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July 5, 2018

Reference No. 1512-E088

Page 1 of 4

Del Ridge Homes Inc.
7800 Kennedy Road, Unit 102
Markham, Ontario
L3R 2C7

Attention: Ms. Katelyn Dickinson

**Re: Phase Two Environmental Site Assessment Update
Proposed Residential Development
96 Chisholm Street
Town of Oakville**

Dear Madam:

Soil Engineers Ltd.(SEL) was retained to carry out a Phase Two Environmental Site Assessment Update (Phase Two ESA Update) for a property located at 96 Chisholm Street in the Town of Oakville (hereafter referred to as “subject site”), shown in Drawing No. 1.

The purpose of the Phase Two ESA Update is to conduct two (2) additional consecutive quarterly groundwater sampling and testing events in support of filing a Record of Site Condition (RSC) for the subject site. This Phase Two ESA Update should be read in conjunction with our original Phase Two Environmental Site Assessment (Phase Two ESA, Reference No. 1512-E088 dated November 11, 2017).

Background

Our original Phase Two ESA conducted soil and groundwater sampling and testing to assess the identified environmental concerns in our Phase One Environmental Site Assessment (Phase One ESA) and Phase One Environmental Site Assessment Update (Phase One ESA Update) for the subject site.

This letter/report/certification was prepared by Soil Engineers Ltd. for the account of the captioned clients and may be relied upon by regulatory agencies. The material in it reflects the writer's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this letter/report/certification, or any reliance on or decisions to be made based upon it, are the responsibility of such third parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this letter/report/certification.



Soil and groundwater samples were collected and submitted for chemical analysis in accordance with the Ministry of the Environment and Climate Change (MOECC) Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition for Residential/Parkland/Institutional Property Use and for medium and fine textured soils (Table 3 Standards), as published in the “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (EPA), dated April 15, 2011.

A review of the analytical test results of soil samples indicates the tested parameters at the test locations meet the Table 3 Standards.

A review of the analytical test results of submitted groundwater samples for the investigation indicates the tested parameters at the test locations meet the Table 3 Standards, except elevated levels of some parameters of VOCs in groundwater sample retrieved from the monitoring wells BH/MW3 located at the southwestern portion of the subject site. The presence of VOCs impact in the groundwater at the southern portion of the subject site is most likely associated with the former auto repair activities at the adjacent property in the vicinity of the BH3 location.

Subsequently, the soil in the vicinity of BH/MW2 was excavated to a depth of 4.0 m bgs. 2500 L of impacted groundwater was pumped out from the excavation pit and removed from the subject site. The excavation was backfilled to the original ground surface with on-site soil.

Subsequently, a groundwater sampling and testing program was conducted from the newly installed monitoring at the original location of BH/MW2. Two (2) consecutive quarterly sampling and testing events were conducted on June 22 and September 22, 2017, and the results meet Table 3 Standards.

Field Work

The fieldwork for the Phase Two ESA Update investigation consisted of two (2) additional consecutive quarterly groundwater sampling and testing events. Groundwater sampling was conducted on March 1 and June 6, 2018. Prior to each groundwater sampling event, the wells



were purged and the groundwater was allowed to stabilize. The groundwater purging and sampling activities were carried out using dedicated low-density polyethylene tubing. Groundwater samples were collected into laboratory-supplied containers, prepared with preservative for the analysis being conducted.

The fieldwork was conducted and the findings were documented by our representative.

Submission of Groundwater Samples for Analysis

Groundwater samples from the monitoring well (MW3), field duplicate samples and trip blank were submitted for chemical analysis of Volatile Organic Compounds (VOCs). As part of the Quality Assurance/Quality Control (QA/QC) program for the Phase Two ESA Update investigation, a total of one (1) field duplicate soil sample (designated as DUP, original sample MW3) and two (2) trip blank samples were analysed for parameters of VOCs.

The soil samples were analysed by Maxxam Analytics (Maxxam) in Mississauga, Ontario. Maxxam is accredited by Canadian Association for Laboratory Accreditation (CALA) in accordance with ISO/IEC 17025:2005 – “General Requirements for the Competence of Testing and Calibration Laboratories” for all the parameters analysed during this investigation. Copies of the laboratory Certificates of Analysis are enclosed in the Appendix.

Analytical Test Results

Laboratory analytical methods, protocols and procedures were carried out in accordance with the “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

The groundwater test results were reviewed using the Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition for medium and fine textured soils (Table 3 Standards), as published in the “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (EPA), dated April 15, 2011.



The test results indicate that the concentrations of the tested parameters in groundwater at the test locations meet the Table 3 Standards. The result of the analysis of the field duplicate sample is similar to the results for the original sample and relative percent differences for the detectable tested parameters are within acceptable range. However, the relative percent differences could not be calculated between the original and duplicate samples in the situation where the original and/or duplicate samples were below the reported laboratory detection limits.

The Analysis of the Certificates of the groundwater samples is presented in Appendix 'A'.

Conclusion and Recommendation

A review of the analytical test results of soil samples indicates the tested parameters at the test locations meet the Table 3 Standards. Consequently, there are no contaminants identified at the test locations at a concentration above the applicable site condition standards (Table 3 Standards) during the Phase Two ESA Update. The Phase Two Conceptual Site Model for the Phase Two ESA and Phase Two ESA Update was presented in the Appendix 'B'

Based on the findings of the original Phase Two ESA and this Phase Two ESA Update, it is our opinion that the property is suitable for the proposed development. No further environmental investigation is recommended at this time.

Yours very truly,

SOIL ENGINEERS LTD.

Samuel W.H. Lee, P.Geo.

Eleni Girma Beyene, P.Eng., QPESA
SL/EGB:sl





Soil Engineers Ltd.

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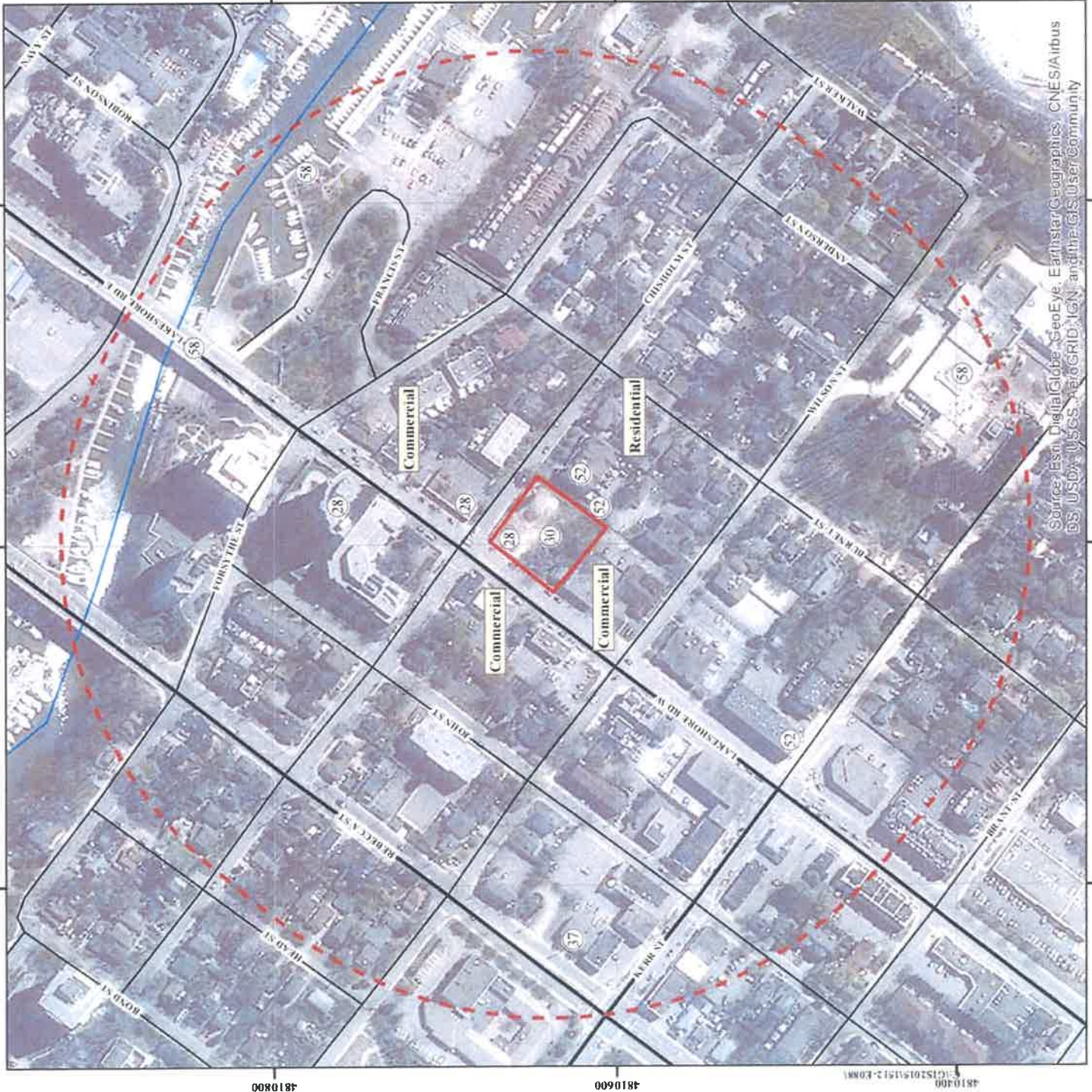
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DRAWINGS

REFERENCE NO. 1512-E088



- Phase One Study Area
- Subject Site
- Watercourse
- Major Road
- Local Road

Potentially Contaminating Activities (PCAs)

- Gasoline and Associated Products Storage in Fixed Tanks
- Importation of Fill Material of Unknown Quality
- Operation of Dry Cleaning Equipment
- Storage, Maintenance, Fueling, and Repair of Transportation Systems
- Waste Disposal and Waste Management











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Project:	Title: Site Location Plan
Proposed Residential Development 96 Chisholm Street Town of Oakville	
Reference No. 1512-E-088	
Date: October 30, 2017	
Scale: 0 15 30 60 90 120 150 Metres	
Drawing No. 1	

Source: Water Table; Ontario Ministry of Natural Resources and Forestry, 2015
 © Queen's Printer for Ontario, 2015
 Source: Water Centre; Ontario Ministry of Natural Resources and Forestry, 2015
 © Queen's Printer for Ontario, 2015



-  Subject Site
-  Borehole with monitoring well
-  Borehole
-  APEC 1 and 3
-  APEC 2
-  APEC 4
-  APEC 5
-  APEC 6



Soil Engineers Ltd.

Title:
Borehole and Monitoring Well
Locations Plan

Project:
Proposed Residential
Development,
96 Chisholm Street,
Town of Oakville

Reference No. 1512-E088





Date: October 30, 2017

Scale:
See Drawing

Drawing No. 2





-  Subject Site
-  Borehole with monitoring well
-  Borehole
-  A-A' Cross Section Location



Title: Geological Cross-Section Location Plan
Project: Proposed Residential Development, 96 Chisholm Street, Town of Oakville
Reference No. 1512-E088
Date: October 30, 2017
Scale: See Drawing
Drawing No. 3



West
A

East
A'

90.0 m
89.0 m
88.0 m
87.0 m
86.0 m
85.0 m
84.0 m
83.0 m
82.0 m

Elevation (masl)

00.0 m 25.0 m 50.0 m 75.0 m 100.0 m

SECTION A-A'

North
B

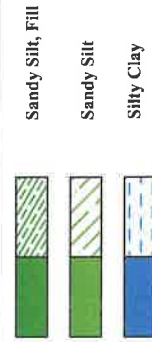
South
B'

00.0 m 25.0 m 50.0 m 75.0 m 100.0 m

90.0 m
89.0 m
88.0 m
87.0 m
86.0 m
85.0 m
84.0 m
83.0 m
82.0 m

Elevation (masl)

SECTION B-B'



Soil Engineers Ltd.
CONSULTING SOIL, FOUNDATION & ENVIRONMENTAL ENGINEERS

Title: **Geological Cross-Sections A-A' and B-B'**

Project: **Proposed Residential Development**
96 Chisholm Street
Town of Oakville

Reference No: 1512-E088	Date: October 30, 2017	Scale: V 1:200	Scale: II 1:1500	Drawing No. 4
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Subject Site



Borehole with monitoring well



Borehole

Groundwater Elevation Contour



Interpreted Groundwater Flow Direction



Soil Engineers Ltd.

Title:

Shallow Groundwater Contour Map

Project:

Proposed Residential Development,
96 Chisholm Street,
Town of Oakville

Reference No. 1512-E088

Date: October 30, 2017

Scale:

See Drawing

Drawing No. 5



Monitoring Well ID	MW3	MW3A	MW9	MW7	MW8	MW3	Table 3 Standards
Depth (m)	1.4 – 3.7	6.1 – 7.6	1.6 – 4.6	1.6 – 4.6	1.6 – 4.6	1.4 – 3.7	
Trichloroethylene (TCE)	2.50	<0.2	<0.2	1.8	<0.2	0.57	17



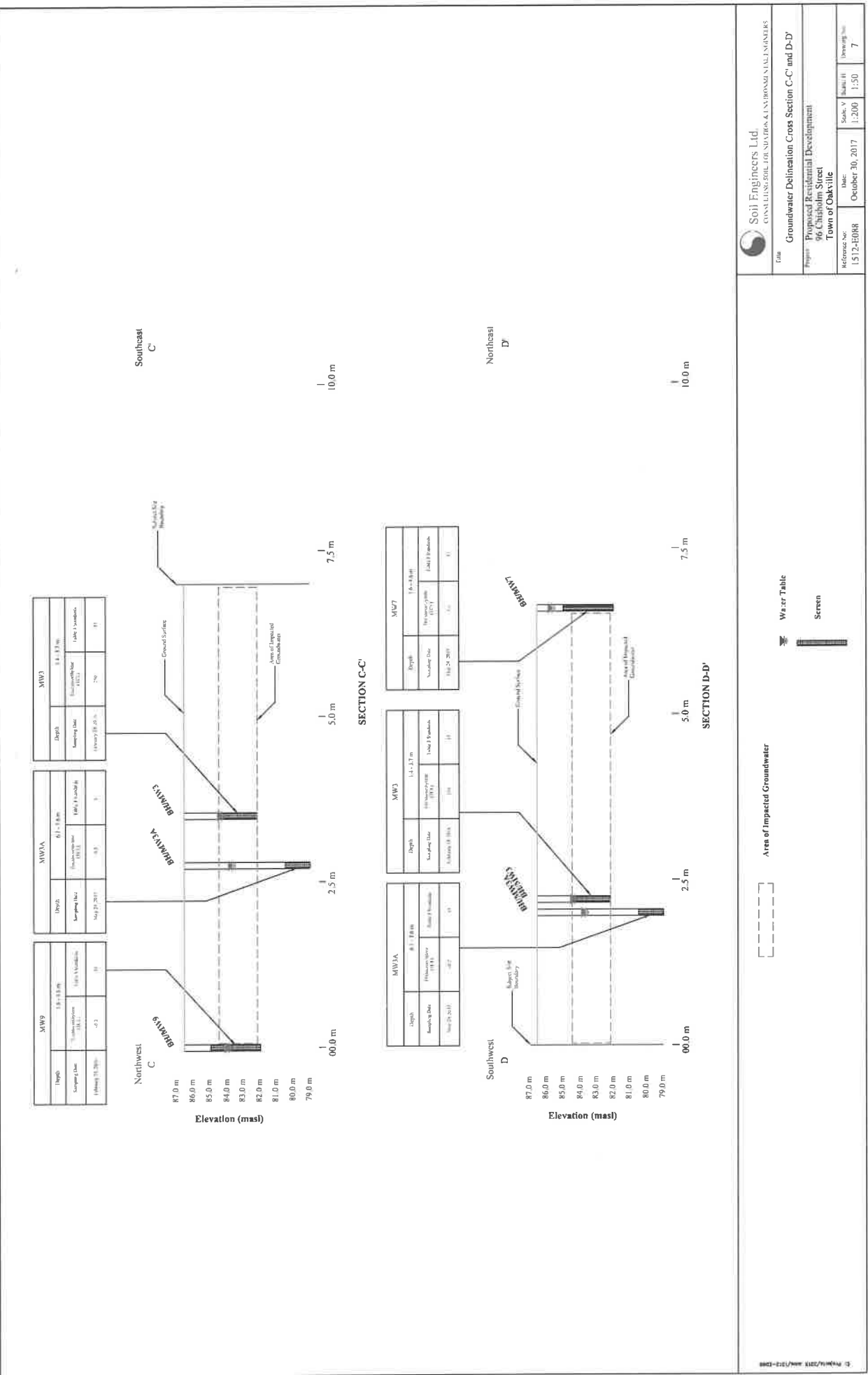
- Subject Site
- Borehole with Monitoring Well
- Borehole
- Lateral Groundwater Delineation Line
- A-A' Cross Section Location



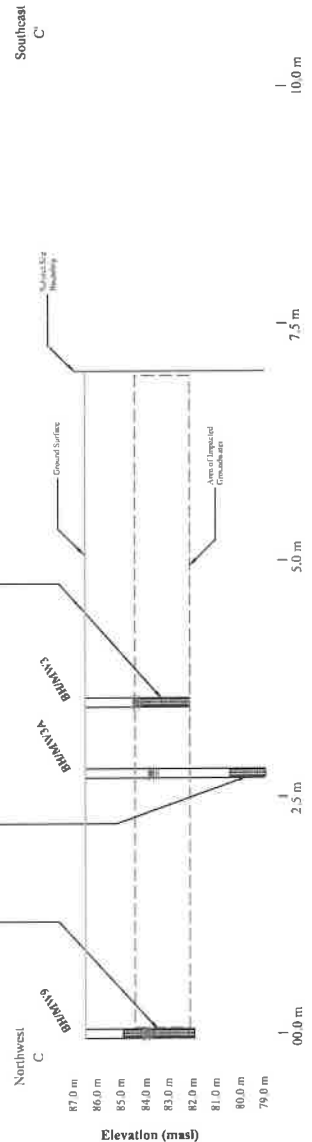
Title: Lateral Groundwater Delineation Plan
Project: Proposed Residential Development, 96 Chisholm Street, Town of Oakville
Reference No.: 1512-E088
Date: October 30, 2017
Scale: See Drawing
Drawing No.: 6



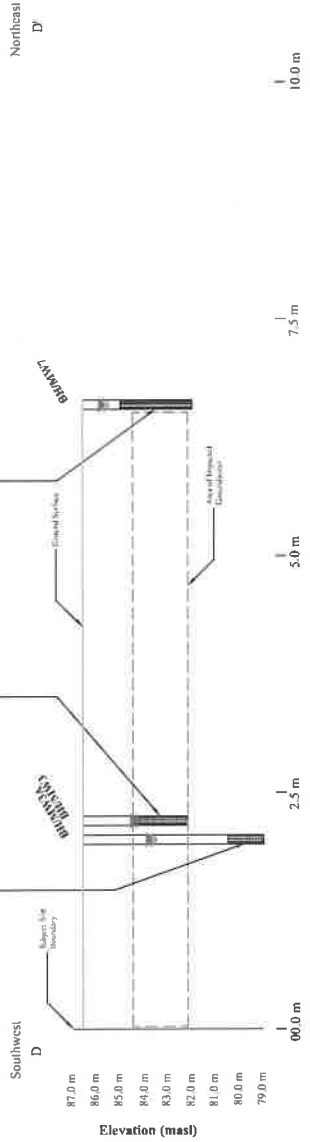
Source: Town of Oakville Interactive Mapping
© 2016 Town of Oakville



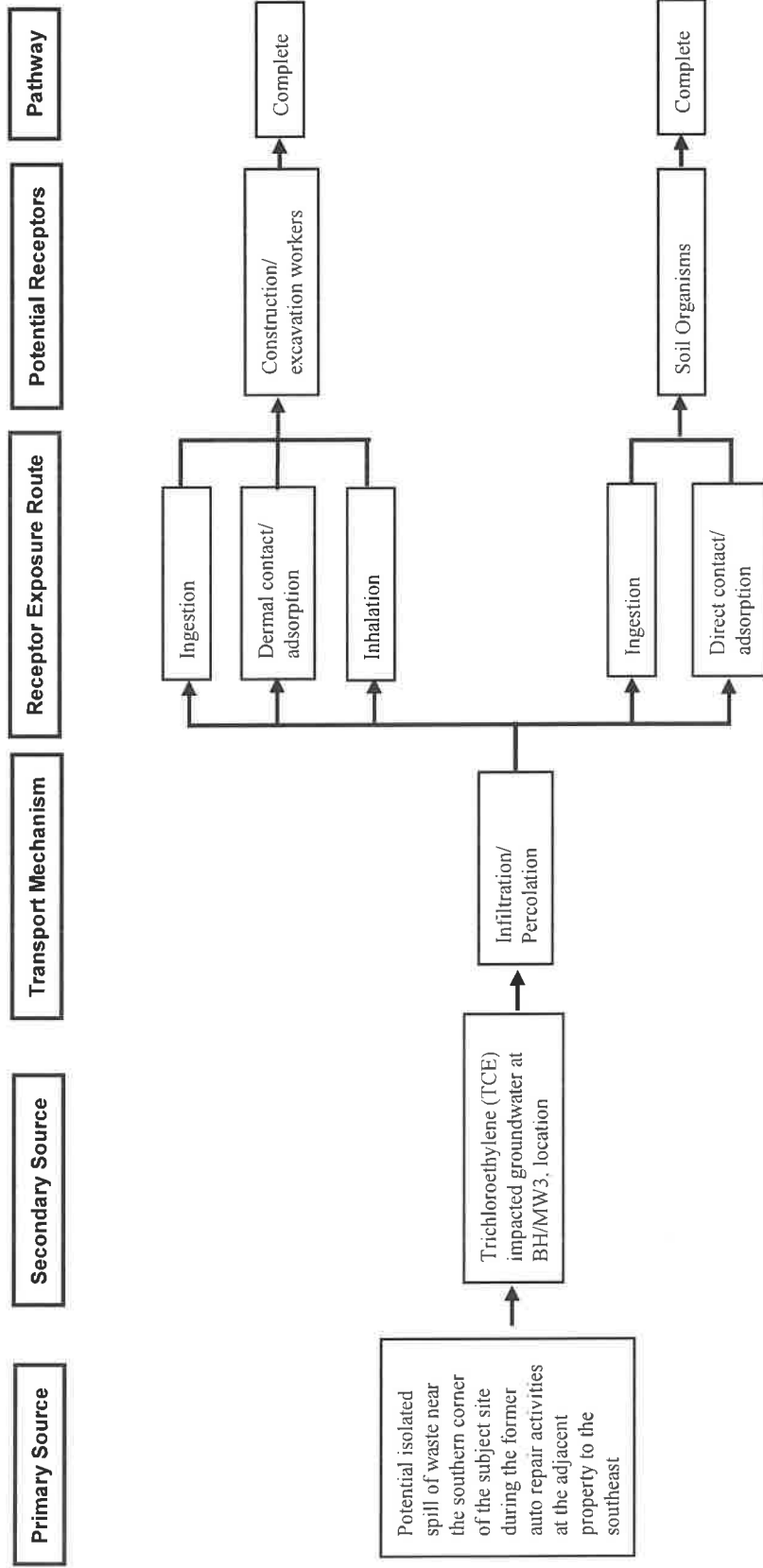
MW9		MW3	
Depth	1.8 - 3.3 m	Depth	3.4 - 5.3 m
Sampling Date	18/11/2017	Sampling Date	18/11/2017
Flowmeter No.	18113	Flowmeter No.	18113
Flowmeter Unit	l/min	Flowmeter Unit	l/min
Flowmeter Range	0-5	Flowmeter Range	0-5
Flowmeter Status	OK	Flowmeter Status	OK
Flowmeter Accuracy	±2%	Flowmeter Accuracy	±2%
Flowmeter Resolution	0.1	Flowmeter Resolution	0.1
Flowmeter Calibration	18/11/2017	Flowmeter Calibration	18/11/2017
Flowmeter Manufacturer	Flow	Flowmeter Manufacturer	Flow



MW3		MW7	
Depth	1.4 - 3.3 m	Depth	1.8 - 3.3 m
Sampling Date	18/11/2017	Sampling Date	18/11/2017
Flowmeter No.	18113	Flowmeter No.	18113
Flowmeter Unit	l/min	Flowmeter Unit	l/min
Flowmeter Range	0-5	Flowmeter Range	0-5
Flowmeter Status	OK	Flowmeter Status	OK
Flowmeter Accuracy	±2%	Flowmeter Accuracy	±2%
Flowmeter Resolution	0.1	Flowmeter Resolution	0.1
Flowmeter Calibration	18/11/2017	Flowmeter Calibration	18/11/2017
Flowmeter Manufacturer	Flow	Flowmeter Manufacturer	Flow



Human and Ecological Receptor Conceptual Site Model



Primary Source **Secondary Source** **Transport Mechanism** **Receptor Exposure Route** **Potential Receptors** **Pathway**



Soil Engineers Ltd.

Title:	Human and Ecological Receptor Conceptual Site Model
Project:	Proposed Residential Development, 96 Chisholm Street, Town of Oakville
Reference No.	1512-E088
Date:	October 30, 2017
Scale:	See Drawing
Drawing No.	8



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APPENDIX 'A'

**CERTIFICATE OF ANALYSIS
(GROUNDWATER SAMPLES)**

REFERENCE NO. 1512-E088

Your Project #: 1512-E088
Your C.O.C. #: 660315-07-01

Attention: Samuel Lee

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2018/06/11
Report #: R5230542
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B8D6233

Received: 2018/06/06, 14:24

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
1,3-Dichloropropene Sum	3	N/A	2018/06/11		EPA 8260C m
Volatile Organic Compounds in Water	3	N/A	2018/06/08	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key



Antonella Brasil
Senior Project Manager
11 Jun 2018 12:45:27

Please direct all questions regarding this Certificate of Analysis to your Project Manager,
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		GWQ745	GWQ746	GWQ747		
Sampling Date		2018/06/06	2018/06/06			
COC Number		660315-07-01	660315-07-01	660315-07-01		
	UNITS	MW303	DUP	TRIP BLANK	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Volatile Organics						
Acetone (2-Propanone)	ug/L	<10	<10	<10	10	5558300
Benzene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Bromoform	ug/L	<1.0	<1.0	<1.0	1.0	5558300
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Chloroform	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	1.0	5558300
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5558300
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5558300
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	0.20	5558300
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	0.30	5558300
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	0.40	5558300
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Hexane	ug/L	<1.0	<1.0	<1.0	1.0	5558300
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	2.0	5558300
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	10	5558300
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	5558300
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Styrene	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	5558300
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

O.REG 153 VOCs BY HS (WATER)

Maxxam ID		GWQ745	GWQ746	GWQ747		
Sampling Date		2018/06/06	2018/06/06			
COC Number		660315-07-01	660315-07-01	660315-07-01		
	UNITS	MW303	DUP	TRIP BLANK	RDL	QC Batch
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Trichloroethylene	ug/L	1.0	1.1	<0.20	0.20	5558300
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	0.50	5558300
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	5558300
p+m-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
o-Xylene	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Total Xylenes	ug/L	<0.20	<0.20	<0.20	0.20	5558300
Surrogate Recovery (%)						
4-Bromofluorobenzene	%	105	103	101		5558300
D4-1,2-Dichloroethane	%	108	107	106		5558300
D8-Toluene	%	102	103	102		5558300
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

TEST SUMMARY

Maxxam ID: GWQ745
Sample ID: MW303
Matrix: Water

Collected: 2018/06/06
Shipped:
Received: 2018/06/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5566945	N/A	2018/06/11	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5558300	N/A	2018/06/08	Blair Gannon

Maxxam ID: GWQ746
Sample ID: DUP
Matrix: Water

Collected: 2018/06/06
Shipped:
Received: 2018/06/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5566945	N/A	2018/06/11	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5558300	N/A	2018/06/08	Blair Gannon

Maxxam ID: GWQ747
Sample ID: TRIP BLANK
Matrix: Water

Collected:
Shipped:
Received: 2018/06/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5566945	N/A	2018/06/11	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5558300	N/A	2018/06/08	Blair Gannon

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
-----------	-------

Cooler custody seal was present and intact.

All 40mL vials for VOC analysis contained visible sediment in sample MW303 and DUP.

Revised Report (2018/06/11): Project # 1512-E088 included as per client request.

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5558300	4-Bromofluorobenzene	2018/06/08	101	70 - 130	101	70 - 130	106	%		
5558300	D4-1,2-Dichloroethane	2018/06/08	108	70 - 130	99	70 - 130	102	%		
5558300	D8-Toluene	2018/06/08	99	70 - 130	102	70 - 130	104	%		
5558300	1,1,1,2-Tetrachloroethane	2018/06/08	102	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5558300	1,1,1-Trichloroethane	2018/06/08	98	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5558300	1,1,2,2-Tetrachloroethane	2018/06/08	110	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5558300	1,1,2-Trichloroethane	2018/06/08	104	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5558300	1,1-Dichloroethane	2018/06/08	101	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
5558300	1,1-Dichloroethylene	2018/06/08	95	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5558300	1,2-Dichlorobenzene	2018/06/08	99	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
5558300	1,2-Dichloroethane	2018/06/08	110	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
5558300	1,2-Dichloropropane	2018/06/08	105	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5558300	1,3-Dichlorobenzene	2018/06/08	97	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5558300	1,4-Dichlorobenzene	2018/06/08	98	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5558300	Acetone (2-Propanone)	2018/06/08	118	60 - 140	105	60 - 140	<10	ug/L	NC	30
5558300	Benzene	2018/06/08	98	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5558300	Bromodichloromethane	2018/06/08	106	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5558300	Bromoform	2018/06/08	109	70 - 130	102	70 - 130	<1.0	ug/L	NC	30
5558300	Bromomethane	2018/06/08	103	60 - 140	103	60 - 140	<0.50	ug/L	NC	30
5558300	Carbon Tetrachloride	2018/06/08	99	70 - 130	105	70 - 130	<0.20	ug/L	NC	30
5558300	Chlorobenzene	2018/06/08	97	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5558300	Chloroform	2018/06/08	102	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5558300	cis-1,2-Dichloroethylene	2018/06/08	102	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
5558300	cis-1,3-Dichloropropene	2018/06/08	110	70 - 130	103	70 - 130	<0.30	ug/L	NC	30
5558300	Dibromochloromethane	2018/06/08	106	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5558300	Dichlorodifluoromethane (FREON 12)	2018/06/08	86	60 - 140	95	60 - 140	<1.0	ug/L	NC	30
5558300	Ethylbenzene	2018/06/08	95	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5558300	Ethylene Dibromide	2018/06/08	107	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5558300	Hexane	2018/06/08	94	70 - 130	108	70 - 130	<1.0	ug/L	NC	30
5558300	Methyl Ethyl Ketone (2-Butanone)	2018/06/08	119	60 - 140	104	60 - 140	<10	ug/L	NC	30
5558300	Methyl Isobutyl Ketone	2018/06/08	117	70 - 130	103	70 - 130	<5.0	ug/L	NC	30

QUALITY ASSURANCE REPORT(CONT'D)

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5558300	Methyl t-butyl ether (MTBE)	2018/06/08	102	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5558300	Methylene Chloride(Dichloromethane)	2018/06/08	97	70 - 130	97	70 - 130	<2.0	ug/L	NC	30
5558300	o-Xylene	2018/06/08	96	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5558300	p+m-Xylene	2018/06/08	96	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5558300	Styrene	2018/06/08	102	70 - 130	107	70 - 130	<0.50	ug/L	NC	30
5558300	Tetrachloroethylene	2018/06/08	96	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5558300	Toluene	2018/06/08	96	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5558300	Total Xylenes	2018/06/08					<0.20	ug/L	NC	30
5558300	trans-1,2-Dichloroethylene	2018/06/08	98	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
5558300	trans-1,3-Dichloropropene	2018/06/08	114	70 - 130	104	70 - 130	<0.40	ug/L	NC	30
5558300	Trichloroethylene	2018/06/08	99	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5558300	Trichlorofluoromethane (FREON 11)	2018/06/08	92	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5558300	Vinyl Chloride	2018/06/08	94	70 - 130	105	70 - 130	<0.20	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

Cristina Carriere, Scientific Service Specialist

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

CHAIN OF CUSTODY RECORD

MAXAM ANALYTICAL SERVICES CORPORATION
 500 West Beaver Creek Road, Unit 1100
 Richmond Hill, ON L4B 1E7
 (416) 754-8515 x

Company Name: #00497 Soil Engineers Ltd
 Address: 90 West Beaver Creek Road Unit 1100
 City: Richmond Hill ON L4B 1E7
 Phone: (416) 754-8515 x

REPORT TO: PROJECT INFORMATION
 Customer # B00522
 P.O. #
 Project Name
 Site #
 Sampled By

LABORATORY USE ONLY:
 Maxam Job #
 Batch Order #
 Project Manager:
 Approve a Batch

REGULATED DRINKING WATER FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXAM DRINKING WATER CHAIN OF CUSTODY

REGULATION 151 (21.15)
 Other Regulations:
 GOML Secondary Sewer Disch
 Reg 50 Storm Sewer System
 MISA Municipality
 PVCO Other

Include Criteria on Certificate of Analysis (Y/N) YES NO

Time Required: 10:30
 Date (Y/M/DD): 06/18/14
 Time: 14:24

FIELD FILTERED (please circle)
 Metals (Hg / Cr / V)

# of Batches	Time Required	Date (Y/M/DD)	Time	# Kits Used and not submitted	Time Submitted	Temperature (°C) or Rise	Notes
3	10:30	06/18/14	14:24	2/2/4			
3							
2							

Job Specific TAT (if applies to entire submission)
 Case Number: HGL ENV-574
 Batch Confirmation Number:
 Time Required: 10:30 for 10
 Comments:

Regular (Standard) TAT:
 (not to apply if TAT is not specified)
 Standard TAT = 2-7 working days for most tests.
 Please note: Standard TAT for certain tests such as EC50 and Dissolved Solids are > 8 days - contact your Project Manager for details.

06-Jun-18 14:24
 Antonella Brasil
 B8D6233
 HGL ENV-574

Temperature (°C) or Rise: 2/2/4

Time Submitted: 2/2/4

Project: WYNN MARRA

Client: WYNN MARRA

SAMPLES MUST BE KEPT COOL (5-10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXAM

Maxam Analytical Services International Corporation wa Maxam Analytical

MW # 450955

Your Project #: 1512-E088
Your C.O.C. #: 645960-02-01

Attention: Samuel Lee

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2018/03/13
Report #: R5039608
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B853692

Received: 2018/03/09, 14:38

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date		Laboratory Method	Reference
		Extracted	Analyzed		
1,3-Dichloropropene Sum	2	N/A	2018/03/13		EPA 8260C m
Volatile Organic Compounds in Water	2	N/A	2018/03/13	CAM SOP-00228	EPA 8260C m

Remarks:

Maxxam Analytics' laboratories are accredited to ISO/IEC 17025:2005 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Maxxam are based upon recognized Provincial, Federal or US method compendia such as CCME, MDDELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Maxxam's profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Maxxam in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected.

Maxxam Analytics' liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Maxxam has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Maxxam, unless otherwise agreed in writing.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 1512-E088
Your C.O.C. #: 645960-02-01

Attention: Samuel Lee

Soil Engineers Ltd
90 West Beaver Creek Road
Unit 100
Richmond Hill, ON
CANADA L4B 1E7

Report Date: 2018/03/13
Report #: R5039608
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B853692

Received: 2018/03/09, 14:38

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager,
Antonella Brasil, Senior Project Manager
Email: ABrasil@maxxam.ca
Phone# (905)817-5817

=====

This report has been generated and distributed using a secure automated process.

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

O.REG 153 VOCs BY HS (WATER)

Maxxam ID		GFQ605	GFQ606		
Sampling Date		2018/03/01 10:30	2018/03/01 10:30		
COC Number		645960-02-01	645960-02-01		
	UNITS	MW3	TRIP BLANK	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	5433459
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	5433495
Benzene	ug/L	<0.20	<0.20	0.20	5433495
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	5433495
Bromoform	ug/L	<1.0	<1.0	1.0	5433495
Bromomethane	ug/L	<0.50	<0.50	0.50	5433495
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	5433495
Chlorobenzene	ug/L	<0.20	<0.20	0.20	5433495
Chloroform	ug/L	<0.20	<0.20	0.20	5433495
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	5433495
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5433495
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5433495
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	5433495
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	5433495
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	5433495
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	5433495
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	5433495
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	5433495
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	5433495
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	5433495
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	5433495
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	5433495
Ethylbenzene	ug/L	<0.20	<0.20	0.20	5433495
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	5433495
Hexane	ug/L	<1.0	<1.0	1.0	5433495
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	5433495
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	5433495
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	5433495
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	5433495
Styrene	ug/L	<0.50	<0.50	0.50	5433495
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	5433495
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	5433495
Tetrachloroethylene	ug/L	<0.20	<0.20	0.20	5433495
Toluene	ug/L	<0.20	<0.20	0.20	5433495
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

O.REG 153 VOCS BY HS (WATER)

Maxxam ID		GFQ605	GFQ606		
Sampling Date		2018/03/01 10:30	2018/03/01 10:30		
COC Number		645960-02-01	645960-02-01		
	UNITS	MW3	TRIP BLANK	RDL	QC Batch
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	5433495
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	5433495
Trichloroethylene	ug/L	1.1	<0.20	0.20	5433495
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	5433495
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	5433495
p+m-Xylene	ug/L	<0.20	<0.20	0.20	5433495
o-Xylene	ug/L	<0.20	<0.20	0.20	5433495
Total Xylenes	ug/L	<0.20	<0.20	0.20	5433495
Surrogate Recovery (%)					
4-Bromofluorobenzene	%	92	98		5433495
D4-1,2-Dichloroethane	%	111	109		5433495
D8-Toluene	%	97	97		5433495
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					

TEST SUMMARY

Maxxam ID: GFQ605
Sample ID: MW3
Matrix: Water

Collected: 2018/03/01
Shipped:
Received: 2018/03/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5434559	N/A	2018/03/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5433495	N/A	2018/03/13	Anna Gabrielyan

Maxxam ID: GFQ606
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2018/03/01
Shipped:
Received: 2018/03/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	5434559	N/A	2018/03/13	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	5433495	N/A	2018/03/13	Anna Gabrielyan

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	-0.3°C
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Custody Seal Present/Intact

Results relate only to the items tested.

QUALITY ASSURANCE REPORT

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5433495	4-Bromofluorobenzene	2018/03/12	100	70 - 130	101	70 - 130	104	%		
5433495	D4-1,2-Dichloroethane	2018/03/12	103	70 - 130	101	70 - 130	110	%		
5433495	D8-Toluene	2018/03/12	101	70 - 130	96	70 - 130	104	%		
5433495	1,1,1,2-Tetrachloroethane	2018/03/12	103	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
5433495	1,1,1-Trichloroethane	2018/03/12	99	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5433495	1,1,2,2-Tetrachloroethane	2018/03/12	110	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5433495	1,1,2-Trichloroethane	2018/03/12	107	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5433495	1,1-Dichloroethane	2018/03/12	102	70 - 130	100	70 - 130	<0.20	ug/L	NC	30
5433495	1,1-Dichloroethylene	2018/03/12	104	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5433495	1,2-Dichlorobenzene	2018/03/12	97	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
5433495	1,2-Dichloroethane	2018/03/12	104	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5433495	1,2-Dichloropropane	2018/03/12	111	70 - 130	103	70 - 130	<0.20	ug/L	NC	30
5433495	1,3-Dichlorobenzene	2018/03/12	96	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
5433495	1,4-Dichlorobenzene	2018/03/12	99	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
5433495	Acetone (2-Propanone)	2018/03/12	121	60 - 140	108	60 - 140	<10	ug/L	NC	30
5433495	Benzene	2018/03/12	103	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5433495	Bromodichloromethane	2018/03/12	110	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
5433495	Bromoform	2018/03/12	107	70 - 130	100	70 - 130	<1.0	ug/L	NC	30
5433495	Bromomethane	2018/03/12	105	60 - 140	98	60 - 140	<0.50	ug/L	NC	30
5433495	Carbon Tetrachloride	2018/03/12	100	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5433495	Chlorobenzene	2018/03/12	102	70 - 130	98	70 - 130	<0.20	ug/L	NC	30
5433495	Chloroform	2018/03/12	106	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
5433495	cis-1,2-Dichloroethylene	2018/03/12	106	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
5433495	cis-1,3-Dichloropropene	2018/03/12	111	70 - 130	97	70 - 130	<0.30	ug/L	NC	30
5433495	Dibromochloromethane	2018/03/12	107	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5433495	Dichlorodifluoromethane (FREON 12)	2018/03/12	95	60 - 140	90	60 - 140	<1.0	ug/L	NC	30
5433495	Ethylbenzene	2018/03/12	102	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5433495	Ethylene Dibromide	2018/03/12	111	70 - 130	104	70 - 130	<0.20	ug/L	NC	30
5433495	Hexane	2018/03/12	104	70 - 130	99	70 - 130	<1.0	ug/L	NC	30
5433495	Methyl Ethyl Ketone (2-Butanone)	2018/03/12	124	60 - 140	115	60 - 140	<10	ug/L	NC	30
5433495	Methyl Isobutyl Ketone	2018/03/12	119	70 - 130	100	70 - 130	<5.0	ug/L	NC	30

QUALITY ASSURANCE REPORT (CONT'D)

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
5433495	Methyl t-butyl ether (MTBE)	2018/03/12	109	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5433495	Methylene Chloride(Dichloromethane)	2018/03/12	114	70 - 130	104	70 - 130	<2.0	ug/L	NC	30
5433495	o-Xylene	2018/03/12	103	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5433495	p+m-Xylene	2018/03/12	104	70 - 130	101	70 - 130	<0.20	ug/L	NC	30
5433495	Styrene	2018/03/12	104	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
5433495	Tetrachloroethylene	2018/03/12	101	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
5433495	Toluene	2018/03/12	103	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
5433495	Total Xylenes	2018/03/12					<0.20	ug/L	NC	30
5433495	trans-1,2-Dichloroethylene	2018/03/12	104	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5433495	trans-1,3-Dichloropropene	2018/03/12	114	70 - 130	104	70 - 130	<0.40	ug/L	NC	30
5433495	Trichloroethylene	2018/03/12	102	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
5433495	Trichlorofluoromethane (FREON 11)	2018/03/12	102	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
5433495	Vinyl Chloride	2018/03/12	102	70 - 130	97	70 - 130	<0.20	ug/L	NC	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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IMMEDIATE

09-Mar-18 14:38
 Antonella Brasil
 B853692
 J.L. ENV-635
 COC #:

PROJECT INFORMATION:
 BA0922
 10000000000000000000
 1012-6088

REPORT TO:
 Samuel Lee
 (416) 754-8515 x364
 samuel.lee@solingengineers.com

Company Name: #00497 Sol Engineers Ltd
 Address: 30 West Beaver Creek Road Unit 100 Richmond Hill ON L4B 1E7
 Tel: (416) 754-8515 x364
 Email: samuel.lee@solingengineers.com

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY

REGULATED TAT (TAT Required):
 Please provide appropriate TAT for each TAT
 Regular (Standard) TAT: (not for adjusted if TAT is not specified)
 Standard TAT = 2-7 working days for most tests.
 Please note: Standard TAT for certain tests such as BOD and Dissolved Phosphate are > 5 days - contact your Project Manager for details.
 Job Specific Rush TAT (if applies to entire submission):
 Other Request: _____ Time Impaired:
 Rush Confirmation Number: _____ Rush Lab Ref # _____
 For Sales: _____ Comments: _____

Analysis	Material / Hg / Cr VI	Field Filtered (please circle)	Special Instructions	Other Regulations	Include Criteria on Certificate of Analysis (VW)?	Relinquished By (Signature/Print)	Date (YYYYMMDD)	Time	Received By (Signature/Print)	Date (YYYYMMDD)	Time	# per used and not submitted	Time Spent	Laboratory Use Only	Temperature (°C) on Receipt	Customer's Seal Intact	Yes/No
1	MW3					Samuel Lee	18/03/18	5:00	Samuel Lee	18/03/18	14:25						Yes
2	Trity Black					Samuel Lee	18/03/18	5:00	Samuel Lee	18/03/18	14:25						Yes
3																	No
4																	No
5																	No
6																	No
7																	No
8																	No
9																	No
10																	No

UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO MAXXAM'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.MAXXAM.COM

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

SAMPLE CONTAINER PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT [HTTP://MAXXAM.COM/CONTENT/UPLOADS/CHAINOF-COC.PDF](http://maxxam.com/content/uploads/chainofcustody-coc.pdf)

WHILE: MAXXAM
 YELLOW: CLIENT

SAMPLES MUST BE KEPT COOL UNTIL RECEIVED BY MAXXAM

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90 WEST BEAVER CREEK ROAD, SUITE #100, RICHMOND HILL, ONTARIO L4B 1E7 • TEL (416) 754-8515 • FAX (905) 881-8335

BARRIE	MISSISSAUGA	OSHAWA	NEWMARKET	GRAVENHURST	PETERBOROUGH	HAMILTON
TEL: (705) 721-7863	TEL: (905) 542-7605	TEL: (905) 440-2040	TEL: (905) 853-0647	TEL: (705) 684-4242	TEL: (905) 440-2040	TEL: (905) 777-7956
FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (905) 881-8335	FAX: (705) 684-8522	FAX: (905) 725-1315	FAX: (905) 542-2769

APPENDIX 'B'

PHASE TWO CONCEPTUAL SITE MODEL

REFERENCE NO. 1512-E088



Soil Engineers Ltd.

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Phase Two Conceptual Site Model
96 Chisholm Street
Town of Oakville

Reference No. 1512-E088

Page 1 of 12

INTRODUCTION

This Phase Two Conceptual Site Model has been prepared as a part of Phase Two Environmental Site Assessment (Phase Two ESA) by Soil Engineers Ltd. (SEL) for the RSC Property located at 96 Chisholm Street in the Town of Oakville (hereinafter referred to as “subject site”).

The Phase Two Conceptual Site Model is based on the findings of our Phase One Environmental Site Assessment (Phase One ESA, Reference No. 1512-E088 dated February 1, 2016); Phase One Environmental Site Assessment Update (Phase One ESA Update, Reference No. 1512-E088, dated October 30, 2017); Phase Two Environmental Site Assessment (Phase Two ESA, Reference No. 1512-E088 dated November 28, 2017), and Phase Two Environmental Site Assessment Update (Phase Two ESA Update, Reference No. 1512-E088, dated July 5, 2018) for the subject site.

6.10.1 Description and Assessment

The subject site, irregular in shape and approximately 0.234 ha (0.577 ac) in area, is located at 96 Chisholm Street in the Town of Oakville. The Property Identification Number (PIN) of the subject site is 24778-0230 (LT). The legal description of the subject site is Lots 10, 12 and 13, Block 68, Registered Plan 1, Town of Oakville, Regional Municipality of Halton.

6.10.1.1 Areas where Potentially Contaminating Activity Has Occurred

The Phase One ESA determined the Potentially Contaminating Activities (PCAs) at the subject site and in the Phase One Study Area based on records review, interviews and site



reconnaissance. The areas of PCAs along with the corresponding list in Table 2 Schedule D of O. Reg. 153/04 are summarized below:

On-site PCAs:

- Former abandoned above-ground storage tank (AST) located at northern portion of the subject site. - #28. Gasoline and Associated Products Storage in Fixed Tanks.
- Unknown quality of fill material at the subject site - #30. Importation of Fill Material of Unknown Quality.

Off-site PCAs:

- Former gas station located at the neighbouring property, approximately 20 m northeast of the subject site - #28. Gasoline and Associated Products Storage in Fixed Tanks.
- Dry cleaner service located at a neighbouring property, approximately 200 m west of the subject site - #37. Operation of Dry Cleaning Equipment (where chemicals are used).
- Former auto repair shop located at adjacent property to the south/southeast - #52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.
- Former auto repair shop located at a neighbouring property, approximately 30 m southeast of the subject site - #52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.
- Former gas station located at a neighbouring property, approximately 90 m north of the subject site - #28. Gasoline and Associated Products Storage in Fixed Tanks.
- Former waste disposal located at a neighbouring property, approximately 250 m north (northeast/east) of the subject site - #58. Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.
- Fill material for bridge foundation was placed at a neighbouring property, approximately 220 m northeast of the subject site - #30. Importation of Fill Material of Unknown Quality.



- Former auto repair shop located at a neighbouring property, approximately 190 m southwest of the subject site. - #52. Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.
- Former waste water treatment located at a neighbouring property, approximately 250 m south of the subject site - #58. Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.

The on-site PCAs and the first four (4) of the off-site PCAs (namely: former gas station located approximately 20m northeast of the subject site, dry cleaner service located approximately 200 m west of the subject site, former auto repair shop located at adjacent property to the south/southeast and former auto repair shop located approximately 30 m southeast of the subject site) were considered to have contributed to the Areas of Potential Environmental Concerns (APECs) at the subject site.

However, the remaining five (5) off-site PCAs (namely: former gas station located approximately 90m north of the subject site, former waste disposal approximately 250m northeast/east of the subject site, fill material for bridge foundation located approximately 220m northeast of the subject site, former repair shop located approximately 190m southwest of the subject site and former waste water treatment facility located approximately 250m south of the subject site) were not considered to have contributed to APECs at the subject site due to relative distances of these PCAs from the subject site and being situated at trans/down-gradient from the subject site.

The locations of PCAs are shown on Drawing No. 1.

6.10.1.2 Areas of Potential Environmental Concern

The Phase One ESA identified the following Areas of Potential Environmental Concerns (APECs) at the subject site.



- APEC 1: Potential soil impact at the northeast portion of the subject site due to the former AST at the subject site.
- APEC 2: Potential impact in the fill material at the subject site.
- APEC 3: Potential soil and/or groundwater impact at the northeastern portion of the subject site due to a former gas station at a neighbouring property, approximately 20m to the northeast.
- APEC 4: Potential soil and/or groundwater impact at the western portion of the subject site due to a dry cleaner service located at a neighbouring property approximately 200m to the west.
- APEC 5: Potential soil and/or groundwater impact at the south/southeastern portion of the subject site due to a former auto repair activities at the adjacent property to the southeast.
- APEC 6: Potential soil and/or groundwater impact at the southeastern portion of the subject site due to a former auto repair shop at a neighbouring property approximately 30m to the southeast.

The locations of APECs are shown on Drawing No. 2.

6.10.1.3 Subsurface Structures and Utilities

At the time of the assessment, an abandoned two (2) storey building with no basement was located at the western portion of the subject site. In the past, the subject site contained residential houses at the northern and eastern portions of the subject site. Reportedly, shallow underground utilities were located in the vicinities of the building structures. There are no known subsurface structures or utilities at the southern portion of the subject site.

No subsurface structures or utilities with the potential to affect contaminants distribution or transport were identified at the subject site.



6.10.2 **Physical Setting**

6.10.2.1 Stratigraphy

The subject site is located in a developed area of the Town of Oakville. The subject site is situated in the physiographical region known as the Halton Till deposits, predominantly composed of silt to silty-clay materials. The bedrock is composed of shale, limestone, dolostone and siltstone.

The drilling investigation for the Phase Two ESA consisted of advancing ten (10) boreholes to depths ranging from 1.4 mbgs to 7.6 mbgs at the subject site. The subsoil conditions at the borehole locations indicate, beneath the surface course of topsoil layer or sandy silt fill, the subject site is generally underlain by sandy silt and silty clay deposits at various depths and locations. No bedrock was encountered during the Phase Two ESA.

The borehole/monitoring well location plan is shown on Drawing No. 2. The locations of cross-sections for soil stratigraphy at the subject site are presented on Drawing No. 3. Geologic cross section A'-A and B'-B are presented on Drawing No. 4.

6.10.2.2 Hydrogeological Characteristics

The subject site is located in the larger hydrogeological region known as Southern Ontario Lowlands. A watershed map provided by the Conservation Halton shows the subject site is situated in the Sixteen Mile Creek Watershed.

Eight (8) monitoring wells were installed at the subject site during the field investigation for the Phase Two ESA. The monitoring wells were installed at depths of 4.4 mbgs to 7.6 mbgs. Based on the groundwater records, the groundwater flow direction appears to be to the southeast. The shallow groundwater contours and interpreted groundwater flow direction are shown on Drawing No. 5.



Based on the groundwater records, the horizontal hydraulic gradient for the investigated aquifer within the silty sand deposits at the subject site is between 0.0016 and 0.0048 m/m (average 0.0031 m/m).

6.10.2.3 Approximate Depth to Bedrock

Bedrock was not encountered at the subject site during the field investigation within the maximum drilling depth of 4.4 mbgs. Based on the Ontario Geological Survey's Bedrock Cross Section Viewer, 2010, the depth to bedrock in the general vicinity of the subject site is approximately 24 mbgs.

6.10.2.4 Approximate Depth to Water Table

Based on the groundwater records for the investigation, depth to the water table at the subject site ranges from 2.1 to 2.9 mbgs.

6.10.2.5 Section 41 or 43.1 of the Regulation

There is no area of natural significance at the subject site or within 30 m from the subject site boundaries. The analytical results indicated that the pH value of the tested soil samples is between 5 and 9 for surface soil, and between 5 and 11 for subsurface soil. Therefore, Section 41 of the regulation (Site Condition Standards, Environmental Sensitive Areas) does not apply to the subject site.

The subject site is not a shallow soil property, as the bedrock was not encountered within 2 mbgs during the investigation. There is no water body at the subject site or within 30 m from the subject site boundaries. Therefore, Section 43.1 of the Regulation (Site Condition Standards, Shallow Soil Property or Water Body) does not apply to the subject site.



6.10.2.6 Soils Placed On, In or Under the Phase Two Property

The findings of the Phase One ESA and field investigation of the Phase Two ESA indicate fill material at the subject site. The encountered fill material was assessed during this Phase Two ESA.

6.10.2.7 Proposed Building and Other Structures

A residential development is being proposed for the subject site. It is anticipated that the new development will be provided with municipal services meeting urban standards. The location of proposed building or any other structures was not known at the time of preparation of this Phase Two Conceptual Site Model.

6.10.3 **Contamination In or Under the Phase Two Property**

Based on the findings of the Phase One ESA, contaminants of potential concern in soil and groundwater with respect to the identified Areas of Potential Environmental Concern (APECs) at the subject site were assessed during the Phase Two ESA.

Based on the information obtained from the Phase One ESA and Phase Two ESA, the Ministry of the Environment and Climate Change (MOECC) Table 3, Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition, for residential/parkland/ institutional property use and medium and fine textured soils (Table 3 Standards), as published in the "Soil, Ground Water and Sediment Standards for Use Under Part XV. 1 of the Environmental Protection Act" (EPA), April 15, 2011 has been selected for assessing the soil and groundwater condition at the subject site.



6.10.3.1 Area Where Contaminants are Present

The site investigation of the Phase Two ESA identified impacted groundwater with Trichloroethylene (TCE) exceeding the Table 3 standards at the location of BH/MW3 at the southern portion of the subject site.

The impacted groundwater has subsequently been remediated and the review of the analytical results of the confirmation testing program of the Phase Two ESA indicates the confirmation groundwater samples meet the Table 3 Standards.

The figures showing the lateral and vertical boundary of impacted groundwater is given on Drawing Nos. 6 to 7.

6.10.3.2 Contaminants Associated with Each Area

The contaminants, at concentrations above Table 3 Standards, found during the site investigation for the Phase Two ESA consisted of Trichloroethylene (TCE).

6.10.3.3 Medium in which Each Contaminant were Found

Contaminant TCE was identified in the groundwater at a depth from 1.4 mbgs to 4.4 mbgs, at the BH/MW3 location, at concentrations above the Table 3 Standards.

6.10.3.4 Description and Assessment of the Area Where Contaminant Found

Soil and groundwater samples were collected during the Phase Two ESA and submitted for analysis of Petroleum Hydrocarbons (PHCs), Volatile Organic Compounds (VOCs), and/or Metals and Inorganic parameters.



Based on the review of the analytical results of the site investigation, the groundwater at BH/MW 3 location at a depth from 1.4mbgs to 4.4mbgs was found to contain contaminant TCE at a concentration of 350ug/l in excess of the Table 3 Standards of 17ug/l.

The remaining analyzed soil and groundwater samples of the site investigation for the tested parameters meet Table 3 Standards. A groundwater remedial action was required in the vicinity of BH/MW3 in order to bring the impacted area into compliance with the Table 3 Standards.

Subsequently, the area in the vicinity of BH/MW3 was excavated to a depth of 4.0 mbgs for groundwater pumping. The impacted groundwater from the excavation was then pumped out and disposed off-site using vacuum truck. A confirmatory groundwater testing program which consisted of four (4) consecutive quarterly sampling and testing events was conducted after completion of the removal of the impacted groundwater.

A review of the analytical results of the confirmation groundwater testing programs for the Phase Two ESA indicate the confirmation groundwater samples meet the Table 3 Standards.

6.10.3.5 Distribution of Contaminants

Contaminant TCE was identified in groundwater at a depth from 1.4mbgs to 4.4mbgs at the location of BH/MW3, at concentration above the Table 3 Standards. Based on the delineation groundwater testing program, the impacted groundwater appears to be isolated to the location of BH/MW3, extending to a depth of 4.4mbgs. The area of delineation program is approximately 8.0 m by 8.0 m, extending to a maximum depth of 7.6mbgs.

The drawings showing the lateral and vertical boundaries of the impacted groundwater is given on Drawing Nos. 6 and 7.



6.10.3.6 Reasons for Discharge

The presence of the impacted groundwater with contaminant TCE at the southern portion of the subject (near the southern corner) is most likely associated with isolated spill of waste in the area during the former auto repair activity at the adjacent property to the south/southeast.

6.10.3.7 Migration of Contaminants

The groundwater impact with TCE was identified at the location of BH/MW3, near the southern corner of the subject site, and is most likely associated with isolated spill of waste in the area during the former auto repair activity at the adjacent property to the south/southeast. Based on the topography of the area, precipitation runoff and groundwater flow are expected to flow in a southeasterly direction. In addition, based on the groundwater records of the site investigation, the groundwater flow direction appears to be to the southeast. Since there are no known subsurface structures or utilities at the southern portion of the subject site, no migration of contaminant is expected at the subject site from the area of potential environmental concern. Furthermore, the impacted groundwater has subsequently been removed.

6.10.3.8 Climatic or Meteorological Conditions Influencing Contaminant Distribution of Migration

As the TCE impact at the subject site was identified in groundwater, climatic or meteorological conditions are anticipated to influence the distribution or migrations of contaminants such as downward leaching of contaminants due to infiltration of precipitation; migration of contaminants due to groundwater recharge from rainfall/snowing events and seasonal fluctuation. The impacted groundwater has subsequently been removed.



6.10.3.9 Soil Vapour Intrusion into Buildings

The impacted groundwater was identified at depths of 1.4 mbgs to 4.4 mbgs near the southern corner of the subject site and there are no known subsurface structures or utilities at the southern portion of the subject site. The impacted groundwater has subsequently been remediated. Therefore, there are no concerns of vapour intrusion of contaminant into buildings at the subject site.

6.10.4 **Potential Exposure Pathways and Receptors**

The human and ecological receptor conceptual model is presented in Drawing No. 8.

6.10.4.1 Release Mechanisms

Contaminant TCE in excess of the Table 3 Standards was identified in groundwater, at a depth from 1.4 mbgs to 4.4 mbgs, in the vicinity of BH/MW3 location near the southern corner of the subject site. The release of the identified contaminant was likely related to an isolated spill of waste in the area, during the former auto repair activity at the adjacent property to the south/southeast.

6.10.4.2 Contaminant Transport Pathway

TCE impacted groundwater was identified, at a depth from 1.4 mbgs to 4.4 mbgs, in the vicinity of BH/MW3 location at the southern portion of the subject site. There are no known subsurface structures or utilities at the southern portion of the subject site. Therefore, no contaminant transport pathways were identified.



6.10.4.3 Receptors

With respect to the identified impact, potential receptors located on, in or under the subject site are construction/excavation workers on-site, visitors on-site and organisms within the subsoil and groundwater.

The impacted groundwater has subsequently been remediated; no potential receptors are anticipated at present.

6.10.4.4 Receptor Exposure Point

Prior to the removal of the impacted groundwater, groundwater contamination are potential exposure points to the construction/excavation workers on-site, visitors on-site and on-site biodiversity.

The impacted groundwater has subsequently been remediated; no receptor exposure points are anticipated at present.

6.10.4.5 Routes of Exposure

The routes of exposure for the identified groundwater impact at the subject site would be dermal contact, ingestion and/or inhalation. As no significant ecological habitat was identified at the subject site, the risk to ecological receptors is expected to be minimal. Workers may have come into contact with soil and groundwater during remediation excavation, but this is expected to be minimal as excavation equipment was used for the removal of impacted soil and pump was used for the removal of impacted groundwater from the subject site. In addition, excavation workers usually use personal protective equipment (PPE) when handling contaminated soil and groundwater. Therefore, the exposure to impacted groundwater is expected to be minimal. Furthermore, the impacted groundwater was removed from the subject site and disposed off-site during the remediation, and no routes of exposure are anticipated at present.