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Technical Memorandum

Date: November 17, 2020 **Project No.:** 300043939.0000

Project Name: Millcroft Greens Corporation - Groundwater Quality and FDC Evaluation

Client Name: Millcroft Greens Corporation

Submitted To: FBDev Consulting Inc. – Frank Bon
Urbantech Consulting – Dave Leighton, Andrew Fata, Paul Chiocchio

Submitted By: Travis Mikel, P.Geo.

Reviewed By: Dwight Smikle, P.Geo.

1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) were retained to evaluate the use of Foundation Drain Collectors (FDC) to control groundwater levels across the proposed Millcroft Greens development (herein referred to as the Subject Property) where proximity of seasonal high groundwater to basement and underground parking elevations may be of concern. FDCs are proposed for the 98 single detached homes proposed across Areas A through D as well as for the underground parking proposed on Area E.

Burnside also assessed the groundwater quality in vicinity of the proposed Area E development to determine if groundwater from the proposed underground parking area can be discharged to the storm sewer or sanitary sewer and meet the City of Burlington's stormwater and sanitary discharge criteria, respectively.

This memorandum outlines the hydrogeological conditions across the Subject Property and evaluates the groundwater quality and potential groundwater flows that may be collected by the FDC.

2.0 Hydrogeological Conditions

2.1 Stratigraphy

To illustrate the stratigraphy of the Subject Property, interpreted geological cross-sections were prepared as part of the "Millcroft Hydrogeological Assessment" (Burnside, 2020) using the borehole logs for boreholes and monitoring wells completed on the Subject Property and MECP water well records. The well, borehole and cross-section locations are shown on Figure 4 of the "Millcroft Hydrogeological Assessment" (Burnside, 2020) and attached herein for reference (Figures 5 through 10).

The cross-sections across the Subject Property generally indicate finer-grained soils (fill, glaciolacustrine silt and clay and glacial till deposits), ranging in thickness from 2 m to 9 m, overlying shale bedrock. The silt, clay and till deposits typically restrict groundwater movement and are considered to form aquitard layers. As reported in the Burnside 2020 report, the MECP database documented a total of nine well records within 1,000 m of the Subject Property that were for water supply wells drilled from 1957 to 1970 to service homes prior to the area being developed and municipally serviced.

All of these wells were screened in the upper 2 m to 5 m of the shale bedrock, which has a maximum depth of approximately 15 mbgs. This supports the regional characterization that the Queenston Formation shale is generally water-bearing in the upper 5 m where the bedrock is weathered and may provide sufficient water supplies to meet domestic needs (Singer et al., 2003).

2.2 Groundwater Flow

A groundwater contour map has been created for the Subject Property using groundwater levels collected in December 2019 (Figure 11). The shallow groundwater flow is interpreted to closely follow the local topography and surface water drainage patterns with groundwater flowing from topographically higher areas toward the topographical lower areas. The shallow groundwater across the site will generally flow southeast towards Appleby Creek and Sheldon Creek, and more regionally towards Lake Ontario.

Hydraulic conductivity testing conducted across the Subject Property is summarized in the hydrogeological assessment completed by Burnside (2020). The range of hydraulic conductivity for the glaciolacustrine silt and clay and glacial till deposits from grainsize analyses and in situ well tests is in the range of 1.0×10^{-8} m/s to 4.2×10^{-7} m/s, which is considered to be low. The hydraulic conductivity from in situ well tests for the shale bedrock is in the range of 6.7×10^{-10} m/s to 7.9×10^{-7} m/s, and happen to be the lowest and highest hydraulic conductivity values, respectively, observed across the Subject Property. The low hydraulic conductivity of the overburden glaciolacustrine silt and clay and glacial till deposits and shale bedrock is

expected to result in low to minimal groundwater flow volumes. If fractured shale bedrock is encountered, a higher hydraulic conductivity and groundwater volume may be expected.

2.3 Groundwater Level Fluctuations

In southern Ontario, there is a seasonal pattern that typically appears on groundwater level hydrographs from shallow wells (i.e., seasonal water table variations). The groundwater levels tend to be the highest in the spring, decline throughout the summer and early fall and then rise again in the late fall/early winter. The monitoring wells installed on the site provide insight into the nature of the seasonal variations within the shallow surficial sediments. A review of the data complied across the Subject Property between January 2019 through to November 2020 show that groundwater levels across Areas A through D have varied between about 136 m above sea level (masl) at Area A in the south and 147 masl at Area D to the north, and have seasonal fluctuations ranging from 0.5 m to 4 m. Groundwater levels across Area E have varied between about 151.9 masl at MW19-02 and 154.3 masl at MW19-01, and have seasonal fluctuations ranging from about 0.4 m to 1.6 m.

3.0 Implementation of FDC

The shallow depths to the seasonally high groundwater table across the Subject Property represent a potential concern for basement construction. A FDC system has been proposed by Urbantech to collect shallow groundwater in the areas of the Subject Property where the depth to groundwater below proposed basement grades is insufficient and direct the groundwater to the storm sewer. Urbantech have advised that the FDCs will be located at an average depth of approximately 2.6 m below existing grade for the single detached dwellings. The FDCs will be at sufficient depth to provide for gravity connections to foundation weepers on the lots. FDC technology is known to work well in overburden sediments and provide a passive (no pumping required) approach to removal of groundwater from the vicinity of the basement. FDC is also proposed to be installed at the underground parking area at Area E where the proposed elevation of the underground parking area is about 149.4 masl, which is approximately 4.6 mbgs.

It is noted from the geological cross-sections that the low hydraulic conductivity glaciolacustrine silt and clay and glacial till deposits are the prevalent materials within the shallow overburden; however, the underlying shale bedrock may be encountered at shallow depths across the Subject Property and may store and/or transfer greater volumes of groundwater if fractured, especially during the wet season (i.e., spring). It is anticipated that as groundwater levels decline due to seasonal variations that the collected flows would also decline. As such, FDC flows will be higher during spring groundwater high periods and decline into the fall low groundwater period.

3.1 Potential Flow Volumes

Urbantech has requested an estimate of the potential groundwater flow volumes that may be expected seasonally from the FDC system. It is difficult to estimate flow volumes due to the natural variation of the soil and groundwater conditions across the Subject Property, as well as precipitation and climate variations. It is also noted that the collection of shallow groundwater via FDCs is expected to lower the local groundwater elevations over time in the area within which they are installed, so collected flows may change over time.

An estimate of potential flows can be calculated using the Darcy equation for groundwater flow, assuming values for hydraulic conductivity, hydraulic gradients and areas of seepage. To be conservative, we have assumed a hydraulic conductivity of 7.9×10^{-7} m/s to represent all soils (both overburden and bedrock) the FDC are to be constructed in, which is the highest estimate from the in situ testing completed across the Subject Property. As such, the estimated inflow to the FDC for an average single dwelling with a building perimeter of 77 m is about 205 L/day. With a total of 98 single dwellings proposed within the FDC area across Area s A though D, the estimated flow volume that would be discharged to the storm sewer could be about 20,100 L/day (~2.3 L/sec) which is below the threshold for a Permit to Take Water (PTTW). A summary of the estimated groundwater flows for the individual Areas is presented below:

- Area A – 6,800 L/day (~0.78 L/sec);
- Area B – 8,600 L/day (~1.0 L/sec);
- Area C – 3,300 L/day (~0.38 L/sec); and,
- Area D – 1,400 L/day (~0.17 L/sec).

The estimated inflow to the FDC for the underground parking with a building perimeter of 374 m at Area E is about 1,761 L/day (~0.2 L/sec) assuming a conservative value for hydraulic conductivity of 7.9×10^{-7} m/s. It is noted that the highest estimated hydraulic conductivity value from in situ field tests at Area E is 2.6×10^{-8} m/s which is lower than the conservative value assumed and results in an estimated inflow to the FDC of about 58 L/day (~0.007 L/sec). A PTTW will not be required for the purposes of managing groundwater volumes for the underground parking.

3.2 Area of Influence

The zone of influence within the overburden from the installation of the FDC can be estimated using an empirical relationship (Powers, Corwin, Schmall and Kaeck, 2007). The radius of influence due to drainage into the FDC can be approximated by the following equation:

$$R_0 = 2000(H-h)K^{0.5}$$

Where:

K = the hydraulic conductivity (m/sec)
H = the existing height of the water table (m)
h = the height of the water table after excavation (m)
R_0 = the lateral extent of drawdown (m)

The literature indicates that the value of the constant 2,000 is applicable for situations when there is passive drainage to a line source. The maximum change in seasonal groundwater elevations at the site relative to the average depth of basements of single detached dwellings has been estimated to be approximately 2.6 m and with the hydraulic conductivity of the shale bedrock (in the order of 10^{-7} m/sec), the radius of influence would extend ~4.6 m from the basement foundation drains. For Area E, the maximum change in seasonal groundwater elevations at the site is expected to be 4.6 and with the hydraulic conductivity of the shale bedrock (in the order of 10^{-7} m/sec), the radius of influence would extend ~8.2 m from the underground parking foundation drains. In this context the area impacted by the implementation of FDC is expected to remain contained on the site with no off-site impacts anticipated.

4.0 Groundwater Quality

To characterize the background groundwater quality on Area E, groundwater samples were collected from MW19-01 and MW19-03 in November 2020 using a Waterra footvalve pump which simultaneously surges and pumps the well. The groundwater samples were analyzed for selected general chemistry, nutrients, metals, volatile organic carbon (VOC) and other parameters under the City of Burlington Storm Sewer and Sanitary Sewer By-Law criterias.

The laboratory results for comparison to the Storm Sewer By-Law criteria are provided in Appendix A and summarized below:

- Total suspended solids (TSS) exceeded the Storm Sewer By-Law limit of 15 mg/L on with concentrations of 722 mg/L and 13,400 mg/L at MW1 and MW3, respectively.

- Manganese exceeded the Storm Sewer By-Law limit of 0.05 mg/L on with concentrations of 0.439 mg/L and 0.378 mg/L at MW1 and MW3, respectively.

No other analyzed parameters exceeded the Storm Sewer By-Law criteria.

It is noted that monitoring wells MW19-01 and MW19-03 were installed by others and interpreted to have not been purged after completion. As such, additional groundwater sampling will be completed using low-flow sampling techniques to reassess TSS levels. Low-flow sampling techniques mimic passive groundwater drainage conditions that may occur in foundation drainage systems.

The high manganese levels reflect the local geology and the levels observed are attributed to the particulate matter in the groundwater samples. The additional sampling using low-flow sampling techniques is expected to reduce the majority of the particulate matter in the groundwater samples, and subsequently reduce the level of manganese.

It is expected that filter cloth wrapping on foundation drains and passive drainage conditions will maintain TSS concentrations within acceptable limits (15 mg/L for the storm sewer).

The laboratory results for comparison to the Sanitary Sewer By-Law criteria were not available at the time of reporting and will be provided under separate cover.

Long-term groundwater dewatering of building foundations and discharge details will be determined by the engineer as part of the detailed design.

R.J. Burnside & Associates Limited



Travis Mikel, P.Geo.
Hydrogeologist
TM/DS:cl

Enclosure(s)	Figure 4	Borehole, Monitoring and Cross-Section Locations
	Figure 5	Interpreted Geological Cross-Section A-A’
	Figure 6	Interpreted Geological Cross-Section B-B’
	Figure 7	Interpreted Geological Cross-Section C-C’
	Figure 8	Interpreted Geological Cross-Section D-D’
	Figure 9	Interpreted Geological Cross-Section E-E’
	Figure 10	Interpreted Geological Cross-Section F-F’
	Figure 11	Interpreted Groundwater Flow
	Appendix A	Laboratory Results

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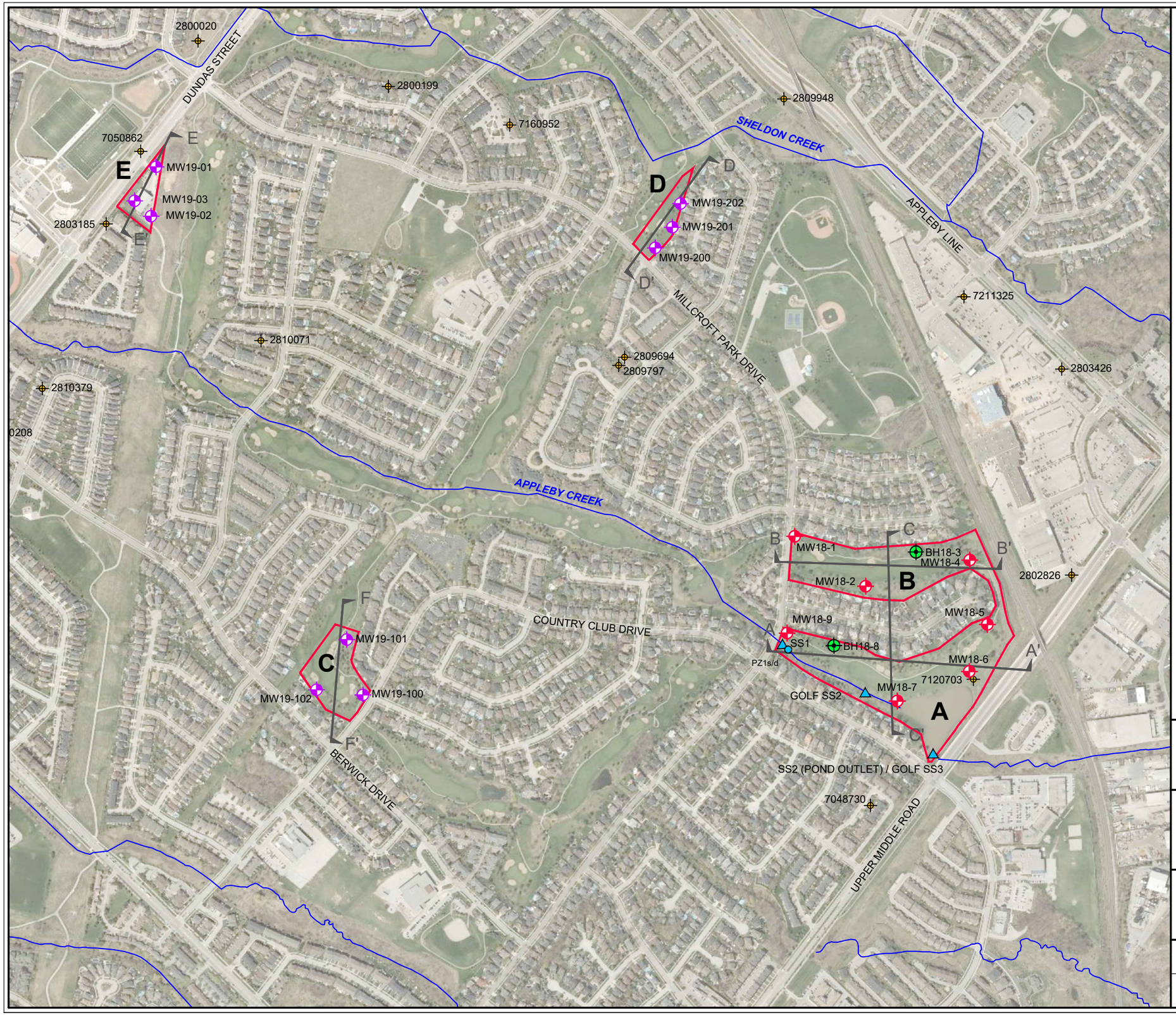
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Figures



LEGEND

- SUBJECT PROPERTY
- WATERCOURSE
- MONITORING WELL (DS CONSULTANTS, 2018)
- MONITORING WELL (DS CONSULTANTS, 2019)
- BOREHOLE (DS CONSULTANTS, 2018)
- MECP WELL RECORD LOCATION
- DRIVE POINT PIEZOMETER
- SURFACE WATER MONITORING LOCATION
- A A' CROSS-SECTION LOCATION

N

0 100 200 400 600
Metres

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Client / Report

MILLCROFT GREENS CORPORATION
BURLINGTON, ONTARIO

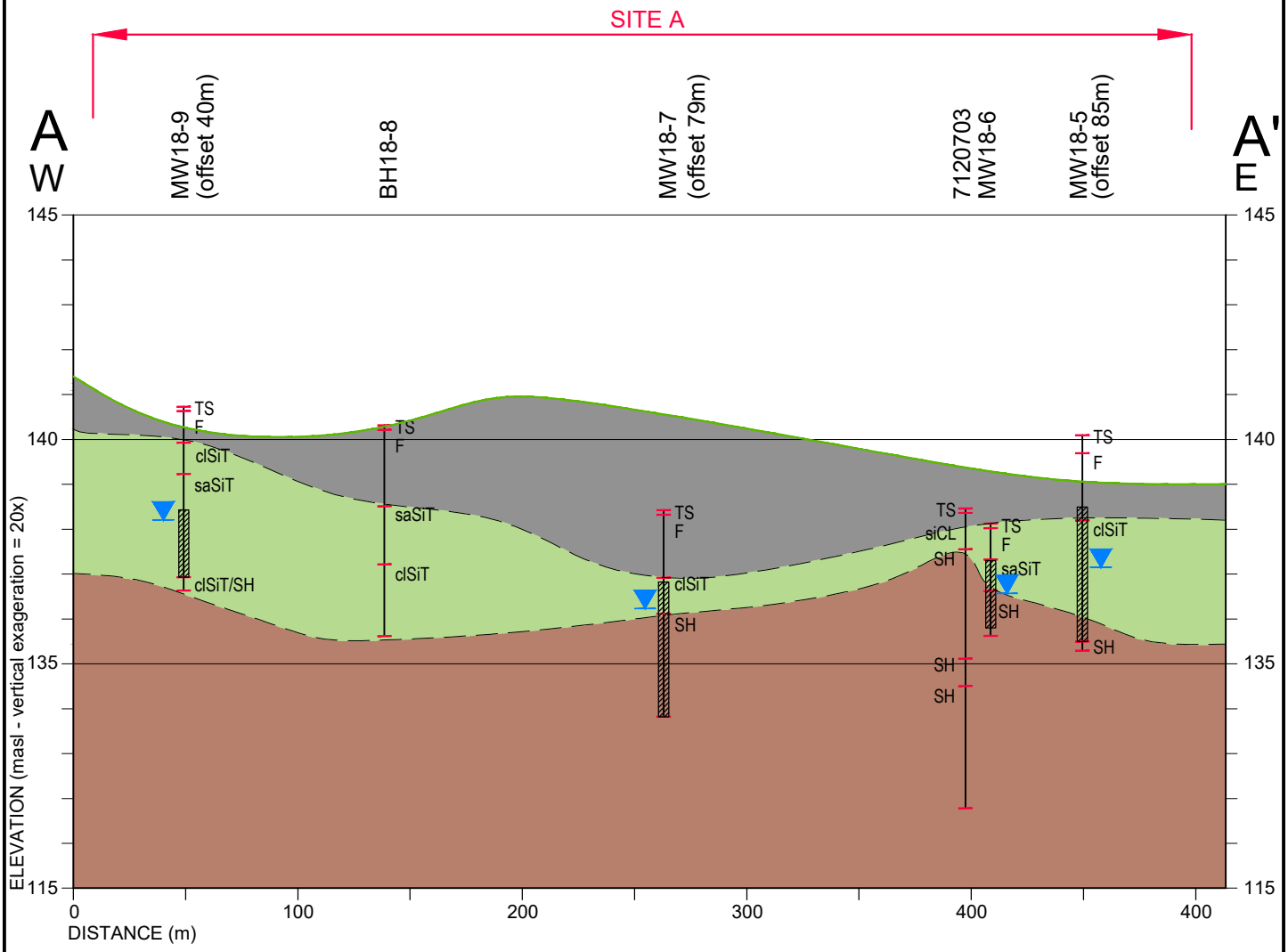
HYDROGEOLOGICAL ASSESSMENT

Figure Title

BOREHOLE, MONITORING AND CROSS-SECTION LOCATIONS

Drawn	Checked	Date	Figure No.
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Scale		Project No.	
1:7,500		300043939	

File Name:N:\gel\Shared Work Areas\043939 Millcroft\ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:39 AM



LEGEND

BH1

EXISTING GROUND PROFILE

GEOLOGICAL CONTACT

MEASURED WATER LEVEL (December, 2019)

WELL SCREEN

INTERPRETED STRATIGRAPHY

si	SILTY
sa	SANDY
cl	CLAYEY
TS	TOPSOIL
F	FILL
GR	GRAVEL
SA	SAND
Si	SILT
CL	CLAY
ST	STONES
SH	SHALE

TOPSOIL / FILL

TILL

SHALE / BEDROCK

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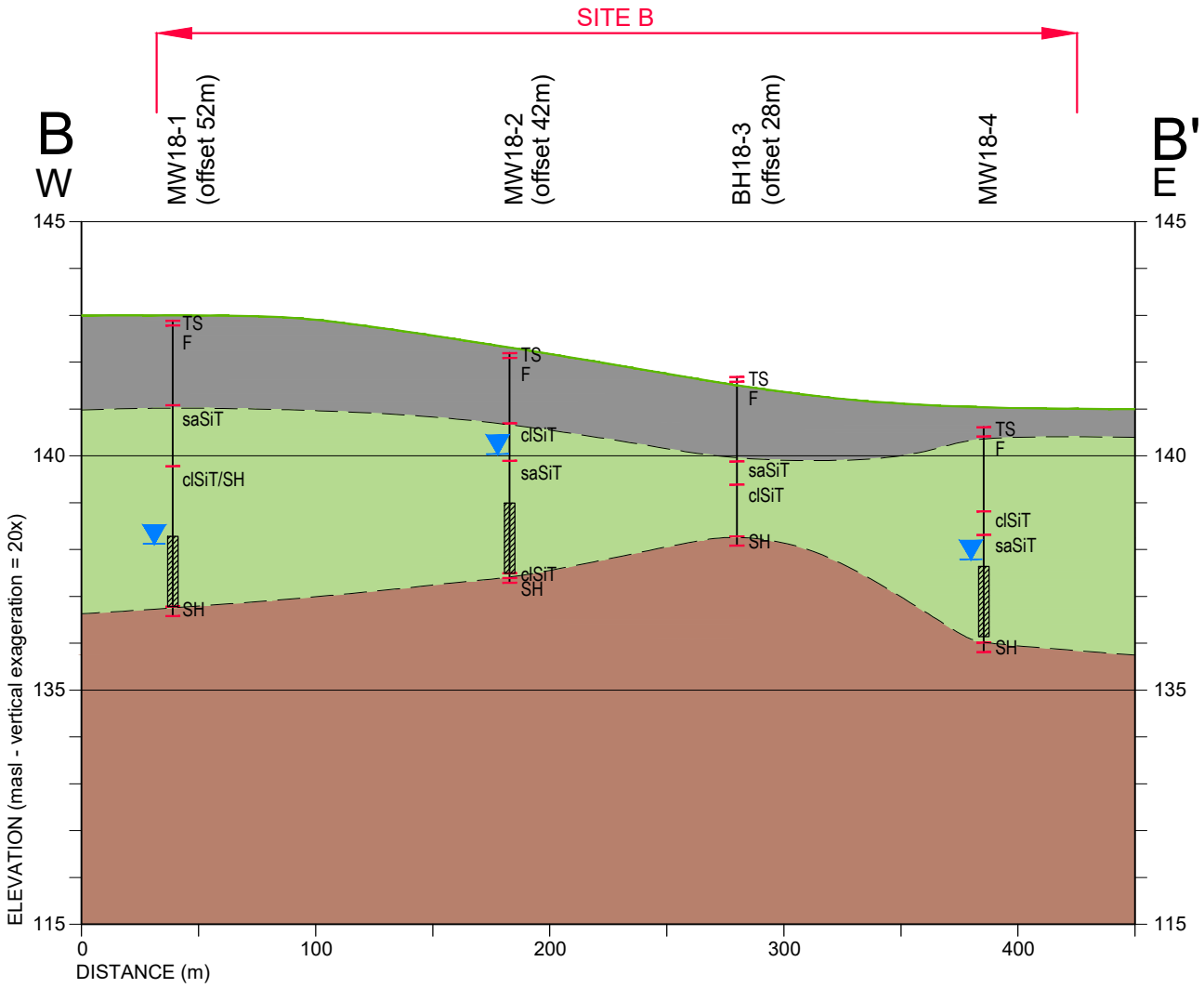
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BURLINGTON, ONTARIO
MILLCROFT
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Figure Title

INTERPRETED GEOLOGICAL CROSS-SECTION A-A'

Drawn	Checked	Date	Figure No.
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File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:40 AM



LEGEND

BH1

EXISTING GROUND PROFILE

GEOLOGICAL CONTACT

MEASURED WATER LEVEL (December, 2019)

WELL SCREEN

INTERPRETED STRATIGRAPHY

si	SILTY
sa	SANDY
cl	CLAYEY
TS	TOPSOIL
F	FILL
GR	GRAVEL
SA	SAND
Si	SILT
CL	CLAY
ST	STONES
SH	SHALE

TOPSOIL / FILL

TILL

SHALE / BEDROCK

BURNSIDE

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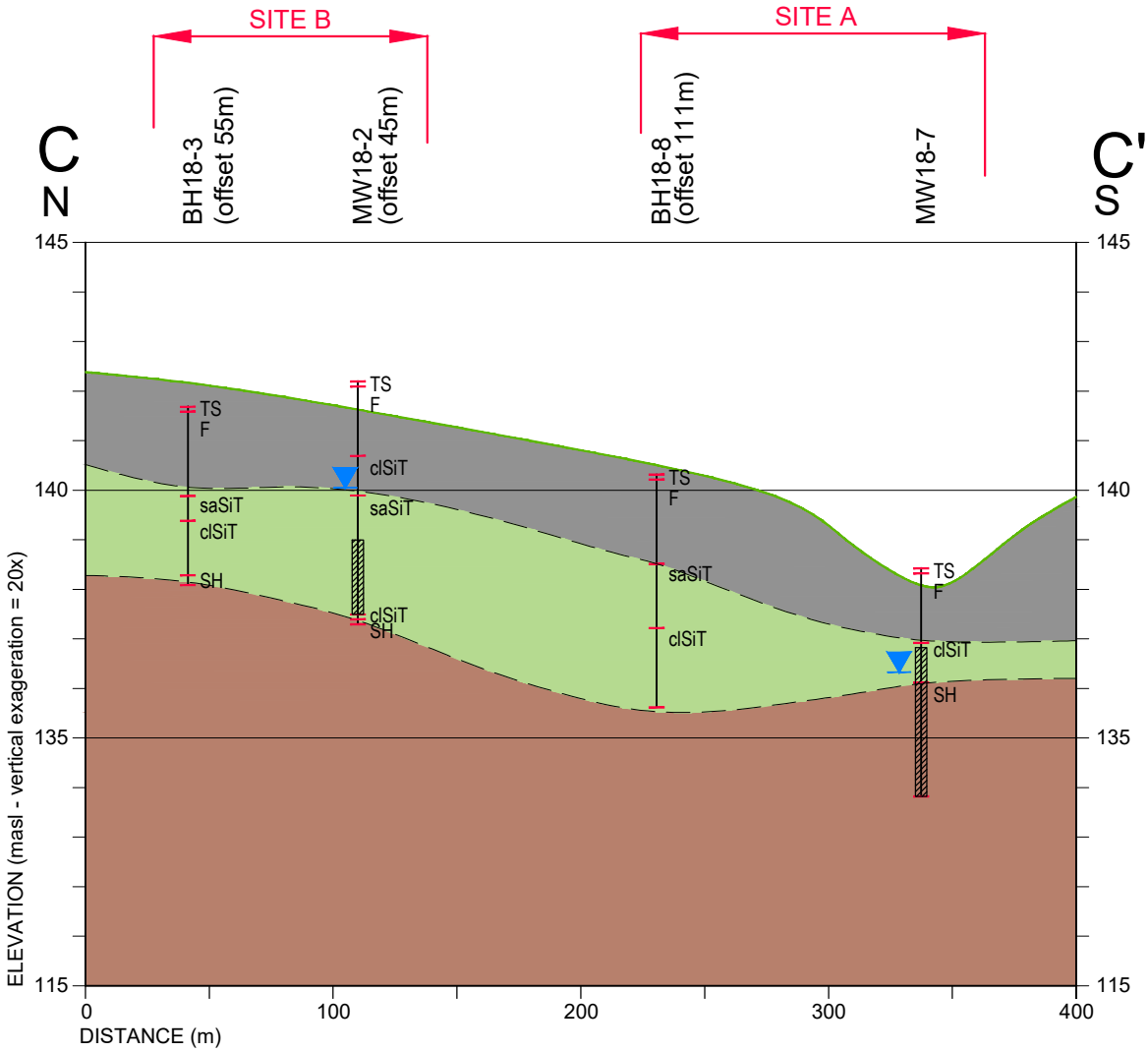
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BURLINGTON, ONTARIO
MILLCROFT
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Figure Title

INTERPRETED GEOLOGICAL CROSS-SECTION B-B'

Drawn	Checked	Date	Figure No.
SK	JS	OCTOBER 2020	6
Scale		Project No.	
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File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:40 AM



LEGEND

BH1

EXISTING GROUND PROFILE

GEOLOGICAL CONTACT

MEASURED WATER LEVEL (December, 2019)

WELL SCREEN

INTERPRETED STRATIGRAPHY

si	SILTY
sa	SANDY
cl	CLAYEY
TS	TOPSOIL
F	FILL
GR	GRAVEL
SA	SAND
Si	SILT
CL	CLAY
ST	STONES
SH	SHALE

TOPSOIL / FILL

TILL

SHALE / BEDROCK

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Client / Report

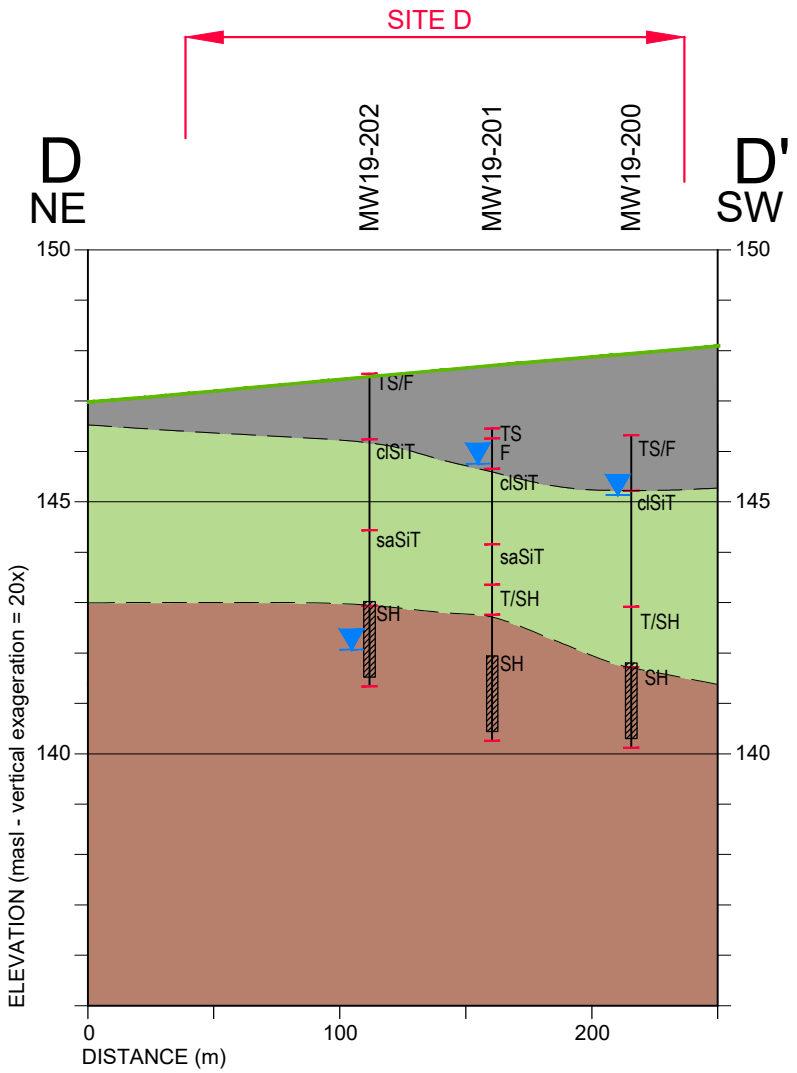
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HYDROGEOLOGICAL ASSESSMENT

Figure Title

INTERPRETED GEOLOGICAL CROSS-SECTION C-C'

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Scale		Project No.	
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File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:41 AM



LEGEND

BH1

EXISTING GROUND PROFILE

GEOLOGICAL CONTACT

MEASURED WATER LEVEL (December, 2019)

WELL SCREEN

INTERPRETED STRATIGRAPHY

si	SILTY
sa	SANDY
cl	CLAYEY
TS	TOPSOIL
F	FILL
GR	GRAVEL
SA	SAND
Si	SILT
CL	CLAY
ST	STONES
SH	SHALE

TOPSOIL / FILL

TILL

SHALE / BEDROCK

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Client / Report

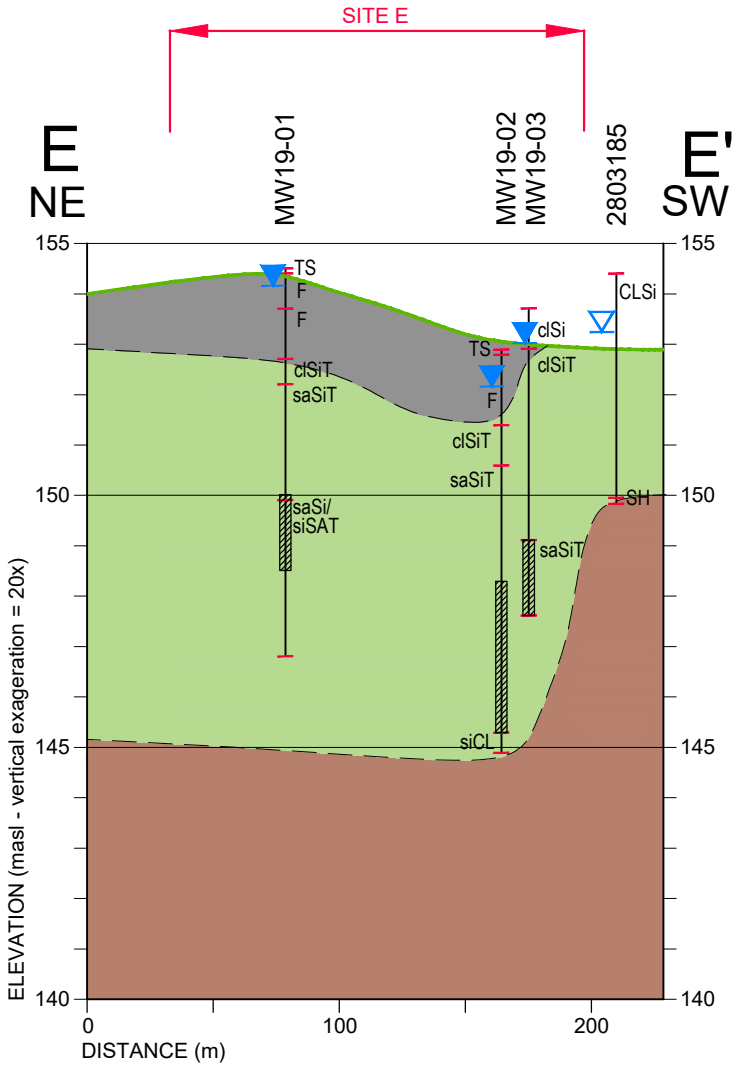
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BURLINGTON, ONTARIO
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Figure Title

INTERPRETED GEOLOGICAL CROSS-SECTION D-D'

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File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:41 AM



LEGEND

BH1

EXISTING GROUND PROFILE

GEOLOGICAL CONTACT

STATIC WATER LEVEL (MECP Well Record)

MEASURED WATER LEVEL (December, 2019)

WELL SCREEN

INTERPRETED STRATIGRAPHY

si	SILTY
sa	SANDY
cl	CLAYEY
TS	TOPSOIL
F	FILL
GR	GRAVEL
SA	SAND
Si	SILT
CL	CLAY
ST	STONES
SH	SHALE

TOPSOIL / FILL

TILL

SHALE / BEDROCK

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Client / Report

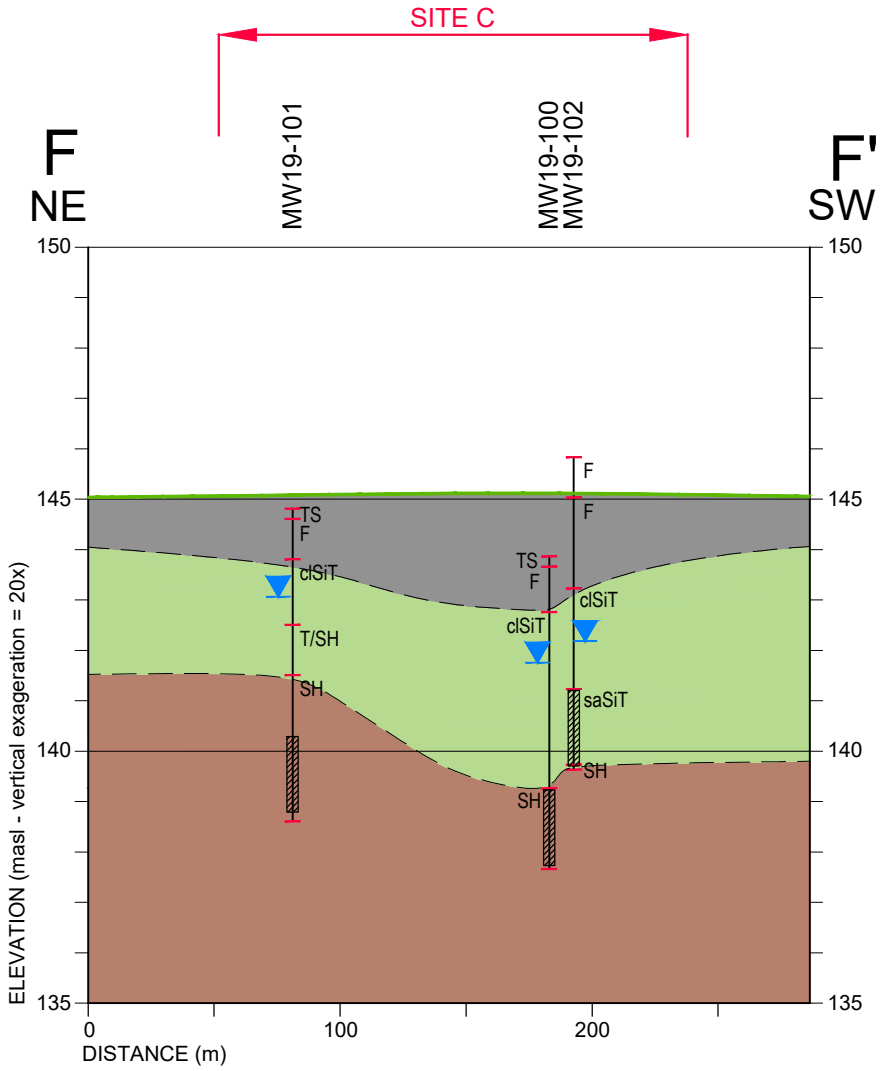
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Figure Title

INTERPRETED GEOLOGICAL CROSS-SECTION E-E'

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Scale		Project No.	
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File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:42 AM



LEGEND

BH1

EXISTING GROUND PROFILE

GEOLOGICAL CONTACT

MEASURED WATER LEVEL (December, 2019)

WELL SCREEN

INTERPRETED STRATIGRAPHY

si	SILTY
sa	SANDY
cl	CLAYEY
TS	TOPSOIL
F	FILL
GR	GRAVEL
SA	SAND
Si	SILT
CL	CLAY
ST	STONES
SH	SHALE

TOPSOIL / FILL

TILL

SHALE / BEDROCK

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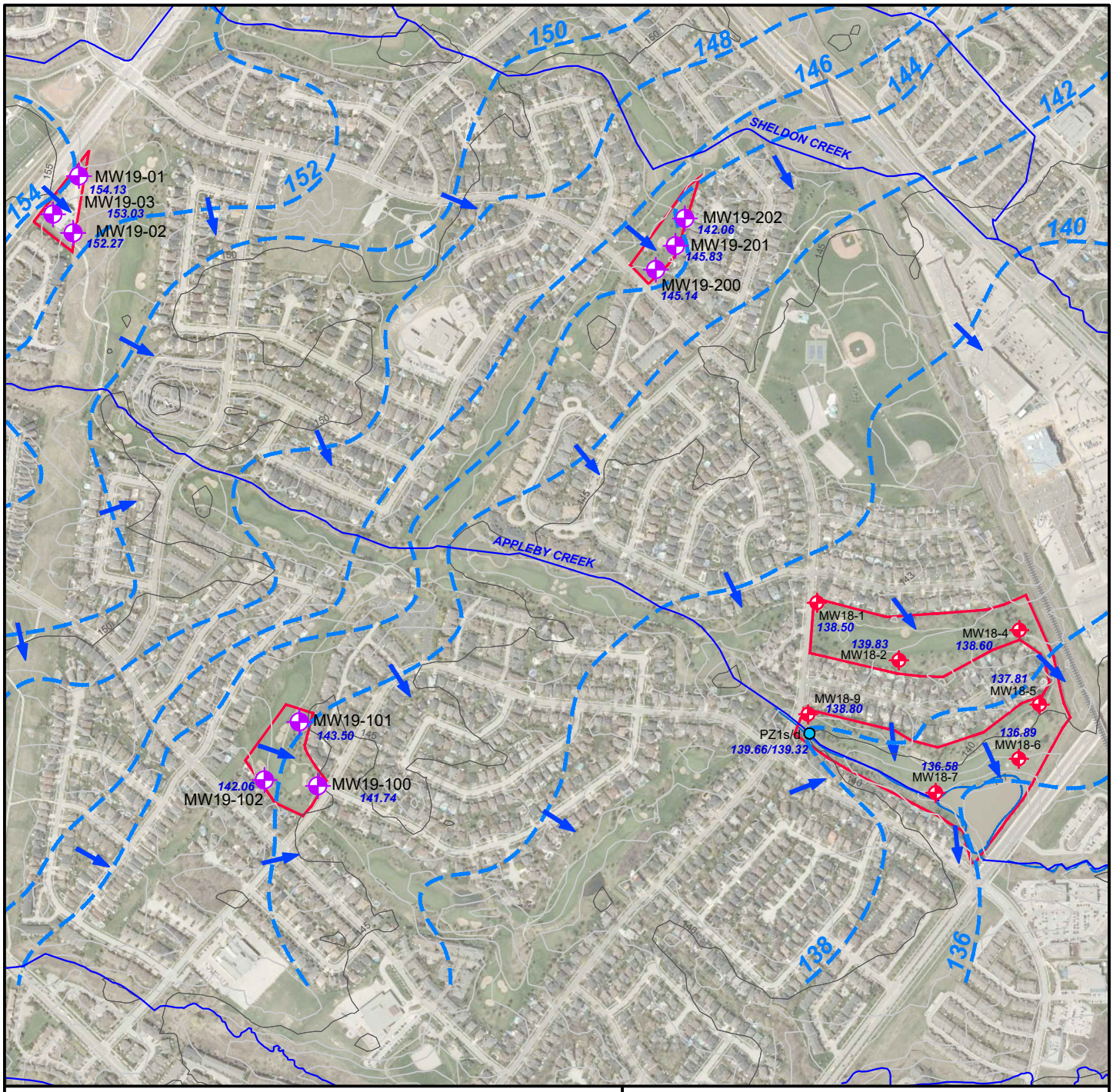
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Figure Title

INTERPRETED GEOLOGICAL CROSS-SECTION F-F'

Drawn	Checked	Date	Figure No.
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Scale		Project No.	
1:3,000		300043939	

File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:42 AM



LEGEND

- SUBJECT PROPERTY
- CONTOUR (1m intervals - masl)
- CONTOUR (5m intervals - masl)
- MONITORING WELL (DS CONSULTANTS, 2018)
- DRIVE POINT PIEZOMETER
- INTERPRETED GROUNDWATER CONTOUR (masl)
- 136.51 MEASURED WATER LEVEL (DECEMBER 9, 2019)
- INTERPRETED GROUNDWATER FLOW DIRECTION

0 100 200 400 600 800
Metres

N

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BURLINGTON, ONTARIO

MILLCROFT
HYDROGEOLOGICAL ASSESSMENT

Figure Title

INTERPRETED GROUNDWATER FLOW

Drawn	Checked	Date	Figure No.
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File Name:Nigel/Shared Work Areas/043939 Millcroft/ 043939 Millcroft HG Study Drawing Set Additional Sites.dwg Date Plotted: October 2, 2020 - 8:43 AM

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Appendix A

Laboratory Results





FINAL REPORT

CA14275-NOV20 R1

300043939.001 Millcroft G.C

Prepared for

R.J. Burnside & Associates Ltd

FINAL REPORT

First Page

CLIENT DETAILS

Client	R.J. Burnside & Associates Ltd
Address	17345 Leslie Street Newmarket, ON L3Y 0A4. Canada
Contact	Aaron Brock
Telephone	289-383-6256
Facsimile	
Email	aaron.brock@rjburnside.com
Project	300043939.001 Millcroft G.C
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA14275-NOV20
Received	11/11/2020
Approved	11/16/2020
Report Number	CA14275-NOV20 R1
Date Reported	11/16/2020

COMMENTS

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.
Note: Unable to provide more accurate E.coli results due to sample matrix.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:019530

SVOC prep has a low bias for 4-Terphenyl-d14 surrogate due to sample matrix.

RL elevated for O&G due to sample matrix.

SIGNATORIES

Brad Moore Hon. B.Sc

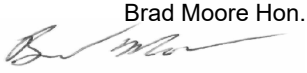


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Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - General Chemistry**
(WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

General Chemistry

Parameter	Units	RL	L1	Result
Biochemical Oxygen Demand (BOD5)	mg/L	2	15	< 4↑
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Total Suspended Solids	mg/L	2	15	13400

PACKAGE: **SANSEW - Metals and Inorganics**
(WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Metals and Inorganics

Parameter	Units	RL	L1	Result
Fluoride	mg/L	0.06		0.24
Cyanide (total)	mg/L	0.01	0.02	< 0.01
Arsenic (total)	mg/L	0.0002	0.02	0.0064
Cadmium (total)	mg/L	0.000003	0.008	0.000008
Chromium (total)	mg/L	0.00008	0.08	0.00044
Cobalt (total)	mg/L	0.000004		0.000566
Copper (total)	mg/L	0.0002	0.04	0.0010
Lead (total)	mg/L	0.00001	0.12	0.00005
Manganese (total)	mg/L	0.00001	0.05	0.378
Nickel (total)	mg/L	0.0001	0.08	0.0057

Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - Metals and Inorganics** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Phosphorus (total)	mg/L	0.003	0.4	0.032
Selenium (total)	mg/L	0.00004	0.02	< 0.00004
Silver (total)	mg/L	0.00005	0.12	< 0.00005
Zinc (total)	mg/L	0.002	0.04	0.003

PACKAGE: **SANSEW - Microbiology** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Microbiology				
E. Coli	cfu/100mL	-		< 5↑

PACKAGE: **SANSEW - Nonylphenol and Ethoxylates** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001	0.001	< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.01	< 0.01

Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - Nonylphenol and Ethoxylates** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Nonylphenol and Ethoxylates (continued)				
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01

PACKAGE: **SANSEW - Oil and Grease** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 4 ↑
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

PACKAGE: **SANSEW - Other (ORP)** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	9.5	7.60
Chromium VI	mg/L	0.0002	0.04	< 0.0002
Mercury (total)	mg/L	0.00001	0.0004	0.00001

Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - PAHs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
PAHs				
Benzo(b+j)fluoranthene	mg/L	0.0001		< 0.0001

PACKAGE: **SANSEW - PCBs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.0004	< 0.0001

PACKAGE: **SANSEW - Phenols** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Phenols				
4AAP-Phenolics	mg/L	0.002	0.008	< 0.002

PACKAGE: **SANSEW - SVOCs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs				

Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - SVOCs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs (continued)				
di-n-Butyl Phthalate	mg/L	0.002	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.0088	< 0.002
3,3-Dichlorobenzidine	mg/L	0.0005	0.0008	< 0.0005
Pentachlorophenol	mg/L	0.0005	0.002	< 0.0005
PAHs (Total)	mg/L	-	0.002	< 0.001
Perylene	mg/L	0.0005		< 0.0005

PACKAGE: **SANSEW - SVOCs - PAHs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs - PAHs				
7Hdibenzo(c,g)carbazole	mg/L	0.0001		< 0.0001
Anthracene	mg/L	0.0001		< 0.0001
Benzo(a)anthracene	mg/L	0.0001		< 0.0001
Benzo(a)pyrene	mg/L	0.0001		< 0.0001
Benzo(e)pyrene	mg/L	0.0001		< 0.0001
Benzo(ghi)perylene	mg/L	0.0002		< 0.0002
Benzo(k)fluoranthene	mg/L	0.0001		< 0.0001
Chrysene	mg/L	0.0001		< 0.0001
Dibenzo(a,h)anthracene	mg/L	0.0001		< 0.0001
Dibenzo(a,i)pyrene	mg/L	0.0001		< 0.0001

Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - SVOCs - PAHs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs - PAHs (continued)				
Dibenzo(a,j)acridine	mg/L	0.0001		< 0.0001
Fluoranthene	mg/L	0.0001		< 0.0001
Indeno(1,2,3-cd)pyrene	mg/L	0.0002		< 0.0002
Phenanthrene	mg/L	0.0001		0.0001
Pyrene	mg/L	0.0001		< 0.0001

PACKAGE: **SANSEW - VOCs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
VOCs				
Chloroform	mg/L	0.0005	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.017	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.0076	< 0.0005

Client: R.J. Burnside & Associates Ltd
Project: 300043939.001 Millcroft G.C
Project Manager: Aaron Brock
Samplers: Aaron Brock

PACKAGE: **SANSEW - VOCs - BTEX** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW 19-03
Sample Matrix	Ground Water
Sample Date	11/11/2020

VOCs - BTEX

Parameter	Units	RL	L1	Result
Benzene	mg/L	0.0005	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.002	< 0.0005
Toluene	mg/L	0.0005	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	0.0044	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002 L1
MW 19-03				
Total Suspended Solids	SM 2540D	mg/L	13400	15
Manganese	SM 3030/EPA 200.8	mg/L	0.378	0.05

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0020-NOV20	mg/L	2	< 2	2	30	107	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0138-NOV20	mg/L	0.01	<0.01	ND	10	101	90	110	101	75	125

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0207-NOV20	mg/L	0.06	<0.06	ND	10	100	90	110	NV	75	125

QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0142-NOV20	mg/L	0.0002	<0.0002	ND	20	94	80	120	87	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0016-NOV20	mg/L	0.00001	< 0.00001	ND	20	82	80	120	91	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0064-NOV20	mg/L	0.00005	<0.00005	ND	20	101	90	110	99	70	130
Arsenic (total)	EMS0064-NOV20	mg/L	0.0002	<0.0002	5	20	103	90	110	109	70	130
Cadmium (total)	EMS0064-NOV20	mg/L	0.000003	<0.000003	16	20	102	90	110	112	70	130
Cobalt (total)	EMS0064-NOV20	mg/L	0.000004	<0.000004	1	20	99	90	110	98	70	130
Chromium (total)	EMS0064-NOV20	mg/L	0.00008	<0.00008	6	20	105	90	110	121	70	130
Copper (total)	EMS0064-NOV20	mg/L	0.0002	<0.0002	11	20	104	90	110	121	70	130
Manganese (total)	EMS0064-NOV20	mg/L	0.00001	<0.00001	7	20	99	90	110	102	70	130
Nickel (total)	EMS0064-NOV20	mg/L	0.0001	<0.0001	5	20	101	90	110	107	70	130
Lead (total)	EMS0064-NOV20	mg/L	0.00001	<0.00001	4	20	97	90	110	108	70	130
Phosphorus (total)	EMS0064-NOV20	mg/L	0.003	<0.003	ND	20	104	90	110	NV	70	130
Selenium (total)	EMS0064-NOV20	mg/L	0.00004	<0.00004	19	20	101	90	110	103	70	130
Zinc (total)	EMS0064-NOV20	mg/L	0.002	<0.002	13	20	100	90	110	126	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9205-NOV20	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0224-NOV20	mg/L	0.01	< 0.01			70	55	120			
Nonylphenol Ethoxylates	GCM0224-NOV20	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0224-NOV20	mg/L	0.01	< 0.01			80	55	120			
Nonylphenol	GCM0224-NOV20	mg/L	0.001	< 0.001			82	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0218-NOV20	mg/L	2	<2	NSS	20	102	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0218-NOV20	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0218-NOV20	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0204-NOV20	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0139-NOV20	mg/L	0.002	<0.002	ND	10	97	80	120	99	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENV]GC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0225-NOV20	mg/L	0.0001	<0.0001	NSS	30	94	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
3,3-Dichlorobenzidine	GCM0226-NOV20	mg/L	0.0005	< 0.0005	NSS	30	85	30	130	NSS	30	130
7Hdibenzo(c,g)carbazole	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Anthracene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Benzo(a)anthracene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	94	50	140	NSS	50	140
Benzo(a)pyrene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140
Benzo(b+j)fluoranthene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	95	50	140	NSS	50	140
Benzo(e)pyrene	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0227-NOV20	mg/L	0.0002	< 0.0002	NSS	30	98	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	101	50	140	NSS	50	140
Bis(2-ethylhexyl)phthalate	GCM0227-NOV20	mg/L	0.002	< 0.002	NSS	30	106	50	140	NSS	50	140
Chrysene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	101	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0227-NOV20	mg/L	0.002	< 0.002	NSS	30	106	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Dibenzo(a,i)pyrene	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Dibenzo(a,j)acridine	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Fluoranthene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0227-NOV20	mg/L	0.0002	< 0.0002	NSS	30	97	50	140	NSS	50	140
Pentachlorophenol	GCM0227-NOV20	mg/L	0.0005	< 0.0005	NSS	30	109	50	140	NSS	50	140
Perylene	GCM0227-NOV20	mg/L	0.0005	NV	NSS	30	NV	50	140	NSS	50	140
Phenanthrene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140

QC SUMMARY

Semi-Volatile Organics (continued)

Method: EPA 3510C/8270D | Internal ref.: ME-CA-IENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Pyrene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-IENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0198-NOV20	mg/L	2	< 2	2	10	97	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0131-NOV20	as N mg/L	0.5	<0.5	4	10	101	90	110	NV	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	92	60	130	95	50	140
1,2-Dichlorobenzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	95	60	130	94	50	140
1,4-Dichlorobenzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	95	60	130	92	50	140
Benzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	98	60	130	93	50	140
Chloroform	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	96	60	130	88	50	140
cis-1,2-Dichloroethene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	99	60	130	89	50	140
Ethylbenzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	7	30	101	60	130	97	50	140
Methylene Chloride	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	99	60	130	91	50	140
Tetrachloroethylene (perchloroethylene)	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	94	60	130	93	50	140
Toluene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	100	60	130	95	50	140
trans-1,3-Dichloropropene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	102	60	130	89	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates 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.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. “Temperature Upon Receipt” is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 019530

Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Page _____ of _____

Laboratory Information Section - Lab use only

Received By: Scott R
Received Date: 11/11/2020 (mm/dd/yy)
Received Time: 12:00 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☒ No ☐
Custody Seal Intact: Yes ☒ No ☐
Cooling Agent Present: Yes ☒ No ☐ Type: Ice
Temperature Upon Receipt (°C): 9.6 9.8 9.8
LAB LIMS #: CA14275-NOV20

REPORT INFORMATION

Company: R.J Burnside
Contact: Aaron Brock
Address: 17345 Leslie Street Suite 200 Newmarket
Phone: 1-647-458-5911
Fax:
Email: aaron.brock@rjburns.de

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email: see quote # / Amy Greenham SGS

Quotation #: 2020 1293 SGS Canada
Project #: 3000 43939.001
P.O. #:
Site Location/ID: Millcroft G.C

TURNAROUND TIME (TAT) REQUIRED

☐ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☒ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19

☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table _____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other: _____
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☒ Storm
Municipality: Toronto + Additional Parameters

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M & I: Metals & Inorganics (incl CrVI, CN, Hg, pH,B(HWS),EC,SAR-soil) (Cl, Na-water)	M & I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M & I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Total ☐ Aroclor	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides (Organochlorine or specify other	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	Other (please specify)	TCLP: Specify TCLP tests	COMMENTS:
1	MW 19-03	11/11/20	3:30 pm	14	GW	Y																			Field Filtered Metals Mercury
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions: Refer to Quote by Amy Greenham for Parameters

Sampled By (NAME): Aaron Brock
Signature:
Date: 11/11/20 (mm/dd/yy)

Relinquished by (NAME): Aaron Brock
Signature:
Date: 11/11/20 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 22 May. 2020

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.





FINAL REPORT

CA14276-NOV20 R1

300043939.001 Millcroft G.C

Prepared for

R.J. Burnside & Associates Ltd.

FINAL REPORT

First Page

CLIENT DETAILS

Client	R.J. Burnside & Associates Ltd.
Address	6990 Creditview Road, Unit 2 Mississauga, ON L5N8R9. Canada
Contact	Travis Mikel
Telephone	416-522-5297
Facsimile	905-420-5247
Email	travis.mikel@rjburnside.com
Project	300043939.001 Millcroft G.C
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA14276-NOV20
Received	11/11/2020
Approved	11/16/2020
Report Number	CA14276-NOV20 R1
Date Reported	11/16/2020

COMMENTS

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.

Temperature of Sample upon Receipt: degrees C
Cooling Agent Present:
Custody Seal Present:

Chain of Custody Number:

SVOC prep has a low bias for 4-Terphenyl-d14 surrogate due to sample matrix.

RL elevated for O&G due to sample matrix.

SIGNATORIES

Brad Moore Hon. B.Sc

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Client: R.J. Burnside & Associates Ltd.
Project: 300043939.001 Millcroft G.C
Project Manager: Travis Mikel
Samplers: Aaron Brock

PACKAGE: **SANSEW - General Chemistry**
(WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

General Chemistry

Parameter	Units	RL	L1	Result
Biochemical Oxygen Demand (BOD5)	mg/L	2	15	< 4 ↑
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Total Suspended Solids	mg/L	2	15	722

PACKAGE: **SANSEW - Metals and Inorganics**
(WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Metals and Inorganics

Parameter	Units	RL	L1	Result
Fluoride	mg/L	0.06		0.32
Cyanide (total)	mg/L	0.01	0.02	< 0.01
Arsenic (total)	mg/L	0.0002	0.02	0.0007
Cadmium (total)	mg/L	0.000003	0.008	0.000031
Chromium (total)	mg/L	0.00008	0.08	0.00014
Cobalt (total)	mg/L	0.000004		0.000484
Copper (total)	mg/L	0.0002	0.04	0.0026
Lead (total)	mg/L	0.00001	0.12	0.00003
Manganese (total)	mg/L	0.00001	0.05	0.439
Nickel (total)	mg/L	0.0001	0.08	0.0015

Client: R.J. Burnside & Associates Ltd.
Project: 300043939.001 Millcroft G.C
Project Manager: Travis Mikel
Samplers: Aaron Brock

PACKAGE: **SANSEW - Metals and Inorganics** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Phosphorus (total)	mg/L	0.003	0.4	< 0.003
Selenium (total)	mg/L	0.00004	0.02	0.00008
Silver (total)	mg/L	0.00005	0.12	< 0.00005
Zinc (total)	mg/L	0.002	0.04	0.040

PACKAGE: **SANSEW - Microbiology** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Microbiology				
E. Coli	cfu/100mL	-		< 2↑

PACKAGE: **SANSEW - Nonylphenol and Ethoxylates** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001	0.001	< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.01	< 0.01

Client: R.J. Burnside & Associates Ltd.
Project: 300043939.001 Millcroft G.C
Project Manager: Travis Mikel
Samplers: Aaron Brock

PACKAGE: **SANSEW - Nonylphenol and Ethoxylates** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Nonylphenol and Ethoxylates (continued)				
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01

PACKAGE: **SANSEW - Oil and Grease** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 4 ↑
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

PACKAGE: **SANSEW - Other (ORP)** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	9.5	7.91
Chromium VI	mg/L	0.0002	0.04	< 0.0002
Mercury (total)	mg/L	0.00001	0.0004	0.00001

Client: R.J. Burnside & Associates Ltd.
Project: 300043939.001 Millcroft G.C
Project Manager: Travis Mikel
Samplers: Aaron Brock

PACKAGE: **SANSEW - PAHs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
PAHs				
Benzo(b+j)fluoranthene	mg/L	0.0001		< 0.0001

PACKAGE: **SANSEW - PCBs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.0004	< 0.0001

PACKAGE: **SANSEW - Phenols** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
Phenols				
4AAP-Phenolics	mg/L	0.002	0.008	< 0.002

PACKAGE: **SANSEW - SVOCs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs				

Client: R.J. Burnside & Associates Ltd.
Project: 300043939.001 Millcroft G.C
Project Manager: Travis Mikel
Samplers: Aaron Brock

PACKAGE: **SANSEW - SVOCs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs (continued)				
di-n-Butyl Phthalate	mg/L	0.002	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.0088	< 0.002
3,3-Dichlorobenzidine	mg/L	0.0005	0.0008	< 0.0005
Pentachlorophenol	mg/L	0.0005	0.002	< 0.0005
PAHs (Total)	mg/L	-	0.002	< 0.001
Perylene	mg/L	0.0005		< 0.0005

PACKAGE: **SANSEW - SVOCs - PAHs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs - PAHs				
7Hdibenzo(c,g)carbazole	mg/L	0.0001		< 0.0001
Anthracene	mg/L	0.0001		< 0.0001
Benzo(a)anthracene	mg/L	0.0001		< 0.0001
Benzo(a)pyrene	mg/L	0.0001		< 0.0001
Benzo(e)pyrene	mg/L	0.0001		< 0.0001
Benzo(ghi)perylene	mg/L	0.0002		< 0.0002
Benzo(k)fluoranthene	mg/L	0.0001		< 0.0001
Chrysene	mg/L	0.0001		< 0.0001
Dibenzo(a,h)anthracene	mg/L	0.0001		< 0.0001
Dibenzo(a,i)pyrene	mg/L	0.0001		< 0.0001

Client: R.J. Burnside & Associates Ltd.
Project: 300043939.001 Millcroft G.C
Project Manager: Travis Mikel
Samplers: Aaron Brock

PACKAGE: **SANSEW - SVOCs - PAHs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
SVOCs - PAHs (continued)				
Dibenzo(a,j)acridine	mg/L	0.0001		< 0.0001
Fluoranthene	mg/L	0.0001		< 0.0001
Indeno(1,2,3-cd)pyrene	mg/L	0.0002		< 0.0002
Phenanthrene	mg/L	0.0001		< 0.0001
Pyrene	mg/L	0.0001		0.0002

PACKAGE: **SANSEW - VOCs** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

Parameter	Units	RL	L1	Result
VOCs				
Chloroform	mg/L	0.0005	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.017	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.0076	< 0.0005

Client: R.J. Burnside & Associates Ltd.

Project: 300043939.001 Millcroft G.C

Project Manager: Travis Mikel

Samplers: Aaron Brock

PACKAGE: **SANSEW - VOCs - BTEX** (WATER)

L1 = SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002

Sample Number	8
Sample Name	MW19-01
Sample Matrix	Ground Water
Sample Date	11/11/2020

VOCs - BTEX

Parameter	Units	RL	L1	Result
Benzene	mg/L	0.0005	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.002	< 0.0005
Toluene	mg/L	0.0005	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	0.0044	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - City of Burlington - Burlington Storm Sewer Discharge - BL_086_2002 L1
MW19-01				
Total Suspended Solids	SM 2540D	mg/L	722	15
Manganese	SM 3030/EPA 200.8	mg/L	0.439	0.05

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0020-NOV20	mg/L	2	< 2	2	30	107	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0138-NOV20	mg/L	0.01	<0.01	ND	10	101	90	110	101	75	125

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0207-NOV20	mg/L	0.06	<0.06	ND	10	100	90	110	NV	75	125

QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0142-NOV20	mg/L	0.0002	<0.0002	ND	20	94	80	120	87	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0016-NOV20	mg/L	0.00001	< 0.00001	ND	20	82	80	120	91	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0064-NOV20	mg/L	0.00005	<0.00005	ND	20	101	90	110	99	70	130
Arsenic (total)	EMS0064-NOV20	mg/L	0.0002	<0.0002	5	20	103	90	110	109	70	130
Cadmium (total)	EMS0064-NOV20	mg/L	0.000003	<0.000003	16	20	102	90	110	112	70	130
Cobalt (total)	EMS0064-NOV20	mg/L	0.000004	<0.000004	1	20	99	90	110	98	70	130
Chromium (total)	EMS0064-NOV20	mg/L	0.00008	<0.00008	6	20	105	90	110	121	70	130
Copper (total)	EMS0064-NOV20	mg/L	0.0002	<0.0002	11	20	104	90	110	121	70	130
Manganese (total)	EMS0064-NOV20	mg/L	0.00001	<0.00001	7	20	99	90	110	102	70	130
Nickel (total)	EMS0064-NOV20	mg/L	0.0001	<0.0001	5	20	101	90	110	107	70	130
Lead (total)	EMS0064-NOV20	mg/L	0.00001	<0.00001	4	20	97	90	110	108	70	130
Phosphorus (total)	EMS0064-NOV20	mg/L	0.003	<0.003	ND	20	104	90	110	NV	70	130
Selenium (total)	EMS0064-NOV20	mg/L	0.00004	<0.00004	19	20	101	90	110	103	70	130
Zinc (total)	EMS0064-NOV20	mg/L	0.002	<0.002	13	20	100	90	110	126	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9205-NOV20	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0224-NOV20	mg/L	0.01	< 0.01			70	55	120			
Nonylphenol Ethoxylates	GCM0224-NOV20	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0224-NOV20	mg/L	0.01	< 0.01			80	55	120			
Nonylphenol	GCM0224-NOV20	mg/L	0.001	< 0.001			82	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0218-NOV20	mg/L	2	<2	NSS	20	102	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0218-NOV20	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0218-NOV20	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0204-NOV20	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0139-NOV20	mg/L	0.002	<0.002	ND	10	97	80	120	99	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENV]GC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0225-NOV20	mg/L	0.0001	<0.0001	NSS	30	94	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
3,3-Dichlorobenzidine	GCM0226-NOV20	mg/L	0.0005	< 0.0005	NSS	30	85	30	130	NSS	30	130
7Hdibenzo(c,g)carbazole	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Anthracene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Benzo(a)anthracene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	94	50	140	NSS	50	140
Benzo(a)pyrene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140
Benzo(b+j)fluoranthene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	95	50	140	NSS	50	140
Benzo(e)pyrene	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0227-NOV20	mg/L	0.0002	< 0.0002	NSS	30	98	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	101	50	140	NSS	50	140
Bis(2-ethylhexyl)phthalate	GCM0227-NOV20	mg/L	0.002	< 0.002	NSS	30	106	50	140	NSS	50	140
Chrysene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	101	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0227-NOV20	mg/L	0.002	< 0.002	NSS	30	106	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Dibenzo(a,i)pyrene	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Dibenzo(a,j)acridine	GCM0227-NOV20	mg/L	0.0001	NV	NSS	30	NV	50	140	NSS	50	140
Fluoranthene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0227-NOV20	mg/L	0.0002	< 0.0002	NSS	30	97	50	140	NSS	50	140
Pentachlorophenol	GCM0227-NOV20	mg/L	0.0005	< 0.0005	NSS	30	109	50	140	NSS	50	140
Perylene	GCM0227-NOV20	mg/L	0.0005	NV	NSS	30	NV	50	140	NSS	50	140
Phenanthrene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140

QC SUMMARY

Semi-Volatile Organics (continued)

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Pyrene	GCM0227-NOV20	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0198-NOV20	mg/L	2	< 2	2	10	97	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0131-NOV20	as N mg/L	0.5	<0.5	4	10	101	90	110	NV	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	92	60	130	95	50	140
1,2-Dichlorobenzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	95	60	130	94	50	140
1,4-Dichlorobenzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	95	60	130	92	50	140
Benzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	98	60	130	93	50	140
Chloroform	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	96	60	130	88	50	140
cis-1,2-Dichloroethene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	99	60	130	89	50	140
Ethylbenzene	GCM0250-NOV20	mg/L	0.0005	<0.0005	7	30	101	60	130	97	50	140
Methylene Chloride	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	99	60	130	91	50	140
Tetrachloroethylene (perchloroethylene)	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	94	60	130	93	50	140
Toluene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	100	60	130	95	50	140
trans-1,3-Dichloropropene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0250-NOV20	mg/L	0.0005	<0.0005	ND	30	102	60	130	89	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates 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.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

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-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 019528 Page _____ of _____

Laboratory Information Section - Lab use only

Received By: Sneh Received By (signature): S
Received Date: 11/11/2020 (mm/dd/yy) Custody Seal Present: Yes ☑ No ☐ Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Received Time: 17:00 (hr : min) Custody Seal Intact: Yes ☑ No ☐ Temperature Upon Receipt (°C) 7.8°C, 5°C LAB LIMS #: QA14276-Nov20

REPORT INFORMATION	INVOICE INFORMATION
Company: R.J Burnside	☑ (same as Report Information)
Contact: Aaron Brock	Company:
Address: 17345 Leslie Street Suite 200 Newmarket	Contact:
Phone: 1-647-458-5911	Address:
Fax:	Phone:
Email: aaron.brock@rjburnside.com	Email:

Quotation #: 2020 1293 Amy Greenham P.O. #: _____
Project #: 300043939.001 Site Location/ID: MM croft O.C

TURNAROUND TIME (TAT) REQUIRED

☐ Regular TAT (5-7days) TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☑ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: _____ *NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table _____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations: ☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: _____ ☐ MISA ☐ ODWS Not Reportable *See note

Sewer By-Law: ☐ Sanitary ☑ Storm Municipality: Toronto + parameters

RECORD OF SITE CONDITION (RSC) ☐ YES ☑ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M & I: Metals & Inorganics (ICP/ICPMS, CN, Hg pH,(B(HWS),EC,SAR–soil) (Cl, Na-water)	M & I: Full Metals Suite ICP metals plus B(HWS-soil only) Hg, CrVI	M & I: ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Total ☐ Aroclor	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: Appendix 2: 406/19 Leachate Screening Levels Table :	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	TCLP: Specify TCLP tests ☐M&I ☐VOC ☐PCB ☐B(a)P ☐ABN ☐Ignit.	COMMENTS:
1	MW 19-01	11/11/20	3 pm	14	GW	Y																Filtered
2																						Metals
3																						Mercury
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Observations/Comments/Special Instructions: Refer to quote by Amy Greenham for parameters

Sampled By (NAME): Aaron Brock Signature: Aaron Brock Date: 11/11/20 (mm/dd/yy)
Relinquished by (NAME): Aaron Brock Signature: Aaron Brock Date: 11/11/20 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.4
Date of Issue: 27 May. 2020

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.