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October 19 2011
File: PE2357-LET.01

Claridge Homes
2001 - 210 Gladstone Avenue
Ottawa, Ontario
K2P 0Y6

Attention: **Mr. Neil Malhotra**

Subject: **Supplemental Phase II - Environmental Site Assessment**
Existing Commercial Property
175 Richmond Road - Ottawa

Dear Sir,

Further to your request and authorization, Paterson Group (Paterson) carried out a supplemental Phase II - Environmental Site Assessment (ESA) program at the aforementioned site. The results of the Supplemental Phase II - ESA are summarized in the following report.

1.0 Background Information

The subject site is located on the west side of Kirkwood Avenue, between Richmond Road and Wilber Avenue in the City of Ottawa, Ontario. The subject property is currently occupied by a two to three (2 to 3) storey commercial structure with a partial basement level. The subject building occupies the majority of the site while small parking areas are located in the northern, southern and western portions of the site. The neighbouring properties are either commercial or residential land.

2.0 Previous Engineering Report

Paterson previously conducted a Phase I-II ESA on the subject property in November of 2009. At that time, a total of six (6) boreholes were advanced at selected locations on the subject property. The boreholes were placed in areas to address potential environmental concerns with the subject site as well as the neighbouring property to the south (190 Richmond Road) which was a former printing facility. The potential on-site concerns included the former underground furnace oil storage tank in the eastern portion of the subject site, and the former use of the site by General Electric as a manufacturing facility.

Based on soil and groundwater analytical testing, one of the above noted potential concerns was determined to have impacted the subject property. Soil samples obtained from the former underground furnace oil storage tank location in the eastern portion of the property identified petroleum hydrocarbon concentrations in excess of the applicable MOE standards.

As a result of the above noted identified contaminated soil, it was recommended that a supplemental Phase II - ESA be conducted on the subject property. The purpose of the supplemental Phase II - ESA was to delineate the area of previously identified soil contamination and to analyse the groundwater in the area of the former on-site underground furnace oil storage tank.

3.0 Subsurface Investigation

As part of the field program, seven (7) boreholes were placed on the subject property on May 30 and June 8, 2011. The boreholes were conducted by means of a truck mounted drill rig under the full time supervision of Paterson personnel. The boreholes, which were numbered BH1 to BH7, were terminated at depths ranging from 3.4 to 7.3 m below the existing ground surface. Practical auger refusal was encountered in all boreholes. The inferred bedrock was cored in BH6 to ensure that the groundwater table would be intercepted. Three of the boreholes (BH4, BH6 and BH7) were instrumented with groundwater monitoring well installations. The borehole locations are illustrated on the enclosed test hole location plan. The depths at which the split spoon and auger samples were obtained from the test holes are shown as **"SS"** and **"AU"** on the Soil Profile and Test Data sheets enclosed in this report.

Subsurface Profile

The soil profile encountered consisted of a layer of asphaltic concrete underlain by a layer of granular fill followed by native glacial till which was overlying bedrock. The fill consisted of silty sand gravel. The fill depth ranged from 0.3 to 0.7 m below the existing grade in all boreholes with one exception. The silty sand fill layer extended to 3 m in BH3, which is in the former underground furnace oil storage tank location. The specific details of the soil profile at each test hole location are presented on the enclosed Soil Profile and Test Data sheets.

Monitoring Well Installation

Groundwater monitoring wells were installed in BH4, BH6 and BH7, the location of these boreholes can be seen on the enclosed test hole location plan. Typical monitoring well construction details are described below:

- ❏ Slotted 50 mm diameter PVC screen at base of borehole.
- ❏ 50 mm diameter PVC riser pipe from the top of the screen to ground surface.
- ❏ No.3 silica sand backfill within annular space around screen.
- ❏ 300 mm thick bentonite hole plug directly above PVC slotted screen.
- ❏ Clean backfill from top of bentonite plug to the ground surface.

Refer to the Soil Profile and Test Data sheets attached for the actual well construction in BH4, BH6 and BH7.

Soil Sampling Protocol

A total of 43 soil samples were recovered from the test holes by means of stainless steel split spoon or auger sampling. Upon recovery, all samples were immediately sealed in appropriate containers to facilitate a preliminary screening procedure. It should be noted that visual and olfactory observations made regarding the soil samples obtained from BH3 and BH4, in the area of the former underground storage tank nest, identified the potential for petroleum hydrocarbon contamination. No unusual visual or olfactory observations were made regarding soil samples obtained from the remaining boreholes.

All samples recovered as part of this investigation will be stored in the laboratory for a period of one (1) month after issuance of this report. All samples will then be discarded unless this firm is otherwise directed.

Soil Sample Headspace Analysis

The technical protocol was obtained from Appendix C of the MOE document titled "Interim Guidelines for the Remediation of Petroleum Contamination at Operating Retail and Private Fuel Outlets in Ontario", dated March 1992.

Soil samples recovered at the time of sampling were placed immediately into airtight plastic bags with nominal headspace. All lumps of soil inside the bags were broken by hand, and the soil was allowed to come to room temperature prior to conducting the vapour survey. Allowing the samples to stabilize to room temperature ensures consistency of readings between samples.

To measure the soil vapours, the analyser probe is inserted into the nominal headspace above the soil sample. An RKI Eagle (gastech) with methane elimination and calibrated to hexane was used for this purpose. The sample is agitated/manipulated gently as the measurement is taken. The peak reading registered within the first 15 seconds is recorded as the vapour measurement.

The parts per million (ppm) scale is used to measure concentrations of hydrocarbon vapours that are too low to register on the Lower Explosive Limit (LEL) scale. The explosive point, 100% LEL, represents the leanest mixture which will burn (or explode) if ignited.

The combustible vapour readings were found to range from 0 to 15 ppm in BH1, BH2, BH5, BH6 and BH7. These readings are not considered to be indicative of the presence of significant petroleum hydrocarbon (furnace oil) contamination. However, the combustible vapour readings obtained in BH3 and BH4, (up to 1.7% LEL), are considered to be indicative of petroleum hydrocarbon impact. It should be noted that the vapour results can not be used to identify the presence of heavier petroleum hydrocarbons such as heavy oil. However, heavy oils are not expected to be a concern on the subject site. Please refer to the Soil Profile and Test Data sheets attached for soil sample headspace results.

Groundwater

A return visit to the site was conducted on June 20, 2011 to obtain a stabilized groundwater level and to sample the groundwater from BH4, BH6 and BH7. The groundwater levels in the monitoring wells were found to range from 2.3 to 2.6 m below the existing ground surface. The groundwater level in our previously installed monitoring well (BH1) was also obtained on June 20, 2011. The groundwater level in this borehole was found to be 4.1 m below the existing ground surface. It should be noted that groundwater levels are

expected to fluctuate throughout the year with seasonal variations. Visual and olfactory observations noted with the groundwater obtained from BH4 indicated the potential for petroleum hydrocarbon contamination. No unusual visual or olfactory observations were noted regarding the groundwater sampled from BH6 and BH7.

4.0 Analytical Test Results

Remediation Standards

The remediation standards for the subject property were obtained from Table 3 of the document entitled "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act", prepared by the Ontario Ministry of Environment (MOE), July 27, 2009. The MOE Table 3 Standards are based on the following considerations:

- ❏ Coarse grained soil conditions.
- ❏ Surface soil and groundwater conditions.
- ❏ Non-potable groundwater situation.
- ❏ Residential land use.

Paracel Laboratories (Paracel) of Ottawa, performed the laboratory analysis of the samples submitted for analytical testing. Paracel is a member of the Standards Council of Canada/Canadian Association for Environmental Analytical Laboratories (SCC/CAEAL). Paracel is accredited and certified by SCC/CAEAL for specific tests registered with the association.

Soil

Five (5) soil samples were submitted to Paracel Laboratories for petroleum hydrocarbons PHCs (Fractions 1 to 4) and benzene, toluene, ethylbenzene and xylenes (BTEX) analysis. A copy of the analytical test results is attached to this report.

Table 1
Analytical Test Results - Soil
BTEX and PHCs (Fractions 1 to 4)

Parameter	MDL (µg/g)	Soil Samples (µg/g)					Table 3 Standards Residential Land Use (µg/g)
		BH3 SS4	BH4 SS5	BH5 SS5	BH6 SS6	BH7 SS4	2009 Standards
Benzene	0.02	nd	nd	nd	nd	nd	0.21
Ethylbenzene	0.05	0.26	**10.8**	nd	nd	nd	2.0
Toluene	0.05	nd	nd	nd	nd	nd	2.3
Xylenes (Total)	0.05	nd	**45.4**	nd	nd	nd	3.1
F_1 PHCs (C_6-C_{10})	10	**325**	**1,060**	nd	nd	nd	55
F_2 PHCs (C_{10}-C_{16})	10	**2,670**	**3,360**	nd	nd	nd	98
F_3 PHCs (C_{16}-C_{34})	10	**2,620**	**2,710**	nd	nd	nd	300
F_4 PHCs (C_{34}-C_{50})	10	nd	nd	nd	nd	nd	2,800

Notes:
- ❑ MDL - Method Detection Limit
- ❑ nd - Not Detected (< MDL)
- ❑ Bold and underlined results exceed MOE Table 3 standards.

No detectable BTEX or PHC concentrations were identified in the soil sample analysed from BH5, BH6 and BH7. Several BTEX and PHC concentrations in excess of the MOE Table 3 standards were identified in the soil samples analysed from BH3 and BH4.

Groundwater

Groundwater samples were collected from the monitoring wells installed in BH4, BH6 and BH7 on June 20, 2011. The water samples were submitted for PHC and volatile organic compounds (VOCs) analysis. The results of the analytical testing, and the selected remediation standards are presented in Tables 2 and 3. A copy of the analytical test results is attached to this report.

Table 2
Analytical Test Results - Groundwater
PHCs (Fractions 1 to 4)

Parameter	MDL (ug/L)	Groundwater Samples (µg/L)			MOE Table 3 Standards (µg/L)
		BH4 GW1	BH6 GW1	BH7 GW1	
F1 PHCs (C_6-C_{10})	25	**3,770**	nd	nd	750
F2 PHCs (C_{10}-C_{16})	100	**46,500**	nd	nd	150
F3 PHCs (C_{16}-C_{34})	100	**27,900**	nd	nd	500
F4 PHCs (C_{34}-C_{50})	100	nd	nd	nd	500

Notes:
- MDL - Method Detection Limit
- nd - Not Detected (< MDL)
- Bold and underlined results exceed the MOE Table 3 standards.

No detectable PHC concentrations were identified in the groundwater samples obtained from BH6 and BH7. The PHC (F1, F2 and F3) concentrations identified in the groundwater sample obtained from BH4 were in excess of the MOE Table 3 standards. No detectable PHC (F4) concentration was identified in the groundwater sample obtained from BH4.

Table 3
Analytical Test Results - Groundwater
Volatile Organic Compounds (VOCs)

Parameters	MDL (µg/L)	Groundwater Samples (µg/L)			MOE Standards (µg/L)
		BH4 GW1	BH6 GW1	BH7 GW1	Table 3
Acetone	5.0	72.6	nd	52.4	*130,000*
Benzene	0.5	32.4	nd	nd	*44*
Bromodichloromethane	0.5	nd	nd	nd	*85,000*
Bromoform	0.5	nd	nd	nd	*380*
Bromomethane	0.5	nd	nd	nd	*5.6*
Carbon Tetrachloride	0.5	nd	nd	nd	*0.79*
Chlorobenzene	0.5	nd	nd	nd	*630*
Chloroethane	1.0	nd	nd	nd	*nv*
Chloroform	0.5	nd	nd	nd	*2.4*
Chloromethane	3.0	nd	nd	nd	*nv*
Dibromochloromethane	0.5	nd	nd	nd	*82,000*
1,2 - Dibromoethane	0.2	nd	nd	nd	*nv*
m - Dichlorobenzene	0.5	nd	nd	nd	*9,600*
o - Dichlorobenzene	0.5	nd	nd	nd	*4,600*
p - Dichlorobenzene	0.5	nd	nd	nd	*8*
Dichlorodifluoromethane	0.5	nd	nd	nd	*4,400*
1,1-Dichloroethane	0.5	nd	nd	nd	*320*
1,2-Dichloroethane	0.5	nd	nd	nd	*1.6*
1,1-Dichloroethylene	0.5	nd	nd	nd	*1.6*
c-1,2-Dichloroethylene	0.5	nd	nd	nd	*1.6*
t-1,2-Dichloroethylene	1.0	nd	nd	nd	*1.6*
1,2-Dichloropropane	0.5	nd	nd	nd	*16*
c-1,3-Dichloropropene	0.5	nd	nd	nd	*5.2*
t-1,3-Dichloropropene	0.5	nd	nd	nd	
Ethylbenzene	0.5	49.4	nd	nd	*2,300*
Methyl Ethyl Ketone	5.0	nd	nd	nd	*470,000*
Methyl Isobutyl Ketone	5.0	nd	nd	nd	*140,000*
Methyl tert-Butyl Ether	2.0	nd	nd	nd	*190*
Methylene Chloride	5.0	nd	nd	nd	*610*
Styrene	0.5	nd	nd	nd	*1,300*
1,1,1,2-tetrachloroethane	0.5	nd	nd	nd	*3.4*
1,1,2,2-tetrachloroethane	0.5	nd	nd	nd	*3.2*

Notes:
- MDL - Method Detection Limit
- nd - Not Detected (< MDL)
- nv - No current MOE standard

Table 3 (continued)
Analytical Test Results - Groundwater
Volatile Organic Compounds (VOCs)

Parameters	MDL (µg/L)	Groundwater Samples (µg/L)			MOE Standards (µg/L)
		BH4 GW1	BH6 GW1	BH7 GW1	Table 3
Tetrachloroethylene	0.5	nd	nd	nd	*1.6*
Toluene	0.5	1.1	nd	nd	*18,000*
1,1,1-Trichloroethane	0.5	nd	nd	nd	*640*
1,1,2-Trichloroethane	0.5	nd	nd	nd	*4.7*
Trichloroethylene	0.5	nd	nd	nd	*1.6*
Trichlorofluoromethane	1.0	nd	nd	nd	*2,500*
1,3,5-Trimethylbenzene	0.5	9.2	nd	nd	*nv*
Vinyl Chloride	0.5	nd	nd	nd	*0.5*
Total Xylenes	0.5	1,100	nd	nd	*4,200*

Notes:
- ❑ MDL - Method Detection Limit
- ❑ nd - Not Detected (< MDL)
- ❑ nv - No current MOE standard

The analytical test results did not identify any VOC parameters in excess of the MOE Table 3 standards in the groundwater samples analysed.

5.0 Assessment and Recommendations

Assessment

A supplemental Phase II - Environmental Site Assessment was carried out at 175 Richmond Road, in the City of Ottawa, Ontario. The purpose of the supplemental Phase II - ESA was to delineate the area of previously identified soil contamination and to analyse the groundwater in the area of the former on-site underground furnace oil storage tank.

Soil

Seven (7) boreholes were placed on the subject property on May 30 and June 8, 2011 at selected locations on the subject property. Visual and olfactory observations regarding the soil samples obtained from BH3 and BH4, in the area of the former underground storage tank nest, identified the potential for petroleum hydrocarbon contamination. Five (5) soil samples were submitted to Paracel Laboratories for PHC and BTEX analysis.

No detectable BTEX or PHC concentrations were identified in the soil samples analysed from BH5, BH6 and BH7. Several BTEX and PHC concentrations in excess of the MOE Table 3 standards were identified in the soil samples analysed from BH3 and BH4.

Water

Groundwater samples were collected from the monitoring wells installed in BH4, BH6 and BH7 on June 20, 2011. The water samples were submitted for PHC and volatile organic compounds (VOCs) analysis. It should be noted that visual and olfactory observations noted with the groundwater obtained from BH4 indicated the potential for petroleum hydrocarbon contamination.

No detectable PHC concentrations were identified in the groundwater samples obtained from BH6 and BH7. The PHC (F1, F2 and F3) concentrations identified in the groundwater sample obtained from BH4 were in excess of the MOE Table 3 standards. No detectable PHC (F4) concentration was identified in the ground water sample obtained from BH4.

The analytical test results did not identify any VOC parameters in excess of the MOE Table 3 standards in the groundwater samples analysed.

Recommendations

Contaminated soil and groundwater were identified in the area of the former on-site underground storage tank nest, as indicated in the attached plan. It is recommended that a soil and groundwater remediation program be conducted in this area to remove and dispose of the soil and groundwater in excess of the MOE Table 3 standards. This could be done at the time of future site redevelopment as a means of reducing costs. The impacted soil must be disposed of at an approved waste disposal facility. It is also recommended that Paterson personnel be present at the time of the removal of the impacted soil and groundwater to provide direction and to obtain confirmatory samples upon the completion of the remediation program.

6.0 Statement of Limitations

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those described by the test holes themselves.

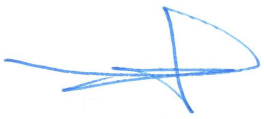
This report was prepared for the use of Claridge Homes. Permission from Paterson and Claridge Homes will be required to release this report to any other party.

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

Best Regards,

Paterson Group Inc.

Eric Leveque, B.A.



Carlos P. Da Silva, P.Eng

Report Distribution:

- ❑ Claridge Homes (3 copies)
- ❑ Paterson Group (1 copy)

Attachments:

- ❑ Soil Profile and Test Data Sheets
- ❑ Analytical Test Results
- ❑ Test Hole Location Plan

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Supplemental Ph. II - Environmental Site Assessment
175 Richmond Road
Ottawa, Ontario

DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

FILE NO. PE2357

REMARKS

HOLE NO. BH 1

BORINGS BY CME 55 Power Auger **DATE** 30 May 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Asphaltic concrete 0.10						0	
FILL: Brown silty sand and crushed stone 0.60		AU	1				
		SS	2	42	27	1	
		SS	3	44	50+		
		SS	4	50	13	2	
		SS	5	100	7	3	
GLACIAL TILL: Grey silty sand with clay, gravel, cobbles and boulders		SS	6	42	5	4	
		SS	7	50	19	5	
		SS	8	54	20	6	
		SS	9	52	26		
7.29						7	
End of Borehole							
Practical refusal to augering @ 7.29m depth							
(GWL @ 4.11m-June 20/11)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Lower Explosive Limit %

20 40 60 80

100 200 300 400 500

Gastech 1314 Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

Monitoring Well Construction

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SOIL PROFILE AND TEST DATA

Supplemental Ph. II - Environmental Site Assessment
175 Richmond Road
Ottawa, Ontario

DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

FILE NO. PE2357

REMARKS

HOLE NO. BH 2

BORINGS BY CME 55 Power Auger **DATE** 30 May 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Asphaltic concrete 0.10						0	
FILL: Brown silty sand and gravel 0.60		AU	1				
		SS	2	58	18	1	
GLACIAL TILL: Grey silty sand with gravel and cobbles		SS	3	50	43	2	
		SS	4	59	50+	3	
3.38							
End of Borehole							
Practical refusal to augering @ 3.38m depth							
(GWL @ 2.15m-June 20/11)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Lower Explosive Limit %

20 40 60 80

Monitoring Well Construction

100 200 300 400 500

Gastech 1314 Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Supplemental Ph. II - Environmental Site Assessment
175 Richmond Road
Ottawa, Ontario

DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

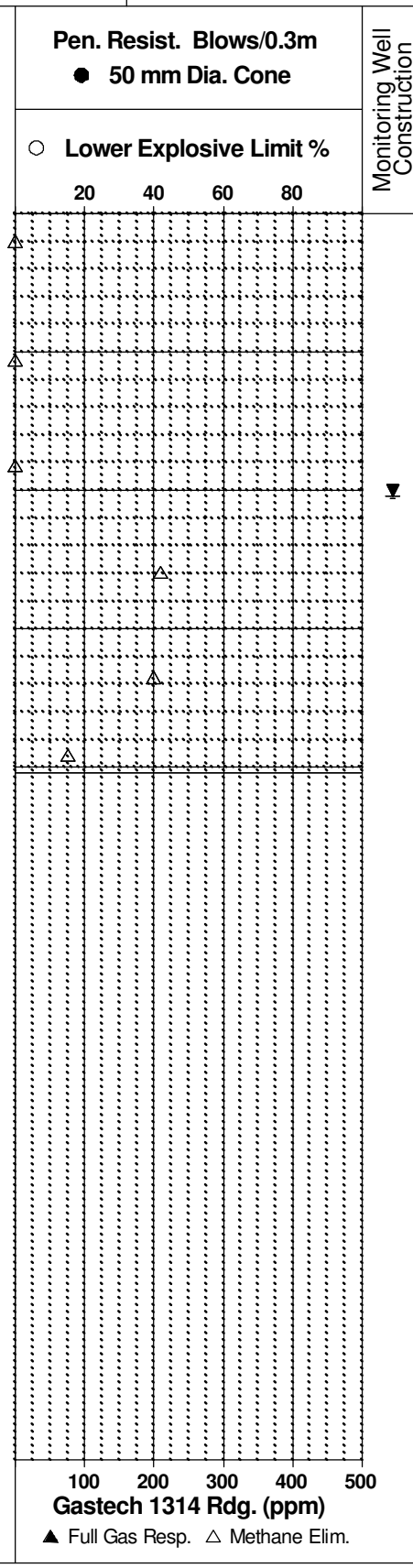
FILE NO. PE2357

REMARKS

HOLE NO. BH 3

BORINGS BY CME 55 Power Auger **DATE** 8 Jun 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	99.63
Asphaltic concrete 0.08		AU	1				
FILL: Crushed stone 0.66							
		SS	2	58	5	1	98.63
FILL: Brown silty sand		SS	3	25	1	2	97.63
		SS	4	33	1		
2.97						3	96.63
GLACIAL TILL: Compact to dense, grey silty sand with gravel, cobbles and boulders		SS	5	67	24		
4.04		SS	6		50+	4	95.63
End of Borehole							
Practical refusal to augering @ 4.04m depth							
(GWL @ 2.04m-June 20/11)							



Monitoring Well Construction

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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Supplemental Ph. II - Environmental Site Assessment
175 Richmond Road
Ottawa, Ontario

DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

FILE NO. PE2357

REMARKS

HOLE NO. BH 4

BORINGS BY CME 55 Power Auger **DATE** 8 Jun 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	99.60
Asphaltic concrete 0.08		AU	1				
FILL: Crushed stone 0.30		AU	2				
		SS	3	75	15	1	98.60
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders		SS	4	67	19	2	97.60
- grey by 2.2m depth		SS	5	58	23		
		SS	6	54	32	3	96.60
3.99		SS	7		50+		
End of Borehole							
Practical refusal to augering @ 3.99m depth							
(GWL @ 2.33m-June 20/11)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Lower Explosive Limit %

20 40 60 80

Monitoring Well Construction

100 200 300 400 500

Gastech 1314 Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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SOIL PROFILE AND TEST DATA

Supplemental Ph. II - Environmental Site Assessment
175 Richmond Road
Ottawa, Ontario

DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

FILE NO. PE2357

REMARKS

HOLE NO. BH 5

BORINGS BY CME 55 Power Auger **DATE** 8 Jun 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Lower Explosive Limit %	Monitoring Well Construction
GROUND SURFACE									
Asphaltic concrete 0.10		AU	1			0	99.46		
FILL: Crushed stone 0.28									
		SS	2	58	19	1	98.46		
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders		SS	3	33	92	2	97.46		
- grey by 2.2m depth		SS	4	67	28				▼
		SS	5	71	50+	3	96.46		
3.81									
End of Borehole									
Practical refusal to augering @ 3.81m depth									
(GWL @ 2.68m-June 20/111)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Lower Explosive Limit %
20 40 60 80

100 200 300 400 500
Gastech 1314 Rdg. (ppm)
▲ Full Gas Resp. △ Methane Elim.

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SOIL PROFILE AND TEST DATA

Supplemental Ph. II - Environmental Site Assessment
175 Richmond Road
Ottawa, Ontario

DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

FILE NO. PE2357

REMARKS

HOLE NO. BH 6

BORINGS BY CME 55 Power Auger **DATE** 8 Jun 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	99.27
Asphaltic concrete 0.05		AU	1				
FILL: Brown silty sand with gravel 0.30		AU	2				
		SS	3	50	17	1	98.27
GLACIAL TILL: Compact, brown silty sand with gravel, cobbles and boulders		SS	4	75	25	2	97.27
- grey by 2.2m depth		SS	5	25	27		
		SS	6	36	26	3	96.27
3.61							
BEDROCK: Grey limestone		RC	1	52	0	4	95.27
4.44							
End of Borehole							
(GWL @ 2.59m-June 20/11)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Lower Explosive Limit %

20 40 60 80

Monitoring Well Construction

100 200 300 400 500

Gastech 1314 Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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SOIL PROFILE AND TEST DATA

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DATUM TBM - Top spindle of fire hydrant located on the southwest corner of Wilber Avenue and Clifton Road. Arbitrary elevation = 100.00m.

FILE NO. PE2357

REMARKS

HOLE NO. BH 7

BORINGS BY CME 55 Power Auger **DATE** 8 Jun 11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	99.56
Asphaltic concrete 0.10							
FILL: Crushed stone with gravel 0.60		AU	1				
		SS	2	50	19	1	98.56
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobbles and boulders		SS	3	92	38	2	97.56
		SS	4	92	48		
		SS	5	100	50+	3	96.56
3.45							
End of Borehole							
Practical refusal to augering @ 3.45m depth							
(GWL @ 2.43m-June 20/11)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Lower Explosive Limit %

20 40 60 80

Monitoring Well Construction

100 200 300 400 500

Gastech 1314 Rdg. (ppm)

▲ Full Gas Resp. △ Methane Elim.

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Certificate of Analysis

Paterson Group Consulting Engineers
28 Concourse Gate, Unit 1
Nepean, ON K2E 7T7
Attn: Eric Leveque

Phone: (613) 226-7381
Fax: (613) 226-6344

Client PO: 10880
Project: PE2357
Custody: 79738

Report Date: 30-Jun-2011
Order Date: 9-Jun-2011
Revised Report **Order #: 1124174**

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

Paracel ID	Client ID
1124174-01	BH3-SS4
1124174-02	BH4-SS5
1124174-03	BH5-SS5
1124174-04	BH6-SS6
1124174-05	BH7-SS4

Approved By: Mark Foto

Mark Foto, M.Sc. For Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 30-Jun-2011

Client: **Paterson Group Consulting Engineers**

Order Date:9-Jun-2011

Client PO: 10880 Project Description: PE2357

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
BTEX	EPA 8260 - P&T GC-MS	10-Jun-11	13-Jun-11
CCME PHC F1	CWS Tier 1 - P&T GC-FID	10-Jun-11	13-Jun-11
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	14-Jun-11	15-Jun-11
Solids, %	Gravimetric, calculation	15-Jun-11	15-Jun-11

PARACEL LABORATORIES LTD.

Order #: 1124174

Certificate of Analysis

Report Date: 30-Jun-2011

Client: **Paterson Group Consulting Engineers**

Order Date:9-Jun-2011

Client PO: 10880

Project Description: PE2357

	Client ID:	BH3-SS4	BH4-SS5	BH5-SS5	BH6-SS6
	Sample Date:	08-Jun-11	08-Jun-11	08-Jun-11	08-Jun-11
	Sample ID:	1124174-01	1124174-02	1124174-03	1124174-04
	MDL/Units	Soil	Soil	Soil	Soil
Physical Characteristics					
% Solids	0.1 % by Wt.	89.9	91.5	91.7	88.4
Volatiles					
Benzene	0.02 ug/g dry	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.05 ug/g dry	0.26	10.8	<0.05	<0.05
Toluene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
m,p-Xylenes	0.05 ug/g dry	<0.05	45.4	<0.05	<0.05
o-Xylene	0.05 ug/g dry	<0.05	<0.05	<0.05	<0.05
Xylenes, total	0.05 ug/g dry	<0.05	45.4	<0.05	<0.05
Toluene-d8	Surrogate	101%	101%	99.3%	99.9%
Hydrocarbons					
F1 PHCs (C6-C10)	10 ug/g dry	325	1060	<10	<10
F2 PHCs (C10-C16)	10 ug/g dry	2670	3360	<10	<10
F3 PHCs (C16-C34)	10 ug/g dry	2620	2710	<10	<10
F4 PHCs (C34-C50)	10 ug/g dry	<10	<10	<10	<10

	Client ID:	BH7-SS4	-	-	-
	Sample Date:	08-Jun-11	-	-	-
	Sample ID:	1124174-05	-	-	-
	MDL/Units	Soil	-	-	-
Physical Characteristics					
% Solids	0.1 % by Wt.	90.6	-	-	-
Volatiles					
Benzene	0.02 ug/g dry	<0.02	-	-	-
Ethylbenzene	0.05 ug/g dry	<0.05	-	-	-
Toluene	0.05 ug/g dry	<0.05	-	-	-
m,p-Xylenes	0.05 ug/g dry	<0.05	-	-	-
o-Xylene	0.05 ug/g dry	<0.05	-	-	-
Xylenes, total	0.05 ug/g dry	<0.05	-	-	-
Toluene-d8	Surrogate	101%	-	-	-
Hydrocarbons					
F1 PHCs (C6-C10)	10 ug/g dry	<10	-	-	-
F2 PHCs (C10-C16)	10 ug/g dry	<10	-	-	-
F3 PHCs (C16-C34)	10 ug/g dry	<10	-	-	-
F4 PHCs (C34-C50)	10 ug/g dry	<10	-	-	-

Certificate of Analysis

Report Date: 30-Jun-2011

Client: **Paterson Group Consulting Engineers**

Order Date:9-Jun-2011

Client PO: 10880 Project Description: PE2357

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	10	ug/g						
F2 PHCs (C10-C16)	ND	10	ug/g						
F3 PHCs (C16-C34)	ND	10	ug/g						
F4 PHCs (C34-C50)	ND	10	ug/g						
Volatiles									
Benzene	ND	0.02	ug/g						
Ethylbenzene	ND	0.05	ug/g						
Toluene	ND	0.05	ug/g						
m,p-Xylenes	ND	0.05	ug/g						
o-Xylene	ND	0.05	ug/g						
Xylenes, total	ND	0.05	ug/g						
Surrogate: Toluene-d8	*8.36*		*ug/g*		*105*	*50-140*			

Certificate of Analysis

Report Date: 30-Jun-2011

Client: **Paterson Group Consulting Engineers**

Order Date:9-Jun-2011

Client PO: 10880 Project Description: PE2357

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	ND	10	ug/g dry	ND				40	
F2 PHCs (C10-C16)	ND	10	ug/g dry	ND				50	
F3 PHCs (C16-C34)	15	10	ug/g dry	ND				50	
F4 PHCs (C34-C50)	ND	10	ug/g dry	ND				50	
Physical Characteristics									
% Solids	80.2	0.1	% by Wt.	78.8			1.8	25	
Volatiles									
Benzene	ND	0.02	ug/g dry	ND				50	
Ethylbenzene	ND	0.05	ug/g dry	ND				50	
Toluene	ND	0.05	ug/g dry	ND				50	
m,p-Xylenes	ND	0.05	ug/g dry	ND				50	
o-Xylene	ND	0.05	ug/g dry	ND				50	
Surrogate: Toluene-d8	*9.90*		*ug/g dry*	*ND*	*103*	*50-140*			

Certificate of Analysis

Report Date: 30-Jun-2011

Client: **Paterson Group Consulting Engineers**

Order Date:9-Jun-2011

Client PO: 10880 Project Description: PE2357

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	182	10	ug/g	ND	90.8	80-120			
F2 PHCs (C10-C16)	56	10	ug/g	ND	70.0	61-129			
F3 PHCs (C16-C34)	159	10	ug/g	ND	79.7	61-129			
F4 PHCs (C34-C50)	132	10	ug/g	ND	110	61-129			
Volatiles									
Benzene	3.96	0.02	ug/g	ND	99.1	60-130			
Ethylbenzene	3.79	0.05	ug/g	ND	94.7	60-130			
Toluene	3.83	0.05	ug/g	ND	95.7	60-130			
m,p-Xylenes	7.21	0.05	ug/g	ND	90.1	60-130			
o-Xylene	3.73	0.05	ug/g	ND	93.3	60-130			
Surrogate: Toluene-d8	*7.57*		*ug/g*		*94.6*	*50-140*			

Sample and QC Qualifiers Notes

None

Sample Data Revisions

None

Work Order Revisions/Comments:

Revision 1 - This report includes revised client Sample ID's and Project reference.

Other Report Notes:

n/a: not applicable
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
Soil results are reported on a dry weight basis when the units are denoted with 'dry'.
Where %Solids is reported, moisture loss includes the loss of volatile hydrocarbons.

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.

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Chain of Custody

(lab use only)

Nº 79738

Reg. Drinking Water

Client Name: PATERSON	Project Ref: PG2363	Waterworks Name:	Page __ of __
Contact Name: ERIC LEVIEQUE	Quote # 10888	Waterworks Number:	Sample Taken by:
Address: 28 CONCOURSE GATE UNIT 1	PO #	Address:	Print Name:
	E-mail Address: elevegue - - -	After hours Contact:	Signature:
Telephone: 226-7381	Fax: 226-6344	Public Health Unit:	TAT: [ ] 1-day [ ] 2-day [ ] Reg.

Matrix Types: S–Soil/Sed. GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer DW-Drinking Water RDW-Regulated Drinking Water P- Paint A-Air O-Other

Samples submitted under: (Indicate **ONLY** one)
☐ O. Reg 153 (511) Table 1 ☐ O. Reg 170/03 ☐ O. Reg 318/08 ☐ Private well
☐ CCME ____ ☐ O. Reg 243/07 ☐ O. Reg 319/08 ☐ Other: ____

Type of DW Sample: **R** = Raw; **T** = Treated; **D** = Distribution
Location Types: **S** = Surface Water; **G** = Ground Water

Paracel Order Number: 1124174

	Sample ID / Location Name	Matrix	Air Volume	Type of Sample	# of Containers	Sample Taken: Date	Sample Taken: Time	Free / Combined Chlorine Residual mg/L	Required Analyses: PHCs (F1-F4)	Required Analyses: BTEX	Required Analyses: 120 hr
1	BH7-SS4	S			1	JUNE 8/11			✓	✓	
2	BH8-SS5	↓			↓	↓			✓	✓	
3	BH9-SS5								✓	✓	
4	BH10-SS6								✓	✓	
5	BH11-SS4	✓			✓				✓	✓	
6											
7											
8											
9											
10											

Comments: New Regulations Samples not field preserved BB

Preservation Verification: pH ___ Temperature 21.7
Verified by: ___

Relinquished By (Print & Sign): E. LEVIEQUE

Date/Time:

Lab Use Only:

Received By Driver/Depot:	Received at Lab:	Verified By:
Date/Time: 09 June 2011 10:29	Date/Time: June 9, 11 16:00	Date/Time: June 9, 11 16:30

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Certificate of Analysis

Paterson Group Consulting Engineers
28 Concourse Gate, Unit 1
Nepean, ON K2E 7T7
Attn: Eric Leveque

Phone: (613) 226-7381
Fax: (613) 226-6344

Client PO: 10898
Project: PE2357
Custody: 83378

Report Date: 15-Jul-2011
Order Date: 13-Jun-2011
Revised Report **Order #: 1125092**

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

Paracel ID	Client ID
1125092-01	BH7-GW1
1125092-02	BH6-GW1
1125092-03	BH4-GW1

Approved By:

Dale Robertson, BSc
Laboratory Director

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898 Project Description: PE2357

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
CCME PHC F1	CWS Tier 1 - P&T GC-FID	14-Jun-11	15-Jun-11
CCME PHC F2 - F4	CWS Tier 1 - GC-FID, extraction	14-Jun-11	15-Jun-11
VOCs	EPA 624 - P&T GC-MS	14-Jun-11	15-Jun-11

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898

Project Description: PE2357

	Client ID:	BH7-GW1	BH6-GW1	BH4-GW1	-
	Sample Date:	13-Jun-11	13-Jun-11	13-Jun-11	-
	Sample ID:	1125092-01	1125092-02	1125092-03	-
	MDL/Units	Water	Water	Water	-
Volatiles					
Acetone	5.0 ug/L	52.4	<5.0	72.6	-
Benzene	0.5 ug/L	<0.5	<0.5	32.4	-
Bromodichloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromoform	0.5 ug/L	<0.5	<0.5	<0.5	-
Bromomethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Carbon Tetrachloride	0.2 ug/L	<0.2	<0.2	<0.2	-
Chlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloroethane	1.0 ug/L	<1.0	<1.0	<1.0	-
Chloroform	0.5 ug/L	<0.5	<0.5	<0.5	-
Chloromethane	3.0 ug/L	<3.0	<3.0	<3.0	-
Dibromochloromethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Dichlorodifluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2-Dibromoethane	0.2 ug/L	<0.2	<0.2	<0.2	-
1,2-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,4-Dichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,2-Dichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloroethylene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
1,2-Dichloropropane	0.5 ug/L	<0.5	<0.5	<0.5	-
cis-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
trans-1,3-Dichloropropylene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3-Dichloropropene, total	0.5 ug/L	<0.5	<0.5	<0.5	-
Ethylbenzene	0.5 ug/L	<0.5	<0.5	49.4	-
Hexane	1.0 ug/L	<1.0	<1.0	<1.0	-
Methyl Ethyl Ketone (2-Butanone)	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl Butyl Ketone (2-Hexanone)	10.0 ug/L	<10.0	<10.0	<10.0	-
Methyl Isobutyl Ketone	5.0 ug/L	<5.0	<5.0	<5.0	-
Methyl tert-butyl ether	2.0 ug/L	<2.0	<2.0	<2.0	-
Methylene Chloride	5.0 ug/L	<5.0	<5.0	<5.0	-

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898

Project Description: PE2357

	Client ID:	BH7-GW1	BH6-GW1	BH4-GW1	-
	Sample Date:	13-Jun-11	13-Jun-11	13-Jun-11	-
	Sample ID:	1125092-01	1125092-02	1125092-03	-
	MDL/Units	Water	Water	Water	-
Styrene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2,2-Tetrachloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Tetrachloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Toluene	0.5 ug/L	<0.5	<0.5	1.1	-
1,2,4-Trichlorobenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
1,1,2-Trichloroethane	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L	<0.5	<0.5	<0.5	-
Trichlorofluoromethane	1.0 ug/L	<1.0	<1.0	<1.0	-
1,2,4-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	<0.5	-
1,3,5-Trimethylbenzene	0.5 ug/L	<0.5	<0.5	9.2	-
Vinyl chloride	0.5 ug/L	<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L	<0.5	<0.5	1100	-
o-Xylene	0.5 ug/L	<0.5	<0.5	6.8	-
Xylenes, total	0.5 ug/L	<0.5	<0.5	1100	-
4-Bromofluorobenzene	Surrogate	113%	112%	105%	-
Dibromofluoromethane	Surrogate	103%	105%	108%	-
Toluene-d8	Surrogate	114%	114%	110%	-
Hydrocarbons					
F1 PHCs (C6-C10)	25 ug/L	<25	<25	3770	-
F2 PHCs (C10-C16)	100 ug/L	<100	<100	46500	-
F3 PHCs (C16-C34)	100 ug/L	<100	<100	27900	-
F4 PHCs (C34-C50)	100 ug/L	<100	<100	<100	-
F1 + F2 PHCs	125 ug/L	<125	<125	50300	-
F3 + F4 PHCs	200 ug/L	<200	<200	27900	-

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898

Project Description: PE2357

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%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									
1,2,4- Trimethylbenzene	ND	0.5	ug/L						
Acetone	ND	5.0	ug/L						
Benzene	ND	0.5	ug/L						
Bromodichloromethane	ND	0.5	ug/L						
Bromoform	ND	0.5	ug/L						
Bromomethane	ND	0.5	ug/L						
Carbon Tetrachloride	ND	0.2	ug/L						
Chlorobenzene	ND	0.5	ug/L						
Chloroethane	ND	1.0	ug/L						
Chloroform	ND	0.5	ug/L						
Chloromethane	ND	3.0	ug/L						
Dibromochloromethane	ND	0.5	ug/L						
Dichlorodifluoromethane	ND	1.0	ug/L						
1,2-Dibromoethane	ND	0.2	ug/L						
1,2-Dichlorobenzene	ND	0.5	ug/L						
1,3-Dichlorobenzene	ND	0.5	ug/L						
1,4-Dichlorobenzene	ND	0.5	ug/L						
1,1-Dichloroethane	ND	0.5	ug/L						
1,2-Dichloroethane	ND	0.5	ug/L						
1,1-Dichloroethylene	ND	0.5	ug/L						
cis-1,2-Dichloroethylene	ND	0.5	ug/L						
trans-1,2-Dichloroethylene	ND	0.5	ug/L						
1,2-Dichloroethylene, total	ND	0.5	ug/L						
1,2-Dichloropropane	ND	0.5	ug/L						
cis-1,3-Dichloropropylene	ND	0.5	ug/L						
trans-1,3-Dichloropropylene	ND	0.5	ug/L						
1,3-Dichloropropene, total	ND	0.5	ug/L						
Ethylbenzene	ND	0.5	ug/L						
Hexane	ND	1.0	ug/L						
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L						
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L						
Methyl Isobutyl Ketone	ND	5.0	ug/L						
Methyl tert-butyl ether	ND	2.0	ug/L						
Methylene Chloride	ND	5.0	ug/L						
Styrene	ND	0.5	ug/L						
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L						
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L						
Tetrachloroethylene	ND	0.5	ug/L						
Toluene	ND	0.5	ug/L						
1,2,4-Trichlorobenzene	ND	0.5	ug/L						
1,1,1-Trichloroethane	ND	0.5	ug/L						
1,1,2-Trichloroethane	ND	0.5	ug/L						
Trichloroethylene	ND	0.5	ug/L						
Trichlorofluoromethane	ND	1.0	ug/L						
1,3,5-Trimethylbenzene	ND	0.5	ug/L						
Vinyl chloride	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: 4-Bromofluorobenzene	*97.6*		*ug/L*		*122*	*50-140*			
Surrogate: Dibromofluoromethane	*68.3*		*ug/L*		*85.4*	*50-140*			
Surrogate: Toluene-d8	*88.4*		*ug/L*		*110*	*50-140*			

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898

Project Description: PE2357

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	588	25	ug/L	491			18.0	30	
Volatiles									
1,2,4- Trimethylbenzene	64.9	0.5	ug/L	54.9			16.7	30	
Acetone	ND	5.0	ug/L	ND				30	
Benzene	270	0.5	ug/L	247			8.6	30	
Bromodichloromethane	ND	0.5	ug/L	ND				30	
Bromoform	ND	0.5	ug/L	ND				30	
Bromomethane	ND	0.5	ug/L	ND				30	
Carbon Tetrachloride	ND	0.2	ug/L	ND				30	
Chlorobenzene	ND	0.5	ug/L	ND				30	
Chloroethane	ND	1.0	ug/L	ND				30	
Chloroform	ND	0.5	ug/L	ND				30	
Chloromethane	ND	3.0	ug/L	ND				30	
Dibromochloromethane	ND	0.5	ug/L	ND				30	
Dichlorodifluoromethane	ND	1.0	ug/L	ND				30	
1,2-Dibromoethane	ND	0.2	ug/L	ND				30	
1,2-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,3-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,4-Dichlorobenzene	ND	0.5	ug/L	ND				30	
1,1-Dichloroethane	ND	0.5	ug/L	ND				30	
1,2-Dichloroethane	ND	0.5	ug/L	ND				30	
1,1-Dichloroethylene	ND	0.5	ug/L	ND				30	
cis-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	ND				30	
1,2-Dichloropropane	ND	0.5	ug/L	ND				30	
cis-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
trans-1,3-Dichloropropylene	ND	0.5	ug/L	ND				30	
Ethylbenzene	102	0.5	ug/L	82.6			21.4	30	
Hexane	4.54	1.0	ug/L	3.82			17.2	30	
Methyl Ethyl Ketone (2-Butanone)	ND	5.0	ug/L	ND				30	
Methyl Butyl Ketone (2-Hexanone)	ND	10.0	ug/L	ND				30	
Methyl Isobutyl Ketone	ND	5.0	ug/L	ND				30	
Methyl tert-butyl ether	841	2.0	ug/L	845			0.5	30	
Methylene Chloride	ND	5.0	ug/L	ND				30	
Styrene	ND	0.5	ug/L	ND				30	
1,1,1,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L	ND				30	
Tetrachloroethylene	ND	0.5	ug/L	ND				30	
Toluene	15.9	0.5	ug/L	14.2			11.5	30	
1,2,4-Trichlorobenzene	ND	0.5	ug/L	ND				30	
1,1,1-Trichloroethane	ND	0.5	ug/L	ND				30	
1,1,2-Trichloroethane	ND	0.5	ug/L	ND				30	
Trichloroethylene	ND	0.5	ug/L	ND				30	
Trichlorofluoromethane	ND	1.0	ug/L	ND				30	
1,3,5-Trimethylbenzene	4.91	0.5	ug/L	3.45			34.9	30	QR-07
Vinyl chloride	ND	0.5	ug/L	ND				30	
m,p-Xylenes	168	0.5	ug/L	146			13.8	30	
o-Xylene	65.2	0.5	ug/L	58.6			10.7	30	
Surrogate: 4-Bromofluorobenzene	*91.2*		*ug/L*	*ND*	*114*	*50-140*			
Surrogate: Dibromofluoromethane	*68.6*		*ug/L*	*ND*	*85.8*	*50-140*			
Surrogate: Toluene-d8	*89.6*		*ug/L*	*ND*	*112*	*50-140*			

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898

Project Description: PE2357

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Hydrocarbons									
F1 PHCs (C6-C10)	2060	25	ug/L	ND	103	68-117			
F2 PHCs (C10-C16)	1410	100	ug/L	ND	87.8	61-129			
F3 PHCs (C16-C34)	3360	100	ug/L	ND	84.0	61-129			
F4 PHCs (C34-C50)	1620	100	ug/L	ND	67.5	61-129			
Volatiles									
1,2,4- Trimethylbenzene	40.0	0.5	ug/L	ND	100	50-140			
Acetone	109	5.0	ug/L	ND	109	50-140			
Benzene	33.6	0.5	ug/L	ND	83.9	50-140			
Bromodichloromethane	39.6	0.5	ug/L	ND	99.0	50-140			
Bromoform	38.6	0.5	ug/L	ND	96.4	50-140			
Bromomethane	38.7	0.5	ug/L	ND	96.8	50-140			
Carbon Tetrachloride	31.6	0.2	ug/L	ND	79.1	50-140			
Chlorobenzene	38.7	0.5	ug/L	ND	96.8	50-140			
Chloroethane	28.7	1.0	ug/L	ND	71.7	50-140			
Chloroform	34.0	0.5	ug/L	ND	85.0	50-140			
Chloromethane	32.4	3.0	ug/L	ND	81.0	50-140			
Dibromochloromethane	37.8	0.5	ug/L	ND	94.5	50-140			
Dichlorodifluoromethane	26.6	1.0	ug/L	ND	66.6	50-140			
1,2-Dibromoethane	37.3	0.2	ug/L	ND	93.2	50-140			
1,2-Dichlorobenzene	40.6	0.5	ug/L	ND	101	50-140			
1,3-Dichlorobenzene	43.4	0.5	ug/L	ND	109	50-140			
1,4-Dichlorobenzene	42.0	0.5	ug/L	ND	105	50-140			
1,1-Dichloroethane	33.4	0.5	ug/L	ND	83.5	50-140			
1,2-Dichloroethane	34.7	0.5	ug/L	ND	86.8	50-140			
1,1-Dichloroethylene	31.4	0.5	ug/L	ND	78.5	50-140			
cis-1,2-Dichloroethylene	34.0	0.5	ug/L	ND	85.1	50-140			
trans-1,2-Dichloroethylene	36.1	0.5	ug/L	ND	90.3	50-140			
1,2-Dichloropropane	24.5	0.5	ug/L	ND	61.2	50-140			
cis-1,3-Dichloropropylene	31.6	0.5	ug/L	ND	79.0	50-140			
trans-1,3-Dichloropropylene	36.0	0.5	ug/L	ND	90.0	50-140			
Ethylbenzene	37.7	0.5	ug/L	ND	94.2	50-140			
Hexane	29.4	1.0	ug/L	ND	73.4	50-140			
Methyl Ethyl Ketone (2-Butanone)	111	5.0	ug/L	ND	111	50-140			
Methyl Butyl Ketone (2-Hexanone)	98.0	10.0	ug/L	ND	98.0	50-140			
Methyl Isobutyl Ketone	106	5.0	ug/L	ND	106	50-140			
Methyl tert-butyl ether	105	2.0	ug/L	ND	105	50-140			
Methylene Chloride	31.9	5.0	ug/L	ND	79.8	50-140			
Styrene	37.6	0.5	ug/L	ND	93.9	50-140			
1,1,1,2-Tetrachloroethane	40.0	0.5	ug/L	ND	99.9	50-140			
1,1,2,2-Tetrachloroethane	35.2	0.5	ug/L	ND	88.1	50-140			
Tetrachloroethylene	37.0	0.5	ug/L	ND	92.5	50-140			
Toluene	31.7	0.5	ug/L	ND	79.2	50-140			
1,2,4-Trichlorobenzene	31.7	0.5	ug/L	ND	79.4	50-140			
1,1,1-Trichloroethane	35.0	0.5	ug/L	ND	87.6	50-140			
1,1,2-Trichloroethane	31.5	0.5	ug/L	ND	78.8	50-140			
Trichloroethylene	25.8	0.5	ug/L	ND	64.6	50-140			
Trichlorofluoromethane	33.1	1.0	ug/L	ND	82.6	50-140			
1,3,5-Trimethylbenzene	46.5	0.5	ug/L	ND	116	50-140			
Vinyl chloride	41.8	0.5	ug/L	ND	104	50-140			

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898

Project Description: PE2357

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
m,p-Xylenes	76.4	0.5	ug/L	ND	95.6	50-140			
o-Xylene	37.5	0.5	ug/L	ND	93.7	50-140			
Surrogate: 4-Bromofluorobenzene	*88.2*		*ug/L*		*110*	*50-140*			
Surrogate: 4-Bromofluorobenzene	*77.5*		*ug/L*		*96.8*	*50-140*			
Surrogate: Dibromofluoromethane	*43.8*		*ug/L*		*54.7*	*50-140*			
Surrogate: Dibromofluoromethane	*72.8*		*ug/L*		*91.0*	*50-140*			
Surrogate: Toluene-d8	*46.9*		*ug/L*		*58.6*	*50-140*			
Surrogate: Toluene-d8	*68.7*		*ug/L*		*85.9*	*50-140*			

Certificate of Analysis

Report Date: 15-Jul-2011

Client: **Paterson Group Consulting Engineers**

Order Date:13-Jun-2011

Client PO: 10898 Project Description: PE2357

Sample and QC Qualifiers Notes

1- QR-07 : Duplicate result exceeds RPD limits due to non-homogeneity between multiple sample vials.

Sample Data Revisions

None

Work Order Revisions/Comments:

Revision 1 - This report includes revised client Sample ID's and Project reference.

Other Report Notes:

n/a: not applicable

MDL: Method Detection Limit

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

%REC: Percent recovery.

RPD: Relative percent difference.

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.

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Chain of Custody
(lab use only)

Nº 83378

Page 1 of 1

Reg. Drinking Water

Client Name: Paterson Group	Project Ref: PG 2363	Waterworks Name:	Sample Taken by:
Contact Name: Eric Lefreque	Quote #	Waterworks Number:	Print Name: Dan. S
Address: 28 Concourse gate	PO # 10898	Address:	Signature:
	E-mail Address: Elefreque@patersongroup.ca	After hours Contact:	
Telephone: 613 226-7381	Fax:	Public Health Unit:	TAT: [ ] 1-day [ ] 2-day [✓] Reg.

Matrix Types: S–Soil/Sed. GW–Ground Water SW–Surface Water SS–Storm/Sanitary Sewer DW-Drinking Water RDW-Regulated Drinking Water P- Paint A-Air O-Other

Samples submitted under: (Indicate **ONLY** one)
☐ O. Reg 153 (511) Table 3 ☐ O. Reg 170/03 ☐ O. Reg 318/08 ☐ Private well
☐ CCME ____ ☐ O. Reg 243/07 ☐ O. Reg 319/08 ☐ Other: ____

Type of DW Sample: R = Raw; T = Treated; D = Distribution
Location Types: S = Surface Water; G = Ground Water

Paracel Order Number: 1125092

	Sample ID / Location Name	Matrix	Air Volume	Type of Sample	# of Containers	Sample Taken: Date	Sample Taken: Time	Free / Combined Chlorine Residual mg/L	Required Analyses: BTEX	Required Analyses: PHC's (F1-F4)
1	BH 11 - GW 1	GW			2	13/06/11	9:30am		✓	.
2	BH 11 - GW 1	GW			1	13/06/11	9:30am			✓
3	BH 10 - GW 1	GW			2	13/06/11	9:40am		✓	
4	BH 10 - GW 1	GW			1	13/06/11	9:40am			✓
5	BH8 - GW 1	GW			2	13/06/11	10:00am		✓	
6	BH8 - GW 1	GW			1	13/06/11	10:00am			✓
7										
8										
9										
10										

Comments: *New Guidelines *Decant where necessary as per Eric. JC

Preservation Verification: pH N/A Temperature 17.8 C
Verified by: MJC

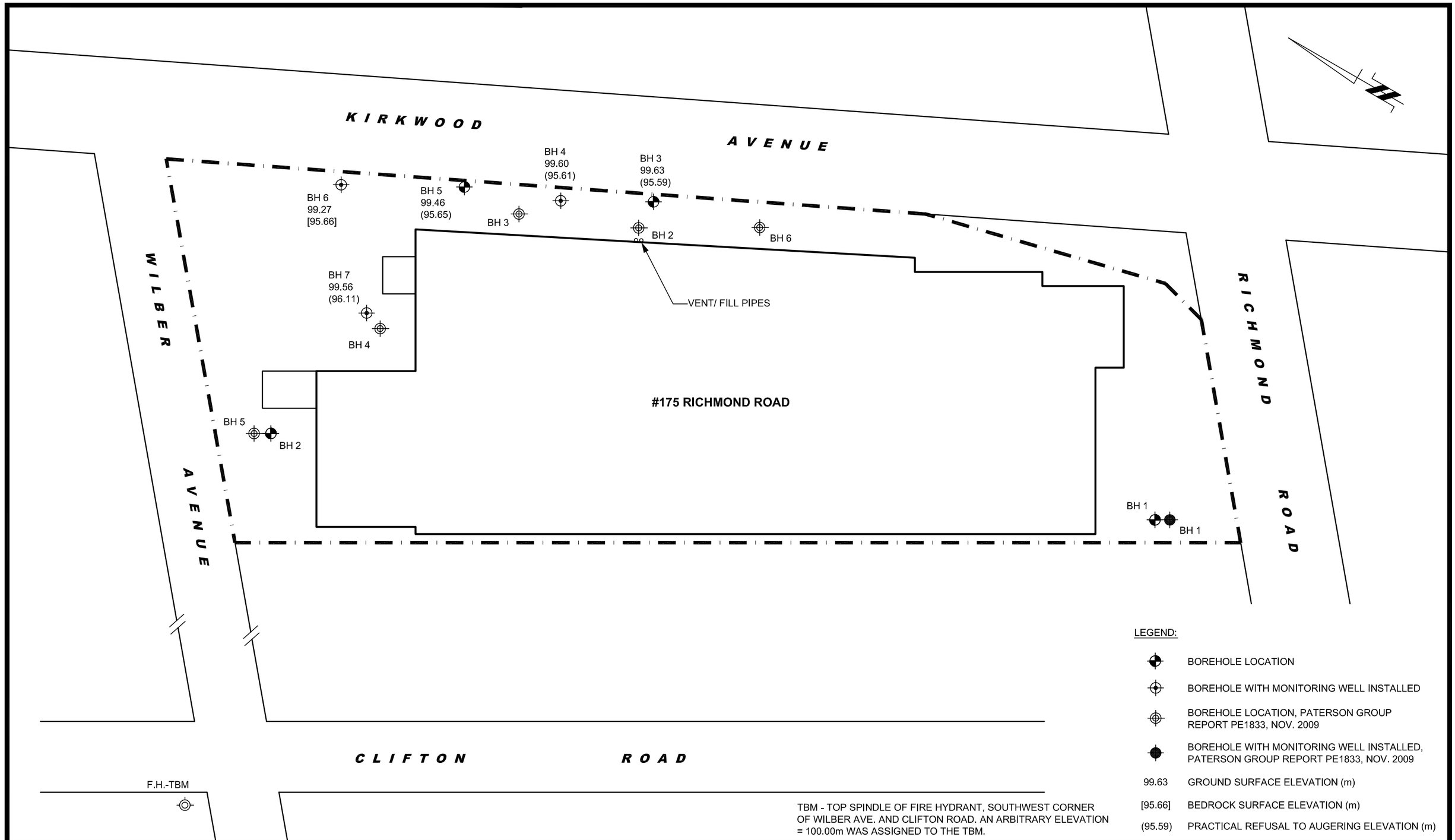
Relinquished By (Print & Sign): Dan Smith DSM

Date/Time: 13/06/11

Lab Use Only:

Received By Driver/Depot:	Received at Lab: MJC	Verified By:
Date/Time:	Date/Time: June 13/11 4:00	Date/Time: June 14/11 11:26am

ChainOfCustody Rev 2.0. January 2010



LEGEND:

- BOREHOLE LOCATION
- BOREHOLE WITH MONITORING WELL INSTALLED
- BOREHOLE LOCATION, PATERSON GROUP REPORT PE1833, NOV. 2009
- BOREHOLE WITH MONITORING WELL INSTALLED, PATERSON GROUP REPORT PE1833, NOV. 2009
- 99.63 GROUND SURFACE ELEVATION (m)
- [95.66] BEDROCK SURFACE ELEVATION (m)
- (95.59) PRACTICAL REFUSAL TO AUGERING ELEVATION (m)

TBM - TOP SPINDLE OF FIRE HYDRANT, SOUTHWEST CORNER OF WILBER AVE. AND CLIFTON ROAD. AN ARBITRARY ELEVATION = 100.00m WAS ASSIGNED TO THE TBM.

paterson group
consulting engineers
28 Concourse Gate, Unit 1, Ottawa, Ontario K2E 7T7

Scale:	1:500
Des.:	EJL
Dwn:	MPG
Chkd:	MSD

CLARIDGE HOMES

SUPPLEMENTAL PH. II - ENVIRONMENTAL SITE ASSESSMENT
175 RICHMOND ROAD
OTTAWA, ONTARIO

TEST HOLE LOCATION PLAN

Dwg. No. **PE2357-1**
Report No.: PE2357-1
Date: 07/2011

11x17