto Transit Commission (TTC) through its Rapid Transit Expansion Program (RTEP) is actively designing the first phases of the expansion - the Eglinton West Subway and the Sheppard Subway. Geotechnical conditions relevant to subway design and construction are well established by the previous subway construction; however, current geotechnical requirements are more extensive than the investigation and design procedures adopted in the past. The Ministry of Environment and Energy MOEE is enforcing regulations with respect to disposal of excavated soil and groundwater which necessitate the development of Soils and Groundwater Management Strategies (SGMS) for the construction phase. The Spadina Extension project discussed herein is one of the first TIC projects which have had to follow these new procedures as a part of the conditional project approval.

Keywords: Wisconsinan glacial period; Spadina Subway Extension; glaciofluvial and glaciolascustrine origin; Geotechnical Design Issues; Soils and Groundwater Management Issues; Decision Chart Showing Approaches for Control of Soils and Groundwater Management; Geo-Engineering Dimensions; Earth Pressure Balance tunnel boring machines.