



re: **Geotechnical Design Summary Details**
Metric Homes – Block 123
950 Terry Fox Drive – Ottawa

to: SPB Developments – **Chris Bernier** – chris@metrichomes.com

cc: Novatech Engineering – **Alex McAuley** – a.mcauley@novatech-eng.com

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file: PG2855-MEMO.76 Revision 1

Further to your request and authorization, Paterson Group (Paterson) prepared the current report to provide a geotechnical design summary and grading plan review for the proposed residential development to be located at 950 Terry Fox Drive in the City of Ottawa, Ontario. The following memorandum should be read in conjunction with Paterson Group report PG2855-3 Revision 1 dated February 9, 2026 and memorandum PG2855-MEMO.21 dated November 8, 2022.

1.0 Grading Review

1.1 Residential & Right-of-Way Grading

Paterson reviewed the following grading plans prepared by Novatech Engineering (Novatech) regarding the residential development at the aforementioned site:

- Grading Plan – Block 123, 950 Terry Fox Drive — Drawing No. 110037-GR123 – Project No. 110037 – Revision 8 dated February 11, 2026.

Relevant design information is presented in Table 1 - Summary of Design Details for the subject blocks and lots. The relevant design information includes the following:

- Block number
- Existing grade elevation
- Proposed finished grade elevation
- Finished floor elevation
- Maximum allowable grade raise
- Bearing resistance values
- Proposed USF elevation
- Lightweight fill (LWF) recommendations
- Seismic site class

As presented in the aforementioned PG2855-MEMO.21, a settlement surcharge program was successfully completed for Block 123. As such, Block 123 is not subject to grading restrictions. Therefore, the proposed grading for Building 1 through 5, the parking areas and the proposed garage, within Block 123 is considered acceptable from a geotechnical perspective and lightweight fill is not required for building or parking area construction.





Furthermore, the proposed grading provides adequate soil cover for frost protection for the footings of the proposed buildings.

1.2 Exterior Structures

Swimming Pools

The in-situ soils are considered to be acceptable for in-ground swimming pools. Above ground swimming pools must be placed at least 5 m away from the residence foundation and neighbouring foundations. Otherwise, pool construction is considered routine, and can be constructed in accordance with the manufacturer's requirements.

Aboveground Hot Tubs

Additional grading around the hot tub should not exceed permissible grade raises. Otherwise, hot tub construction is considered routine, and can be constructed in accordance with the manufacturer's specifications

Installation of Decks or Additions

Additional grading around proposed deck or addition should not exceed permissible grade raises. Otherwise, standard construction practices are considered acceptable.

2.0 Servicing Review

Paterson reviewed the following servicing plans prepared by Novatech Engineering (Novatech) regarding the residential development at the aforementioned site:

- General Plan of Services – Block 123, 950 Terry Fox Drive — Drawing No. 110037-GP123 – Project No. 110037 – Revision 8 dated February 12, 2026.

2.1 Lateral Support

The site servicing layout does not impede the lateral support zones of any adjacent buildings/structures and is in conformance with our recommendations, with the exception of the service connections to the proposed buildings, which are at a lower elevation than each respective building's underside of footing (USF). Therefore, reinstatement of the bearing medium above the service connections and within the lateral support zones of the buildings' foundation will be required. To reinstate the bearing medium, it is recommended that the excavations are backfilled with either 15 MPa 28-day strength concrete, or OPSS Granular B Type II placed in maximum 300 mm thick loose lifts and compacted to a minimum of 98% of the material's standard Proctor maximum dry density.



2.2 Frost Protection

The majority of the proposed services are provided with sufficient soil cover of 2.1 m for adequate frost protection, with the exception of a small number of catch basins and pipe sections between them within the landscaped areas. As catch basins within landscaped areas are not considered critical infrastructure and pose no risk to impacted any adjacent structures, the reduced soil cover provided is considered acceptable from a geotechnical perspective. However, consideration should still be given to implementing rigid insulation for the subject structures, as per Table 1 below.

Thermal Condition	Soil Cover Provided (mm)	Insulation Dimensions	
		Thickness (mm)	Extension (mm)
Unheated	1800-2099	50	Extend 600 mm horizontally beyond edge of the pipe
	1500-1799	50	Extend 900 mm horizontally beyond edge of the pipe
	1200-1499	75	Extend 1200 mm horizontally beyond edge of the pipe

Alternatively, instead of extending the rigid insulation 600 to 1200 mm beyond the edge of the pipe, the rigid insulation can be “boxed” around the pipe by transitioning from horizontal to vertical placement of the rigid insulation and extending to the invert pipe elevation, effectively forming a box of rigid insulation around the pipe. In this case, the rigid insulation should still be extended far enough to provide adequate spring-line and cover backfill material around the pipe.

2.3 Clay Seals

The proposed clay seal locations indicated on the servicing plans are considered adequate from a geotechnical perspective.

3.0 Landscaping Review

3.1 Tree Planting Restrictions

Paterson completed a soils review of the site to determine applicable tree planting setbacks, in accordance with the City of Ottawa Tree Planting in Sensitive Marine Clay Soils (2017 Guidelines) for trees planted within a public right-of-way (ROW). Atterberg limits testing was completed for recovered silty clay samples at selected locations throughout the subject site.



Grain size distribution and hydrometer testing was also completed on selected soil samples. The above-noted test results were completed on samples taken at depths between the anticipated underside of footing elevation and a 3.5 m depth below finished grade. The results of our testing are presented in the aforementioned geotechnical investigation report.

Based on the results of the Atterberg limit testing mentioned above, the plasticity index was found to be less than 40% in all the tested clay samples. In addition, based on the clay content found in the clay samples from the grain size distribution test results, moisture levels and consistency, the silty clay across the subject site is considered low to medium sensitivity clay and should not be designated as sensitive marine clays.

Low to Medium Sensitivity Clays

A low to medium sensitivity clay soil was encountered between the anticipated design underside of footing elevations and 3.5 m below finished grade as per City Guidelines for the entire site. Based on our Atterberg limits test results, the modified plasticity index does not exceed 40% across the site. The following tree planting setback is recommended for the entire subject site due to the presence of low to medium sensitivity clays. Large trees (mature height over 14 m) can be planted within these 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 centre of the tree trunk and verified by means of the Grading Plan as indicated procedural changes below.
- 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 are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall).
- Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree).



It is well documented in the literature, and it is our experience, that fast-growing trees located near buildings founded on cohesive soils that shrink on drying can result in long-term differential settlements of the structures. Tree varieties that have the most pronounced effect on foundations are seen to consist of poplars, willows and some maples (i.e., Manitoba Maples) and, as such, they should not be considered in the landscaping design.

3.2 Landscaping Review

Paterson reviewed the following drawings prepared by Novatech for the aforementioned development:

- ❑ Landscape Plan and Tree Conservation Plan – Block 123, 4829 Abbott Street East, Kanata — Drawing No. 110037-B123-L1 – Project No. 110037 – Revision 5 dated February 12, 2026.

Based on the above-noted drawing, a minimum setback of 4.5 m from the nearest building foundation is provided for all proposed small and medium trees at the subject site. Furthermore, a setback equal to, or greater than, the mature tree height is provided for all proposed large trees at the subject site.

Best Regards,

Paterson Group Inc.

Owen R. Canton, B.Eng.



Faisal I. Abou-Seido, P. Eng.

Attachments:

- ❑ Table 1 – Summary of Lot Grading

Table 1 - Summary of Design Details

PG2855 - Metric Homes - 950 Terry Fox Drive - Block 123

Lot/Block No.	Street	Original GS Front (m)	Proposed GS Front (m)	Original GS Rear (m)	Proposed GS Rear (m)	Finished Floor Elevation	Bearing Resistance Value - SLS (kPa)	Underside of Footing (USF) Elevation	Permissible Grade Raise Front (m)	Permissible Grade Raise Rear (m)	Eng Fill Below Footing (m)	Exceeding Permissible Grade Raise Front (m)	Exceeding Permissible Grade Raise Rear (m)	Surcharge Program	Minimum Thickness LWF in Garage and Front Porch or Slab-on-Grade (m)	Minimum Thickness LWF extending 2.4 m Beyond the building face or property line (m)	Seismic Site Class
Building 1	Abbott Street	97.55	98.57	97.65	98.49	100.34	100	96.34	n/a	n/a	no	no	no	Completed	Not Required	Not Required	Class E
Building 2	Abbott Street	97.70	98.34	97.48	98.25	100.11	100	96.11	n/a	n/a	no	no	no	Completed	Not Required	Not Required	Class E
Building 3	Abbott Street	97.40	98.04	97.30	98.06	99.85	100	95.85	n/a	n/a	no	no	no	Completed	Not Required	Not Required	Class E
Building 4	Abbott Street	97.48	98.06	97.51	98.03	99.85	100	95.85	n/a	n/a	no	no	no	Completed	Not Required	Not Required	Class E
Building 5	Abbott Street	97.46	98.28	97.50	98.27	100.17	100	96.17	n/a	n/a	no	no	no	Completed	Not Required	Not Required	Class E

Proposed grade raise information was based on the following grading plans prepared by Novatech:
 - SPB Developments Inc. (Metric Homes) Subdivision, 950 Terry Fox Drive -Grading Plan - Project No. 110037 - Drawing No. 110037-GR - Revision 7 dated February 2, 2026.
 - Bearing resistance values to be confirmed in the field by the geotechnical consultant at the time of construction.
 - Front of Block 123 Buildings 1 through 5 faces Abbott Street, rear faces Adstock Heigh