



re: Geotechnical Review – Grading Plan
Proposed commercial Development
30 Frank Nighbor Place - Kanata, ontario

to: UHAUL. – Mr. David Pollock – daivd.pollock@uhaul.com
UHAUL – Mr. Jake Spelic – jake_spelic@uhaul.com

date: September 9, 2022

file: PG6153-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. The following memorandum should be read in conjunction with Paterson Report PG6153-1 Revision 1, dated April 28, 2022.

Background Information

Generally, the soil profile at the test hole locations consists of fill and/or topsoil overlying a discontinuous layer of sandy silt/silty sand, in turn overlying a deep silty clay deposit. Due to the presence of a silty clay deposit a permissible grade raise restriction will be required for the site. Based on available information and the measured shear strength, consistency and Paterson's experience in the area, the permissible grade raise restriction varies within the subject site above existing ground surface.

Grading Plan Review

Paterson reviewed the following Grading Plans prepared by Novatech for the proposed commercial development to be located at the aforementioned site as part of the geotechnical assessment:

- Project No. 121326 - Drawings No. 121326-GR1 Revision 2 – Grading and Erosion & Sediment Control Plan dated August 30, 2022.
- Project No. 121326 - Drawings No. 121326-GR2 Revision 2 – Grading and Erosion & Sediment Control Plan dated August 30, 2022.

Based on our review of the above noted drawing, the proposed grading for the portable buildings B, C and D meets our recommended permissible grade raise recommendations provided in the geotechnical report. Therefore, no lightweight fill is required for the buildings B, C and D. However, Building A exceeds the permissible grade raise recommendations. Our grading summary and lightweight fill recommendations are presented in Table 1 – Soil Matrix Summary attached





The LWF material should consists of EPS 19 under the slab on grade, EPS 12 around the reminder of foundation under landscaped area and EPS 15 should be used below paved areas. The LWF should be placed against the foundation wall, above the footing and a minimum of 300 mm below the finish surface. The LWF EPS blocks should extend a minimum of 2.4 m outside the foundation wall with the thicknesses recommended in the attached Table 1.

The EPS should be covered with a polyethylene sheet and surrounded with a non-woven geotextile such as Terrafix 270R. The 300 mm fill layer on top of the LWF can consist of fill soil covered with a minimum of 100 of topsoil. Lightweight fill material specifications and cover recommendations are provided in Figure 1 attached to the current report.

Where LWF is placed under the slab on grade, the fill layer should consist of 150 mm of OPSS Granular A should be placed under the concrete slab and above the LWF. The EPS should be covered with a non-woven geotextile such as Terrafix 270R.

Where LWF is placed under a pavement structure, the fill on top of the EPS block should consist of a minimum layer of 300 mm of imported OPSS Granular A.

Paterson should review the LWF placement and complete compaction testing on imported fill during the construction activities.

Given the variance in the fill material, the bulking factor will vary between 20 to 30% for fill and sand. For clay it will be between 30 to 40% depending on the moisture content.

We trust that the current submission meets your immediate requirements.

Best Regards,

Paterson Group Inc.

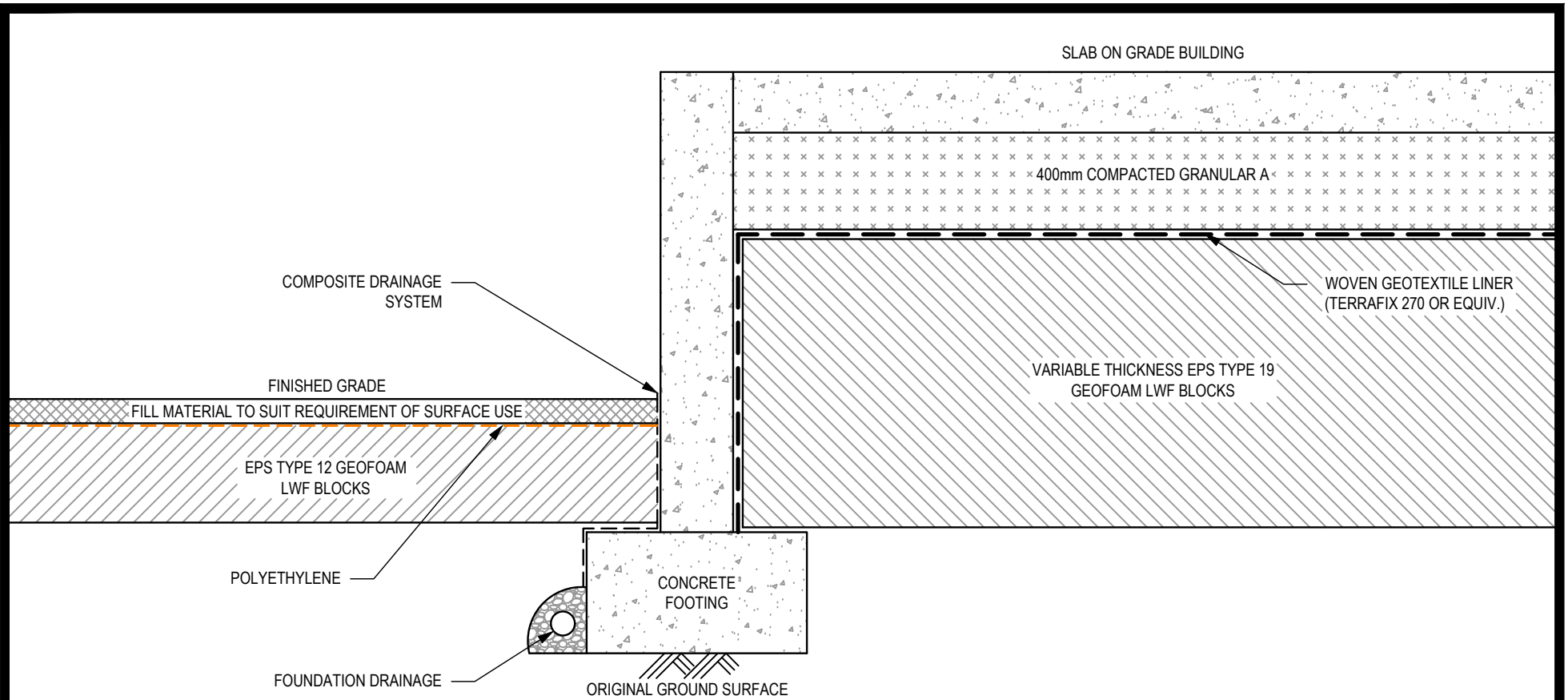
Balaji Nirmala, M.Eng.



Joey R. Villeneuve, M.A.Sc., P.Eng, ing.

Attachments

- Figure 1 – EPS Block Installation
- Table 1 – Summary of Design Details
- Markup – 121326-GR1



NOTES:

1. USE EPS19 BELOW SLAB-ON-GRADE
2. USE EPS12 BELOW LANDSCAPED AREAS
3. USE EPS15 BELOW PAVED AREAS
4. MINIMUM GRANULAR THICKNESS OVER LWF SHOULD BE AS FOLLOWS:
 UNDER THE SLAB 150mm OF OPSS GRANULAR A
 LANDSCAPED 300mm OF OPSS GRANULAR A
 PAVEMENT STRUCTURE 300mm OF OPSS GRANULAR A
5. PLACEMENT OF LWF SHOULD BE ON A LEVELLED SURFACE (SAND CAN BE USED TO PROVIDE AN ADEQUATE LEVELLING SURFACE).



**U-HAUL MOVING & STORAGE OTTAWA
 GEOTECHNICAL INVESTIGATION
 PROPOSED DEVELOPMENT - 30 FRANK NIGHBOR PLACE**

OTTAWA,
 Title:

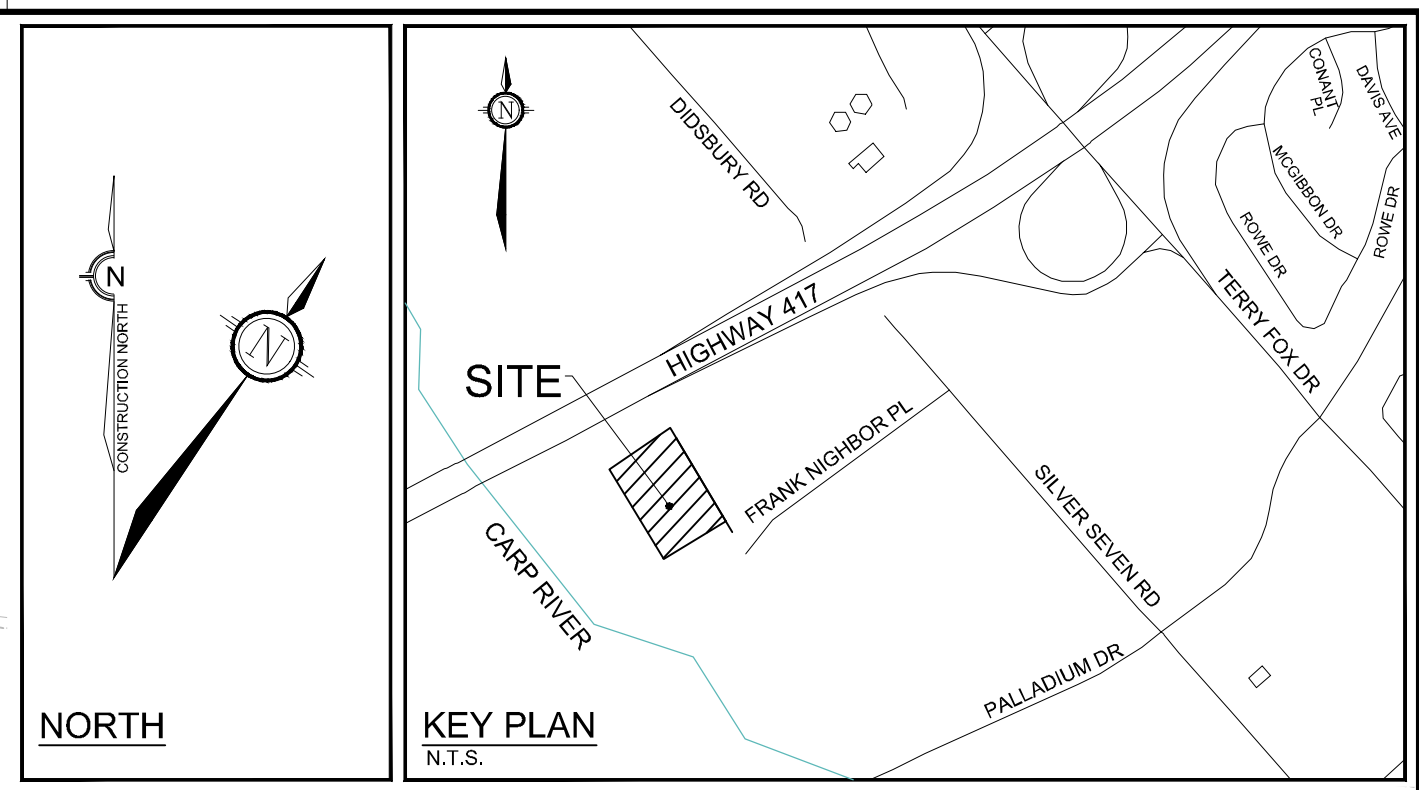
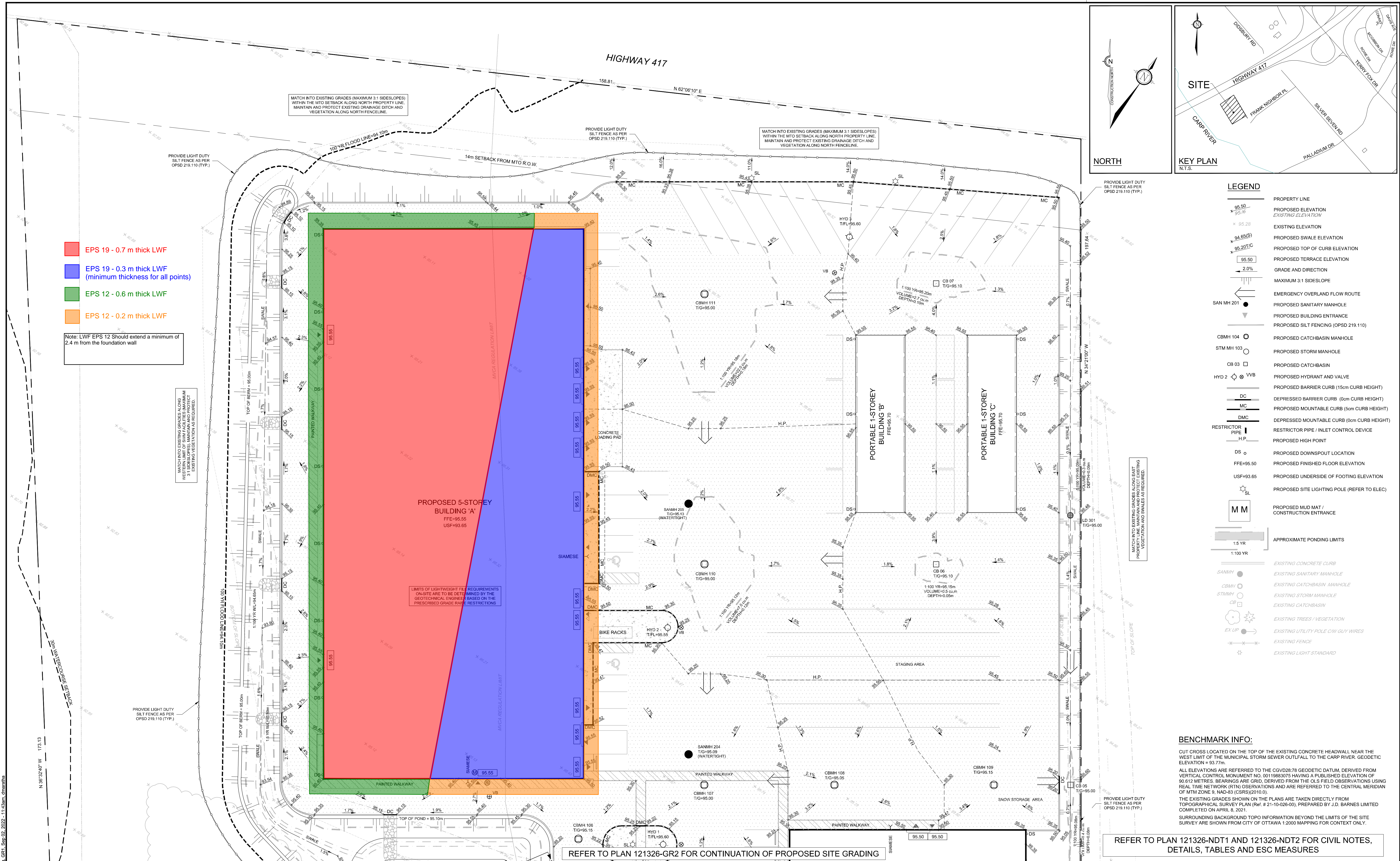
ONTARIO

**SLAB-ON-GRADE
 LIGHTWEIGHT FILL DETAIL**

Scale:	N.T.S.	Date:	09/2022
Drawn by:	NFRV	Report No.:	PG6153-1
Checked by:	BN	Drawing No.:	FIGURE 1
Approved by:	JV	Revision No.:	

Table 1 - Summary of Lot Grading Details
PG6153 - 30 Frank Nighbor Place

Building	Lot Number	Civic Address	Building type	Original GS Front	Proposed GS Front	Original GS Rear	Proposed GS Rear	Underside of Footing Elevation	Bearing Resistance Value at SLS	Permissible Grade Raise Elevation	Above Permissible Grade Raise Front	Above Permissible Grade Raise Rear	Minimum Thickness LWF within Slab on Grade	Minimum Thickness LWF and Extents	Surcharge Program	Notes
				(m)	(m)	(m)	(m)	(m)	(kPa)	(m)	(m)	(m)	(m)			
A	n/a	30 Frank Nighbor Place	5 Storey	95.22	95.55	95.06	95.55	93.65	150	Front - 95.40 Back - 95.00	0.18	0.60	0.3m thick LWF within front half the building, 0.7m thick LWF within back half of the building	0.2m thick LWF along front extending 2.4 m beyond building face, 0.6m thick LWF along sides extending to a max. of 2.4 m or property line, 0.6m thick LWF along rear extending 2.4 m beyond building rear face	No	
B	n/a	30 Frank Nighbor Place	Portable 1-Storey	95.75	95.55	95.75	95.55	n/a	150	95.60	0.00	0.00	n/a	n/a	No	
C	n/a	30 Frank Nighbor Place	Portable 1-Storey	95.67	95.55	95.76	95.44	n/a	150	95.60	0.00	0.00	n/a	n/a	No	
D	n/a	30 Frank Nighbor Place	1 - Storey	95.52	95.50	95.71	95.50	93.65	150	95.60	0.00	0.00	n/a	n/a	No	
Notes:																
- Proposed grade raise information was based on the following grading plans prepared by Novatech:																
- Project No. 121326 - Drawings No. 121326-GR1 Revision 2 – Grading and Erosion & Sediment Control Plan dated August 30, 2022.																
- Project No. 121326 - Drawings No. 121326-GR2 Revision 2 – Grading and Erosion & Sediment Control Plan dated August 30, 2022.																



- EPS 19 - 0.7 m thick LWF
- EPS 19 - 0.3 m thick LWF (minimum thickness for all points)
- EPS 12 - 0.6 m thick LWF
- EPS 12 - 0.2 m thick LWF

Note: LWF EPS 12 Should extend a minimum of 2.4 m from the foundation wall

- LEGEND**
- 95.50 — PROPERTY LINE
 - 95.10 — PROPOSED ELEVATION
 - 95.28 — EXISTING ELEVATION
 - 94.65(S) — PROPOSED SWALE ELEVATION
 - 95.20(T/C) — PROPOSED TOP OF CURB ELEVATION
 - 95.50 — PROPOSED TERRACE ELEVATION
 - 2.0% — GRADE AND DIRECTION
 - 3:1 — MAXIMUM 3:1 SIDESLOPE
 - — EMERGENCY OVERLAND FLOW ROUTE
 - SAN MH 201 — PROPOSED SANITARY MANHOLE
 - ▼ — PROPOSED BUILDING ENTRANCE
 - ▼ — PROPOSED SILT FENCING (OPSD 219.110)
 - CBMH 104 — PROPOSED CATCHBASIN MANHOLE
 - STM MH 103 — PROPOSED STORM MANHOLE
 - CB 03 — PROPOSED CATCHBASIN
 - HYD 2 — PROPOSED HYDRANT AND VALVE
 - DC — PROPOSED BARRIER CURB (15cm CURB HEIGHT)
 - MC — PROPOSED MOUNTABLE CURB (5cm CURB HEIGHT)
 - DMC — PROPOSED MOUNTABLE CURB (6cm CURB HEIGHT)
 - — RESTRICTOR PIPE / INLET CONTROL DEVICE
 - H.P. — PROPOSED HIGH POINT
 - DS — PROPOSED DOWNSPOUT LOCATION
 - FFE=95.50 — PROPOSED FINISHED FLOOR ELEVATION
 - USF=93.65 — PROPOSED UNDERSIDE OF FOOTING ELEVATION
 - — PROPOSED SITE LIGHTING POLE (REFER TO ELEC)
 - M M — PROPOSED MUD MAT / CONSTRUCTION ENTRANCE
 - — APPROXIMATE PONDING LIMITS
 - 1.5 YR — EXISTING CONCRETE CURB
 - 1:100 YR — EXISTING SANITARY MANHOLE
 - — EXISTING CATCHBASIN / MANHOLE
 - — EXISTING STORM MANHOLE
 - — EXISTING CATCHBASIN
 - — EXISTING TREES / VEGETATION
 - — EXISTING UTILITY POLE / CW GUY WIRES
 - — EXISTING FENCE
 - — EXISTING LIGHT STANDARD

BENCHMARK INFO:
 CUT CROSS LOCATED ON THE TOP OF THE EXISTING CONCRETE HEADWALL NEAR THE WEST LIMIT OF THE MUNICIPAL STORM SEWER OUTFALL TO THE CARP RIVER. GEODETIC ELEVATION = 93.7m.
 ALL ELEVATIONS ARE REFERRED TO THE CGVD28:78 GEODETIC DATUM, DERIVED FROM VERTICAL CONTROL MONUMENT NO. 00119883075 HAVING A PUBLISHED ELEVATION OF 90.912 METRES. BENCHMARKS ARE GRID, DERIVED FROM THE OLS FIELD OBSERVATIONS USING REAL TIME NETWORK (RTN) OBSERVATIONS AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD-83 (CSRS)(2010.0).
 THE EXISTING GRADES SHOWN ON THE PLANS ARE TAKEN DIRECTLY FROM TOPOGRAPHICAL SURVEY PLAN (Ref. # 21-10-029-00), PREPARED BY J.D. BARNES LIMITED COMPLETED ON APRIL 8, 2021.
 SURROUNDING BACKGROUND TOPO INFORMATION BEYOND THE LIMITS OF THE SITE SURVEY ARE SHOWN FROM CITY OF OTTAWA 1:2000 MAPPING FOR CONTEXT ONLY.

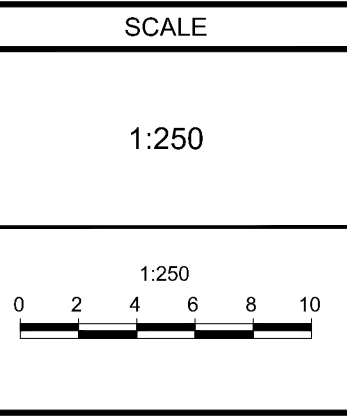
REFER TO PLAN 121326-NDT1 AND 121326-NDT2 FOR CIVIL NOTES, DETAILS, TABLES AND ESC MEASURES

REFER TO PLAN 121326-GR2 FOR CONTINUATION OF PROPOSED SITE GRADING

NOTE: THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

OWNER INFORMATION
 U-HAUL CANADA
 3636 INNES ROAD
 OTTAWA, ONTARIO, K1C 1T1
 DAVID POLLOCK
 PHONE: 1-602-263-6555
 david_pollock@uhaul.com

No.	REVISION	DATE	BY
2	REVISED PER CITY COMMENTS	AUG 30/22	FST
1	ISSUED FOR SITE PLAN APPROVAL	MAY 20/22	FST



FOR REVIEW ONLY

DESIGN: SM / FST
 CHECKED: FST
 DRAWN: SM
 CHECKED: SM / FST
 APPROVED: FST

LICENSED PROFESSIONAL ENGINEER
 M.J. HRSHORAK
 100212535
 AUG 30/22
 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
 F.S. THAUETTE
 100041399
 AUG 30, 2022
 PROVINCE OF ONTARIO

NOVATECH
 Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6
 Telephone: (613) 254-9643
 Facsimile: (613) 254-5867
 Website: www.novatech-eng.com

LOCATION: CITY OF OTTAWA, 30 FRANK NIGHBOR PLACE: U-HAUL SITE

DRAWING NAME: GRADING AND EROSION & SEDIMENT CONTROL PLAN

PROJECT No.: 121326
 REV # 2
 DRAWING No.: 121326-GR1
 Plan #18789

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