PATERSON GROUP

memorandum

re: **Grading Plan Review**
50 Flavescent Lane
Ottawa, Ontario

to: Urbandale Corporation – **Vincent Denomme** – vdenomme@urbandale.com

date: October 28, 2026

file: PG8045-MEMO.01

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide the geotechnical design summary details for the proposed residential development at 50 Flavescent Lane in the City of Ottawa. This memorandum should be read in conjunction with Paterson Report PG8045-1 dated July 10, 2026.

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

- ❒ Block number
- ❒ Original grade elevations, based on topographic survey by others
- ❒ Proposed finished grade elevations
- ❒ Proposed underside of footing (USF) elevations
- ❒ Bearing resistance values at SLS
- ❒ Seismic Site Class
- ❒ Maximum permissible grade raise
- ❒ Estimated engineered fill thickness below USF
- ❒ Lightweight fill (LWF) recommendations, if applicable
- ❒ Tree planting setback

Grading Plan Review

Paterson reviewed the following plans prepared by Arcadis for the aforementioned development:

- ❒ Grading Plan – Sheet No. C-220, Project No. 30339828, Issue 2 dated June 30, 2026
- ❒ Existing Conditions – Sheet No. C-001, Project No. 30339828, Issue 2 dated June 30, 2026

Due to the presence of silty clay deposit at the site, a permissible grade raise restriction of 2.5 m is recommended. Based on our review of the plans referenced above, the proposed grading at the subject site is within the recommended permissible grade raise. Therefore, the proposed grading at the subject blocks is considered acceptable from a

geotechnical perspective, and lightweight is not required.

Bearing Resistance Values for Foundation Design

Based on our review of the above noted plans, it is expected that the buildings will be founded over an undisturbed hard to stiff silty clay bearing surface or engineered fill over an undisturbed bearing surface consisting of hard to stiff brown silty clay. Strip footings up to 3 m wide, and pad footings up to 5 m wide, placed on the above-noted surface, can be designed using a bearing resistance value at SLS of 100 kPa and a factored bearing resistance value at ULS of 150 kPa. A geotechnical resistance factor of 0.5 was applied to the bearing resistance values at ULS.

Footings placed on a soil bearing surface and designed using the above-noted bearing resistance value at SLS will be subjected to potential post-construction total and differential settlements of 25 and 20 mm, respectively.

Protection of Footings Against Frost Action

Perimeter footings of heated structures are required to be insulated against the deleterious effect of frost action. A minimum of 1.5 m thick soil cover (or equivalent) should be provided in this regard.

Exterior unheated footings, such as isolated piers, are more prone to deleterious movement associated with frost action than the exterior walls of the structure, and require additional protection, such as soil cover of 2.1 m, or an equivalent combination of soil cover and foundation insulation.

Based on our review of the grading plans, all blocks were noted to have been provided with sufficient soil cover.

Tree Planting Restrictions

Based on the subsurface profile at the test hole locations, a low to medium sensitivity clay soil was encountered throughout the site. Based on our Atterberg limits test results, the modified plasticity index does not exceed 40% in these areas. The following tree planting setbacks are recommended for the low to medium sensitivity area.

Large trees (mature height over 14 m) can be planted within these areas where 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:

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- ❑ 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.

- ❑ A small tree must be provided with a minimum of 25 m^3 of available soil volume while a medium tree must be provided with a minimum of 30 m^3 of available soil volume, as determined by the Landscape Architect. The developer is to ensure that the soil is generally un-compacted 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).

Swimming Pools, Hot Tubs, Decks and Additions

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 neighboring foundations. Otherwise, pool construction is considered routine, and can be constructed in accordance with the manufacturer`s requirements.

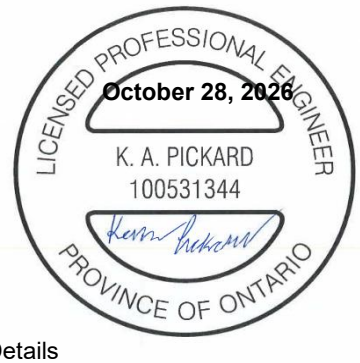
Additional grading around the hot tub should not exceed permissible grade raises. Otherwise, hot tub construction is considered routine, and can be constructed in accordance with the manufacturer's specifications.

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

We trust that the current submission meets your immediate requirements.

Paterson Group Inc.





Kevin A. Pickard, P.Eng.

Attachments

- ❒ Table 1 - Summary of Design Details

Table 1 - Summary of Design Details
PG8045 - 50 Flavescent Lane, Ottawa

Block Number	Corner / Wall face	Original GS* (m)	Proposed GS (m)	Underside of Footing Elevation (m)	Bearing Resistance Value at SLS** (kPa)	Seismic Site Class	Frost Check Front (m)	Permissible Grade Raise (m)	Above Permissible Grade Raise (m)	Engineered Fill Thickness (m)	Minimum Thickness LWF in Garage and Front Porch (m)	Minimum Thickness LWF and Extents (m)
Building 'A' North	Southeast Corner	91.19	92.90	91.00	100	X_D	1.90	2.50	0.00	0.11	0.0	n/a
	Mid-East facing wall	91.10	92.90	91.00	100	X_D	1.90	2.50	0.00	0.20	0.0	n/a
	Northeast Corner	91.14	92.80	91.00	100	X_D	1.80	2.50	0.00	0.16	0.0	n/a
	Northwest Corner	90.79	92.80	91.00	100	X_D	1.80	2.50	0.00	0.51	0.0	n/a
	Northwest Interior Corner	90.81	92.85	91.00	100	X_D	1.85	2.50	0.00	0.49	0.0	n/a
	Mid-West facing wall	90.92	92.75	91.00	100	X_D	1.75	2.50	0.00	0.38	0.0	n/a
	Southwest Corner	90.99	92.90	91.00	100	X_D	1.90	2.50	0.00	0.31	0.0	n/a
Building 'A' South	Southeast Corner	90.86	92.85	91.00	100	X_D	1.85	2.50	0.00	0.44	0.0	n/a
	Mid-East facing wall	91.02	93.05	91.00	100	X_D	2.05	2.50	0.00	0.28	0.0	n/a
	Northeast Corner	91.19	92.90	91.00	100	X_D	1.90	2.50	0.00	0.11	0.0	n/a
	Northwest Corner	90.99	92.90	91.00	100	X_D	1.90	2.50	0.00	0.31	0.0	n/a
	Mid-West facing wall	90.95	92.75	91.00	100	X_D	1.75	2.50	0.00	0.35	0.0	n/a
	Southwest Corner	90.93	92.90	91.00	100	X_D	1.90	2.50	0.00	0.37	0.0	n/a
Building 'B'	North Wall	90.95	92.50	90.70	100	X_D	1.80	2.50	0.00	0.05	0.0	n/a
	East Wall	90.96	92.75	90.70	100	X_D	2.05	2.50	0.00	0.04	0.0	n/a
	South Wall	90.73	92.75	90.70	100	X_D	2.05	2.50	0.00	0.27	0.0	n/a
	West Wall	90.85	92.75	90.70	100	X_D	2.05	2.50	0.00	0.15	0.0	n/a

Notes:

- *Original ground surface elevations have been assigned taking into consideration exisitng fill thickness, and the topographic survey data presented on Drawing C-001 Issue 1 Project No: 30339828 by prepared by Arcadis
- Proposed grade raise information was based on Grading Plan - She No. C-220, Project No. 30339828, Issue 2 dated June 30, 2026 by Arcadis.

**Bearing resistance values presented are estimates and must be confirmed by Paterson in the field at the time of construction