



**re: Geotechnical Review of Site Servicing Drawings**  
**Proposed Residential Development**  
**Chapman Mills Drive and Riocan Avenue - Ottawa**  
**to: Minto Communities – Mr. Carl Furney - [cfurney@minto.com](mailto:cfurney@minto.com)**  
**to: DSEL – Mr. Alex Tourigny – [atourigny@dsel.ca](mailto:atourigny@dsel.ca)**  
**date: June 27, 2023**  
**file: PG5636-MEMO.02**

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Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a geotechnical review of the site servicing and grading plans prepared for the proposed residential development to be located at the subject site. The following memorandum should be read in conjunction with the current Geotechnical Investigation Report (Paterson Group Report PG5636-2 Revision 2 dated June 27, 2023).

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

- Existing ground surface elevation
- Proposed finished grade elevation
- Bearing resistance values at SLS
- Proposed underside of footing (USF) elevation
- Maximum permissible grade raise
- Lightweight fill (LWF) recommendations
- Seismic site class

## **Grading Plan Review**

Paterson reviewed the following grading plans prepared by DSEL for the aforementioned residential development:

- Grading Plan West – Barrhaven Town Centre Stage 1 - Project No. 15-816 – Sheet No 5 - Revision 2 dated March 10, 2023.
- Grading Plan East – Barrhaven Town Centre Stage 1 - Project No. 15-816 – Sheet No 6 - Revision 2 dated March 10, 2023.

Generally, the subsurface profile consists of fill material underlain by a silty clay crust and/or a glacial till deposit. Where the silty clay deposit was present below the footings of the proposed structures, a permissible grade raise restriction of 2.0 m was provided. Refer to Drawing PG5636-2 – Permissible Grade Raise Areas attached to the present report





Based on our review of the grading plans provided, the proposed grades are considered acceptable from a geotechnical perspective and no lightweight fill (LWF) or other considerations to accommodate the proposed grades are required. Reference should be made to Table 1 – Summary of Grading Design Details attached to the current report.

## **Bearing Resistance Values for Foundation Design**

Based on our review of the above noted grading plans, it is expected that the buildings will be founded over conventional shallow footings placed on an undisturbed, very stiff silty clay and/or dense to compact glacial till deposit.

Strip footings, up to 3 m wide, and pad footings, up to 5 m wide, placed on an undisturbed, very stiff to stiff silty clay bearing surface 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**. A geotechnical resistance factor of 0.5 was applied to the above noted bearing resistance value at ULS.

Conventional spread footings placed on an undisturbed, compact to very dense glacial till bearing surface can be designed using a bearing resistance value at serviceability limit state (SLS) of **200 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **300 kPa**.

Conventional spread footings placed on upon an approved engineered fill bearing surface can be designed using a bearing resistance value at serviceability limit state (SLS) of **150 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **225 kPa**.

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

Strip footings placed on a soil bearing surface and designed using the bearing resistance values at SLS given above will be subjected to potential post construction total and differential settlements of 25 to 20 mm, respectively.

## **Backfill Within Lateral Support Zones for Buildings and Retaining Walls**

Based on our review, it is expected the depth of the basements for the townhouses that will be located above a parking garage structure will result in excavation footprints that extend into lateral support zones for buildings and services surrounding these structures. The extent of the potential undermining will depend on the size of the excavation undertaken without the use of a temporary shoring system. Further, it is expected the trenches undertaken for the storm alignment east of STM112 along Building 01 and the sanitary service between SAN143A and SAN 145A along Building 07 will undermine the lateral support zone for the adjacent structures.



Based on our review, the following recommendations could be considered for the placement of backfill around the perimeter of the future townhouses which will be provided a level of underground parking and where temporary shoring systems would not be considered:

- ❑ Suitable site-generated existing fill material, approved on-site by Paterson prior to use and expected to consist of relatively workable brown silty clay and/or glacial till can be using for backfilling against the building footprints. It is expected existing fill consisting of grey clay and/or fill with high organic (i.e., stumps, logs, peat, etc.) and deleterious material (inorganic debris, non-soil fill material) content would not be suitable for re-use.
- ❑ Grey silty clay is not expected to be considered acceptable for this purpose. Cobbles and stones larger than 200 mm in diameter should be segregated from the fill prior to re-use. Other deleterious materials not considered suitable for re-use will be determined and be requested to be removed from being segregated at the time of construction by Paterson personnel. The site-generated fill considered for this purpose should be reviewed and assessed by Paterson personnel at the time of segregation/excavation and as coordinated with the site's earthworks contractor.
- ❑ Site-generated fill, approved by Paterson personnel, should be placed in maximum 300 mm thick loose lifts and compacted using a suitably sized vibratory sheepsfoot roller to backfill around the proposed structures back to the existing ground surface. The re-use fill material should be compacted by several passes of a suitably sized vibratory sheepsfoot roller (i.e.- 5 to 6 passes and as deemed appropriate by Paterson personnel at the time of construction).
- ❑ All material should be placed in **dry and above-freezing conditions**. Frozen material may not be considered for this purpose. This process should be reviewed and approved daily by Paterson field personnel during the placement of the fill layers.
- ❑ At the time of construction for the proposed building footprints that would overlies the previously backfilled excavation for the parking garage structures, it would be recommended to sub-excavate a minimum 500 mm below design underside of footing. The subgrade should be then proof-rolled with a suitably sized sheepsfoot roller and reviewed at the time of proof-rolling by Paterson personnel. Once approved, the sub-excavation may be in-filled with engineered fill, such as OPSS Granular A or OPSS Granular B Type II crushed stone, placed in maximum 300 mm thick loose lifts and compacted to a minimum of 98% of the materials SPMDD.



- ❑ A similar procedure will address this concern for the affected retaining walls at the time of completing their designs.

### **Service Pipes Placed Below Retaining Walls**

It is understood several service alignments will be installed across and below the footprint of several future retaining wall structures. It is recommended that all pipe alignments placed below a future retaining wall be sleeved with a slightly larger diameter pipe across the lateral support zone (taken as a zone extending 1.5H:1V outwards and downwards from the bottom-most edges of the granular base pad) for the overlying retaining wall. This would permit the pipe to be installed below the retaining wall without it being subject to loading associated with the overlying retaining wall. The placement of fill above the above service alignments should be undertaken as described in the preceding *Backfill Within Lateral Support Zones for Buildings and Retaining Walls* section.

### **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 1.5 m thick cover (or equivalent) should be provided in this regard. Based on our review of the above noted plans, the proposed founding depth of the perimeter footings for heated structures are considered acceptable and sufficient from a geotechnical perspective.

### **Landscaping and Outdoor Structure Considerations**

#### **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). The review is based on an additional investigation undertaken by Paterson throughout the remainder of the property parcel of 3265 Jockvale Road during January of 2021.

Atterberg limits testing was completed for recovered silty clay samples at selected locations during the additional investigation. 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 deposit encountered across the subject site is considered to have a low to medium potential for soil volume change and is not considered to be a sensitive marine clay.

The following tree planting setbacks are recommended for clays with a low to medium potential for soil volume change and as was encountered throughout the subject site and as shown on Drawing PG5636-3 - Tree Planting Setback Plan, attached to this memorandum. It should be noted that footings bearing upon a compact to very dense glacial till deposit are not subject to tree planting setback restrictions.

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 condition noted below are met:

- The underside of footing (USF) is 2.1 m or greater below the lowest finished grade 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 as indicated procedural changes below.
- A small tree must be provided with a minimum of 25 m<sup>3</sup> of available soil volume while a medium tree must be provided with a minimum of 30 m<sup>3</sup> 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 location.
- 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 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.



## **Aboveground Swimming Pools, Hot Tubs and Exterior Decks**

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.

Additional grading around hot tubs 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 decks or additions should not exceed permissible grade raises where the silty clay deposit is present. Otherwise, standard construction practices are considered acceptable.

## **Site Servicing Plan Review**

Paterson reviewed the following servicing plans prepared by DSEL for the aforementioned development:

- General Notes – Barrhaven Town Centre Stage 1 – Project No. 15-186 – Sheet No.1 – Revision 2 dated March 10, 2023
- Details and Table - Barrhaven Town Centre Stage 1 – Project No. 15-186 – Sheet No.2 – Revision 2 dated March 10, 2023
- General Plan West - Barrhaven Town Centre Stage 1 – Project No. 15-186 – Sheet No.3 – Revision 2 dated March 10, 2023
- General Plan East - Barrhaven Town Centre Stage 1 – Project No. 15-186 – Sheet No.4 – Revision 2 dated March 10, 2023

Based on our review of the above-noted site service plans, the majority of the design details, including pavement structure, pipe bedding and backfill and adequate frost protection of services have sufficiently been incorporated into the above-noted drawings and considered to be acceptable from a geotechnical perspective.



We trust that this information satisfies your immediate requirements.

Best Regards,

**Paterson Group Inc.**

Drew Petahtegoose, B.Eng.

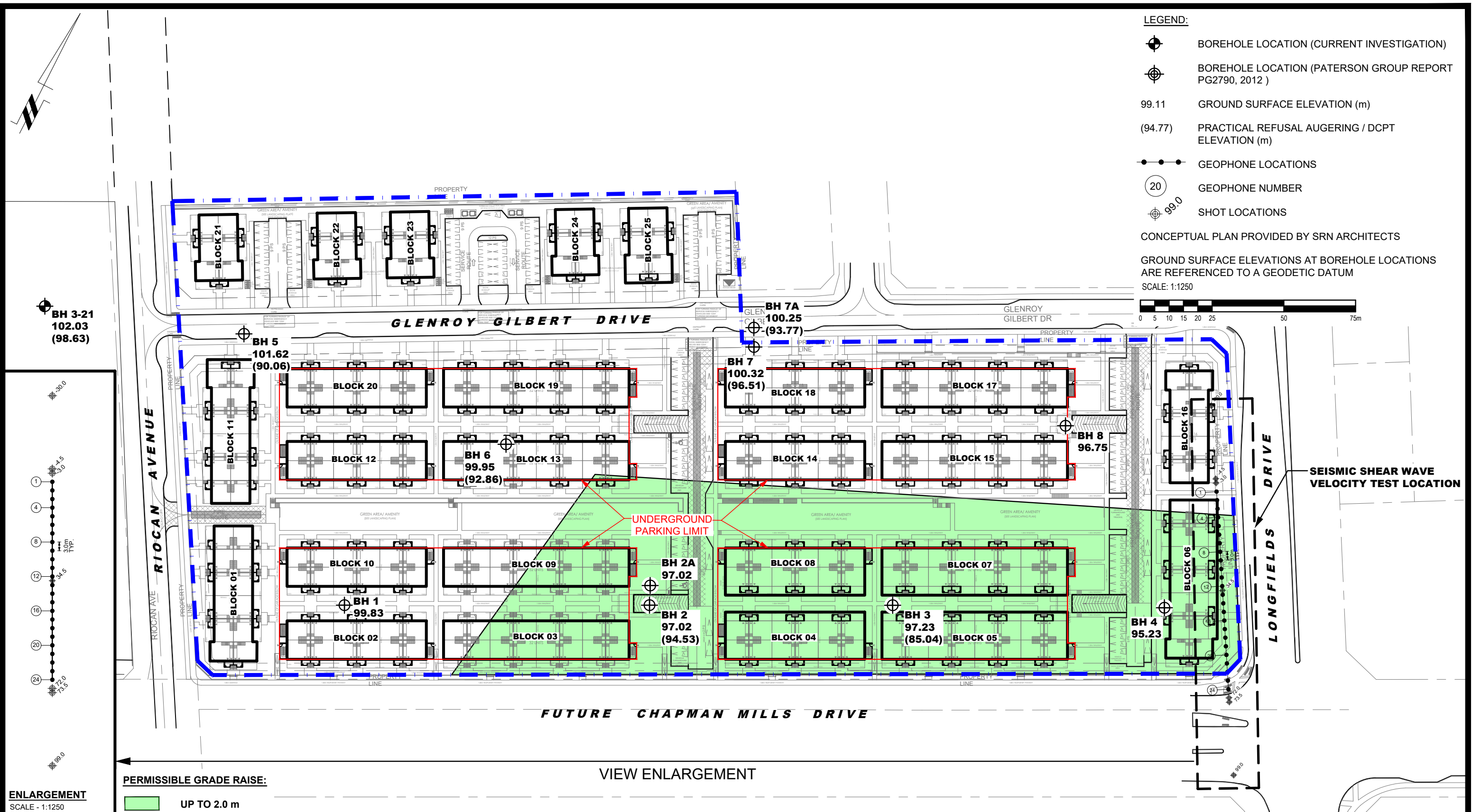


David J. Gilbert, P.Eng.

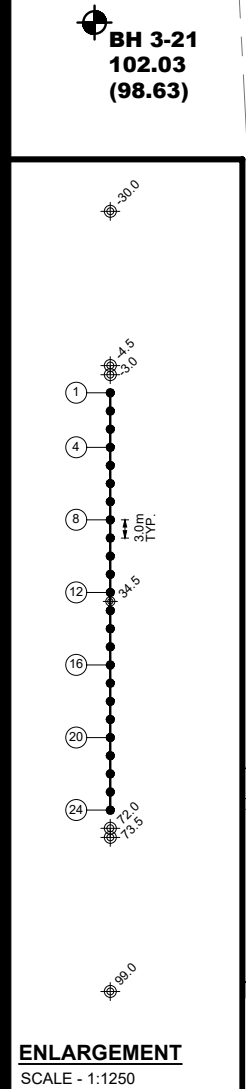
**Attachments**

- Drawing PG5636-2 – Permissible Grade Raise Plan
- Drawing PG5636-3 – Tree Planting Setback Plan
- Table 1 – Summary of Design Details





- LEGEND:**
- BOREHOLE LOCATION (CURRENT INVESTIGATION)
  - BOREHOLE LOCATION (PATERSON GROUP REPORT PG2790, 2012)
  - 99.11 GROUND SURFACE ELEVATION (m)
  - (94.77) PRACTICAL REFUSAL AUGERING / DCPT ELEVATION (m)
  - GEOPHONE LOCATIONS
  - GEOPHONE NUMBER
  - SHOT LOCATIONS
- CONCEPTUAL PLAN PROVIDED BY SRN ARCHITECTS
- GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM
- SCALE: 1:1250



**PERMISSIBLE GRADE RAISE:**

UP TO 2.0 m

VIEW ENLARGEMENT

**PATERSON GROUP**  
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 OTTAWA, ON  
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NO.	REVISIONS	DATE	INITIAL
2	UPDATED DRAWING TO LATEST CONCEPTUAL PLAN	07/06/2023	KB
1	UPDATED LATEST CONCEPTUAL PLAN TO DRAWING	23/11/2021	FC

**MINTO COMMUNITIES  
 GEOTECHNICAL INVESTIGATION  
 PROPOSED RESIDENTIAL DEVELOPMENT  
 CHAPMAN MILLS DRIVE AND RIOCAN AVENUE**

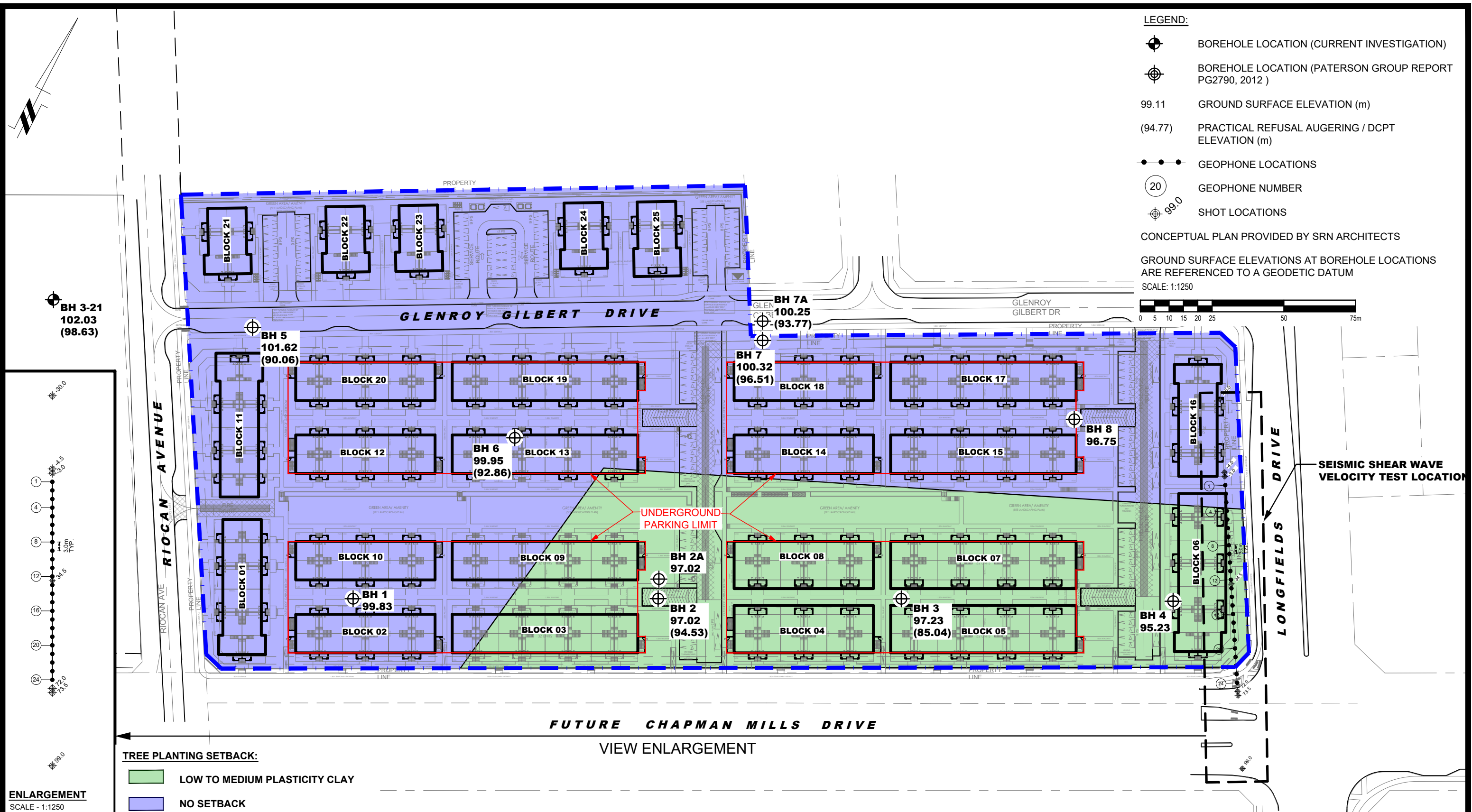
OTTAWA, ONTARIO

**PERMISSIBLE GRADE RAISE PLAN**

Scale:	1:1250	Date:	08/2021
Drawn by:	YA	Report No.:	PG5636-REP.02
Checked by:	DP	Dwg. No.:	<b>PG5636-2</b>
Approved by:	DJG	Revision No.:	2

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**MINTO COMMUNITIES  
GEOTECHNICAL INVESTIGATION  
PROPOSED RESIDENTIAL DEVELOPMENT  
CHAPMAN MILLS DRIVE AND RIOCAN AVENUE**

OTTAWA, ONTARIO

**TREE PLANTING SETBACK RECOMMENDATIONS PLAN**

Scale:	1:1250	Date:	08/2021
Drawn by:	YA	Report No.:	PG5636-REP.02
Checked by:	DP	Dwg. No.:	<b>PG5636-3</b>
Approved by:	DJG	Revision No.:	2

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**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 1	A	Exterior	98.03	200	102.50	100.05	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	98.03	200	101.50	99.87	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	98.03	200	100.30	99.87	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	97.85	200	100.43	99.87	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	97.85	200	100.40	99.76	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	97.85	200	100.00	99.69	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	97.85	200	103.51	99.69	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	97.85	200	103.14	99.69	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	97.85	200	102.49	99.83	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	98.03	200	100.31	99.87	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	98.03	200	100.50	99.87	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	98.03	200	101.00	100.05	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 2	A	Exterior	93.86	200	100.50	99.16	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	93.86	200	100.38	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	93.86	200	100.00	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	93.86	200	99.75	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	93.86	200	99.50	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	93.86	200	99.50	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	93.86	200	102.00	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	93.86	200	99.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	93.86	200	99.10	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	93.86	200	102.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	93.86	200	99.90	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	93.86	200	99.90	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	93.86	200	99.90	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	N	Interior	93.86	200	100.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
O	Interior	93.86	200	100.25	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	93.86	200	100.50	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
Block 3	A	Exterior	93.36	200	98.50	98.66	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	93.36	200	98.50	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	93.36	200	98.75	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	93.36	200	100.00	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	93.36	200	97.75	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	93.36	200	97.40	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	93.36	200	97.00	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	93.36	200	97.50	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	93.36	200	97.50	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	93.36	200	98.00	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
K	Interior	93.36	200	98.17	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C	
L	Exterior	93.36	200	98.90	98.66	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C	

**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 4	A	Exterior	91.67	200	96.68	96.96	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	91.67	200	96.80	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	91.67	200	97.00	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	91.67	200	97.00	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	91.67	200	97.00	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	91.67	200	97.00	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	91.67	200	96.75	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	91.67	200	96.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	91.67	200	96.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	91.67	200	96.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	91.67	200	96.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	91.67	200	96.75	96.93	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
Block 5	A	Exterior	91.17	200	96.80	96.59	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	91.17	200	96.75	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	91.17	200	96.60	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	91.17	200	96.55	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	91.17	200	96.50	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	91.17	200	96.40	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	91.17	200	96.30	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	91.17	200	96.20	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	91.17	200	96.10	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	91.17	200	96.15	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	91.17	200	96.15	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	91.17	200	96.35	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	91.17	200	96.50	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	N	Interior	91.17	200	96.55	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
O	Interior	91.17	200	96.60	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	91.17	200	96.70	96.59	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C	

**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 6	A	Exterior	93.90	150	96.00	95.80	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	93.90	150	95.90	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	93.90	150	95.84	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	93.90	150	95.70	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	93.90	150	95.60	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	93.90	150	95.40	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	93.90	150	95.30	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	93.90	150	95.31	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	93.90	150	95.35	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	93.90	150	95.49	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	93.90	150	95.70	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	93.90	150	95.75	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	93.90	150	96.00	95.74	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	N	Exterior	93.90	150	96.13	95.87	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
Block 7	A	Exterior	91.17	200	97.25	96.73	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	91.17	200	97.35	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	91.17	200	97.40	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	91.17	200	97.45	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	91.17	200	97.35	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	91.17	200	97.15	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	91.17	200	96.80	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	91.17	200	96.75	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	91.17	200	96.50	96.31	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	91.17	200	96.75	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	91.17	200	96.85	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	91.17	200	96.90	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	91.17	200	97.00	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	N	Interior	91.17	200	97.00	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
O	Interior	91.17	200	97.15	96.45	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	91.17	200	97.25	96.73	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C	

**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 8	A	Exterior	91.67	200	97.75	97.21	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	91.67	200	97.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	91.67	200	97.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	91.67	200	97.75	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	91.67	200	97.50	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	91.67	200	97.25	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	91.67	200	97.25	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	91.67	200	97.25	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	91.67	200	97.50	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	91.67	200	97.50	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	91.67	200	97.50	96.95	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	91.67	200	97.50	96.81	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
Block 9	A	Exterior	93.36	200	98.80	98.80	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	93.36	200	98.90	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	93.36	200	98.75	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	93.36	200	98.50	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	93.36	200	98.25	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	93.36	200	98.00	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	93.36	200	97.80	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	93.36	200	98.00	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	93.36	200	98.20	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	93.36	200	98.50	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	93.36	200	98.75	98.64	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	93.36	200	99.00	98.50	n/a	n/a	2.00	0.00	n/a	n/a	n/a	n/a	C
Block 10	A	Exterior	93.86	200	100.26	99.36	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	93.86	200	100.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	93.86	200	100.50	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	93.86	200	100.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	93.86	200	100.01	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	93.86	200	100.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	93.86	200	100.00	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	93.86	200	99.50	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	93.86	200	99.50	99.00	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	93.86	200	99.55	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	93.86	200	99.50	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	93.86	200	99.50	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	93.86	200	99.75	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	N	Interior	93.86	200	100.00	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
O	Interior	93.86	200	100.10	99.14	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	93.86	200	100.20	99.16	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	

**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 11	A	Exterior	98.62	200	101.93	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	98.44	200	101.91	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	98.44	200	102.50	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	98.26	200	102.85	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	98.26	200	102.00	100.10	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	98.26	200	101.01	100.07	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	98.26	200	100.90	100.07	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	98.26	200	101.21	100.10	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	98.26	200	101.45	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	98.44	200	101.81	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	98.44	200	101.90	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	98.62	200	102.00	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 12	A	Exterior	95.32	200	102.00	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	95.32	200	102.00	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	95.32	200	100.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	95.32	200	100.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	95.32	200	100.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	95.32	200	100.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	95.32	200	102.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	95.32	200	102.50	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	95.32	200	100.50	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	95.32	200	100.42	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	95.32	200	100.50	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	95.32	200	100.64	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	95.32	200	101.00	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
N	Interior	95.32	200	101.00	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
O	Interior	95.32	200	101.50	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	95.32	200	101.00	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	

**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 13	A	Exterior	95.14	200	100.37	100.39	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	95.14	200	100.00	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	95.14	200	99.80	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	95.14	200	99.80	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	95.14	200	99.80	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	95.14	200	99.80	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	95.14	200	99.80	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	95.14	200	99.80	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	95.14	200	100.00	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	95.14	200	100.00	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	95.14	200	101.00	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	95.14	200	101.50	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 14	A	Exterior	94.74	200	100.00	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	94.74	200	99.90	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	94.74	200	99.90	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	94.74	200	99.21	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	94.74	200	99.00	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	94.74	200	98.80	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	94.74	200	98.80	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	94.74	200	98.90	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	94.74	200	99.00	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	94.74	200	99.16	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	94.74	200	99.45	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	94.74	200	99.70	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C

**Table 1 - Summary of Design Details**  
**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 15	A	Exterior	94.24	200	98.70	99.59	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	94.24	200	98.60	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	94.24	200	98.50	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	94.24	200	98.20	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	94.24	200	97.75	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	94.24	200	97.60	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	94.24	200	97.40	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	94.24	200	97.20	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	94.24	200	97.15	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	94.24	200	97.35	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	94.24	200	97.60	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	94.24	200	97.80	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	94.24	200	98.20	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	N	Interior	94.24	200	98.40	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
O	Interior	94.24	200	98.50	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	94.24	200	98.63	99.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
Block 16	A	Exterior	94.01	200	96.40	96.07	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	94.01	200	96.40	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	94.01	200	96.30	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	94.01	200	96.25	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Exterior	94.01	200	96.15	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	94.01	200	96.20	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	94.01	200	96.35	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	94.01	200	96.35	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	94.01	200	96.35	95.85	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Exterior	94.01	200	96.40	95.94	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C



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**PG5636 - Minto - Chapman Mills and Greenbank Road - Barrhaven Town Centre - Ottawa**

Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 17	A	Exterior	94.24	200	98.85	99.84	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	94.24	200	98.78	99.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	94.24	200	98.78	99.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	94.24	200	98.10	99.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	94.24	200	98.22	99.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	94.24	200	97.90	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	94.24	200	97.65	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	94.24	200	97.45	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	94.24	200	97.45	99.38	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	94.24	200	97.65	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	94.24	200	97.90	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	94.24	200	98.15	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	94.24	200	98.40	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	N	Interior	94.24	200	98.60	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
O	Interior	94.24	200	98.80	99.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	94.24	200	98.80	99.84	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
Block 18	A	Exterior	94.74	200	100.25	99.94	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	94.74	200	100.70	99.94	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	94.74	200	99.40	99.94	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	94.74	200	99.40	99.94	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	94.74	200	99.25	99.94	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	94.74	200	99.10	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	94.74	200	99.00	99.84	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	94.74	200	99.17	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	94.74	200	99.25	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	94.74	200	100.00	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	94.74	200	100.25	100.02	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
L	Exterior	94.74	200	100.15	99.88	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	

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Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 19	A	Exterior	95.14	200	101.96	100.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	95.14	200	102.50	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	95.14	200	100.25	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	95.14	200	99.00	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	95.14	200	100.00	100.34	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	95.14	200	100.50	100.13	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Exterior	95.14	200	100.00	100.28	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Interior	95.14	200	99.90	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Interior	95.14	200	99.90	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	95.14	200	99.90	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	95.14	200	99.90	100.42	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Exterior	95.14	200	101.00	100.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 20	A	Exterior	95.32	200	101.72	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	95.32	200	101.50	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	95.32	200	101.28	100.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Interior	95.32	200	101.28	100.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	95.32	200	101.50	100.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Interior	95.32	200	101.50	100.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	G	Interior	95.32	200	101.50	100.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	H	Exterior	95.32	200	101.50	100.44	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	I	Exterior	95.32	200	101.00	100.46	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	J	Interior	95.32	200	101.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	K	Interior	95.32	200	100.70	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	L	Interior	95.32	200	100.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	M	Interior	95.32	200	100.50	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
N	Interior	95.32	200	101.00	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
O	Interior	95.32	200	101.25	100.60	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
P	Exterior	95.32	200	101.50	100.52	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C	
Block 21	A	Exterior	99.71	200	102.08	101.55	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	99.71	200	102.23	101.55	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Exterior	99.17	200	102.53	101.01	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Exterior	99.17	200	102.53	101.01	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	99.17	200	102.64	101.01	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	99.17	200	102.28	101.01	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C

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Lot/Block Number	Unit	Unit Type	Underside of Footing Elevation	Bearing Resistance Value at SLS	Existing GS Front	Proposed GS Front	Existing GS Rear	Proposed GS Rear	Permissible Grade Raise	Estimated Engineered Fill Below Footings	Above Permissible Grade Raise - Front	Above Permissible Grade Raise - Rear	Minimum Thickness of LWF in Garage and Front Porch	Minimum Requirements for Lightweight Fill	Seismic Site Class
			(m)	(kPa)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	
Block 22	A	Exterior	98.87	200	101.85	100.71	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	98.87	200	102.66	100.71	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Exterior	98.87	200	102.79	100.71	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Exterior	98.87	200	102.66	100.71	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	98.87	200	102.53	100.71	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	98.87	200	102.06	100.71	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 23	A	Exterior	98.69	200	102.15	100.53	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	98.69	200	102.41	100.53	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Exterior	98.69	200	102.24	100.53	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Exterior	98.69	200	102.36	100.53	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	98.69	200	102.39	100.53	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	98.69	200	102.25	100.53	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 24	A	Exterior	98.35	200	102.20	100.19	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	98.35	200	102.26	100.19	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Exterior	98.35	200	102.14	100.19	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Exterior	98.35	200	102.14	100.19	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	98.35	200	102.26	100.19	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	98.35	200	102.18	100.19	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
Block 25	A	Exterior	98.22	200	102.21	100.10	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	B	Interior	98.22	200	101.80	100.06	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	C	Interior	98.22	200	101.80	100.10	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	D	Exterior	98.22	200	101.00	100.06	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	E	Interior	98.22	200	102.00	100.06	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C
	F	Exterior	98.22	200	102.00	100.06	n/a	n/a	n/a	0.00	n/a	n/a	n/a	n/a	C

**Notes:**

- Proposed Grade Raise Information based on the following grading plan prepared by DSEL
- Barrhaven Town Centre Stage 1 - Grading Plan West - Project No. 15-816 - Sheet No. 5 - Revision 2 dated March 10, 2023.
- Barrhaven Town Centre Stage 1 - Grading Plan East - Project No. 15-816 - Sheet No. 6 - Revision 2 dated March 10, 2023.
- Block numbering assigned based on Site Plan prepared by SRN Architects. Unit identifier assigned counter-clockwise, starting from top left corner plan-view.
- Where back grades are not present they are marked as "n/a".