



re: **Geotechnical Review of Grading and Servicing Plans**
Proposed Residential Development
214 Somerset Street East - Ottawa, Ontario
to: **Ottawa Community Housing Corporation** – Dylan Bennett – Dylan_Bennett@och.ca
date: August 22, 2025
file: PG6626-MEMO.02 Revision 1

Further to your request and authorization, Paterson Group (Paterson) prepared the following memorandum to provide geotechnical design summary details regarding the proposed residential development at the aforementioned site. This memorandum should be read in conjunction with Paterson Geotechnical Report PG6626-1 Revision 7, dated July 24, 2025.

Grading Plan Review

Paterson reviewed the following grading plan prepared by Egis for the aforementioned residential development:

- ☐ Site Grading, Drainage and Erosion & Sediment Control Plan - Residential Building, 214 Somerset St. E. - Project No. CCO-24-0450 - Drawing No. C101 - Review 10, dated August 22, 2025.

Generally, the subsurface profile consists of fill underlain by a deposit of silty clay layer, followed by a deposit of glacial till. It is anticipated that the proposed development will be founded on conventional spread footings placed on an undisturbed very stiff silty clay bearing medium.

Based on our review of the above-noted drawing, the proposed grades throughout the subject site are generally within the permissible grade raise restriction of 2 m provided in the aforementioned geotechnical investigation report. Therefore, the proposed grading is considered acceptable from a geotechnical perspective such that lightweight fill (LWF) or any further measures will not be required to be taken for the proposed development. Further, sufficient soil cover has been provided to perimeter and exterior pad footings such that the use of insulation to mitigate the migration of frost will not be required for the subject footings.

Bearing Resistance Values for Foundation Design

Based on Paterson's review, conventional strip footings will be placed on an undisturbed, very stiff brown silty clay bearing surface and can be designed using a bearing resistance value at serviceability limit states (SLS) of **150 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **225 kPa** and as indicated in the current Geotechnical Report. A geotechnical resistance factor of 0.5 was applied to the bearing resistance value at ULS.



An undisturbed soil bearing surface consists of one from which all topsoil and deleterious material, such as loose, frozen, or disturbed soil, whether in situ or not, have been removed in dry conditions, prior to the placement of concrete for footings.

Settlement

Footings placed on a soil bearing surface and designed using the bearing resistance values at SLS given for the soil bearing surface will be subjected to potential post construction total and differential settlements of 25 and 20 mm, respectively. Reference should be made to the above noted geotechnical report for additional design information.

Tree Planting Restrictions

In accordance with the City of Ottawa Tree Planting in Sensitive Marine Clay Soils (2017 Guidelines), Paterson completed a soils review of the site to determine applicable tree planting setbacks. Atterberg limits testing was completed for recovered silty clay samples at selected locations throughout the subject site. Sieve analysis testing was also completed on selected samples. The results of our testing are presented in the aforementioned current geotechnical investigation report.

Based on the results of our testing, the plasticity index of the silty clay deposit at the subject site does not exceed 40%. Therefore, the following tree planting setbacks are recommended for the subject site. Large trees (mature height over 14 m) can be planted within the silty clay areas provided a tree to foundation setback equal to the full mature height of the tree can be provided (e.g., in a park or other green space). Tree planting setback limits may be reduced to **4.5 m** for small (mature height up to 7.5 m) and medium size trees (mature tree height 7.5 to 14 m), provided that the conditions noted below are met.

- ☐ The underside of footing (USF) is 2.1 m or greater below the lowest finished grade must be satisfied for footings within 10 m from the tree, as measured from the center of the tree trunk and verified by means of the Grading Plan. Based on Paterson's review, this condition is met.
- ☐ A small tree must be provided with a minimum of 25 m³ of available soil volume while a medium tree must be provided with a minimum of 30 m³ of available soil volume, as determined by the Landscape Architect. The developer is to ensure that the soil is generally uncompacted when backfilling in street tree planting locations.
- ☐ The tree species must be small (mature tree height up to 7.5 m) to medium size (mature tree height 7.5 m to 14 m) as confirmed by the Landscape Architect.
- ☐ The foundation walls facing trees are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall). Based on Paterson's review, this condition is being met.
- ☐ Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree), as noted on the subdivision Grading Plan.



High-water demanding tree-species such as poplars, willows, and some maples (i.e., Manitoba Maples) should not be considered in the landscaping design from a geotechnical perspective.

Servicing Plan Review

Paterson reviewed the following site service drawing prepared by Egis for the aforementioned residential development:

- ☐ Site Servicing Plan - Residential Building, 214 Somerset St. E. - Project No. CCO-24-0450 - Drawing No. C102 – Revision 10 dated August 22, 2025.

Based on our review of the above-noted drawing, the majority of the design details (i.e., lateral support of footings, adequate frost protection of services, pipe bedding and backfill, clay seals), provided by Paterson in the aforementioned geotechnical investigation report have been satisfactorily incorporated into the above-noted drawing.

We trust that the current submission meets your immediate requirements.

Best Regards,

Paterson Group Inc.

Drew Petahtegoose, P.Eng.

