September 8, 2023
File: PE4169-LET.02

W.O Stinson & Son Ltd.
1187 Bank Street
Ottawa, Ontario

Attention: **Mr. Keith Oster**

Subject: **Phase II-Environmental Site Assessment Update**
5505 and 5545 Albion Road
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
Retaining Wall Design
Noise and Vibration Studies

patersongroup.ca

Dear Sir,

Further to your request, Paterson Group (Paterson) conducted a Phase II Environmental Site Assessment (ESA) Update for the aforementioned properties. This report updates a Phase II ESA entitled, “Phase II Environmental Site Assessment, 5505 and 5545 Albion Road, Ottawa, Ontario,” completed by Paterson, dated October 9, 2020.

This update report is intended to meet the requirements for an updated Phase II ESA, as per the MECP O.Reg. 153/04, as amended. This update report is to be read in conjunction with the 2020 report.

Background Information

The Phase II Property is located on the northeast corner of Albion Road and Mitch Owens Road, in the City of Ottawa, Ontario. The Phase I Property currently exists as vacant land that is situated in a rural mixed residential industrial area where private wells and septic systems are relied upon.

The southern portion of the Phase II Property is partially gravelled with an asphaltic concrete paved area fronting Albion Road and Mitch Owens Road. Ground coverage on the northern portion of the site is somewhat gravelled with some evidence of fill material and sparce vegetation/brush.

Site drainage consists of infiltration on the gravelled and vegetated areas and sheetflow on the paved areas. The site is relatively flat and at the grade of Albion Road and Mitch Owens Road with a slight down slope towards the southwest/west. The regional topography slopes down in a westerly direction towards the Rideau River.

Past Assessments

A Phase I Environmental Site Assessment (ESA) was completed by Pinchin Ltd. (Pinchin) in July 2017 and determined that the subject site, addressed 5545 Albion Road, had a private fuel outlet consisting of three (3) underground storage tanks (USTs) and a single pump island. It was also determined that truck servicing and repair work had taken place in one of the site buildings for the past 15 years.

Other concerns included fuel and oil staining on the concrete floor of the repair shop and the presence of a retail fuel outlet (RFO) with USTs approximately 25 m to the west of the site. An inquiry to Ontario Spills revealed that a 700 L gasoline spill occurred in March 2007 at the intersection of Albion Road and Mitch Owens Road, immediately adjacent to the southwest corner of the property. Pinchin recommended a Phase II ESA for 5545 Albion Road.

A Phase II ESA was completed by Pinchin in September 2017 and consisted of drilling eight (8) boreholes on the subject site, all of which were completed as groundwater monitoring wells. Four (4) boreholes were placed along the east (MW-1 and MW-2) and west (MW-3 and MW-4) sides of the UST nest; one on the east side of the pump island (MW-5); one in the immediate area of the garage discharge drain on the central west side of the property (MW-6); and two (2) in the truck repair building (MW-7 and MW-8) to address the potential concerns. The locations of these boreholes are shown on Drawing PE4169-5R – Test Hole Location Plan, which is appended with this letter report.

Soil and groundwater samples were collected and submitted for laboratory analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), petroleum hydrocarbons (PHCs) fractions F1-F4 and/or volatile organic compounds (VOCs). Analytical results were compared to the MECP Table 2 Industrial Standards for potable water.

Based on the analytical test results, VOC and PHC concentrations in soil and groundwater from MW-2, MW-3, MW-4, MW-6, MW-7 and MW-8 were in compliance with the selected MECP Standards. The soil and groundwater samples collected from boreholes/monitoring wells MW-1 and MW-5 were in excess of the applicable standards. These monitoring wells were situated immediately east and southwest of the pump island. Based on these results, the soil and groundwater impacts were related to the former UST and pump island. No

impacts related to the former truck repair shop or off-site RFO were identified. It was recommended that the impacted soil and groundwater be further delineated in conjunction with a Remedial Action Plan.

An environmental remediation and tank decommissioning program was completed by Paterson Group Inc. (Paterson) during the interim of November 22 to 29, 2017.

The program included the removal of petroleum hydrocarbon impacted soil and groundwater, and the removal of the three (3) onsite USTs and associated pump island and underground piping. The impacted soil was considered solid non-hazardous material. The source of the petroleum release was determined to be the underground piping connecting the USTs to the pump islands.

Vanson Construction Ltd. conducted the excavation work and removed a total of approximately 659 metric tonnes (mt) of contaminated soil from the subject site, under the observation of Paterson personnel. The contaminated soil was disposed of at Tomlinson Waste Management Inc. in Osgoode, Ontario. A total of 58,000 L of groundwater was removed from the excavation and either disposed of at Clean Water Works or else remediated onsite by Vanson.

Following the removal of impacted soil, fifty-four (54) soil samples were recovered from the walls and floor of the excavation and seventeen (17) were submitted to Paracel/Eurofins Laboratories for BTEX and PHCs analysis. All final confirmatory soil samples were either non-detect or contained trace levels of BTEX and/or PHC concentrations in compliance with the selected MECP Standards.

Confirmatory groundwater sampling was completed following the soil remediation program, confirming that the groundwater in the excavation and immediate area was in compliance with the selected MECP Standard.

Based on 2017 Phase II ESA conducted by Pinchin in combination with the remedial work completed by Paterson, it is our opinion that the potential impact of the former truck repair shop and former private fuel outlet on-site have been adequately addressed and as such, these on-site potentially contaminated activities (PCAs) are no longer considered to represent areas of potential environmental concern (APECs) on the subject site (5545 Albion Road).

In September 2020, Paterson completed a Phase I ESA for 5505 and 5545 Albion Road. According to the historical review, the northern portion of the Phase I Property (5505 Albion Road), the lot has always existed as vacant and undeveloped land. However, in 2014, fill material of an unknown quality was imported onto the site. The importation of fill

material on the northern portion of the site as well as on the southern portion of the site was considered to represent an APEC on the Phase I Property.

An off-site PCA identified as a retail fuel outlet (RFO) across Albion Road, approximately 25 m west of the subject site, was considered to represent an APEC on the Phase I Property. A Phase II ESA was recommended to address the two (2) APECs identified on the Phase I Property.

In October 2020, Paterson completed a Phase II ESA program that consisted of drilling ten (10) boreholes on the Phase II Property, in conjunction with a geotechnical investigation, four (4) of which were constructed with groundwater monitoring well installations.

Soil samples were obtained from the boreholes and screened using vapour measurements along with visual and olfactory observations. Based on the screening results in combination with sample depth and location, a total of six (6) soil samples were submitted for BTEX, PHC (fractions 1 to 4), PHCs and/or metal analyses. All soil results complied with the selected MECP Table 2 Industrial Standards.

Groundwater samples were recovered from four (4) of the monitoring wells. No free-phase product was observed during the groundwater sampling event. The groundwater samples were submitted for PHC (F1-F4), BTEX and/or VOC analyses. All groundwater results, with the exception of ethylbenzene from BH2, complied with the selected MECP Table 2 Standards.

No additional environmental work was considered necessary, given that the ethylbenzene impact was considered to be isolated in the immediate area of the former pump island in shallow groundwater and not expected to have migrated into the deep aquifer. The impacted groundwater at BH2 was not considered to pose a risk to the current and/or future use of the Phase II Property or the neighbouring lands as the ethylbenzene concentration (marginally in excess of Table 2) will naturally attenuate over time.

A Phase I ESA Update was completed in August 2023. Based on the findings of the Phase I ESA Update, there are no new PCAs that would result in additional APECs on the Phase I Property.

Applicable Site Condition Standard

The site condition standards for the property were obtained from Table 2 of the document entitled “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, prepared by the Ministry of the Environment, Conservation and Parks (MECP), April 2011.

The selected MECP Table 2 Standards are based on the following considerations:

- ❑ Coarse-grained soil conditions
- ❑ Full depth generic site condition
- ❑ Potable groundwater conditions
- ❑ Industrial land use

Section 35 of O.Reg. 153/04 does not apply to the Phase II Property in that the property and properties within the study area rely upon private services (i.e., potable water well).

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not within 30m of an environmentally sensitive area.

Section 43.1 of O.Reg. 153/04 does not apply to the Phase II Property in that the property is not a Shallow Soil property and the property is not within 30m of a water body.

Impediments

No impediments were encountered during this Phase II ESA Update.

Investigation Method

A groundwater sampling event took place on August 29, 2023. A groundwater sample was collected from BH2 and submitted for BTEX and PHCs (F1-F4) analysis.

Review and Evaluation

Geology

Site soils generally consisted of fill material (silty sand and occasional silty clay with crushed stone, shale on the northern portion and cobbles and some organics), underlain by alternating layers of silty sand and sandy silt, followed by a deposit of silty clay. Bedrock was not encountered during the subsurface program.

Groundwater was encountered within either the fill or native soil at depths ranging from approximately of 0.94 to 1.28 m, below the ground surface (mbgs).

Further details regarding the soil profile are provided on the Soil Profile and Test Data Sheets, appended to the original Phase II ESA Report.

Groundwater Elevations, Flow Direction and Hydraulic Gradient

The groundwater levels were measured in BH1, BH2, BH6, BH9 and MW-4 on August 29, 2023 using an electronic water level meter. Groundwater levels are summarized in Table 1. All elevations were measured to geodetic elevations. It should be noted that groundwater levels are expected to fluctuate throughout the year with seasonal variations.

Table 1: Groundwater Level Measurements

Borehole Location	Ground Surface Elevation (m)	Water Level Depth (m below grade)	Water Level Elevation (m)	Date of Measurement
BH1	103.53	1.05	102.48	August 29, 2023
BH2	103.45	1.18	102.27	August 29, 2023
BH6	103.80	1.28	102.52	August 29, 2023
BH9	103.85	0.94	102.91	August 29, 2023
MW-4	102.17	0.99	101.18	August 29, 2023

[9]

Based on the groundwater elevations from the 2023 groundwater monitoring event, groundwater flow beneath the Phase II Property appears to be in a southwesterly direction. A horizontal hydraulic gradient of approximately 0.02 m/m was calculated.

Groundwater Quality

A groundwater sample was recovered from BH2 on August 29, 2023. The groundwater sample was submitted for laboratory analysis of BTEX and PHCs (F1-F4), plus a duplicate.

The results of the analytical testing are presented in Table 2. The laboratory certificate of analysis has been appended to this report.

Table 2: Analytical Test Results – Groundwater
BTEX and PHCs (F1-F4)

Parameter	MDL (µg/L)	Groundwater Samples (µg/L)		MECP Table 2 Standards (µg/L)
		August 29, 2023		
		BH2-GW	BH11-GW (Duplicate)	
Benzene	0.5	nd	nd	5
Toluene	0.5	nd	nd	24
Ethylbenzene	0.5	nd	nd	2.4
Xylenes	0.5	nd	nd	300
PHC F_1	25	nd	nd	750
PHC F_2	100	nd	nd	150
PHC F_3	100	nd	nd	500
PHC F_4	100	nd	nd	500

Table 2: Analytical Test Results – Groundwater BTEX and PHCs (F1-F4)				
Parameter	**MDL (µg/L)**	**Groundwater Samples (µg/L)**		**MECP Table 2 Standards (µg/L)**
		August 29, 2023		
		BH2-GW	**BH11-GW (Duplicate)**	
Notes: ❑ MDL - Method Detection Limit ❑ nd - Not Detected (i.e <MDL)				

No BTEX or PHCs concentrations were detected in the groundwater sample analyzed. The analytical results comply with the MECP Table 2 standards.

Phase II Conceptual Site Model

Potentially Contaminating Activity (PCA) and Area of Potential Environmental Concern (APEC)

As per the Past Investigations Section of this report, the PCAs considered to result in APECs on the Phase II Property as well as the contaminants of potential concern (CPCs) have been summarized in Table 3.

Table 3: Potentially Contaminating Activities and Areas of Potential Environmental Concern					
Area of Potential Environmental Concern	**Location of Area of Potential Environmental Concern**	**Potentially Contaminating Activity**	**Location of PCA (on-site or off-site)**	**Contaminants of Potential Concern**	**Media Potentially Impacted (Groundwater, Soil, and/or Sediment)**
APEC 1: Resulting from the importation of fill material of unknown quality	Entire Phase I Property	PCA 30 – "Importation of Fill Material of Unknown Quality,"	On-site	BTEXs PHCs Metals	Soil and/or groundwater
APEC 2: Resulting from the presence of a retail fuel outlet.	Southwest side of the Phase I Property	PCA 28 – "Gasoline and Associated Products Storage in Fixed Tanks,"	Off-site	BTEX PHCs (F1-F4)	Groundwater

Contaminants of Potential Concern (CPCs)

Based on the APECs identified on the Phase II Property, the contaminants of potential concern (CPCs) are:

- Benzene, ethylbenzene, toluene and xylenes (BTEX).
- Petroleum hydrocarbons (PHCs, Fractions F_1-F_4).
- Metals.

Physical Setting

Site Stratigraphy

The site stratigraphy consists of:

- An asphaltic concrete structure overlying a fill layer was encountered in BH3. The fill material consisted of a silty sand and silty clay with some crushed stone/gravel, cobbles and some organics, extending to depths ranging from 0.38 to 2.30mbgs. Groundwater was encountered in this layer in BH2.
- Silty sand with some sandy silt was encountered in BH1, BH2, BH3, BH4, BH5, BH6, BH7, BH8 and BH10, and extended to depths ranging from 1.37 to 4.57 mbgs. Groundwater was encountered in this layer in BH6 and BH9.
- Silty Clay was encountered in BH1, BH2, BH3, BH4, BH5, BH6, BH7 and BH9, extending to depths ranging from 3.81 to 5.18 mbgs.
- Sand was encountered in BH8 and terminated at 5.18 mbgs.
- Silty sand or sandy silt was encountered beneath the silty clay layer in BH2, BH3, BH4, BH5 and BH7. These boreholes were terminated in this layer at depths ranging from 4.42 to 5.18 mbgs.

Hydrogeological Characteristics

Groundwater at the Phase II Property was generally encountered in the fill ranging at depths of approximately 0.94 to 1.28 mbgs.

Based on the groundwater contouring map from the 2020 Phase II ESA subsurface program, groundwater was measured to flow in a westerly/southwesterly direction with a hydraulic gradient of 0.02 m/m.

Approximate Depth to Water Table

Depth to the water table at the Phase II Property varies between approximately 0.94 to 1.28 mbgs and is expected to fluctuate seasonal.

Approximate Depth to Bedrock

Bedrock was not encountered beneath the Phase II Property.

Sections 35, 41 and 43.1 of the Regulation

Section 35 of O.Reg. 153/04 does not apply to the Phase II Property in that the property, and the properties within the 250 m study area rely upon potable groundwater.

Section 41 of O.Reg. 153/04 does not apply to the Phase II Property, as the property is not considered an environmentally sensitive area.

Section 43.1 of the Regulation does not apply to the Phase II Property, as bedrock is not located less than 2 m below ground surface.

Fill Placement

Based on the findings of the 2020 subsurface investigation, a fill material consisting of silty sand and silty clay with crushed stone and shale (northern part of the site), gravel, cobbles and some organics was encountered. The fill varied in thickness from 0.38 to 2.30m.

Existing Buildings and Structures

The southern portion of the Phase II Property is occupied by two (2) concrete slab foundations/remnants of the former on-site buildings that were constructed in 1972. The south-eastern side of the property is occupied by two (2) sea containers, while the remaining portion of the Phase II Property is vacant.

Proposed Buildings and Other Structures

It is our understanding that the Phase II Property will be redeveloped with a slab-on-grade building that will be used for commercial to light industrial purposes.

Drinking Water Wells

One potable water well was identified on the southeastern side of the Phase I Property.

Water Bodies and Areas of Natural Significance

No water bodies or areas of natural significance were identifed on the Phase II Property or within the 250 m search radius.

Environmental Condition

Based on the Phase II ESA Update, there is no groundwater contamination present beneath the Phase II Property.

Conclusion

Based on the findings of the Phase II ESA Update, no further investigation is required on the Phase II Property.

Recommendations

Soil

Any excess soil generated during site redevelopment must be managed in accordance with Ontario Regulation 406/19 – On-site and Excess Soil Management. Any soils deemed excess during construction will require additional analytical testing to determine an appropriate off-site reuse or disposal site.

Monitoring Wells

It is recommended that the monitoring wells on-site be properly abandoned if they are not going to be used in the future. They should be abandoned according to Ontario Regulation 903. The wells will be registered with the MECP under this regulation.

Statement of Limitations

This Phase II - Environmental Site Assessment Update report has been prepared by a qualified person, in general accordance with Ontario Regulation 153/04, as amended. The conclusions presented herein are based on information gathered from a limited historical review and field inspection program. The findings of the Phase II - ESA Update are based on the review of the previous subsurface program completed on the Phase II Property in conjunction with the most recent analytical test results.

Should any conditions be encountered at the Phase II Property that differ from our findings, we request that we be notified immediately.

This report was prepared for the sole use of W.O Stinson and Son Ltd. Permission and notification from W.O Stinson and Son Ltd. and Paterson will be required to release this report to any other party.

We trust that this submission satisfies your current requirements. Should you have any questions please contact the undersigned.

Regards,

Paterson Group Inc.

Mandy Witteman, M.A.Sc., P.Eng.

Mark D'Arcy, P.Eng., QP$_{ESA}$

Report Distribution:

- ❑ W.O Stinson and Son Ltd.
- ❑ Paterson Group

Appendix

- ❑ Drawing PE4169-5R – Test Hole Location Plan
- ❑ Drawing PE4169-7R – Analytical Testing Plan – Groundwater
- ❑ Laboratory Certificates of Analysis

#5480 BANK STREET
VACANT LAND

MITCH OWENS ROAD

#6690 MITCH OWENS ROAD
COMMERCIAL LAND

#5505 ALBION ROAD
BUS STORAGE YARD

#5545 ALBION ROAD

#5457 ALBION ROAD
COMMERCIAL

BH 7
103.62

BH 5
103.34

BH 8
103.74

BH 9
103.85
(102.91)

BH 10
103.89

BH 6
103.80
(102.52)

BH 1
103.53
(102.48)

BH 2
103.45
(102.27)

BH 3
103.46

BH 4
103.68

MW-1
MW-2
MW-3
MW-4
102.35
(101.18)
MW-5
MW-6
MW-7
MW-8

BUILDING FOUNDATION
(FORMER GARAGE BUILDING)

FORMER
BUILDING
FOUNDATION

GRASSED

ASPHALTIC
CONCRETE

FORMER PUMP
ISLAND LOCATION

FORMER UNDERGROUND
TANK NEST LOCATION

GRASSED

102.3
102.2
102.1
102
101.9
101.8
101.7
101.6
101.5
(0.02m/m)

A
A'
B
B'

DISCHARGE OF FLOOR DRAIN
CONTENTS

APPROXIMATE AREA OF
REMEDIATION EXCAVATION,
PATERSON GROUP, 2017

ALBION ROAD

#627 BALLYCASTLE CRES.
RESIDENTIAL

KILLYMOON WAY

#635 BALLYCASTLE CRES.
RESIDENTIAL

#639 BALLYCASTLE CRESCENT
RESIDENTIAL

#643 BALLYCASTLE CRESCENT
RESIDENTIAL

#647 BALLYCASTLE CRESCENT
RESIDENTIAL

#5546 ALBION ROAD
McEWEN GAS STATION

LEGEND:

- BOREHOLE LOCATION, CURRENT INVESTIGATION
- BOREHOLE WITH MONITORING WELL LOCATION, CURRENT INVESTIGATION
- MONITORING WELL LOCATION BY OTHERS
- DESTROYED MONITORING WELL LOCATION BY OTHERS
- 103.45 GROUND SURFACE ELEVATION (m)
- (102.28) GROUNDWATER SURFACE ELEVATION (m)
- 101.5 GROUNDWATER CONTOUR(m)
- (0.02m/m) APPROXIMATE GROUNDWATER FLOW DIRECTION (HORIZONTAL HYDRAULIC GRADIENT)

GROUND SURFACE ELEVATIONS REFERENCED TO A GEODETIC DATUM.

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

NO.	REVISIONS	DATE	INITIAL
0			

W.O. STINSON & SON LIMITED

PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
5505 AND 5545 ALBION ROAD

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:1000	Date: 09/2023
Drawn by: MPG	Report No.: PE4169-LET.02
Checked by: MW	Dwg. No.: PE4169-5R
Approved by: MSD	Revision No.:

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11x17

#5480 BANK STREET
VACANT LAND

#6690 MITCH OWENS ROAD
COMMERCIAL LAND

#5457 ALBION ROAD
COMMERCIAL

#5505 ALBION ROAD
BUS STORAGE YARD

#5545 ALBION ROAD

BH9-GW1 0.76-3.81m 11-Sept-20
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards
VOCs comply with MECP Table 2 Standards

BH9-GW1 (DUP) 0.76-3.81m 11-Sept-20
VOCs comply with MECP Table 2 Standards

BH 9
103.85
(102.33)

BH 7
103.62

BH 5
103.34

BH 8
103.74

BH 10
103.89

BH 6
103.80
(101.86)

MW-8 1.5-3.0m 27-Sept-17
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards
VOCs comply with MECP Table 2 Standards

MW-7 1.5-3.0m 27-Sept-17
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards
VOCs comply with MECP Table 2 Standards

MW-6 1.5-3.0m 27-Sept-17
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards
VOCs comply with MECP Table 2 Standards

MW-3 1.5-3.0m 27-Sept-17
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards

MW-4 1.5-3.0m 27-Sept-17
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards
VOCs comply with MECP Table 2 Standards

MW-4 1.5-3.0m 21-Sept-20
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards

MW-4-GW (DUP) 1.5-3.0m 21-Sept-20
BTEX comply with MECP Table 2 Standards
PHC-F1 comply with MECP Table 2 Standards

BH2-GW1 1.70-3.80m 11-Sept-20

Parameter	Results (ug/L)	Parameter (ug/L)
Ethylbenzene	17.8	2.4

PHCs comply with MECP Table 2 Standards
All other VOCs comply with MECP Table 2 Standards

BH2-GW2 1.70-3.80m 29-Sept-20

Parameter	Results (ug/L)	Parameter (ug/L)
Ethylbenzene	16.1	2.4

PHCs comply with MECP Table 2 Standards
All other VOCs comply with MECP Table 2 Standards

BH2-GW2 1.70-3.80m 28-Aug-23
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards

BH11-GW (DUP) 1.70-3.80m 28-Aug-23
BTEX comply with MECP Table 2 Standards
PHCs comply with MECP Table 2 Standards

GRASSED
BUILDING FOUNDATION
(FORMER GARAGE BUILDING)
ASPHALTIC CONCRETE
FORMER BUILDING FOUNDATION
BH 1
103.53
MW-8
BH 3
103.46
MW-7
MW-5
BH 2
103.45
(102.28)
BH 4
103.68
FORMER PUMP ISLAND LOCATION
MW-1
MW-2
FORMER UNDERGROUND TANK NEST LOCATION
GRASSED
MW-3
MW-4
102.35
(101.34)
MW-6
DISCHARGE OF FLOOR DRAIN CONTENTS

MITCH OWENS ROAD

ALBION ROAD

#627 BALLYCASTLE CRES.
RESIDENTIAL

KILLYMOON WAY

#635 BALLYCASTLE CRES.
RESIDENTIAL

#639 BALLYCASTLE CRESCENT
RESIDENTIAL

#643 BALLYCASTLE CRESCENT
RESIDENTIAL

#647 BALLYCASTLE CRESCENT
RESIDENTIAL

LEGEND:

GROUNDWATER RESULTS COMPLY WITH MECP TABLE 2 STANDARDS

GROUNDWATER RESULTS EXCEED MECP TABLE 2 STANDARDS

- BOREHOLE LOCATION, CURRENT INVESTIGATION
- BOREHOLE WITH MONITORING WELL LOCATION, CURRENT INVESTIGATION
- MONITORING WELL LOCATION BY OTHERS
- DESTROYED MONITORING WELL LOCATION BY OTHERS
- 103.45 GROUND SURFACE ELEVATION (m)
- (102.28) GROUNDWATER SURFACE ELEVATION (m)

GROUND SURFACE ELEVATIONS REFERENCED TO A GEODETIC DATUM.

PATERSON GROUP
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NO.	REVISIONS	DATE	INITIAL
0			

W.O. STINSON & SON LIMITED

PHASE II - ENVIRONMENTAL SITE ASSESSMENT UPDATE
5505 AND 5545 ALBION ROAD

OTTAWA, ONTARIO

Title:
ANALYTICAL TESTING PLAN - GROUNDWATER

Scale: 1:1000	Date: 09/2023
Drawn by: MPG	Report No.: PE4169-LET.02
Checked by: MW	Dwg. No.: PE4169-7R
Approved by: MSD	Revision No.:

11x17

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Certificate of Analysis

Paterson Group Consulting Engineers
9 Auriga Drive
Ottawa, ON K2E 7T9
Attn: Mandy Witteman

Client PO: 58249
Project: PE4169
Custody:

Report Date: 1-Sep-2023
Order Date: 29-Aug-2023

Order #: 2335247

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2335247-01	BH2-GW
2335247-02	BH11-GW

Approved By:

Dale Robertson, BSc
Laboratory Director

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX by P&T GC-MS	EPA 624 - P&T GC-MS	31-Aug-23	31-Aug-23
PHC F1	CWS Tier 1 - P&T GC-FID	31-Aug-23	31-Aug-23
PHCs F2 to F4	CWS Tier 1 - GC-FID, extraction	30-Aug-23	31-Aug-23

	Client ID:	BH2-GW	BH11-GW	-	-	-	-
	Sample Date:	29-Aug-23 00:00	29-Aug-23 00:00	-	-		
	Sample ID:	2335247-01	2335247-02	-	-		
	Matrix:	Ground Water	Ground Water	-	-		
	MDL/Units						
Volatiles							
Benzene	0.5 ug/L	<0.5	<0.5	-	-	-	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	-	-	-	-
Toluene	0.5 ug/L	<0.5	<0.5	-	-	-	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	-	-	-	-
o-Xylene	0.5 ug/L	<0.5	<0.5	-	-	-	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	-	-	-	-
Toluene-d8	Surrogate	98.2%	101%	-	-	-	-
Hydrocarbons							
F1 PHCs (C6-C10)	25 ug/L	<25	<25	-	-	-	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	-	-	-	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	-	-	-	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	-	-	-	-

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons								
F1 PHCs (C6-C10)	ND	25	ug/L					
F2 PHCs (C10-C16)	ND	100	ug/L					
F3 PHCs (C16-C34)	ND	100	ug/L					
F4 PHCs (C34-C50)	ND	100	ug/L					
Volatiles								
Benzene	ND	0.5	ug/L					
Ethylbenzene	ND	0.5	ug/L					
Toluene	ND	0.5	ug/L					
m,p-Xylenes	ND	0.5	ug/L					
o-Xylene	ND	0.5	ug/L					
Xylenes, total	ND	0.5	ug/L					
Surrogate: Toluene-d8	*78.1*		*%*	*97.6*	*50-140*			

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	25	ug/L	ND			NC	30	
Volatiles									
Benzene	ND	0.5	ug/L	ND			NC	30	
Ethylbenzene	ND	0.5	ug/L	ND			NC	30	
Toluene	ND	0.5	ug/L	ND			NC	30	
m,p-Xylenes	ND	0.5	ug/L	ND			NC	30	
o-Xylene	ND	0.5	ug/L	ND			NC	30	
Surrogate: Toluene-d8	*79.0*		*%*		*98.8*	*50-140*			

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	1910	25	ug/L	ND	111	85-115			
F2 PHCs (C10-C16)	1850	100	ug/L	ND	116	60-140			
F3 PHCs (C16-C34)	4140	100	ug/L	ND	106	60-140			
F4 PHCs (C34-C50)	2730	100	ug/L	ND	110	60-140			
Volatiles									
Benzene	34.9	0.5	ug/L	ND	87.4	60-130			
Ethylbenzene	36.2	0.5	ug/L	ND	90.4	60-130			
Toluene	36.7	0.5	ug/L	ND	91.6	60-130			
m,p-Xylenes	72.1	0.5	ug/L	ND	90.1	60-130			
o-Xylene	34.0	0.5	ug/L	ND	85.0	60-130			
Surrogate: Toluene-d8	*76.5*		*%*		*95.6*	*50-140*			

Certificate of Analysis

Report Date: 01-Sep-2023

Client: **Paterson Group Consulting Engineers**

Order Date: 29-Aug-2023

Client PO: 58249

Project Description: PE4169

Qualifier Notes:

Sample Data Revisions:

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated

CCME PHC additional information:

- The method for the analysis of PHCs complies with the Reference Method for the CWS PHC and is validated for use in the laboratory. All prescribed quality criteria identified in the method has been met.

- F1 range corrected for BTEX.

- F2 to F3 ranges corrected for appropriate PAHs where available.

- The gravimetric heavy hydrocarbons (F4G) are not to be added to C6 to C50 hydrocarbons.

- In the case where F4 and F4G are both reported, the greater of the two results is to be used for comparison to CWS PHC criteria.

- When reported, data for F4G has been processed using a silica gel cleanup.

PARACEL LABORATORIES LTD.

Paracel ID: 2335247

Paracel Order Number (Lab Use Only)	Chain Of Custody (Lab Use Only)

Client Name: Paterson
Project Ref: PE 4169
Contact Name: Mandy Witteman
Quote #:
Address: 9 Auriga
PO #: 58249
E-mail: MWitteman@patersongrp.ca GPaterson@patersongroup.ca
Telephone: 613 226 7381
Page __ of __

Turnaround Time
☐ 1 day ☐ 3 day
☐ 2 day ☒ Regular
Date Required: _____

☒ REG 153/04 ☐ REG 406/19

☐ Table 1 ☐ Res/Park ☐ Med/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other
☐ Table ___
For RSC: ☐ Yes ☐ No

Other Regulation
☐ REG 558 ☐ PWQO
☐ CCME ☐ MISA
☐ SU - Sani ☐ SU - Storm
Mun: _____
☐ Other:

Matrix Type: S (Soil/Sed.) GW (Ground Water) SW (Surface Water) SS (Storm/Sanitary Sewer) P (Paint) A (Air) O (Other)

Required Analysis

	Sample ID/Location Name	Matrix	Air Volume	# of Containers	Sample Taken Date	Sample Taken Time	PHCs F1-F4+BTEX	VOCs	PAHs	Metals by ICP	Hg	CrVI	B (HWS)					
1	BH2-GW	GW		3	Aug 29		X											
2	BH11-GW	GW		3	Aug 29		X											
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Comments:

Method of Delivery: Paracel Courier

Relinquished By (Sign): G-Pat	Received By Driver/Depot:	Received at Lab: DROOM	Verified By:
Relinquished By (Print): Grant Paterson	Date/Time:	Date/Time: Aug 29 23 5:00	Date/Time: Aug 30 23 12:35
Date/Time: Aug 29 2023	Temperature: °C	Temperature: 7.1	pH Verified: ☐ By: