

September 25, 2024
File: PE2709-LET.20



Claridge Homes
505 Preston Street
Ottawa, Ontario
K1S 4N7

Attention: **Mr. Shawn Malhotra**

Subject: **Soil and Groundwater Remediation Program**
137-141 George Street and 110-116 York Street
Ottawa, Ontario

Consulting Engineers

9 Auriga Drive
Ottawa, Ontario
K2E 7T9
Tel: (613) 226-7381

Geotechnical Engineering
Environmental Engineering
Hydrogeology
Materials Testing
Building Science
Rural Development Design
Temporary Shoring Design
Retaining Wall Design
Noise and Vibration Studies

patersonaroup.ca

Dear Sir,

Further to your request and authorization, Paterson Group (Paterson) carried out a soil and groundwater remediation program at the aforementioned property. The findings of the remediation program are detailed below.

Site Information

The subject site is located between York Street and George Street, approximately 20m east of Dalhousie Street, in the City of Ottawa, Ontario, and is situated in a mixed downtown use. The site was previously occupied by a commercial building with associated parking spaces.

The property will be redeveloped with a mixed-use development consisting of a commercial hotel and residential tower. A multi-level underground parking garage will be present across the entire site.

Background Information

Phase I – Environmental Site Assessment, September 4, 2024

In September 2024, Paterson completed a Phase I - Environmental Site Assessment (Phase I ESA) for the subject site. According to the historical information reviewed, historical uses of the Phase I Property and several neighboring properties were considered to be potentially contaminating activities (PCAs) resulting in 9 areas of potential environmental concern (APECs) on the subject site.





The APECs at the subject property have resulting from the following PCAs: on-site fill material of unknown quality across the subject property, on-site application of road salt across the subject property, a former on-site aboveground storage tank (AST) on the southwestern portion of the site, a former on-site printer on the southwestern portion of the site, a former off-site dry cleaners and machine shop as well as a former retail fuel outlet on the properties adjacent to the west of the southern portion of the site and former off-site refined petroleum industry, roofing manufacturer, automotive service garage, printer and dry-cleaner, historically situated south of the property across George Street.

A Phase-II Environmental Site Assessment was recommended to assess potential soil and/or groundwater impacts within each APEC.

Phase II – Environmental Site Assessment, September 10, 2024

A Phase II ESA was carried out in conjunction with a Geotechnical Investigation and consisted of three drilling programs, carried out on the following dates: February 24-28, 2023, August 14-16, 2023, and May 8-9, 2024. Together, the field programs consisted of drilling 16 boreholes to address the APECs identified in the Phase I ESA. Twelve of the boreholes were instrumented with groundwater monitoring wells to assess the groundwater beneath the subject property.

Based on the findings of the Phase II-ESA fill material across the subject site is impacted with concentrations of metals, mercury, PAHs, and PHCs exceeding the Ministry of the Environment, Conservation and Parks (MECP) Table 3 residential standards, while native glacial till on the southern portion of the site is impacted with PHC concentrations exceeding the MECP Table 3 residential standards and extending to bedrock on the southwestern portion of the site.

Groundwater exceeding the MECP Table 3 Standards for PHCs was also identified on the Phase II ESA property. The impacted groundwater was delineated both laterally and vertically and is confined to the southwestern portion of the site, within the upper layers of the bedrock.

The removal of all impacted soil, to be completed concurrently with site redevelopment, was recommended. Impacted groundwater was expected to be removed with the excavation of the soil and upper portion of the bedrock.

Remedial Excavation Program

Prior to commencing the excavation program, a test pit program was conducted on May 10, 2024, to further delineate the soil impacts identified during the Phase II ESA, and to further characterize soil for off-site disposal purposes. A total of 9 test pits were completed on the southern portion of the site.



The soil excavation program subsequently commenced on July 17, 2024. At that time, a representative from Paterson was on-site to monitor the soil excavation program, which was carried out by D-Squared Construction using hydraulic shovels.

The excavation program consisted of excavating soil/fill material across the entire subject property and loading it into trucks, which transported the material to three different locations based on the presence or absence of contaminations:

- ❑ Soil impacted with Metals, Hg and PAHs exceeding the MECP Table 3 Residential/Parkland/Institutional (RPI) standards was transported to Waste Connections of Canada – Navan Road Landfill.
- ❑ PHC impacted soil exceeding the MECP Table 3 RPI standards and meeting the MECP Table 7 Industrial/Commercial/Community (ICC) Standards for Metals, Hg and PAHs, was transported to the Waste Management West Carleton Environmental Centre (a Class 1 Management Site).
- ❑ Soil meeting Table 2.1 and/or Table 4.1 ICC Excess Soil Quality Standards (ESQS) was transported to a Reuse Site at 5727 Bank Street, Ottawa (Greely).

A total of 16 test pits were completed on the central and northern portions of the subject site during the remediation/mass excavation program. The test pits were completed to further delineate identified contaminant concentrations exceeding either Table 3 RPI, Table 7 ICC and/or Table 2.1/4.1 ICC within the site.

The majority of the fill material was disposed at the Waste Connection – Navan Road Landfill. Generally, the fill material extended to a depth of approximately 1.5m across the site, apart from areas on the southeast and northwest portions of the site where the fill extended to greater depths of approximately 3.0m.

All soil in the southwest portion of the site, impacted with only PHCs from approximately 1.5m below original grade to bedrock depth, was disposed at the Waste Management Class 1 Management Site located on Carp Road. Additionally, various pockets of the contaminated soils were separated on site based on the ongoing testing and sent to the Waste Management site.

All remaining soils in compliance with the MECP 2.1 and/or 4.1 ICC ESQS, were sent to the Bank Street site for beneficial reuse.

Based on the findings of the test pit programs in combination with grab sampling carried out in conjunction with the excavation program, full lateral and vertical delineation of contaminants exceeding the MECP Table 3 standards was achieved. Impacts extended laterally to the property boundaries. Impacts extended laterally to the bedrock on the southwestern portion of the site only; otherwise, a clean excavation base was achieved, and the soil was subsequently removed for off-site beneficial reuse.



The remediation excavation extended to the property boundaries in all directions. All soil was removed from the subject property. As such, no sidewall excavation or base samples were collected for analysis.

Bedrock on the southern portion of the site has been removed to approximately 55.00m asl (or approximately 6.5 m below original grade). The bedrock across the site will be removed to final excavation base of 50.40m asl (or approximately 11.10m below original grade).

The location of the remedial excavation is shown on Drawing PE2709-20 – Site Remediation Plan, appended to this report.

Groundwater was not encountered during the remedial excavation. Groundwater impacts identified during the Phase II-ESA were identified in the immediate vicinity of the impacted soil on the southwest portion of the site and are residual in nature. The results of the groundwater delineation program completed as part of the Phase II ESA, indicated that impacted groundwater was present in the upper bedrock, near the soil-bedrock interface.

Based on observations made during the remedial excavation, impacted groundwater is considered to have been removed with the impacted soil and upper levels of bedrock. According to the findings of the Phase II-ESA, groundwater below the depth of the current excavation complies with the MECP Table 3 standards.

Conclusion

All soil at the subject property has been removed from the subject property for disposal at a landfill, class 1 management site or beneficial reuse site. **The excavation program was successful in removing all impacted soil and groundwater from the subject property and no further remedial activities are required.**

Confirmatory groundwater samples for the purposes of filing an RSC will be collected once the bedrock has been removed to the final excavation base.



Statement of Limitations

The results of the sampling program are based on our field observations and analytical test results obtained at specific test locations which can only be extrapolated to an undefined limited area around each location. The test results may not reflect conditions at other locations or areas beyond the extent of the excavations.

This report was prepared for the sole use of Claridge Homes. Permission and notification from Claridge Homes and this firm will be required to release this report to any other party

We trust that this submission will satisfy your present requirements. If you have any questions regarding this report, please contact our office.

Paterson Group Inc.

Kuldeep Panchal, M.Eng

Karyn Munch, P.Eng., QP_{ESA}



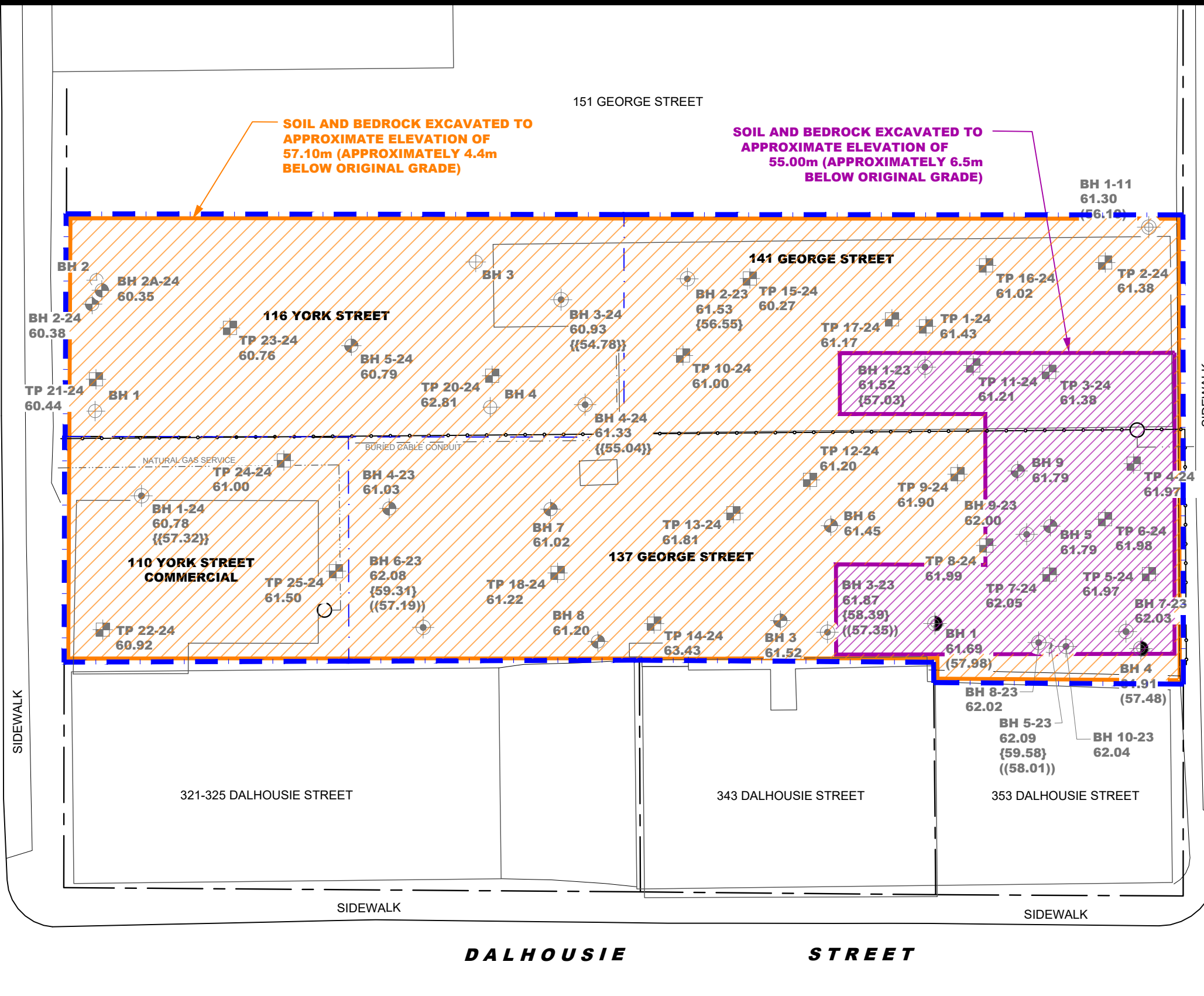
Attachments:

- Drawing No. PE2709-20 – Site Remediation Plan



YORK STREET

GEORGE STREET



- LEGEND:
- BOREHOLE WITH MONITORING WELL LOCATION
 - BOREHOLE LOCATION
 - TEST PIT LOCATION
 - BOREHOLE WITH MONITORING WELL LOCATION, PREVIOUS INVESTIGATION, 2012
 - BOREHOLE WITH MONITORING WELL LOCATION, PREVIOUS INVESTIGATION, 2011
 - BOREHOLE LOCATION BY OTHERS, 2018
 - 61.52 GROUND SURFACE ELEVATION (m)
 - (57.98) GROUNDWATER SURFACE ELEVATION (m) (MAY 16, 2011)
 - {57.03} GROUNDWATER SURFACE ELEVATION (m) (MARCH 8, 2023)
 - ((54.78)) GROUNDWATER SURFACE ELEVATION (m) (MARCH 23, 2023)
 - {{57.32}} GROUNDWATER SURFACE ELEVATION (m) (MAY 22, 2024)
- GROUND SURFACE ELEVATIONS AT BOREHOLE AND TEST PIT LOCATIONS ARE REFERENCED TO A GEODETIC DATUM
- SCALE: 1:400
-

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

CLARIDGE HOMES

PHASE II-ENVIRONMENTAL SITE ASSESSMENT

137-141 GEORGE STREET AND 110-116 YORK STREET

OTTAWA, ONTARIO

Title: **SITE REMEDIATION PLAN**

Scale:	1:400	Date:	09/2024
Drawn by:	GK	Report No.:	PE2709-LET.20
Checked by:	KP	Dwg. No.:	PE2709-2
Approved by:	KM	Revision No.:	