

Clarington Transformer Station

Fact Sheet: HYDROLOGY & HYDROGEOLOGY OF THE SITE

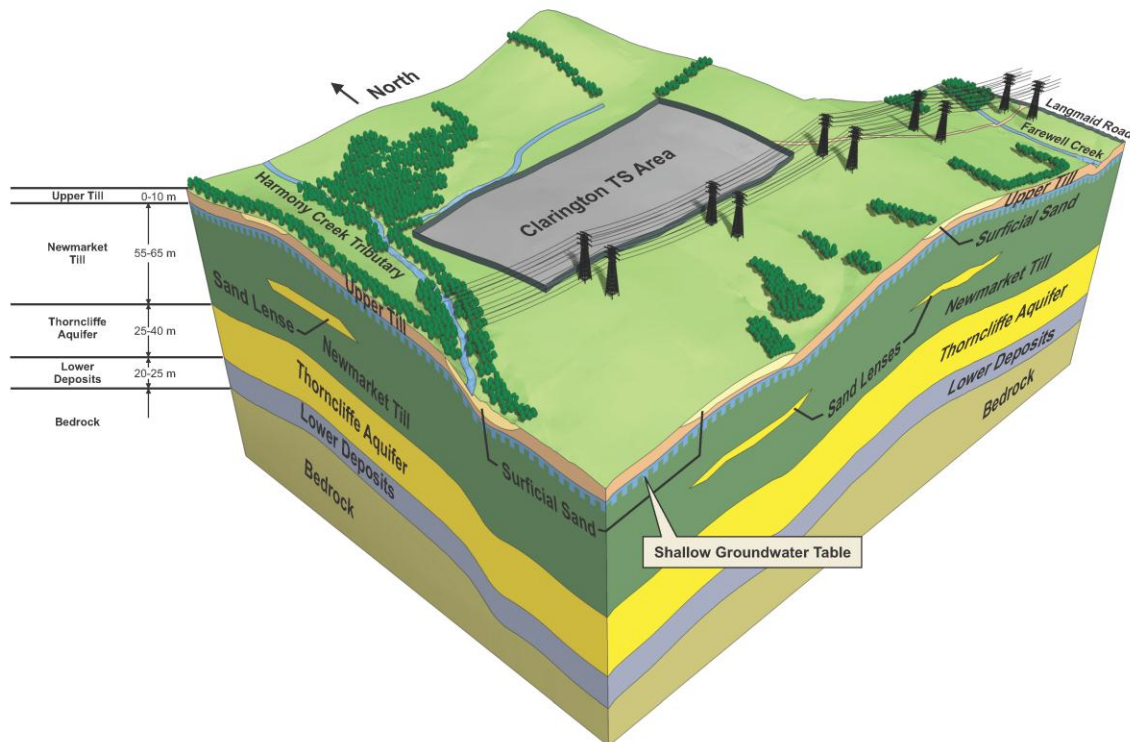
WHAT ARE THE LOCAL HYDROGEOLOGIC CONDITIONS AT THE SITE?

The stratigraphy (layers of geologic material) beneath the site is divided into five primary geologic units underneath surficial organic and discontinuous sandy soils: an Upper Till unit; the Newmarket Till; the Thorncliffe Aquifer; lower sedimentary deposits; and the Whitby Shale Bedrock.

The Upper Till and Newmarket Till units are very dense sandy silt till layers that serve as aquitards (geologic layers that restricts groundwater flow), that combined are estimated to be 65 to 75 metres (m) thick beneath the site. Our geotechnical and hydrogeological investigations have identified intermittent sand lenses within the Newmarket Till that are thin and discontinuous. Below the Newmarket Till, the Thorncliffe Aquifer is a regional scale geologic unit that is approximately 25 to 40 m thick.

A shallow, 2 metre deep groundwater table exists near the surface which receives its water from local rainfall and snow melt.

Some intermediate wells get water from the thin discontinuous sand lenses located within the Newmarket Till. Deeper wells in the area get water from the Thorncliffe Aquifer.



WHAT STUDIES HAVE BEEN CONDUCTED TO CONFIRM THESE CONDITIONS?

Hydro One conducted on-site geotechnical studies as part of its extensive Environmental Assessment process. While the construction needs are relatively shallow - approximately 6 metres for grading of the station site and no deeper than 11 metres for the deepest high-voltage transmission line foundations, Hydro One has conducted geotechnical investigations to a much greater depth than any of the construction activities.

WHAT WILL HYDRO ONE DO TO ENSURE LOCAL WATER REMAINS PROTECTED?

Hydro One recognizes the importance of protecting groundwater not only for the local residents, but to preserve the natural environment as well. Hydro One and its environmental consultant remain confident that local groundwater resources and well quantity and quality will remain protected throughout construction and operation of the Clarington TS. This is consistent with past and ongoing studies and field investigations undertaken on the site.

Hydro One and its consultants have developed and initiated a Groundwater and Surface Water Monitoring Program that is consistent with the requirements of this project and have undertaken well monitoring both on-site and at private wells within 1,200 metres of the site. The monitoring program is adaptive in nature, and a baseline study report can be found on www.hydroone.com/projects/Clarington.

WILL CLARINGTON TS AFFECT THE NEARBY CREEKS?

The on-site drainage system is designed to protect and preserve the natural form and function of the Harmony Creek watershed. The Clarington TS will be located entirely within the Harmony Creek watershed (Grandview sub-watershed) and therefore all surface water runoff and precipitation will be directed into the same watercourse (tributary of the Harmony Creek) as it would have naturally flowed to under pre-construction conditions. Hydro One undertook surface water modelling at the site, which was taken into consideration during the design of the drainage system.

Hydro One is not planning to undertake any construction work within the Farewell Creek watershed, and therefore, Farewell Creek is expected to retain its natural form and function throughout construction and operation of the Clarington TS.