PATERSON GROUP

memorandum

re: **Grading Plan Review**
Proposed Apartment Building
3080 Navan Road – Ottawa, Ontario

to: Seymour Pacific Developments (Ontario) Ltd. - **Christopher Gibson** - christopher.gibson@broadstreet.ca

date: May 3, 2024

file: PG6527-MEMO.01 Revision 2

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a Grading and Servicing Plan Review for the proposed development to be located at the aforementioned site. The following memorandum should be read in conjunction with the current Geotechnical Report (Paterson Group Report PG6527-1 Revision 2, dated May 17, 2023).

Grading Plan Review

Paterson reviewed the following grading plan prepared by Novatech for the subject site:

- ❒ Grading Plan – 3080 Navan Road (Rhythm Apartments), City of Ottawa – Project No. 122180 – Drawing No. 122180-GR Revision 5, dated April 22, 2024.

Geotechnical Review and Recommendations

Based on the grading plans provided, the proposed grading throughout the majority of the subject site is within the permissible grade raise recommendations provided in the aforementioned geotechnical report.

However, in the north corner of the site, grade raise exceedances of up to approximately 0.5 m are currently proposed for the landscaped and hardscaped areas located within 5m of the building footprint. Where these grade raise exceedances are proposed, lightweight fill (LWF) is recommended to mitigate excessive settlement. The attached figure PG6527-Figure 1 – Lightweight Fill Recommendations indicates the approximate LWF locations and thicknesses which are recommended.

Overall, the LWF should consist of EPS (expanded polystyrene) geofoam blocks, which allow for raising the grade without adding a significant load to the underlying soils. For this application, EPS Type 15 should be used and extended a minimum of 5 m beyond the building footprint in all directions where it is being recommended to be used.

It should also be noted that EPS is difficult to use under the groundwater level, as it is buoyant, and it must be protected against potential hydrocarbon spills. Based on this, the placement of lightweight fill should be planned to provide a minimum of 1.5 m of backfill upon its surface. The lightweight fill layer is recommended to be placed a minimum of 500 mm above any perimeter drainage sleeves/pipes provided to the main building structures foundation and the associated open-graded stone layers.

The lightweight fill should be placed upon a flat soil surface. Therefore, the soil should be compacted to be relatively smooth and flat prior to installation. Consideration may be given to placing a thin layer of sand or stone dust to attain a relatively smooth/flat surface for placement. The entire lightweight fill layer footprint is recommended to be covered with a layer of polyethylene (taped at seams) extending between the building footprint and outer edge of the layer and extending below its surface by a minimum of 100 mm at all edges of the lightweight fill layer.

If the lightweight fill will be located in an area of landscaping, the placement of the layer should be planned to provide a minimum 500 mm of soil cover be provided to the lightweight fill layer for grass and associated vegetation can establish overtop the lightweight fill.

The placement of all lightweight fill should be reviewed at the time of placement by Paterson personnel. It is also advised a brief pre-construction meeting to be held between Paterson and the construction team to discuss placement prior to the installation. As an alternative to the use of LWF, the areas of the proposed grade raise exceedances could be preloaded to the finished grade, or surcharged, using fill materials. This option, however, would require allowing an extensive period of time for the settlement to occur prior to construction, which may not be compatible with construction timelines. Additional information can be provided if this option is being given consideration.

We trust that this information is satisfactory for your immediate requirements.

Best Regards,

Paterson Group Inc.

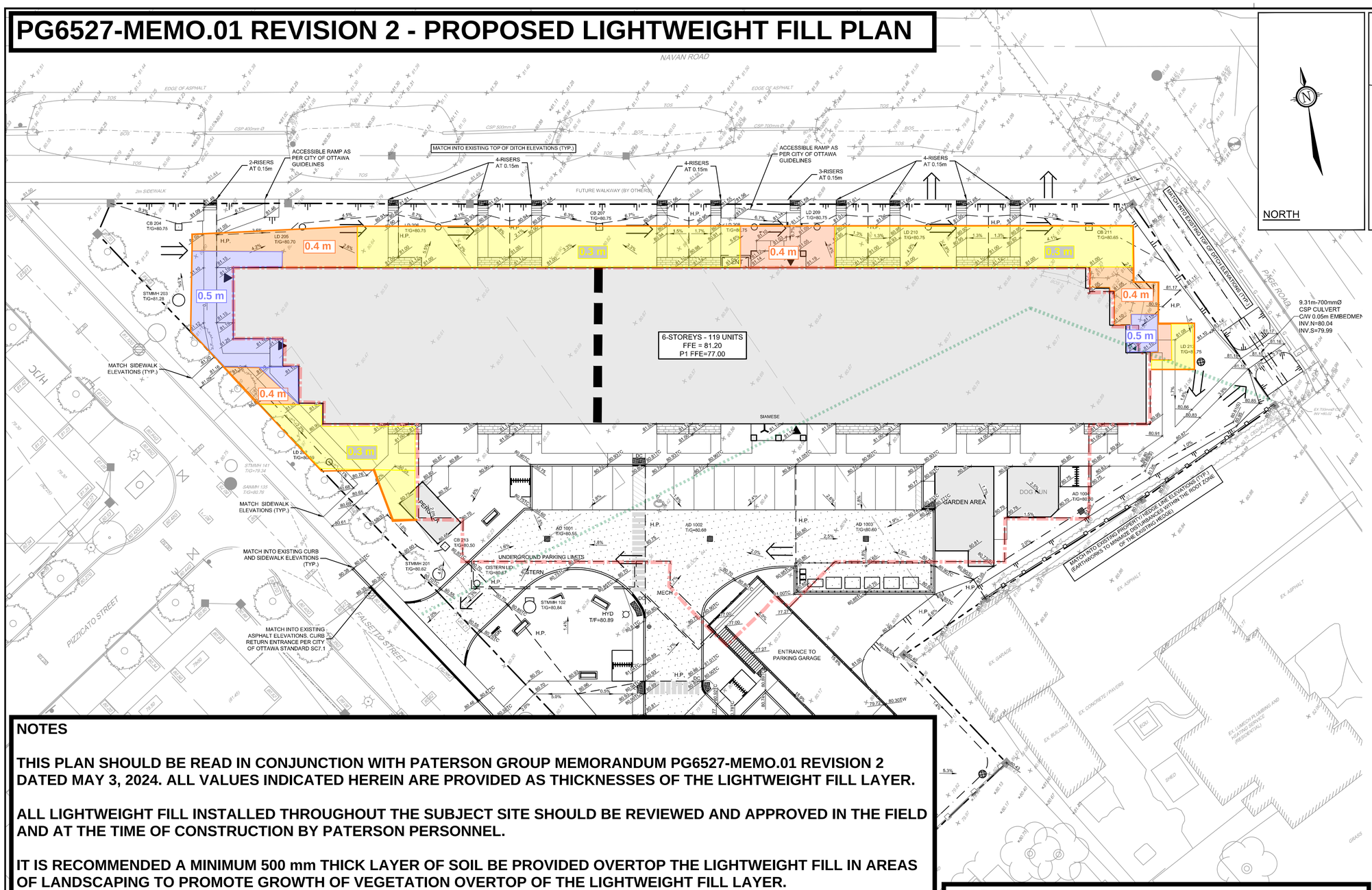
Fernanda Carozzi, PhD. Geoph.

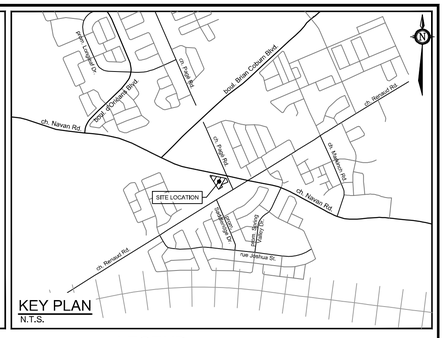
Drew Petahtegoose, P.Eng.

Attachments

- ❒ Figure 1 – Proposed Lightweight Fill Plan

PG6527-MEMO.01 REVISION 2 - PROPOSED LIGHTWEIGHT FILL PLAN





LEGEND

- PROPERTY LINE
- PROPOSED BARRIER CURB
- DC — PROPOSED DEPRESSED CURB
- PROPOSED TACTILE WALKING SURFACE INDICATOR (TWSI)
- 98.40 — PROPOSED ELEVATION
- x 98.40 — EXISTING ELEVATION
- PROPOSED CAIVAN SUBDIVISION ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED TOP OF WALL ELEVATION
- PROPOSED BOTTOM OF WALL ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- V&VB — PROPOSED VALVE AND VALVE BOX
- FIRE DEPARTMENT SIAMESE CONNECTION
- PROPOSED BUILDING ENTRANCE
- H.P. — PROPOSED HIGH POINT
- SWALE c/w SUBDRAIN AND DIRECTION OF FLOW
- TERRACING 3:1 SLOPE MAX (UNLESS OTHERWISE INDICATED)
- PROPOSED RETAINING WALL C/W GUARD RAIL
- PROPOSED FIREWALL
- 2.0% — SLOPE AND DIRECTION
- DIRECTION OF MAJOR OVERLAND FLOW
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED AREA DRAIN
- PROPOSED LANDSCAPE DRAIN (ELBOW/TEE)
- PROPOSED CULVERT
- PROPOSED TRENCH DRAIN
- 100-YR+20 PONDING
- 5-YR PONDING
- PROPOSED BIKE RACKS
- PROPOSED CROSSWALK PAINTING
- PROPOSED LINE PAINTING
- SAN MH — PROPOSED SANITARY MANHOLE
- STM MH — PROPOSED STORM MANHOLE
- PROPOSED HYDRANT & VALVE
- PROPOSED VALVE AND VALVE BOX
- PROPOSED TREE PROTECTION FENCING
- EXISTING VALVE & VALVE BOX
- EXISTING VALVE & LEAD
- SAN MH — EXISTING SANITARY MANHOLE
- STM MH — EXISTING STORM MANHOLE
- CB 1 — EXISTING CATCHBASIN
- EXISTING DITCH CENTERLINE
- UP — EXISTING UTILITY POLE
- AN — EXISTING UTILITY POLE ANCHORS
- EXISTING STREETLIGHT
- EXISTING ROAD SIGNAGE
- EXISTING CULVERT
- EXISTING TREE
- TREE TO BE PLANTED AS PART OF CAIVAN SUBDIVISION
- BOT — EXISTING DITCH/ BOTTOM OF SLOPE

NOTE:
DUE TO GRADE RAISE RESTRICTIONS LIGHTWEIGHT FILL WILL BE REQUIRED ON SITE. REFER TO GRADING PLAN REVIEW MEMO, PREPARED BY PATERSON GROUP, FILE NUMBER PG6527-MEMO.01, DATED APRIL 18,2023 FOR LIGHTWEIGHT FILL REQUIREMENTS, AND DETAILS.

NOTES

THIS PLAN SHOULD BE READ IN CONJUNCTION WITH PATERSON GROUP MEMORANDUM PG6527-MEMO.01 REVISION 2 DATED MAY 3, 2024. ALL VALUES INDICATED HEREIN ARE PROVIDED AS THICKNESSES OF THE LIGHTWEIGHT FILL LAYER.

ALL LIGHTWEIGHT FILL INSTALLED THROUGHOUT THE SUBJECT SITE SHOULD BE REVIEWED AND APPROVED IN THE FIELD AND AT THE TIME OF CONSTRUCTION BY PATERSON PERSONNEL.

IT IS RECOMMENDED A MINIMUM 500 mm THICK LAYER OF SOIL BE PROVIDED OVERTOP THE LIGHTWEIGHT FILL IN AREAS OF LANDSCAPING TO PROMOTE GROWTH OF VEGETATION OVERTOP OF THE LIGHTWEIGHT FILL LAYER.

THE ENTIRE LIGHTWEIGHT FILL LAYER SHOULD BE COVERED WITH A LAYER OF POLYETHYLENE THAT IS TAPED AT ALL SEAMS AND OVERLAPS BELOW THE TOP OF THE LIGHTWEIGHT FILL SURFACE.

THE LIGHTWEIGHT FILL LAYER IS RECOMMENDED TO BE LOCATED A MINIMUM OF 500 mm HIGHER THAN ANY PERIMETER DRAINAGE SLEEVES/LINES AND THEIR ASSOCIATED OPEN-GRADED STONE LAYER.

THE LIGHTWEIGHT FILL SHOULD BE PLACED ON RELATIVELY SMOOTH AND FLAT GROUND. BASED ON THIS, THE SOIL FILL SURFACE SHOULD BE COMPACTED IN PLACE AND CONSIDERATION SHOULD BE GIVEN TO PLACING SAND/STONE DUST OVER THE SURFACE TO PROVIDE AN ADEQUATELY SMOOTH AND FLAT SURFACE FOR THE LIGHTWEIGHT FILL LAYER

LEGEND:

MINIMUM THICKNESS OF 0.3 m LWF

MINIMUM THICKNESS OF 0.4 m LWF

MINIMUM THICKNESS OF 0.5 m LWF

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.

NOT FOR CONSTRUCTION

No.	REVISION	DATE	BY
5.	UPDATED PER CITY NAVAN ROAD WIDENING	APR/22/2024	GJM
4.	UPDATED PER CITY COMMENTS	FEB/08/2024	GJM
3.	UPDATED PER CITY COMMENTS	NOV/21/2023	GJM
2.	UPDATED PER CITY COMMENTS	SEPT 15/23	GJM
1.	ISSUED FOR SPA	APR 26/23	GJM

SCALE
1:250
1:250
0 2 4 6 8 10

DESIGN ARM
CHECKED GJM
DRAWN ARM/CJF
CHECKED ARM
APPROVED GJM

FOR REVIEW ONLY
ISSUED FOR REVIEW
ISSUED FOR REVIEW

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LOCATION
CITY OF OTTAWA
3080 NAVAN ROAD (RHYTHM APARTMENTS)

DRAWING NAME
GRADING PLAN

PROJECT No. 122180
REV REV # 5
DRAWING No. 122180-GR

D07-12-23-0047
18995

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