



March 20, 2023

Capes Engineering Ltd.

355310 Blue Mountains-Euphrasia Townline
Clarksburg, Ontario
N0H 1J0

Attn: Mr. Clayton Capes. P.Eng.

**RE: Geotechnical Review
Proposed Oakwood Building
32 Oak Street, Collingwood, Ontario
Project No. 2301165**

GEI Consultants Ltd. (GEI) was retained by Capes Engineering Ltd. to complete a geotechnical review of the above noted site, regarding infiltration and the suitability of the site for infiltration facilities.

1. INTRODUCTION

A three-storey slab-on-grade commercial/residential building is proposed at 32 Oak Street in Collingwood, Ontario. The site is bounded by residential properties to the west, north and south with Oak Street to the east of the site. The rectangular shaped property is about 50 m east/west and about 20 m north/south. The following previous geotechnical report by others was provided for GEI's review:

- *Geotechnical Test Pit Investigation, 32 Oak Street, Collingwood, Ontario, by Central Earth Engineering, Project No. 20-1200A, dated October 8, 2020.*

The current design for the site utilizes a permeable pavement structure to manage storm water for the site. A geotechnical review of the overall site conditions was requested to assess if the infiltration system proposed is feasible at the site.

2. DISCUSSION

The previous geotechnical report by others was reviewed and the following was revealed:

- Test pits were conducted at the site in September of 2020 and revealed topsoil over a sand deposit to 1.7 to 1.8 m depth, over a silty sand glacial till deposit to 1.9 m depth over limestone bedrock common to the area.

- Ground water was noted in one test pit at the bottom of the sand/top of the till deposit at 1.7 m depth, upon completion of excavation. A piezometer was installed in both test pits and on September 29, 2022, and the ground water levels were measured 1.67 m and 1.57 m depth, corresponding to Elev. 178.02 and 178.03.
- Grains size analyses were conducted on the till and sand units and estimated unfactored infiltration rates of 30mm/hr. and 75 mm/hr were assessed based on the grainsize curves, respectively.

Where infiltration is being considered, two major components that are required are permeable soils and a sufficient buffer (1 m minimum) between the ground water level and the base of the infiltration feature. In this case the sand qualifies as permeable soil. The permeable pavers are understood to comprise a 50 mm thick paver stone over a 480 mm thick layer of permeable granular base material, for an overall thickness of 530 mm. The top of the paved surface is understood to be set at about Elev. 179.59 and the corresponding base would be at Elev. 179.06. The ground water level was at Elev. 178.03 (highest) and was more than 1 m below the base of the permeable pavers. As such, the proposed permeable pavers are favourable for use at the site.

3. CONCLUSION

We trust this information is sufficient for your present purposes. Should you have any questions concerning the above, or can be of any further assistance, please do not hesitate to contact the undersigned.

Yours truly,
GEI Consultants



Geoffrey R. White, P.Eng.
Geotechnical Practice Lead