patersongroup memorandum

consulting engineers

re:	**Geotechnical Response to City Comments** **Proposed Multi-Storey, Mixed-Use Building** **289 Carling Avenue - Ottawa**
to:	PBC Group - **Mr. Jonathan Roy** - jroy@pbcgroup.ca
date:	December 13, 2019
file:	PG4801-MEMO.03

Paterson Group (Paterson) prepared the following memo to provide our responses to the geotechnical-related comments issued on November 29, 2019 and prepared by Mr. Mark Fraser at the City of Ottawa.

Geotechnical Investigation - Comment 1

Comment: *The impact of groundwater lowering on any adjacent properties needs to be discussed in the report and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area. Provide confirmation that there will be no negative impact on any adjacent properties or structures.*

Response: Based on our observations, localized groundwater lowering may be required under short-term conditions due to construction of the proposed building. It should be noted that the extent of any significant groundwater lowering will take place within a limited range of the subject site due to the minimal temporary groundwater lowering.

Further, due to the presence of shallow bedrock at, and in the vicinity of, the subject site, the neighbouring structures are expected to be founded on bedrock. Therefore, no issues are expected with respect to groundwater lowering that would cause long term damage to adjacent structures surrounding the proposed building. This discussion has been added to the revised Geotechnical Investigation Report.

Geotechnical Investigation - Comment 2

Comment: *It is indicated that the recommendations within the report have taken into consideration the inclusion of 2-levels of underground parking however the report still states that a partial basement is being proposed. Please provide an updated report based on the current proposal.*

Response: The Geotechnical Investigation Report has been revised to reflect the current scope of development which includes 2 levels of underground parking.

Geotechnical Investigation - Comment 3

Comment: *Please include a summary of the measured groundwater levels on the subject site and provide discussion in relation to the proposed underside of footing. Based on the information provided the building foundation will be below the measured groundwater level thus long-term groundwater discharge from the proposed building subsurface foundation drainage system is anticipated. The sewer outlet for this subsurface drainage system is a combined sewer which is a sensitive system to flow thus total groundwater, sanitary, and stormwater discharge shall not exceed the allowable release rate during a 5-year pre-development storm event. Please quantify the groundwater flow rate that will be discharged to the sewer system and provide to McIntosh Perry for review and consideration in the site servicing design. If the groundwater to be discharged to the sewer is considered high upon review methods and options to provide a water-tight below grade foundation will need to be investigation to control groundwater.*

Response: Groundwater level readings were obtained by others in February 2017, at which time the groundwater levels were encountered at depths ranging from approximately 1.4 m to 2.1 m below the existing ground surface. These groundwater levels are documented in the Phase II Environmental Site Assessment dated May 2017 prepared by DST Consulting Engineers.

Correlating the monitoring well locations to nearby spot elevations on the site survey, the groundwater level was encountered at approximate geodetic elevation 70.9 m to 71.4 m. As the lowest level slab for the proposed building is to be located at geodetic elevation 72.0 m, it is anticipated that the invert of the foundation drainage pipes will be located at approximate geodetic elevation 71.6 m.

Accordingly, the foundation drainage system is not anticipated to be located below the groundwater level. Only periodic flows during storm events are anticipated in the foundation drainage system.

During such storm events, the groundwater discharge to the sewer is anticipated to be approximately 50 L/min. This value has been provided to McIntosh Perry for consideration in the site servicing design.

We trust that this information satisfies your immediate requirements.

Paterson Group Inc.

Scott S. Dennis, P.Eng.