

Executive Summary

EXP Services Inc. (EXP) was retained by **Auburn Developments** to conduct a hydrogeological assessment in support of a proposed development at Heathwoods East in London, Ontario, hereinafter referred to as the 'Site'. The Site is located west of Bostwick Road and north of Red Thorne Avenue.

The objective of the hydrogeological assessment was to examine the hydrogeological characteristics of the Site in support of the proposed development and related construction activities. The study included reviewing the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWR), reviewing the soils and groundwater information provided from a series of sampled boreholes and monitoring wells at the Site, collecting multiple seasons of groundwater and surface water elevations, and assessing the natural heritage features on the property. It is understood that the hydrogeological assessment will be submitted for review and approval by the City of London and the Upper Thames River Conservation Authority (UTRCA).

Based on the results of the hydrogeological assessment, the following findings are presented:

- A total of four (4) monitoring wells and two (2) surface water stations were installed across the Site in April, 2021;
- Local hydrostratigraphy includes a low permeability clayey silt till (the confining layer) overlying silty sand and sand at the Site;
- Domestic water supply in the local area wells is typically from intermediate to deep depth aquifers, which consist of confined sand and gravel and/ or bedrock. Site activities associated with the residential development are not expected to impact the potable aquifers in the area;
- A Single Well Response Test (SWRT) was carried out at monitoring well MW3, which is screened in clayey silt till and resulted in an estimated hydraulic conductivity of 2.0×10^{-8} m/s;
- The Site currently contains a large woodlot area and two (2) surface water Drains. The Anguish Drain runs south through the western portion of the Site, which extends from the woodlot patch to the north. The second Drain feature runs south through the centre of the woodlot on the Site. Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) mapping mislabels this smaller drain as the Thornicroft Drain, however other studies completed in the area indicate that the Thornicroft Drain is the much larger drain located east of the Site. This small drain will be referred to as an unnamed drain in this report. Wetlands were not identified based on the available EIS mapping for the Site;
- Drainage from the northeast corner of the Site is to the east towards the Thornicroft Drain, the southeast portion of the Site drains to the southeast, and drainage from the woodlot and Anguish Drain is to the south and west towards Dingman Creek;
- The anticipated shallow horizontal groundwater flow directions on the Site is based on the interpretation that the till unit behaves as an aquitard unit and the predominant flow direction is downward. The horizontal component of groundwater flow is anticipated to follow local topography;

- The monitoring wells on Site have been maintained for possible ongoing study. When the wells are no longer required, they should be decommissioned in accordance with O. Reg. 903;
- The proposed development will introduce a number of impermeable surfaces (i.e. roofs, roadways, etc.), which is expected to impact the post-development infiltration volumes. The accepted pre vs post infiltration rate is targeted at 80%. The post development infiltration for the Site is estimated at 81% which is based on numerous assumptions regarding development of the Site using Low Impact Development (LID) practices.
- Minimal dewatering efforts are expected to be required during construction, under the assumption that construction is not to extend beyond 3 to 5 m below existing grade. If deeper excavations are anticipated, especially in the eastern areas of the Site, then an online Environmental Activity and Sector Registry (EASR) would be required.