

August 28, 2018

Project No. 18104887

Ms. Carol Coleman, P.Eng., Director of Public Works, Parks and Recreation

Township of Scugog
181 Perry Street
P.O. Box 780
Port Perry, Ontario
L9L 1A7

GROUNDWATER QUALITY MONITORING, 13471 LAKERIDGE ROAD, SCUGOG, ONTARIO

Dear Ms. Coleman,

As requested, Golder Associates Ltd. (“Golder”) was retained by the Township of Scugog (“Scugog”) to assess groundwater quality conditions at 13471 Lakeridge Road in the Township of Scugog (the “Site”).

Background

A previous groundwater quality assessment was carried out by DLS Group (“DLS”) in September 2017, the findings of which are provided in the letter report entitled *“Groundwater Quality Monitoring, Summer 2017, 13471 Lakeridge Road, Scugog, On”* dated February 7, 2018. DLS carried out groundwater sampling at six monitoring wells at the Site and collected groundwater samples for submission to the laboratory for analysis of petroleum hydrocarbons (“PHCs”), volatile organic compounds (“VOCs”), polycyclic aromatic hydrocarbons (“PAHs”) and metals and inorganics. The analytical results were compared to the Ontario Ministry of Environment, Conservation and Parks (“MECP”) Table 2 standards (potable groundwater condition) of the MECP document entitled “Soil, Ground Water and Sediment Standards for use Under Part XV.1 of the Environmental Protection Act”, dated April 15, 2011. Based on the groundwater sampling results, the following findings were noted:

- The predominant direction of groundwater flow was southerly across the Site; and,
- Groundwater samples analyzed for PHCs, VOCs, PAHs and metals and inorganics did not exceed the MECP Table 2 standards.

Scope of Work

Golder carried out an environmental assessment at the Site in general accordance with Canadian Standards Association (“CSA”) Z769-00, *Phase II Environmental Site Assessment* (reaffirmed 2013). The assessment involved the following scope of work:

- Preparing a Site-specific Health and Safety Plan;
- Collecting groundwater level measurements from three of the existing on-Site monitoring wells;

- Purging three well volumes from each well sampled (or until dry) prior to sampling;
- Collecting groundwater samples from select existing monitoring wells, plus duplicate sample(s) for QA/QC purposes and submission to an accredited laboratory. Samples were collected from three wells, plus a duplicate, for chemical analysis of metals and inorganics, VOCs, PHCs and PAHs; and,
- Preparing this report summarizing the work conducted at the Site and presenting the findings of the environmental assessment.

INVESTIGATION METHODOLOGY

The following sections describe the field methodology employed for assessing groundwater quality at the Site. All fieldwork was carried out by Golder on August 9, 2018.

Groundwater Monitoring

Groundwater samples were collected from monitoring well MW-1, MW-2 and MW-6 on August 9, 2018. Groundwater samples were not collected from MW-2, MW-3 and MW-4 due to time/budget constraints. Depths to water were determined using an electric water level meter. Groundwater development prior to sampling was completed by purging three well volumes of groundwater from each monitoring well using dedicated Waterra® inertial samplers and foot valves (or a submersible pump with Waterra® tubing that was used at MW-6) and collecting groundwater samples into pre-cleaned laboratory-supplied sample containers. Groundwater samples were stored on ice in a cooler until delivery to AGAT Laboratories (“AGAT”) for analysis.

Investigation-Derived Wastes

Purged water generated during well development and groundwater sampling were placed on the ground on-Site as no visual and/or olfactory evidence of contamination was encountered (odours or sheen).

Quality Assurance Program

Golder's quality assurance program for environmental investigations was implemented to ensure that analytical data obtained by the investigation were valid and representative. The quality assurance program included the following measures:

- The use of standard operating procedures for all field investigation activities;
- Monitoring wells were appropriately purged prior to groundwater sample collection to remove stagnant water from the well bore and improve sample representativeness, minimizing sample agitation and aeration to the extent practicable. After purging, groundwater sample collection was conducted using dedicated Waterra® inertial samplers and foot valves to reduce the amount of fine particles introduced in the sample;
- Initial calibration of field equipment was performed at the start of the field day;
- Groundwater samples were handled and stored in accordance with the sample collection and preservation requirement of the MOE *Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act*, July 1, 2011. Samples were collected directly into pre-cleaned laboratory-supplied sample containers with the appropriate preservative for the analyte group. Upon collection, samples were placed in insulated coolers with ice for storage and transport to the analytical laboratory;

- Dedicated sampling equipment (tubing) and clean disposable Nitrile™ gloves were used at each sampling location to prevent cross-contamination. All non-dedicated sampling equipment (e.g., water level meters, submersible pumps) were decontaminated between sampling locations. Sampling equipment in contact with groundwater was: cleaned by mechanical means; washed with a laboratory-grade detergent (e.g., phosphate-free LiquiNox or AlcoNox) or, if necessary, an appropriate desorbing wash solution; and thoroughly rinsed with analyte-free water;
- Detailed field records documenting the methods and circumstances of collection for each field sample were prepared at the time of sample collection. Each sample was assigned a unique sample identification number recorded in the field notes, along with the date and time of sample collection, the sample matrix, and the requested analyses; and,
- The submission of samples to the analytical laboratory in accordance with standard chain of custody procedures.

Laboratory analyses were completed by an analytical laboratory accredited in accordance with the International Standard ISO/IEC 17025 *General Requirement for the Competence of Testing and Calibration Laboratories*, dated May 5, 2005 (as amended), and accredited in accordance with the applicable standards for proficiency testing developed by the Standards Council of Canada or the Canadian Association for Laboratory Accreditation.

SUBSURFACE CONDITIONS

Site Hydrogeology

Water level measurements were obtained from monitoring wells MW-1, MW-2 and MW-6 on August 9, 2018, using an oil-water interface level meter. The depth to groundwater ranged from 11.73 meters below the top of well pipe ("mbTOP") at MW-6 to 16.18 mbTOP at MW-2 (elevation ranged from about 315.26 m above local datum ("mald") to 317.17 mald). The local datum information was provided by a survey conducted by DLS and the groundwater elevation summary is provided in Attachment A. Based on the groundwater elevations and area topography, local groundwater flow is anticipated to be in a southerly direction which is consistent with the flow direction observed by DLS during the September 2017 monitoring event. Regional groundwater flow is anticipated to be in a southerly direction towards Lake Ontario.

Reference Groundwater Quality Standards

For the purpose of this report, the groundwater analytical results were compared to the standards set out in the MECP (former Ministry of Environment and Climate Change ("MOECC")) document titled "*Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*", April 2011 (i.e., 2011 MOECC Standards). The selection of the reference site conditions standards was based upon the following considerations:

- the Site is not expected to be an environmentally sensitive site as defined by Section 41, Part IX, O.Reg. 153/04;
- the nearest permanent water body is more than 30 metres from the Site;
- bedrock is deeper than 2 mbgs and groundwater also generally greater than 2 mbgs; and,
- groundwater may be used as a potable resource.

With respect to grain size, the coarse textured soils were used.

Based on the above, the groundwater analytical results were compared to the coarse textured soil site condition standards for all types of property uses in a potable groundwater situation (referred to as the “Table 2 Standards”).

Groundwater Analytical Results

Based on a comparison of the groundwater analytical results to the Table 2 Standards, no exceedances were detected. The concentrations of the tested parameters (i.e., metals and inorganics, VOCs, PHCs F1 to F4 and PAHs) were generally present at trace to non-detectable levels. The analytical results along with the Table 2 Standards are provided on the certificate of analysis in Attachment B.

Non-Numerical Standards

In addition to numerical standards, the MOECC set out non-numerical standards for groundwater for petroleum hydrocarbons. Specifically, a property does not meet the site condition standards if there is evidence of free product, including but not limited to 1) any visible petroleum hydrocarbon film or sheen present in the groundwater or surface water; and 2) an objectionable petroleum hydrocarbon taste or odour in groundwater.

At the time of groundwater sampling, no petroleum hydrocarbon related odour or sheen was noted in the purged groundwater.

Data Quality Review

Work was conducted in accordance with Golder's Standard Operating Procedures and in general accordance with O.Reg. 153/04. Golder's quality assurance program was supplemented by the analytical laboratory's internal quality assurance and quality control program, which included the analysis of laboratory blanks, spikes, surrogates and duplicate samples. The analytical results for the laboratory quality assurance samples indicate that the results of the internal quality control program were within the laboratory's specified control limits. The field work was conducted in accordance with Golder's standard protocol and there were no quality issues of note identified.

Accordingly, the analytical data generated during the investigation are valid and representative and may be used in this groundwater sampling investigation without further qualification other than as described in this report.

SUMMARY OF FINDINGS

Conditions encountered at the Site are summarized below:

- The depth to groundwater, as measured in the monitoring wells on August 9, 2018, ranged from 11.73 mbTOP at MW-6 to 16.18 mbTOP at MW-2 (elevation ranged from about 315.26 mald to 317.17 mald).
- At the time of groundwater sampling, no petroleum hydrocarbon related odour or sheen was noted in the groundwater.
- The coarse textured soil site condition standards for all types of property uses in a potable groundwater situation Table 2 Standards were selected for comparison purposes. Based on the comparison, no exceedances above Table 2 Standards were found for the parameters tested (i.e., metals and inorganics, VOCs, PHCs F1 to F4 and PAHs in groundwater).

Although MW-3, MW-4 and MW-5 were not monitored, we do not anticipate exceedances at these wells based on the past results noted for the Site.

LIMITATIONS

The activities described and conclusions drawn within this report address only the geo-environmental (chemical) aspects of the subsurface conditions at the subject property. The geotechnical (physical) aspects, including, without limitation, the engineering recommendations for the design and construction of building foundations, pavements, underground servicing and the like are outside the terms of reference for this report and have not been investigated or addressed herein.

This report was prepared for the exclusive use of the Township of Scugog. No third parties may rely upon this report. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, is the sole responsibility of such third party. This report is based on data and information collected during this groundwater sampling investigation conducted by Golder Associates Ltd. in accordance with our proposal and is based solely on Site conditions encountered at the time of the field investigation. In preparing this report, Golder evaluated only conditions on the Site and did not evaluate the operations on adjacent properties. Only limited chemical analyses of soil and groundwater samples were carried out. It should be noted that the results of an investigation of this nature should, in no way, be construed as a warranty that the Site is free from any and all contamination from past or current practices.

In evaluating the property, Golder Associates Ltd. has relied in good faith on information provided by others. We accept no responsibility for any deficiency, misstatements or inaccuracies contained in this report as a result of omission, errors, misinterpretations or fraudulent acts of the persons interviewed. Golder Associates Ltd. accepts no responsibility for any reduction in property value, either real or perceived, or for decisions made as a result of the reporting of factual information herein.

If additional information is obtained during future work at the Site, including excavations, borings, or other studies, and/or if conditions exposed during construction are different from those encountered in this assessment, Golder should be requested to re-evaluate the conclusions presented in this report and provide amendments as required.

It is our understanding that the work associated with this groundwater sampling investigation was not intended to support the submission of a Record of Site Condition ("RSC"). If a RSC is required, additional field work and reporting may be necessary.

August 28, 2018

CLOSURE

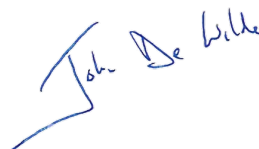
We trust that this satisfies your current requirements. Should you have any questions regarding the contents of this letter, please do not hesitate to contact the undersigned.

Yours truly,

Golder Associates Ltd.



Marios Avgousti, M.Sc., P.Geo.
Environmental Specialist, Project Manager



John DeWilde, M.Eng., P.Eng. *Associate,*
Senior Environmental Consultant

MA/EH/lb

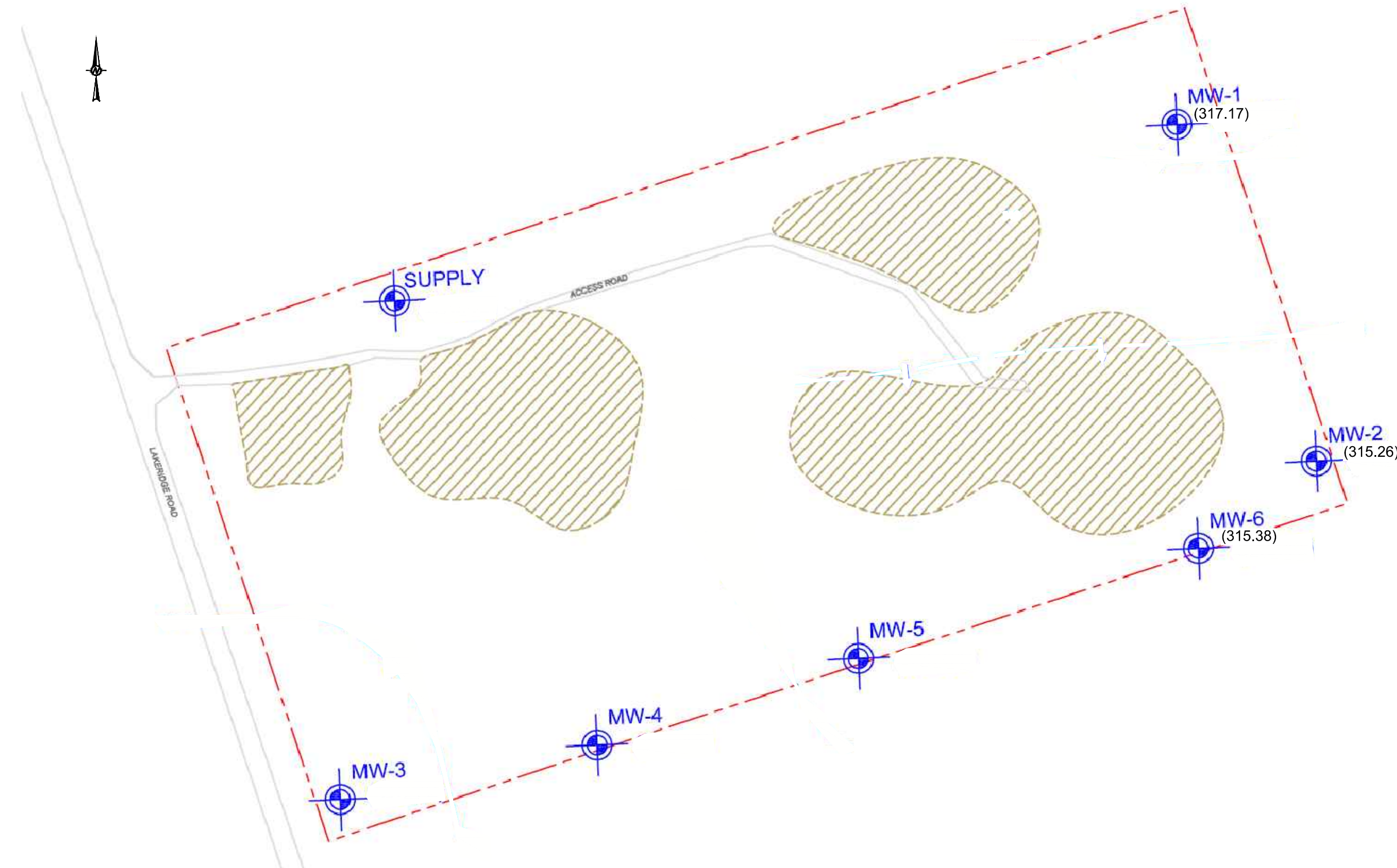
Attachments: Figure 1 – Monitoring Well Location Plan and Groundwater Elevations (August 9, 2018)
A – Summary of Groundwater Level Monitoring
B – Certificate of Analysis

[https://golderassociates.sharepoint.com/sites/29478g/deliverables/18104887/let 30aug2018 gw quality monitoring final.docx](https://golderassociates.sharepoint.com/sites/29478g/deliverables/18104887/let%2030aug2018%20gw%20quality%20monitoring%20final.docx)

FIGURE 1

**Monitoring Well Location Plan and Groundwater
Elevations**

Path: \\golder\gdp\proj\1810488740_Township_of_Scugog\Lake_Reg\099_PROJ\1810488740_PROD\0001_Geotech\Drawings\18104887-0001-001-001.dwg | Last Edited By: jlas Date: 2018-09-28 Time: 2:18:02 PM | Printed By: jlas Date: 2018-09-28 Time: 2:18:27 PM



LEGEND

	MONITORING WELL AND GROUNDWATER ELEVATION IN METERS ABOVE LOCAL DATUM
	PROPERTY BOUNDARY



REFERENCE(S)
DRAWING PROVIDED BY DL SERVICES INC., PROJECT NO. 1605-792, FIGURE NO. A-1, ON OCTOBER 25, 2017.

CLIENT
TOWNSHIP OF SCUGOG

PROJECT
GROUNDWATER QUALITY MONITORING
13471 LAKERIDGE ROAD
SCUGOG, ONTARIO

CONSULTANT	YYYY-MM-DD	2018-08-27
	DESIGNED	
	PREPARED	JL
	REVIEWED	
	APPROVED	

TITLE
MONITORING WELL LOCATION PLAN AND GROUNDWATER ELEVATIONS (AUGUST 09, 2018)

PROJECT NO. 18104887	CONTROL	REV. A	FIGURE 1
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

ATTACHMENT A

Summary of Groundwater Level
Monitoring

Table 1

SUMMARY OF GROUNDWATER LEVEL MONITORING

Groundwater Elevation Summary
3471 Lakeridge Road, Scugog, Ontario

MONITORING WELL	TOP OF PIPE ELEVATION (M RELATIVE TO DATUM)	DEPTH TO WATER (M BELOW TOC)	GROUNDWATER ELEVATION
			9-Aug-18
			(m)
MW-1	329.34	12.17	317.17
MW-2	331.44	16.18	315.26
MW-3	338.78	-	-
MW-4	327.88	-	-
MW-5	325.98	-	-
MW-6	327.11	11.73	315.38
Supply Well	336.64	-	-

NOTES:

1. All elevations in metres (m).
2. "-" Elevation or water level not available/not measured
3. All locations were surveyed by DLS Group and were referenced to a local datum .
4. Table to be read in conjunction with accompanying text.

Prepared By: MA
Checked By:

ATTACHMENT B

Certificate of Analysis

**CLIENT NAME: GOLDER ASSOCIATES LTD.
100 SCOTIA COURT
WHITBY, ON L1N8Y6
(905) 723-2727**

ATTENTION TO: Marios Avgousti

PROJECT: 18104887

AGAT WORK ORDER: 18T372379

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

WATER ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Coordinator

DATE REPORTED: Aug 21, 2018

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

AGAT Laboratories (V1)

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Page 1 of 12

*Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request*



Certificate of Analysis

AGAT WORK ORDER: 18T372379

PROJECT: 18104887

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Marios Avgousti

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2018-08-10

DATE REPORTED: 2018-08-21

Parameter	Unit	SAMPLE DESCRIPTION:		MW-1	MW-2	MW-6	Dup 1
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2018-08-09	2018-08-09	2018-08-09	2018-08-09
		G / S	RDL	9464122	9464124	9464125	9464126
Naphthalene	µg/L	11	0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthene	µg/L	4.1	0.20	<0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20	<0.20	<0.20	<0.20
Phenanthrene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.41	0.20	<0.20	<0.20	<0.20	<0.20
Pyrene	µg/L	4.1	0.20	<0.20	<0.20	<0.20	<0.20
Benz(a)anthracene	µg/L	1	0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	3.2	0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Chrysene-d12	%	50-140		76	98	88	90

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9464122-9464126 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18T372379

PROJECT: 18104887

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Marios Avgousti

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE RECEIVED: 2018-08-10

DATE REPORTED: 2018-08-14

Parameter	Unit	SAMPLE DESCRIPTION:		MW-1	MW-2	MW-6	Dup 1
		G / S	RDL	Water	Water	Water	Water
		DATE SAMPLED:		2018-08-09	2018-08-09	2018-08-09	2018-08-09
				9464122	9464124	9464125	9464126
F1 (C6-C10)	µg/L	750	25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA	NA	NA	NA
Surrogate	Unit	Acceptable Limits					
Terphenyl	%	60-140		89	80	80	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9464122-9464126 The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18T372379

PROJECT: 18104887

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Marios Avgousti

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2018-08-10

DATE REPORTED: 2018-08-16

Parameter	Unit	SAMPLE DESCRIPTION:		MW-1	MW-2	MW-6	Dup 1
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2018-08-09	2018-08-09	2018-08-09	2018-08-09
		G / S	RDL	9464122	9464124	9464125	9464126
Dichlorodifluoromethane	µg/L	590	0.20	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	2.4	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	5.0	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	24	0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18T372379

PROJECT: 18104887

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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Marios Avgousti

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2018-08-10

DATE REPORTED: 2018-08-16

Parameter	Unit	SAMPLE DESCRIPTION:		MW-1	MW-2	MW-6	Dup 1
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2018-08-09	2018-08-09	2018-08-09	2018-08-09
		G / S	RDL	9464122	9464124	9464125	9464126
Bromoform	µg/L	25	0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	5.4	0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30
Xylene Mixture	µg/L	300	0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Toluene-d8	% Recovery	50-140		111	105	113	117
4-Bromofluorobenzene	% Recovery	50-140		96	105	95	93

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 18T372379

PROJECT: 18104887

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Marios Avgousti

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Water)

DATE RECEIVED: 2018-08-10

DATE REPORTED: 2018-08-16

Parameter	Unit	SAMPLE DESCRIPTION:		MW-1	MW-2	MW-6	Dup 1	
		SAMPLE TYPE:		Water	Water	Water	Water	
		DATE SAMPLED:		2018-08-09	2018-08-09	2018-08-09	2018-08-09	
		G / S	RDL	9464122	9464124	RDL	9464125	9464126
Antimony	µg/L	6	1.0	<1.0	<1.0	1.0	<1.0	<1.0
Arsenic	µg/L	25	1.0	<1.0	<1.0	1.0	<1.0	<1.0
Barium	µg/L	1000	2.0	51.3	57.2	2.0	99.8	97.5
Beryllium	µg/L	4.0	0.5	<0.5	<0.5	0.5	<0.5	<0.5
Boron	µg/L	5000	10.0	10.4	<10.0	10.0	34.4	36.2
Cadmium	µg/L	2.7	0.2	<0.2	<0.2	0.2	<0.2	<0.2
Chromium	µg/L	50	2.0	<2.0	<2.0	2.0	<2.0	<2.0
Cobalt	µg/L	3.8	0.5	<0.5	<0.5	0.5	<0.5	<0.5
Copper	µg/L	87	1.0	3.8	<1.0	1.0	<1.0	<1.0
Lead	µg/L	10	0.5	<0.5	<0.5	0.5	<0.5	<0.5
Molybdenum	µg/L	70	0.5	<0.5	<0.5	0.5	<0.5	<0.5
Nickel	µg/L	100	1.0	<1.0	<1.0	1.0	<1.0	<1.0
Selenium	µg/L	10	1.0	1.7	<1.0	1.0	<1.0	<1.0
Silver	µg/L	1.5	0.2	<0.2	<0.2	0.2	<0.2	<0.2
Thallium	µg/L	2	0.3	<0.3	<0.3	0.3	<0.3	<0.3
Uranium	µg/L	20	0.5	0.5	0.7	0.5	1.1	1.1
Vanadium	µg/L	6.2	0.4	<0.4	<0.4	0.4	<0.4	<0.4
Zinc	µg/L	1100	5.0	<5.0	<5.0	5.0	<5.0	<5.0
Mercury	µg/L	0.29	0.02	<0.02	<0.02	0.02	<0.02	<0.02
Chromium VI	µg/L	25	5	<5	<5	5	<5	<5
Cyanide	µg/L	66	2	<2	<2	2	3	<2
Sodium	µg/L	490000	1000	2240	4520	1000	11900	11500
Chloride	µg/L	790000	200	8650	27000	500	8890	8040
Electrical Conductivity	uS/cm		2	745	732	2	898	869
pH	pH Units		NA	7.95	7.93	NA	8.01	8.00

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9464122-9464126 Elevated RDL indicates the degree of sample dilution prior to the analysis in order to keep analytes within the calibration range of the instrument and to reduce matrix interference.

Certified By:

Amanjot Bhela

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.
AGAT WORK ORDER: 18T372379
PROJECT: 18104887
ATTENTION TO: Marios Avgousti
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date:			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - VOCs (Water)

Dichlorodifluoromethane	9441079	< 0.20	< 0.20	NA	< 0.20	80%	50%	140%	89%	50%	140%	78%	50%	140%
Vinyl Chloride	9441079	< 0.17	< 0.17	NA	< 0.17	81%	50%	140%	75%	50%	140%	81%	50%	140%
Bromomethane	9441079	< 0.20	< 0.20	NA	< 0.20	86%	50%	140%	78%	50%	140%	84%	50%	140%
Trichlorofluoromethane	9441079	< 0.40	< 0.40	NA	< 0.40	74%	50%	140%	86%	50%	140%	83%	50%	140%
Acetone	9441079	< 1.0	< 1.0	NA	< 1.0	105%	50%	140%	81%	50%	140%	78%	50%	140%
1,1-Dichloroethylene	9441079	< 0.30	< 0.30	NA	< 0.30	114%	50%	140%	113%	60%	130%	95%	50%	140%
Methylene Chloride	9441079	< 0.30	< 0.30	NA	< 0.30	115%	50%	140%	107%	60%	130%	107%	50%	140%
trans- 1,2-Dichloroethylene	9441079	< 0.20	< 0.20	NA	< 0.20	118%	50%	140%	114%	60%	130%	100%	50%	140%
Methyl tert-butyl ether	9441079	< 0.20	< 0.20	NA	< 0.20	79%	50%	140%	118%	60%	130%	107%	50%	140%
1,1-Dichloroethane	9441079	< 0.30	< 0.30	NA	< 0.30	104%	50%	140%	108%	60%	130%	93%	50%	140%
Methyl Ethyl Ketone	9441079	< 1.0	< 1.0	NA	< 1.0	77%	50%	140%	117%	50%	140%	103%	50%	140%
cis- 1,2-Dichloroethylene	9441079	< 0.20	< 0.20	NA	< 0.20	110%	50%	140%	115%	60%	130%	102%	50%	140%
Chloroform	9441079	< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	114%	60%	130%	106%	50%	140%
1,2-Dichloroethane	9441079	< 0.20	< 0.20	NA	< 0.20	118%	50%	140%	104%	60%	130%	97%	50%	140%
1,1,1-Trichloroethane	9441079	< 0.30	< 0.30	NA	< 0.30	104%	50%	140%	110%	60%	130%	86%	50%	140%
Carbon Tetrachloride	9441079	< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	110%	60%	130%	98%	50%	140%
Benzene	9441079	< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	107%	60%	130%	96%	50%	140%
1,2-Dichloropropane	9441079	< 0.20	< 0.20	NA	< 0.20	107%	50%	140%	102%	60%	130%	87%	50%	140%
Trichloroethylene	9441079	< 0.20	< 0.20	NA	< 0.20	117%	50%	140%	113%	60%	130%	102%	50%	140%
Bromodichloromethane	9441079	< 0.20	< 0.20	NA	< 0.20	120%	50%	140%	112%	60%	130%	91%	50%	140%
Methyl Isobutyl Ketone	9441079	< 1.0	< 1.0	NA	< 1.0	82%	50%	140%	105%	50%	140%	117%	50%	140%
1,1,2-Trichloroethane	9441079	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	110%	60%	130%	82%	50%	140%
Toluene	9441079	< 0.20	< 0.20	NA	< 0.20	105%	50%	140%	114%	60%	130%	118%	50%	140%
Dibromochloromethane	9441079	< 0.10	< 0.10	NA	< 0.10	105%	50%	140%	116%	60%	130%	109%	50%	140%
Ethylene Dibromide	9441079	< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	118%	60%	130%	116%	50%	140%
Tetrachloroethylene	9441079	< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	112%	60%	130%	118%	50%	140%
1,1,1,2-Tetrachloroethane	9441079	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	102%	60%	130%	102%	50%	140%
Chlorobenzene	9441079	< 0.10	< 0.10	NA	< 0.10	107%	50%	140%	118%	60%	130%	104%	50%	140%
Ethylbenzene	9441079	< 0.10	< 0.10	NA	< 0.10	103%	50%	140%	113%	60%	130%	117%	50%	140%
m & p-Xylene	9441079	< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	112%	60%	130%	112%	50%	140%
Bromoform	9441079	< 0.10	< 0.10	NA	< 0.10	104%	50%	140%	108%	60%	130%	108%	50%	140%
Styrene	9441079	< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	102%	60%	130%	111%	50%	140%
1,1,2,2-Tetrachloroethane	9441079	< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	101%	60%	130%	114%	50%	140%
o-Xylene	9441079	< 0.10	< 0.10	NA	< 0.10	108%	50%	140%	115%	60%	130%	102%	50%	140%
1,3-Dichlorobenzene	9441079	< 0.10	< 0.10	NA	< 0.10	118%	50%	140%	111%	60%	130%	117%	50%	140%
1,4-Dichlorobenzene	9441079	< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	118%	60%	130%	104%	50%	140%
1,2-Dichlorobenzene	9441079	< 0.10	< 0.10	NA	< 0.10	117%	50%	140%	113%	60%	130%	102%	50%	140%
1,3-Dichloropropene	9441079	< 0.30	< 0.30	NA	< 0.30	110%	50%	140%	99%	60%	130%	91%	50%	140%
n-Hexane	9441079	< 0.20	< 0.20	NA	< 0.20	103%	50%	140%	110%	60%	130%	118%	50%	140%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.
PROJECT: 18104887
SAMPLING SITE:

AGAT WORK ORDER: 18T372379
ATTENTION TO: Marios Avgousti
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date:			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - PAHs (Water)


Naphthalene	TW	< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	99%	50%	140%	101%	50%	140%
Acenaphthylene	TW	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	103%	50%	140%	102%	50%	140%
Acenaphthene	TW	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	105%	50%	140%	101%	50%	140%
Fluorene	TW	< 0.20	< 0.20	NA	< 0.20	114%	50%	140%	96%	50%	140%	103%	50%	140%
Phenanthrene	TW	< 0.10	< 0.10	NA	< 0.10	85%	50%	140%	85%	50%	140%	80%	50%	140%
Anthracene	TW	< 0.10	< 0.10	NA	< 0.10	117%	50%	140%	97%	50%	140%	98%	50%	140%
Fluoranthene	TW	< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	86%	50%	140%	96%	50%	140%
Pyrene	TW	< 0.20	< 0.20	NA	< 0.20	101%	50%	140%	88%	50%	140%	98%	50%	140%
Benz(a)anthracene	TW	< 0.20	< 0.20	NA	< 0.20	72%	50%	140%	96%	50%	140%	92%	50%	140%
Chrysene	TW	< 0.10	< 0.10	NA	< 0.10	103%	50%	140%	87%	50%	140%	95%	50%	140%
Benzo(b)fluoranthene	TW	< 0.10	< 0.10	NA	< 0.10	80%	50%	140%	80%	50%	140%	80%	50%	140%
Benzo(k)fluoranthene	TW	< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	92%	50%	140%	95%	50%	140%
Benzo(a)pyrene	TW	< 0.01	< 0.01	NA	< 0.01	85%	50%	140%	87%	50%	140%	89%	50%	140%
Indeno(1,2,3-cd)pyrene	TW	< 0.20	< 0.20	NA	< 0.20	108%	50%	140%	92%	50%	140%	97%	50%	140%
Dibenz(a,h)anthracene	TW	< 0.20	< 0.20	NA	< 0.20	87%	50%	140%	80%	50%	140%	83%	50%	140%
Benzo(g,h,i)perylene	TW	< 0.20	< 0.20	NA	< 0.20	105%	50%	140%	90%	50%	140%	97%	50%	140%
2-and 1-methyl Naphthalene	TW	< 0.20	< 0.20	NA	< 0.20	116%	50%	140%	96%	50%	140%	101%	50%	140%

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

F1 (C6-C10)	9464126 9464126	< 25	< 25	NA	< 25	107%	60%	140%	101%	60%	140%	99%	60%	140%
F2 (C10 to C16)	TW	< 100	< 100	NA	< 100	94%	60%	140%	68%	60%	140%	79%	60%	140%
F3 (C16 to C34)	TW	< 100	< 100	NA	< 100	96%	60%	140%	82%	60%	140%	81%	60%	140%
F4 (C34 to C50)	TW	< 100	< 100	NA	< 100	81%	60%	140%	101%	60%	140%	84%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
 When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: _____



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.
AGAT WORK ORDER: 18T372379
PROJECT: 18104887
ATTENTION TO: Marios Avgousti
SAMPLING SITE:
SAMPLED BY:

Water Analysis															
RPT Date:			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Water)															
Antimony	9462448		<1.0	<1.0	NA	< 1.0	99%	70%	130%	100%	80%	120%	102%	70%	130%
Arsenic	9462448		<1.0	<1.0	NA	< 1.0	102%	70%	130%	96%	80%	120%	102%	70%	130%
Barium	9462448		15.4	15.5	0.6%	< 2.0	97%	70%	130%	99%	80%	120%	89%	70%	130%
Beryllium	9462448		<0.5	<0.5	NA	< 0.5	98%	70%	130%	101%	80%	120%	94%	70%	130%
Boron	9462448		11.7	<10.0	NA	< 10.0	104%	70%	130%	103%	80%	120%	101%	70%	130%
Cadmium	9462448		<0.2	<0.2	NA	< 0.2	98%	70%	130%	97%	80%	120%	110%	70%	130%
Chromium	9462448		6.8	6.3	NA	< 2.0	95%	70%	130%	99%	80%	120%	95%	70%	130%
Cobalt	9462448		<0.5	<0.5	NA	< 0.5	95%	70%	130%	95%	80%	120%	91%	70%	130%
Copper	9462448		<1.0	<1.0	NA	< 1.0	100%	70%	130%	98%	80%	120%	96%	70%	130%
Lead	9462448		<0.5	<0.5	NA	< 0.5	91%	70%	130%	96%	80%	120%	89%	70%	130%
Molybdenum	9462448		<0.5	<0.5	NA	< 0.5	100%	70%	130%	98%	80%	120%	101%	70%	130%
Nickel	9462448		<1.0	<1.0	NA	< 1.0	102%	70%	130%	101%	80%	120%	100%	70%	130%
Selenium	9462448		<1.0	<1.0	NA	< 1.0	98%	70%	130%	97%	80%	120%	102%	70%	130%
Silver	9462448		<0.2	<0.2	NA	< 0.2	98%	70%	130%	110%	80%	120%	110%	70%	130%
Thallium	9462448		<0.3	<0.3	NA	< 0.3	103%	70%	130%	110%	80%	120%	99%	70%	130%
Uranium	9462448		<0.5	<0.5	NA	< 0.5	99%	70%	130%	91%	80%	120%	88%	70%	130%
Vanadium	9462448		<0.4	<0.4	NA	< 0.4	96%	70%	130%	93%	80%	120%	91%	70%	130%
Zinc	9462448		<5.0	<5.0	NA	< 5.0	98%	70%	130%	99%	80%	120%	98%	70%	130%
Mercury	9461823		<0.02	<0.02	NA	< 0.02	100%	70%	130%	102%	80%	120%	102%	70%	130%
Chromium VI	9473669		<5	<5	NA	< 5	103%	70%	130%	101%	80%	120%	97%	70%	130%
Cyanide	9461823		<2	<2	NA	< 2	104%	70%	130%	98%	80%	120%	98%	70%	130%
Sodium	9467880		25100	25100	0.0%	< 500	95%	70%	130%	95%	80%	120%	96%	70%	130%
Chloride	9461560		51600	51400	0.4%	< 100	95%	70%	130%	103%	70%	130%	104%	70%	130%
Electrical Conductivity	9463121		3270	3290	0.6%	< 2	94%	90%	110%	NA			NA		
pH	9463121		7.94	7.90	0.5%	NA	100%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By:



Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.
AGAT WORK ORDER: 18T372379
PROJECT: 18104887
ATTENTION TO: Marios Avgousti
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
F1 (C6-C10)	VOL-91- 5010	MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL -91- 5010	MOE PHC- E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.
AGAT WORK ORDER: 18T372379
PROJECT: 18104887
ATTENTION TO: Marios Avgousti
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE



AGAT

Laboratories

5835 Coopers Avenue
 Mississauga, Ontario L4Z 1Y2
 Ph: 905.712.5100 Fax: 905.712.5122
 webearth.agatlabs.com

Laboratory Use Only

Work Order #: 18T372379Cooler Quantity: 2 Car

Arrival Temperatures: _____

Custody Seal Intact: Yes No N/A

Notes: _____

Turnaround Time (TAT) Required:

Regular TAT 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

 3 Business Days 2 Business Days Next Business Day

OR Date Required (Rush Surcharges May Apply): _____

Please provide prior notification for rush TAT
 *TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: Golder Associates
 Contact: Marios Avgousti
 Address: 100 scotia crt, whitby
 Phone: 905 723 2727 Fax: _____
 Reports to be sent to:
 1. Email: Marios_Avgousti@Golder.com
 2. Email: Jacob_Kettela@Golder.com

Regulatory Requirements:

(Please check all applicable boxes)

Regulation 153/04 No Regulatory Requirement
 Table 2 Sewer Use Regulation 558
 Ind/Com Sanitary CCME
 Res/Park Storm Prov. Water Quality Objectives (PWQO)
 Agriculture Other
 Soil Texture (Check One) Region _____ Indicate One
 coarse MISA Fine Indicate One

Is this submission for a Record of Site Condition?

 Yes No

Report Guideline on Certificate of Analysis

 Yes No

Project Information:

Project: 18104887
 Site Location: Scugog
 Sampled By: J. Kettela
 AGAT Quote #: _____ PO: _____
 Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes No

Company: _____
 Contact: _____
 Address: _____
 Email: _____

Sample Matrix Legend

B Biota
 GW Ground Water
 O Oil
 P Paint
 S Soil
 SD Sediment
 SW Surface Water

Field Filtered (Metals, Hg, CrVI)

O. Reg 153

Metals and Inorganics
 All Metals 153 Metals (excl. Hydrides)
 Hydride Metals 153 Metals (incl. Hydrides)
 ORPs: B-HWS Cl CN
 Cr⁶⁺ EC FOC Hg
 pH SAR
 Full Metals Scan
 Regulation/Custom Metals
 Nutrients: TP NH₃ TKN
 NO₃ NO₂ NO_x + NO₂
 Volatiles: VOC BTEX THM
 PHCs Fl - F4
 ABNs
 PAHs
 PCBs: Total Aroclors
 Organochlorine Pesticides
 TOLP: M&I VOCS ABNs B(a)P PCBs
 Sewer Use

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Metals and Inorganics	ORPs	Nutrients	Volatiles	PHCs Fl - F4	ABNs	PAHs	PCBs	Organochlorine Pesticides	TOLP	Sewer Use
MW-1	Aug 9/15	1:40pm	13	GW		Y	X			X	X		X				
MW-2		5:30pm	13	GW		Y	X			X	X		X				
MW-6		3:30pm	13	GW		Y	X			X	X		X				
Dup 1		3:30pm	13	GW		Y	X			X	X		X				

Samples Relinquished By (Print Name and Sign):
Jake Kettela
 Samples Relinquished By (Print Name and Sign):
Jacob Kettela
 Samples Relinquished By (Print Name and Sign):

Date: Aug 9/15 Time: 7:00pm
 Date: 8/8/10 Time: 2:25

Samples Received By (Print Name and Sign):
[Signature]
 Samples Received By (Print Name and Sign):

 Samples Received By (Print Name and Sign):

Date: 2018/10 Time: 12:35
 Date: _____ Time: _____

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 N°: **T076061**