



**PATERSON
GROUP**

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
Retaining Wall Design
Noise and Vibration Studies

patersongroup.ca

February 14, 2024
File: PE1114-LET.04R

Southwell Homes Ltd.
195 Julie Anne Crescent
Carleton Place, Ontario
K7C 4M5

Attention: **Mr. John Southwell**

Subject: **Remedial Action Plan**
116-122 Old Mill Lane, Appleton, Ontario

Dear Sir,

Further to your request and authorization, Paterson Group (Paterson) has prepared a remedial action plan for the proposed development at 116 to 122 Old Mill Lane (the subject site).

Historical Background

The subject site is currently vacant land. As part of historical searches, areas of potential environmental concern were identified on the subject site, resulting from the former use of the property as a woolen mill. As such, the following assessments were completed on the subject site.

- ❑ 'Phase II Environmental Site Assessment, Former Appletex Mill, 116-122 Old Mill Lane – Appleton, Ontario, prepared by Paterson, dated June 2009.

Based on information obtained through previously completed environmental reports by others on the Phase II Property, Paterson conducted a Phase II ESA on the subject site in 2009.

Metal parameters that exceeded the selected MOE Table 2 standards were identified in soil samples collected from three (3) test pits advanced on the property. In addition to the identified metal impacts, petroleum hydrocarbon (PHC) exceedances were also detected in one of the completed test pits.





Six groundwater samples were submitted as part of the 2009 assessment. PHC impacts were identified in the monitoring wells advanced in a previous soil remediation section of the Phase II Property.

Following the identified soil and groundwater impacts, Paterson completed a joint Phase I – ESA and remediation program to address the contamination.

- 'Phase I Environmental Site Assessment and Remediation Program, Former Appletex Mill, 116-122 Old Mill Lane – Appleton, Ontario, prepared by Paterson, dated November 15, 2010.

The remediation program involved the removal of impacted overburden material that was sent to the nearby Waste Management landfill. The fill material was removed down to bedrock in the area of the PHC remediation and the metals remediation excavations were terminated in the native soil.

The total volume of PHC impacted soil that was hauled to an accredited landfill was approximately 1,740 metric tonnes. The volume of metals impacted soil that was hauled to the landfill was approximately 136 metric tonnes.

Additionally, 33,828 L of impacted groundwater was pumped and removed from the site for off-site treatment and disposal by Veolia Environmental Services during the remediation program .

Confirmatory soil samples were collected from the PHC and metals remediation excavations and submitted for laboratory analysis. The submitted confirmatory soil samples were in compliance with the applicable MECP Table 2 residential and Table 1 background standards, depending upon their location on site.

Groundwater samples were recovered from within the PHC remediation excavation. The groundwater was submitted for analytical testing of PHCs and BTEX and the results were in compliance with the selected MECP Table 2 standards.

- 'Environmental Action Plan, Groundwater Sampling Program, Former Appletex Mill, 116-122 Old Mill Lane – Appleton, Ontario, prepared by Paterson, dated April 2018.

Paterson completed a confirmatory groundwater sampling program on the Phase II Property following the completion of an Environmental Action Plan.

The groundwater sampling program involved the installation of two monitoring wells, BH1-18, and BH2-18. The monitoring wells were strategically placed to further assess the groundwater in the area of the previously completed PHC remediation.

All of the analyzed PHC parameters were non-detect and therefore in compliance with the selected MOECC Table 1 and 2 standards. No further work was recommended at the time of the groundwater sampling program.



- 'Environmental Action Plan, Supplemental Groundwater Sampling Program, 116-122 Old Mill Lane – Appleton, Ontario, prepared by Paterson, dated March 2022.

The supplemental groundwater sampling program involved two separate groundwater sampling events, one in June of 2018 and the second in December of 2021.

In addition to the monitoring wells installed in 2018, three test drinking water test wells were also sampled. The groundwater samples were submitted for PHCs, benzene, toluene, ethylbenzene, and xylenes (BTEX), metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs) and/or furan and dioxan parameters.

All of the analytical test results were in compliance with the selected MECP Table 6 and 8 standards as well as the previously relied upon MOECC Table 1 and 2 standards.

2023 Phase II ESA

Paterson completed a recent delineation program to assess the soil quality beneath the subject site. Based on the analytical test results, PAH, PHC and metals impacted fill material was identified at 3 test pit locations on the subject site.

In addition to the subsurface investigation, Paterson sampled a stockpile of fill material located in the central portion of the subject site. Some of the stockpiled material was also identified to be impacted with PAHs and metals.

It was recommended in the Phase II-ESA report that the impacted fill material beneath the subject site and within the stockpile be excavated and hauled off-site to an accredited waste disposal facility by a licensed contractor prior to construction.

It was also recommended that confirmatory samples be collected during the remediation excavations to ensure all of the impacted fill material is removed.

Delineation Test Pits (December 2023)

Paterson completed five additional test pits on December 7, 2023, to assess the native soil within the former lagoons and delineate a previously identified zinc impact in TP9-23.

Based on the analytical test results, the vanadium concentration in soil sample TP33-23-G5 (native soil in lagoon) exceeded the MECP Table 6 standard. As a result of the submitted sample consisting of native silty clay, it is our opinion that the elevated vanadium concentration is naturally occurring. Soil sample TP32-23-G5 also consisted of silty clay, and it too exhibited an elevated vanadium concentration that was just below the MECP Table 6 standards. These soil samples also contained elevated concentrations of barium above typical background concentrations as well as higher cobalt and chromium concentrations, all of which are typical of natural Champlain Sea clay deposits.



The barium concentration identified in soil sample TP35-23-G2 exceeded the MECP Table 6 standard, this soil will also require landfill disposal.

Environmental Summary

Soil Conditions

Based on the current Phase II-ESA findings, impacted fill material is present in three areas on the subject site: around TP5-23, TP6-23 and TP9-23. The total approximate volume of impacted fill material in these locations is estimated to be 125 m³.

The remaining impacted soil is present in the stockpile, which was estimated to be about 2,140m³ (approx.4,280mt) by Thomas Cavanagh Construction (Cavanagh). Based on our testing to date, it does not appear that all of the stockpile is impacted. Further testing will be required to segregate clean from impacted stockpiled material, but for the purpose of this RAP, it is considered possible that up to 40% of the stockpile is clean and may remain on site. This would give an impacted soil volume range of 2,568 mt to 4,280 mt.

Groundwater Conditions

Based on the Phase II ESA, the groundwater beneath the subject site meets the selected MECP Table 6 and Table 8 standards. No remediation is required.

Remedial Action Plan Summary

The suggested remedial action plan consists of a generic approach, where excavation and disposal at an approved waste disposal facility would be undertaken as an initial stage of the redevelopment of the subject site. The remediation program is expected to consist of the following, and will be completed under the guidance of a Qualified Person:

- Southwell Homes Ltd. will select a suitable excavation contractor. The contractor will be responsible for site preparation, locates, excavation, hauling, reinstatement, and all other activities related to the removal of the contaminated soil.
- Prior to removal of any impacted soil off-site, representative samples will be collected by Paterson staff and submitted for leachate (TCLP) analysis. Leachate analysis results will be provided to the contractor and submitted to the selected waste disposal facility.
- Impacted soil excavation will begin at test pit TP5-23, as shown on the attached figure. Excavation will extend horizontally to the nearest clean delineation test pit, or to an excavation sidewall compliant with the applicable site standards. Based on current testing, the excavation is expected to extend vertically to the interface with the native glacial till (approximately 1.5m below grade).
- A second excavation will occur at test pit TP6-23 which will extend horizontally to the nearest clean delineation test pit, or to an excavation sidewall compliant with the applicable site standards. Based on current testing, the excavation is expected to extend vertically to bedrock or the interface with the native glacial till (approximately 1 to 1.5 m below grade).



- A third excavation will occur at test pit TP9-23 which will extend horizontally to the nearest clean delineation test pit, or to an excavation sidewall compliant with the applicable site standards. Based on current testing, the excavation is expected to extend vertically to bedrock (approximately 1m below grade).
- It is estimated that 125 m³ of impacted soil will be excavated from these areas and disposed of at a waste disposal facility.
- Segregation testing of the stockpiled material is recommended, following which all of the impacted soil in the stockpile will be hauled from the subject site and disposed of at a waste disposal facility.
- A remediation report will be issued following completion of the soil remediation program.

Quantities and Cost Estimate

Based on the information noted above, the volume of contaminated soil requiring off-site disposal is expected to range from approximately 1,400 to 2,265m³. A cost estimate was provided by Thomas Cavanagh Construction to dispose of all of the impacted soils. Factoring in the range that we have established, the cost to dispose of the soil would range from approximately \$207,800 to \$318,650. There would also be fees for our monitoring of the work, confirmatory testing and reporting, which we would estimate to be approximately \$22,000.

We trust that this information meets your requirements.

Sincerely,

Paterson Group Inc.

Mark D'Arcy, P.Eng.

Report Distribution

- Southwell Homes Ltd.





Phone: 613-257-2918

Fax: 613-253-0071

9094 Cavanagh Road
Ashton, Ontario, K0A 1B0

To: Southwell Homes Ltd.	Contact: John Southwell
Address: 195 Julie Anne Crescent Carleton Place, ON	Phone: (613) 253-9123
Project Name: Appleton Shores Subdivision	Bid Number: 2024-117
Project Location: 122 Old Mill Lane, Appleton, ON	Bid Date: 1/22/2024

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Float Move	2.00	EACH	\$632.58	\$1,265.16
2	Remove And Haul Contaminated Material To A Licensed Disposal Facility - WM Carp - Includes Equipment, Trucking, Tipping Fee, And Supervision As Required	3,887.00	TONN	\$64.73	\$251,605.51
3	Remove And Haul Contaminated Material To A Licensed Disposal Facility - GFL Moose Creek - Includes Equipment, Trucking, Tipping Fee, And Supervision As Required	643.00	TONN	\$102.29	\$65,772.47

Total Bid Price: \$318,643.14

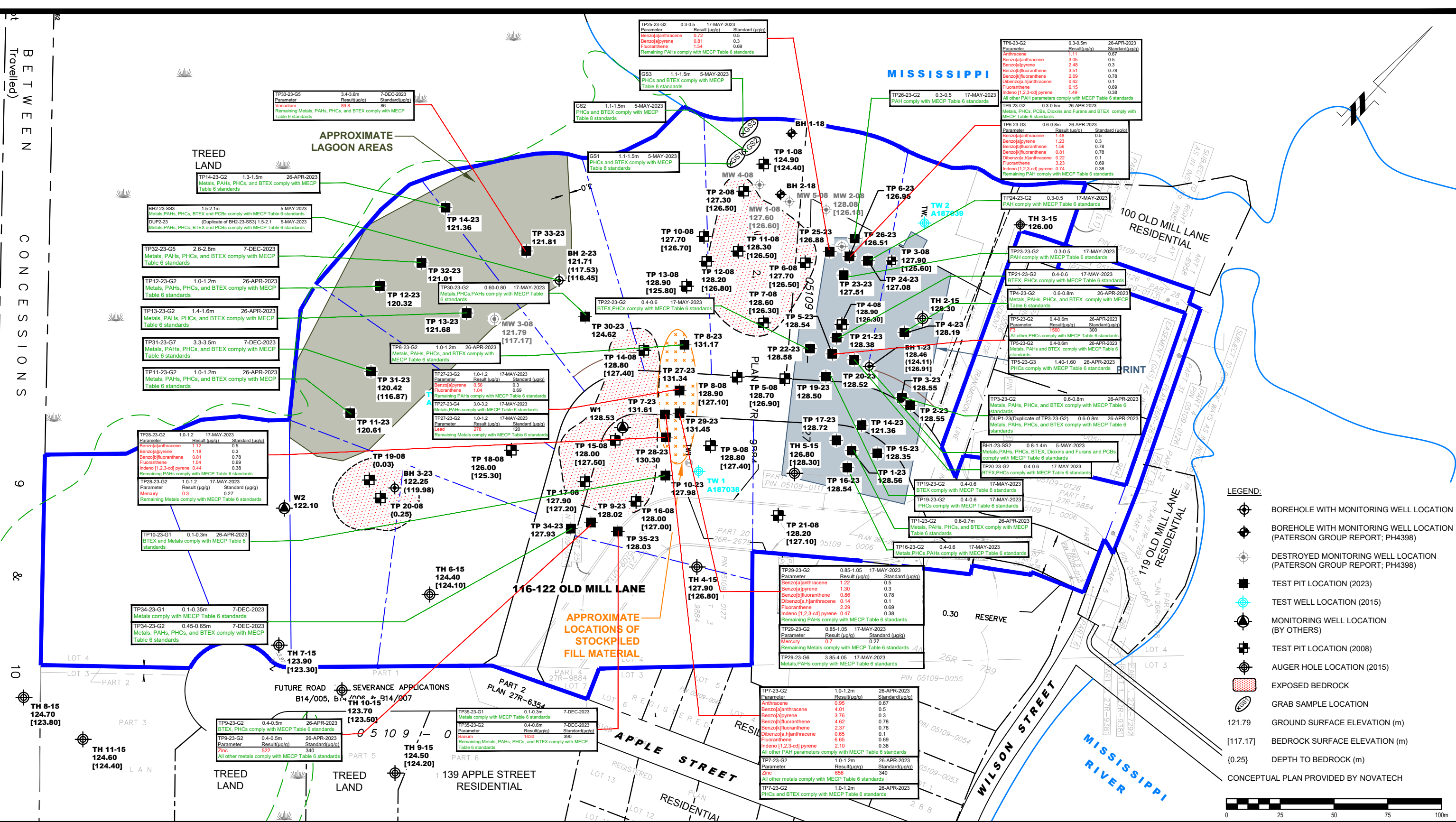
Notes:

- Subject to credit approval.
- Quotation valid for 30 days.
- The Harmonized Sales Tax is NOT included in our price, and will be shown as a separate additional amount on all invoices.
- Thomas Cavanagh Construction Limited is a non-union company.
- All works to be completed during 2024 summer conditions. Work completed outside of 2024 summer conditions may be subject to additional fees.
- Quantities are estimated - payment to be based on actual measured quantities completed.
- All fees, permits, approvals, reports, etc. are to be obtained by others.
- Pricing to be adjusted based on changes to the MTO fuel price index. Payment adjustments will be calculated monthly based on the change between the fuel price index for the month prior to tender and the fuel price index when the work is completed as per City of Ottawa S.P. No: F-1002. The following parameters are to be used for the F-1002 calculations: Impact % will be set to 14% and the Fuel Index buffer will become +/- \$0.1/l. Fuel Index based on December 2023 - 132.10 cents.
- Please refer to documents "**Old Mill Lane Stockpile Topo (JAN 18 '24).pdf**" and "**Old Mill Lane Hauling Breakdown.pdf**" for additional information used to prepare this quote.
- Pricing assumes adequate access to the work area. Allowance for a haul road has not been included in this pricing.
- TCCL shall not be responsible for damages to existing access road or roadway due to truck traffic.

Payment Terms:

Payment due within 28 days of invoice.

<p>ACCEPTED: The above prices, specifications and conditions are satisfactory and hereby accepted.</p> <p>Buyer: _____</p> <p>Signature: _____</p> <p>Date of Acceptance: _____</p>	<p>CONFIRMED: Thomas Cavanagh Construction Limited</p> <p>Authorized Signature: _____</p> <p>Estimator: Brett Barr BBarr@thomascavanagh.ca</p>
---	--



PATERSON GROUP

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

NO.	REVISIONS	DATE	INITIAL

SOUTHWELL HOMES LTD.

PHASE II - ENVIRONMENTAL SITE ASSESSMENT

116-122 OLD MILL LANE

APPLETON, ONTARIO

Title:

ANALYTICAL TESTING PLAN (SOIL)

Scale: 1:1500

Date: 05/2023

Drawn by: GK

Report No.: PE1114-3

Checked by: SB

Dwg. No.: PE1114-9

Approved by: MSD

Revision No.: