

DVP Hotel Development LP
552 Wellington Street West, Suite 1500
Toronto, ON M5V 2V5

File No. 20-153-206
August 28, 2020

Attention: Jimmy Sun

Subject: 175 Wynford Drive, Toronto, Ontario

HYDROGEOLOGICAL REVIEW REPORT

Grounded Engineering Inc. ("Grounded") is pleased to provide you with this Hydrogeological Review for the site known as 175 Wynford Drive, in Toronto, Ontario.

The following documents are provided as part of this package:

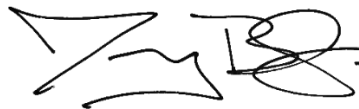
- City of Toronto Hydrogeological Review Summary Form
- Hydrogeological Review Report

As part of the development applications process, the City of Toronto requires that both documents are submitted together for review.

We trust that the information contained with this report is adequate for your present requirements. If we can be of further assistance, please do not hesitate to contact us.



Matthew Bielaski, P.Eng., QP_{ESA-RA}
Principal



Jeremy Bobro, M_{ENV}M
Senior Consultant

August 2018

HYDROLOGICAL REVIEW SUMMARY

The form is to be completed by the Professional that prepared the Hydrogeologic Review.

Use of the form by the City of Toronto is not construed as verification of engineering/hydrological content.

Refer to the Terms of Reference, hydrological Review

For City Staff Use Only:	
Name of ECS Case Manager (Please print)	
Date Review Summary provided to TW, EM&P	

IF ANY OF THE REQUIREMENTS LISTED BELOW HAVE NOT BEEN INCLUDED IN THE HYDROLOGICAL REVIEW, THE REVIEW WILL BE CONSIDERED INCOMPLETE.

THE GREY SHADED BOXES WILL REQUIRE A CONSISTANCY CHECK BY THE ECS CASE MANAGER

Summary of Key Information:

Table 1 Site Information

SITE INFORMATION		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Property Address	175 Wynford Drive, Toronto, Ontario	Title, i (Exec Sum), 1 (Sec 1)	
Postal Code	M1N 1T5	Title	
Property Owner (on request for comments memo)	DVP Hotel Development LP	Title, i (Exec Sum), 1 (Sec 1)	
Proposed description of the project (if applicable) (point towers, number of podiums)	4 Towers over 2 development phases, each with 8 storey podium and six [6] levels combined underground parking. Phase 1-Tower 1 – 54 storey and Tower 2 – 45 storey Phase 2-Tower 3 – 47 storey and Tower4 – 49 storey	i (Exec Sum), 1 (Sec 1)	
Land Use (ex. commercial, residential, mixed, institutional, industrial)	Current: Commercial Hotel Proposed: Residential and commercial	i (Exec Sum), 1 (Sec 1)	
Number of below grade levels for the proposed structure	P6 underground	i (Exec Sum), 1 (Sec 1)	
HYDROLOGICAL REVIEW INFORMATION			
Date Hydrological Review was prepared:	August 28, 2020	Title	
Who Performed the Hydrological Review (Consulting Firm)	Grounded Engineering Inc.	Title, i (Exec Sum), 2 (Sec 1)	
Name of Author of Hydrological Review	Matt Bielaski, P.Eng., QP _{ESA-RA} Jeremy Bobro, M _{ENVM}	2 (Sec 1), 11 (Sec 14)	

August 2018

HYDROLOGICAL REVIEW SUMMARY

<p>Check the directories on the website for Professional Geoscientists and/or Professional Engineers of Ontario been checked to ensure that the Hydrological Report has been prepared by a qualified person who is a licensed Professional Geoscientist as set out in the Professional Geoscientist Act of Ontario or a Professional Engineer?</p> <p>PEO: http://peo.on.ca/index.php?ci_id=1798&la_id=1 APGO: https://www.apgo.net/search/registered-members</p>	✓ Yes	N/A	
<p>Has the Hydrological Review been prepared in accordance with all the following:</p> <p>Ontario Water Resources Act Ontario Regulation 387/04 Toronto Municipal Code Chapter 681- Sewers</p>	✓ Yes	2 (Sec 1)	
		Page # & Section # of Review	Review Includes this Information City Staff (Check)
<p>Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) with safety factor included</p>	<p>Groundwater Seepage: 246,900 L/day Rainfall: 360,500 L/day Total: 607,400 L/day What safety factor was used? 3.0 X</p>	<p>ii (Exec Sum), 6 (Sec 10)</p>	
<p>Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) without safety factor included</p>	<p>82,300 L/day</p>	N/A	
<p>Total Volume (L/day) Long Term drainage of groundwater (from foundation drainage, weeping tiles, sub slab drainage) with safety factor included</p> <p>If the development is part of a multiple tower complex, include total volume for each separate tower</p>	<p>83,330 L/day What safety factor was used? 3.0 X</p>	<p>ii (Exec Sum), 6 (Sec 10)</p>	
<p>List the nearest surface water (river, creek, lake)</p>	<p>Unnamed creek/tributary, 40 m north</p>	3 (Sec 3)	
<p>Lowest basement elevation</p>	<p>104 masl – Finished floor elevation 103.5 masl – Base of excavation</p>	i (Exec Sum)	
<p>Foundation elevation</p>	<p>102.5 masl – base of footings</p>	i (Exec Sum)	
<p>Ground elevation</p>	<p>132.0 masl</p>	2 (Sec 1)	

HYDROLOGICAL REVIEW SUMMARY

Measured ground water elevation	Groundwater levels range between 112.27 to 128.97 masl	4 (Sec 5)	
Design ground water elevation (to account for seasonal fluctuations)	128.97 masl	4 (Sec 5)	

Table 2 Study Area Map

STUDY AREA MAP		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Study area map(s) been prepared according to the Hydrological Review Terms of Reference.	✓ Yes	2-3 (Sec 2), Figures 1-2	N/A
The onsite well(s) referenced in the report have been installed at locations that represent the entire proximity of the Site (it is required that the well(s) be installed at a minimum of 38mm diameter and 2 meters below the lowest elevation in the proposed building structure(s) if the Site is larger than 30m X 30m.	✓ Yes	Figure 2 Appendix A	N/A

Table 3 Water Levels and Wells Information

WATER LEVEL AND WELLS		Page # & Section # of Review	Review Includes this Information City Staff (Check)
The groundwater level has been monitored using all wells located on Site (within property boundary).	✓ Yes	4 (Sec 5)	
The static water level measurements have been monitored at all monitoring wells for a minimum of 3 months with samples taken every 2 weeks for a minimum of 6 samples. The intent is for the qualified professional to use professional judgement to estimate the seasonally high groundwater level.	X No The required 3-months ground water level monitoring is currently ongoing for the Property. As such, additional water levels will continue to be collected.	4 (Sec 5)	
All water levels in the wells have been measured with respect to masl.	✓ Yes	4 (Sec 5)	
A table of geology/soil stratigraphy for the property has been included.	✓ Yes	i (Exec Sum), 3 (Sec 3)	

Table 4 Geology and Physical Hydrology Information

GEOLOGY AND PHYSICAL HYDROLOGY		Page # & Section # of Review	Review Includes this Information City Staff (Check)
The review has made reference to the soil materials including thickness, composition and texture, and bedrock environments.	✓ Yes	3 (Sec 3)	
Key aquifers and the Site's proximity to nearby surface water has been identified.	✓ Yes	3 (Sec 3)	N/A

HYDROLOGICAL REVIEW SUMMARY

Table 5 Information on Pump test and analysis

PUMP TEST/SLUG TEST/DRAWDOWN ANALYSIS		Page # & Section # of Review	Review Includes this Information City Staff (Check)
A summary of the pumping test data and analysis is included in the review.	X No	4-5 (Sec 6.1) Appendix E	
The pump test been carried out for at least 24 hours if possible? If not, has a slug test been conducted?	X No – 24 hr pumping test not conducted X No – Slug tests were not conducted	4-5 (Sec 6)	
Have the monitoring well(s) have been monitored using digital devices? If yes how frequently?	✓ Yes Yes, water level measurements have been taken using a digital water level meter. The frequency of the measurements will be every two weeks over the course of a 3 month period.	4 (Sec 5)	
If a slug or pump test has been conducted has the static groundwater level been monitored at all monitoring well(s) multiple times to measure recovery? -prior to the slug or pumping test(s)? -post slug or pumping test(s)?	X No X No X No	N/A	N/A
The above noted slug or pump tests have been included in the report.	X No	N/A	

Table 6 Water Quality information

WATER QUALITY		Page # & Section # of Review	Review Includes this Information City Staff (Check)
The report includes baseline water quality samples from a laboratory. The water quality must be analyzed for all parameters listed in Tables 1 and 2 of Chapter 681 Sewers of the Toronto Municipal Code (found in Appendix A) and the samples must have to be taken unfiltered within 9 months of the date of submission.	✓ Yes	5-6 (Sec 7), Appendix B	
The water quality data templates in Appendix A have been completed for each sample taken for both sanitary/combined and storm sewer limits.	For sanitary discharge- See the sanitary/combined sewer parameter limit template For storm discharge- See the storm sewer parameter limit template	8-11 of Hydrological Review Summary	
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the sanitary/combined Bylaw limits If there are any sample parameter Exceedances the groundwater can't be discharged to sanitary/combined sewer as is.	Sanitary Combined Sewer: • None	5-6 (Sec 7)	

August 2018

HYDROLOGICAL REVIEW SUMMARY

<p>Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the storm Bylaw limits.</p> <p>If there are any sample parameter exceedances the groundwater can't be discharged to storm sewer as is.</p>	<p>Storm Sewer:</p> <ul style="list-style-type: none"> Total Suspended Solids (Limit 15 mg/L, Result 226 mg/L) Manganese (Limit 0.005 mg/L, Result 0.398 mg/L) 	5-6 (Sec 7)	
<p>The water quality samples have been analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and/or Canadian Association for Laboratory Accreditation.</p> <p>List of Canadian accredited laboratories: https://www.scc.ca/en/search/palcan </p>	✓ Yes	Appendix B	N/A
<p>A chain of custody record for the samples is included with the report.</p>	✓ Yes	Appendix B	
<p>Has the chain of custody reference any filtered sample?</p> <p>If yes, the report has to be amended and re-submitted to include only non-filtered samples.</p>	X No	Appendix B	
<p>List any of the sample parameters that exceed the Bylaw limits with the reporting detection limit (RDL) included.</p>	<p>Sanitary Combined Sewer:</p> <ul style="list-style-type: none"> None <p>Storm Sewer:</p> <ul style="list-style-type: none"> Total Suspended Solids (Limit 15 mg/L, Result 226 mg/L) Manganese (Limit 0.005 mg/L, Result 0.398 mg/L) 	5-6 (Sec 7), Appendix B	
<p>A true copy of the Certificate of Analysis report, is included with the report.</p>	✓ Yes	Appendix B	

Table 7 Evaluation of Impact

EVALUATION OF IMPACT		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Does the report recommend a back-up system or relief safety valve(s)?	✓ Yes	5 (Sec 9)	
Does the associated Geotechnical report recommend a back-up system or relief safety valve(s)?	✓ Yes	N/A	
The taking and discharging of groundwater on Site has been analyzed to ensure that no negative impacts will occur to: the City sewage works in terms of quality and quantity (including existing infrastructure), the natural environment, and settlement issues.	✓ Yes	8-10 (Sec 11)	N/A

August 2018

HYDROLOGICAL REVIEW SUMMARY

Has it been determined that there will be a negative impact to the natural environment, City sewage works, or surrounding properties has the study identified the following: the extent of the negative impact, the detail of the precondition state of all the infrastructure, City sewage works, and natural environment within the effected zone and the proposed remediation and monitoring plan?	X No	8-10 (Sec 11)	N/A
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------	---------------	-----

Summary of Additional Information and Key Items (if applicable):

August 2018

HYDROLOGICAL REVIEW SUMMARY

Appendix A:

Chapter 168 – Table 1 Sanitary Combined Sewer Limits

Chapter 168 – Table 2 Storm Sewer Limits

Sample Location: MW3-15

Parameter	Table 1 Limit	Table 2 Limit	Units	Sample Result	Sample Result with upper RDL* included	
Inorganics						
pH	6.0 - 11.5	6.0 - 9.5	SU	7.09	7.09	0.05
BOD	300	15	mg/L	< 4	< 4	2
Phenolics (4AAP)	1	0.008	mg/L	< 0.002	< 0.002	0.002
TSS	350	15	mg/L	226	226	2
Total Cyanide	2	0.02	mg/L	< 0.01	< 0.01	0.01
Fluoride	10	n/a	mg/L	0.11	0.11	0.06
TKN	100	n/a	mg/L	0.6	0.6	0.5
Metals						
Chromium Hexavalent	2	0.04	mg/L	< 0.0002	< 0.0002	0.0002
Total Mercury	0.01	0.0004	mg/L	< 0.00001	< 0.00001	0.00001
Total Aluminum	50	n/a	mg/L	0.825	0.825	0.001
Total Antimony	5	n/a	mg/L	< 0.0009	< 0.0009	0.0009
Total Arsenic	1	0.02	mg/L	0.0038	0.0038	0.0002
Total Cadmium	0.7	0.008	mg/L	0.000012	0.000012	0.000003
Total Chromium	4	0.08	mg/L	0.00137	0.00137	0.00008
Total Cobalt	5	n/a	mg/L	0.000461	0.000461	0.000004
Total Copper	2	0.4	mg/L	0.0021	0.0021	0.0002
Total Lead	1	0.12	mg/L	0.00081	0.00081	0.00001
Total Manganese	5	0.05	mg/L	0.398	0.398	0.00001
Total Molybdenum	5	n/a	mg/L	0.00221	0.00221	0.00004
Total Nickel	2	0.08	mg/L	0.0011	0.0011	0.0001
Total Phosphorus	10	0.4	mg/L	0.091	0.091	0.003
Total Selenium	1	0.02	mg/L	< 0.00004	< 0.00004	0.00004
Total Silver	5	0.12	mg/L	< 0.00005	< 0.00005	0.00005
Total Tin	5	n/a	mg/L	0.00060	0.00060	0.00006
Total Titanium	5	n/a	mg/L	0.0383	0.0383	0.00005
Total Zinc	2	0.04	mg/L	0.008	0.008	0.002
Microbiology						
E.coli	n/a	200	CFU	< 2	< 2	2
Petroleum Hydrocarbons						
Animal/Vegetable Oil & Grease	150	n/a	mg/L	< 4	< 4	4
Mineral/Synthetic Oil & Grease	15	n/a	mg/L	< 4	< 4	4
Volatile Organics						
Benzene	0.01	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Chloroform	0.04	0.002	mg/L	< 0.0005	< 0.0005	0.0005
1,2-Dichlorobenzene	0.05	0.0056	mg/L	< 0.0005	< 0.0005	0.0005
1,4-Dichlorobenzene	0.08	0.0068	mg/L	< 0.0005	< 0.0005	0.0005
Cis-1,2-Dichloroethylene	4	0.0056	mg/L	< 0.0005	< 0.0005	0.0005
Trans-1,3-Dichloropropylene	0.14	0.0056	mg/L	< 0.0005	< 0.0005	0.0005
Ethyl Benzene	0.16	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Methvlene Chloride	2	0.0052	mg/L	< 0.0005	< 0.0005	0.0005

August 2018

HYDROLOGICAL REVIEW SUMMARY

Parameter	Table 1 Limit	Table 2 Limit	Units	Sample Result	Sample Result with upper RDL* included	
1,1,2,2-Tetrachloroethane	1.4	0.017	mg/L	< 0.0005	< 0.0005	0.0005
Tetrachloroethylene	1	0.0044	mg/L	< 0.0005	< 0.0005	0.0005
Toluene	0.016	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Trichloroethylene	0.4	0.0076	mg/L	< 0.0005	< 0.0005	0.0005
Total Xylenes	1.4	0.0044	mg/L	< 0.0005	< 0.0005	0.0005
Semi-Volatile Organics						
Di-n-butyl Phthalate	0.08	0.015	mg/L	< 0.002	< 0.002	0.002
Bis (2-ethylhexyl) Phthalate	0.012	0.0088	mg/L	0.006	0.006	0.002
3,3'-Dichlorobenzidine	0.002	0.0008	mg/L	< 0.0005	< 0.0005	0.0005
Pentachlorophenol	0.005	0.002	mg/L	< 0.0005	< 0.0005	0.0005
Total PAHs	0.005	0.002	mg/L	< 0.001	< 0.001	---
Hexachlorocyclohexane	n/a	0.1	mg/L	Parameter Not In By-Law May 2016		
Misc Parameters						
Nonylphenols	0.02	0.001	mg/L	< 0.001	< 0.001	0.001
Nonylphenol Ethoxylates	0.2	0.01	mg/L	< 0.01	< 0.01	0.01
Temperature	< 60	< 40	°C	9	9	---
PCB	0.001	0.0004	mg/L	< 0.0001	< 0.0001	0.0001

* RDL corresponds to SGS Reporting Detection Limits

Sample Collected: July 28, 2020

Temperature: 9°C

Consulting Firm that prepared Hydrological Report: Grounded Engineering Inc.

Qualified Professional who completed the report summary: Matthew Bielaski, P.Eng., QP_{ESA-RA}
Print Name

Qualified Professional who completed the report summary:



Signature

Date & Stamp

August 2018

HYDROLOGICAL REVIEW SUMMARY

HYDROGEOLOGICAL REVIEW REPORT

PREPARED FOR:

DVP Hotel Development LP
552 Wellington Street West, Suite 1500
Toronto, ON M5V 2V5

ATTENTION:

Jimmy Sun

**175 Wynford Drive |
Toronto, Ontario**

Grounded Engineering Inc.

File No. 20-153-206

Issued Aug. 28, 2020



Executive Summary

Grounded Engineering Inc. (Grounded) was retained by DVP Hotel Development LP to conduct a Hydrogeological Review for the proposed redevelopment of 175 Wynford Drive in Toronto, Ontario (site). The conclusions of the investigation are summarized as follows:

Development Information

Current Development					
Development Phase	Above Grade Levels	Below Grade Levels			
		Level #	Lowest Finished Floor		Approximate Base of Footings (masl)
			Depth (m)	Elevation (masl)	
1	6	1	Unknown	Unknown	Unknown
2	2	1	Unknown	Unknown	Unknown

Proposed Development					
Development Phase	Above Grade Levels	Below Grade Levels			
		Level #	Lowest Finished Floor		Approximate Base of Footings (masl)
			Depth (m)	Elevation (masl)	
1-T1	54	6	28	104	102.5
1-T2	45	6	28	104	102.5
2-T3	47	6	28	104	102.5
2-T4	49	6	28	104	102.5

Site Conditions

Site Stratigraphy				
Stratum/Formation	Aquifer or Aquitard	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)
Earth Fill	Aquifer	0 to 3	132.5 to 129.2	$1.0 \times 10^{-6***}$
Glacial till	Aquifer	0 to 45	130.4 to 86.9	$1.0 \times 10^{-7***}$
Sand and silt	Aquifer	0 to 42	131.1 to 89.8	$1.0 \times 10^{-6***}$

*Indicates conductivity was calculated by Slug Test

**Indicates conductivity was estimated using grain size analysis

***Indicates conductivity was estimated using typical published values from Freeze and Cherry (1979)

Maximum Groundwater Elevation		
Monitoring Well ID	Depth Below Grade (m)	Elevation (masl)
BH1	2.76	128.97
BH2	2.05	127.55
BH101	7.87	124.46
BH102	10.10	121.93



BH201	10.70	121.60
BH202	9.32	120.78
MW1S-15	10.94	116.56
MW1D-15	14.61	112.89
MW2-15	3.52	128.18
MW3-15	2.83	127.07

Groundwater Quality

Sample ID	Sample Date	Sample Expiry Date	City of Toronto Storm Sewer Limits	City of Toronto Sanitary and Combined Sewer Limits
MW3-15	July 28, 2020	April 28, 2020	Exceeds	Meets

Groundwater Control

Stored Groundwater (pre-excavation/dewatering)

Volume of Excavation (m³)	Volume of Excavation Below Water Table (m³)	Volume of Storage Groundwater (m³)	Volume of Storage Groundwater (L)
323,400	308,385	96,120	96,120,000

Short Term (Construction) Groundwater Quantity – Safety Factor of 3.0 Used

Ground Water Seepage		Design Rainfall Event (25mm)		Total Daily Water Takings	
L/day	L/min	L/day	L/min	L/day	L/min
246,900	171.5	360,500	208.3	607,400	421.8

Long Term (Permanent) Groundwater Quantity – Safety Factor of 1.5 Used

Ground Water Seepage		Infiltration Design Rainfall Event (25mm)		Total Daily Water Takings	
L/day	L/min	L/day	L/min	L/day	L/min
249,990	173.6	3,450	2.4	253,440	176.0

Zone of Influence

Zone of Influence	Potential Settlement
44 m	24 mm

Regulatory Requirements

Environmental Activity and Sector Registry (EASR) Posting	N/A
Short Term Permit to Take Water (PTTW)	Required
Long Term Permit to Take Water (PTTW)	Required
Short Term Discharge Agreement City of Toronto	Required
Long Term Discharge Agreement City of Toronto	Required



TABLE OF CONTENTS

1	INTRODUCTION	1
2	STUDY AREA MAP	2
3	GEOLOGY AND PHYSICAL HYDROGEOLOGY	3
4	MONITORING WELL INFORMATION.....	3
5	GROUND WATER ELEVATIONS.....	4
6	AQUIFER TESTING	4
6.1	PUMP TEST	4
6.2	SINGLE WELL RESPONSE TEST (SLUG TEST)	5
6.3	SOIL GRAIN SIZE DISTRIBUTION	5
6.4	LITERATURE.....	5
7	WATER QUALITY	5
8	PROPOSED CONSTRUCTION METHOD.....	6
9	PRIVATE WATER DRAINAGE SYSTEM (PWDS)	6
10	GROUNDWATER EXTRACTION AND DISCHARGE	6
11	EVALUATION OF IMPACT	8
11.1	ZONE OF INFLUENCE (ZOI).....	8
11.2	LAND STABILITY.....	9
11.3	CITY'S SEWAGE WORKS	9
11.4	NATURAL ENVIRONMENT	9
11.5	LOCAL DRINKING WATER WELLS	9
11.6	CONTAMINATION SOURCE.....	9
12	PROPOSED MITIGATION MEASURES AND MONITORING PLAN	10
13	LIMITATIONS	10
13.1	REPORT USE	11
14	CLOSURE	11



FIGURES

Figure 1 – Study Area Map

Figure 2 – Hydrological cross-section

APPENDICES

Appendix A – Borehole Plan and Logs by Others

Appendix B – Laboratory Certificate of Analysis

Appendix C – Finite Element Model



1 Introduction

DVP Hotel Development LP has retained Grounded Engineering Inc. ("Grounded") to provide hydrogeological engineering design advice for their proposed development at 175 Wynford Drive, in Toronto, Ontario.

Property Information

Location of Property	175 Wynford Drive
Ownership of Property	DVP Hotel Development LP
Property Dimensions (m)	170 X 130
Property Area (m ²)	21,920

Existing Development

Number of Building Structures	2
Number of Above Grade Levels	Two [2] and six [6] storey
Number of Underground Levels	1 basement level
Sub-Grade Depth of Development (m)	Unknown
Sub-Grade Area (m ²)	Unknown
Land Use Classification	Commercial

Proposed Development

Number of Building Structures	4 Towers over 2 development phases, each with 8 storey podium
Number of Above Grade Levels	Phase 1-Tower 1 – 54 storey Phase 1-Tower 2 – 45 storey Phase 2-Tower 3 – 47 storey Phase 2-Tower 4 – 49 storey
Number of Underground Levels	Six [6] level underground garage
Sub-Grade Depth of Development (m)	28
Sub-Grade Area (m ²)	11,550



Land Use Classification

Residential and commercial use

Qualified Person and Hydrogeological Review Information

Qualified Person	Matt Bielaski, P.Eng.
Consulting Firm	Grounded Engineering Inc.
Date of Hydrogeological Review	Aug. 28, 2020
Scope of Work	<ul style="list-style-type: none"> ▪ Review of MECP Water Well Records for the area ▪ Review of geological information for the area ▪ Review of topographic information for the area ▪ Ground water sampling and analysis to the City of Toronto Sewer Use Limits ▪ Assessment of ground water controls and potential impacts ▪ Report preparation in accordance with Ontario Water Resources Act, Ontario Regulation 387/04 and Toronto Municipal Code Chapter 681

General Hydrogeological Characterization

Property Topography	The site has an approximate ground surface elevation of 132 masl.
Local Physiographic Features	The site is composed of sandy silt till and clayey silt till deposits with silt and sand layers.
Regional Physiographic Features	The West St Lawrence Lowland consists of a limestone plain (elevation 200–250 masl) that is separated by a broad, shale lowland from a broader dolomite and limestone plateau west of Lake Ontario. This plateau is bounded by the Niagara Escarpment. From the escarpment the plateau slopes gently southwest to lakes Huron and Erie (elevation 173 masl). Glaciation has mantled this region with several layers of glacial till (i.e., an unsorted mixture of clay, sand, etc.), the youngest forming extensive, undulating till plains, often enclosing rolling drumlin fields.
Surface Drainage	Surface water is expected to flow to the municipal roads located on adjacent East and South of the site.

2 Study Area Map

A map has been enclosed which shows the following information:

- All monitoring wells identified on-site
- All monitoring wells identified off-site within the study area
- All boreholes identified on-site



- All buildings identified on Site and within the study area
- The property boundaries of the Site
- Any watercourses and drainage features within the study area.

3 Geology and Physical Hydrogeology

The site stratigraphy, including soil materials, composition and texture are presented in detail on the borehole logs in Appendix A. A summary of stratigraphic units that were encountered at the site are as follows:

Site Stratigraphy				
Stratum/Formation	Aquifer or Aquitard	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)
Earth Fill	Aquifer	0 to 3	132.5 to 129.2	1.0×10^{-6}
Glacial till	Aquifer	0 to 45	130.4 to 86.9	1.0×10^{-7}
Sand and silt	Aquifer	0 to 42	131.1 to 89.8	1.0×10^{-6}

Bedrock			
Stratum	Depth Range (mbgs)	Elevation Range (masl)	Hydraulic Conductivity (m/s)
Weathered	40 to 45	86 to 89	1×10^{-9}

Surface Water		
Surface Water Body	Distance from site (m)	Hydraulically Connected to Property (yes/no)
Unnamed creek/tributary	40 m North	Yes

4 Monitoring Well Information

Well ID	Well Dia (mm)	Ground Surface (masl)	Top of Screen (masl)	Bottom of Screen (masl)	Screened Geological Unit
BH1	50	131.73	122.60	119.50	Silty clay
BH2	50	129.60	126.60	123.50	Sandy silt till
BH101	50	132.33	123.20	120.10	Silty clay
BH102	50	132.03	123.50	120.40	Sandy silt till



Well ID	Well Dia (mm)	Ground Surface (masl)	Top of Screen (masl)	Bottom of Screen (masl)	Screened Geological Unit
BH201	50	132.30	123.20	120.10	Sandy silt till
BH202	50	130.10	121.00	117.90	Sandy silt till
MW1S-15	50	127.50	115.46	113.96	Sandy silt
MW1D-15	50	127.50	112.85	111.35	Sandy silt
MW2-15	50	131.70	121.08	117.98	Sand and silt
MW3-15	50	129.90	120.81	117.71	Sandy silt

5 Ground Water Elevations

Well ID	Groundwater Elevation (masl)						
	2-Nov-15	16-Feb-18	23-Jul-18	2-Oct-18	10-Oct-18	9-Apr-20	28-Jul-20
BH1	-	124.79	127.46	-	128.97	128.31	-
BH2	-	126.48	127.55	-	126.43	126.53	-
BH101	-	-	120.41	-	124.46	124.55	-
BH102	-	-	121.37	-	121.93	121.88	-
BH201	-	-	-	121.33	121.60	121.62	-
BH202	-	-	-	119.49	120.78	120.57	-
MW1S-15	116.56	-	-	-	-	-	116.27
MW1D-15	112.89	-	-	-	-	-	112.27
MW2-15	123.20	-	-	-	-	-	128.18
MW3-15	120.88	-	-	-	-	-	127.07

6 Aquifer Testing

6.1 Pump Test

A pumping test was attempted at the site by Atlas Dewatering on March 27, 2018. Atlas advanced four 17 m deep wells onsite. The goal of a pumping test is to estimate hydraulic properties of an aquifer system which include transmissivity, hydraulic conductivity (horizontal and vertical) and storativity (storage coefficient). Pumping tests can identify and locate recharge and no-flow boundaries that may limit the lateral extent of aquifers as well.



The pumping test was attempted at a constant rate of 1.5 L/min for approximately one hour. The pumping well was not able to maintain this flow rate and went dry after one hour. No flow rate was observed after 3 hours of pumping at a constant rate.

6.2 Single Well Response Test (Slug Test)

No slug tests were conducted at the site.

6.3 Soil Grain Size Distribution

Soil grain size analyses were conducted during the RJ Burnside investigation in 2015. One sample was analyzed from MW1, MW2 and MW3 at 9, 7, and 6 m depths respectively.

6.4 Literature

According to Freeze and Cherry (1979), the typical hydraulic conductivity of the strata investigated at the site are:

Stratum/Formation	Hydraulic Conductivity (m/s)
Earth Fill	1.0×10^{-6}
Sand and silt	1.0×10^{-6}
Glacial Till	1.0×10^{-7}

7 Water Quality

One (1) unfiltered ground water sample was collected and analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and or Canadian Association for Laboratory Accreditation.

The sample was collected directly from monitoring well MW3-15 on July 28, 2020. The sample was analyzed for the following parameters:

- City of Toronto Municipal Code Chapter 681 Table 1 – Limits for Sanitary and Combined Sewers Discharge
- City of Toronto Municipal Code Chapter 681 Table 2 – Limits for Storm Sewer Discharge

The ground water sample exceeded the Limits for Storm Sewer Discharge for the following parameters:

- Total Suspended Solids (Limit 15 mg/L, Result 226 mg/L)
- Manganese (Limit 0.005 mg/L, Result 0.398 mg/L)



The ground water sample met the Limits for Sanitary and Combined Sewer Discharge for all parameters analyzed.

A true copy of the analysis report, Certificate of Analysis and a chain of custody record for the sample are enclosed.

8 Proposed Construction Method

The proposed shoring at the site will likely consist of conventional soldier piling and lagging; however, ultimate design considerations have not been finalized. Pending confirmation of foundation and column loads, the proposed structure will likely be founded on a combination of spread/strip footings and/or deep foundations.

9 Private Water Drainage System (PWDS)

If the proposed development is not a leak tight structure, then a private water drainage system will be required. The total sub floor drain area will be approximately 11,550 m² based on the preliminary drawings which have been provided.

If the development is designed with a private water drainage system, the drainage system is a critical structural element, since it keeps water pressure from acting on the basement walls and floor slab. As such, the sump that ensures the performance of this system must have a duplexed pump arrangement for 100% pumping redundancy and these pumps must be on emergency power. The size of the sump should be adequate to accommodate the estimated groundwater seepage. It is anticipated that the groundwater seepage can be controlled with typical, widely available, commercial/residential sump pumps.

10 Groundwater Extraction and Discharge

Numerical analyses were conducted for both short-term and long-term dewatering scenarios. The modeling was conducted using computer software, which deploys the finite element modelling method. The Finite Element Model (FEM) for groundwater seepage indicates the short-term (construction) and long-term (permanent) dewatering requirements as provided below. The finite element model results are presented in Appendix C.

The groundwater seepage estimates, which have been provided, represent the steady state ground water seepage. There will be an initial drawdown of the groundwater before a steady state condition is reached. The rate of the initial drawdown, and therefore discharge, is dependent on the dewatering contractor and how the groundwater is being dealt with at the site. An estimate initial volume of stored groundwater which will require removal before steady state is reached has been provided below.



Please note that if excavation is exposed to the elements, storm water will have to be managed. The short-term control of groundwater should consider stormwater management from rainfall events. A dewatering system should be designed to consider the removal of rainfall from excavation. A design storm of 25 mm has been used in the quantity estimates.

As required by Ontario Regulation 63/16, a plan for discharge must consider the conveyance of storm water from a 100-year storm. The additional volume that will be generated in the occurrence of a 100-year storm event is approximately 1,128,000 L.

Stored Groundwater (pre-excavation/dewatering)

Volume of Excavation (m ³)	Volume of Excavation Below Water Table (m ³)	Volume of Storage Groundwater (m ³)	Volume of Storage Groundwater (L)
323,400	308,385	96,120	96,120,000

Short Term (Construction) Groundwater Quantity – Safety Factor of 3.0 Used

Ground Water Seepage		Design Rainfall Event (25mm)		Total Daily Water Takings	
L/day	L/min	L/day	L/min	L/day	L/min
246,900	171.5	360,500	208.3	607,400	421.8

Long Term (Permanent) Groundwater Quantity – Safety Factor of 1.5 Used

Ground Water Seepage		Infiltration Design Rainfall Event (25mm)		Total Daily Water Takings	
L/day	L/min	L/day	L/min	L/day	L/min
249,990	173.6	3,450	2.4	253,440	176.0

Regulatory Requirements

Environmental Activity and Sector Registry (EASR) Posting	N/A
Short Term Permit to Take Water (PTTW)	Required
Long Term Permit to Take Water (PTTW)	Required
Short Term Discharge Agreement City of Toronto	Required
Long Term Discharge Agreement City of Toronto	Required



Please note:

- The native soils must be dewatered a minimum of 1.2 m below the footing elevation prior to excavation to preserve the in-situ integrity of the native soils during construction dewatering activities. It is anticipated that the groundwater elevation will rise to the elevation of the subfloor drainage in the event of a drained structure or the waterproofing in the event of a leak tight structure.
- The proposed pump schedule for short-term construction dewatering has not been completed. As such the actual peak short-term discharge rate is not available at the time of writing this report. The pump schedule must be specified by either the dewatering contractor retained or the mechanical consultant.
- The proposed pump schedule for long-term permanent drainage has not been completed. As such the actual peak long-term discharge rate is not available at the time writing of this report. The pump schedule must be specified by the mechanical consultant.
- Leak tight structure (structure that has not included a private water drainage system) has not been considered as part of the proposed development at this time.
- On-site containment (infiltration gallery/dry well etc.) has not been considered as part of the proposed development at this time. If this option is considered additional work will have to be conducted (i.e. infiltration testing).

11 Evaluation of Impact

11.1 Zone of Influence (ZOI)

The Zone of Influence (ZOI) with respect to ground water was calculated based on the estimated ground water taking rate and the hydraulic conductivity of the unit which water will be taken at the Property.

The ZOI was calculated using the Sichardt equation below.

Equation: $R_0 = 3000 * dH * K^{0.5}$

Where:

dH is the dewatering thickness (m)

K is the hydraulic conductivity (m/s)

Calculation:

The ZOI with respect to groundwater seepage at the site is:



$$R_0 = 3000 * 26.7 \text{ m} * (3.0 \times 10^{-7})^{0.5} \text{ m/s}$$

$$R_0 = \pm 44 \text{ m}$$

11.2 Land Stability

The impacts to land stability of the proposed short- and long-term dewatering at the site and adjacent properties can be found in Grounded's geotechnical report under a separate cover (File No. 20-153).

11.3 City's Sewage Works

Negative impacts to City's sewage works may occur in terms of the quantity or quality of the groundwater discharged. This report provided the estimated quantity of the water discharge. However, this report does not speak to the sewer capacities. The sewer capacity analysis is provided under a separate cover by the civil consultant.

The quality of the proposed groundwater discharge is provided in previous Sections. As noted in that section the ground water sample exceeded the Limits for Storm Sewer Discharge and met the Limits for Sanitary and Combined Sewer Discharge.

As such additional treatment will be required before the water can be discharge to the Storm Sewer and additional treatment will not be required before the water can be discharged to the Sanitary and Combined Sewer, to avoid impacts to the City's sewage works cause by ground water quality.

11.4 Natural Environment

There are is an unnamed creek/tributary waterbody within the ZOI that could potentially be caused by the proposed construction dewatering or permanent drainage. Any groundwater which will be taken from the site will be discharged into the City's sewer systems and not into any natural water body.

11.5 Local Drinking Water Wells

The site is located within the municipal boundaries of the City of Toronto. The site and surrounding area are provided with municipal piped water and sewer supply. There is no use of the ground water for water supply in this area of Toronto. As such, there will be no impact to drinking water wells.

11.6 Contamination Source

The site and immediately surrounding area currently consist mostly of residential and commercial areas. These land uses are not anticipated to be a source of potential contamination and are not



expected to provide an Area of Potential Environmental Concern for the site. As such, the pumping of groundwater at the site is not anticipated to facilitate the movement of potential contaminants onto the site. Evaluation of the environmental condition of the site has been completed under a separate cover by others.

12 Proposed Mitigation Measures and Monitoring Plan

The extent of the negative impact identified in previous sections and will be limited to the ZOI caused by the groundwater taking at the site.

As a result of dewatering and draining the soil, changes in ground water level have the potential to cause settlement based on the change in the effective stresses within the ZOI.

If adjacent buildings or municipal infrastructure are within the ZOI and will undergo settlement that may be considered unacceptable as identified the Land Stability Section, consideration should be given to implement a monitoring and mitigation program during dewatering activities.

Both the temporary construction dewatering system and the permanent building drainage system must be properly installed and screened to ensure sediments and fines will not be removed, which is typically a primary cause of dewatering related settlement.

13 Limitations

Natural occurrences, the passage of time, local construction, and other human activity all have the potential to directly or indirectly alter the subsurface conditions at or near the project site. Contractual obligations related to groundwater or stormwater control must be considered with attention and care as they relate this potential site alteration.

The hydrogeological engineering advice provided in this report is based on the factual observations made from the site investigations as reported. It is intended for use by the owner and their retained design team. If there are changes to the features of the development or to the scope, the interpreted subsurface information, geotechnical engineering design parameters, advice, and discussion on construction considerations may not be relevant or complete for the project. Grounded should be retained to review the implications of such changes with respect to the contents of this report.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Grounded accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, including consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.



13.1 Report Use

The authorized users of this report are DVP Hotel Development LP and their design team, for whom this report has been prepared. Grounded Engineering Inc. maintains the copyright and ownership of this document. Reproduction of this report in any format or medium requires explicit prior authorization from Grounded Engineering Inc. The City of Toronto may also make use of and rely upon this report, subject to the limitations as stated.

14 Closure

If there are any questions regarding the discussion and advice provided, please do not hesitate to contact our office. We trust that this report meets your requirements at present.

For and on behalf of our team,



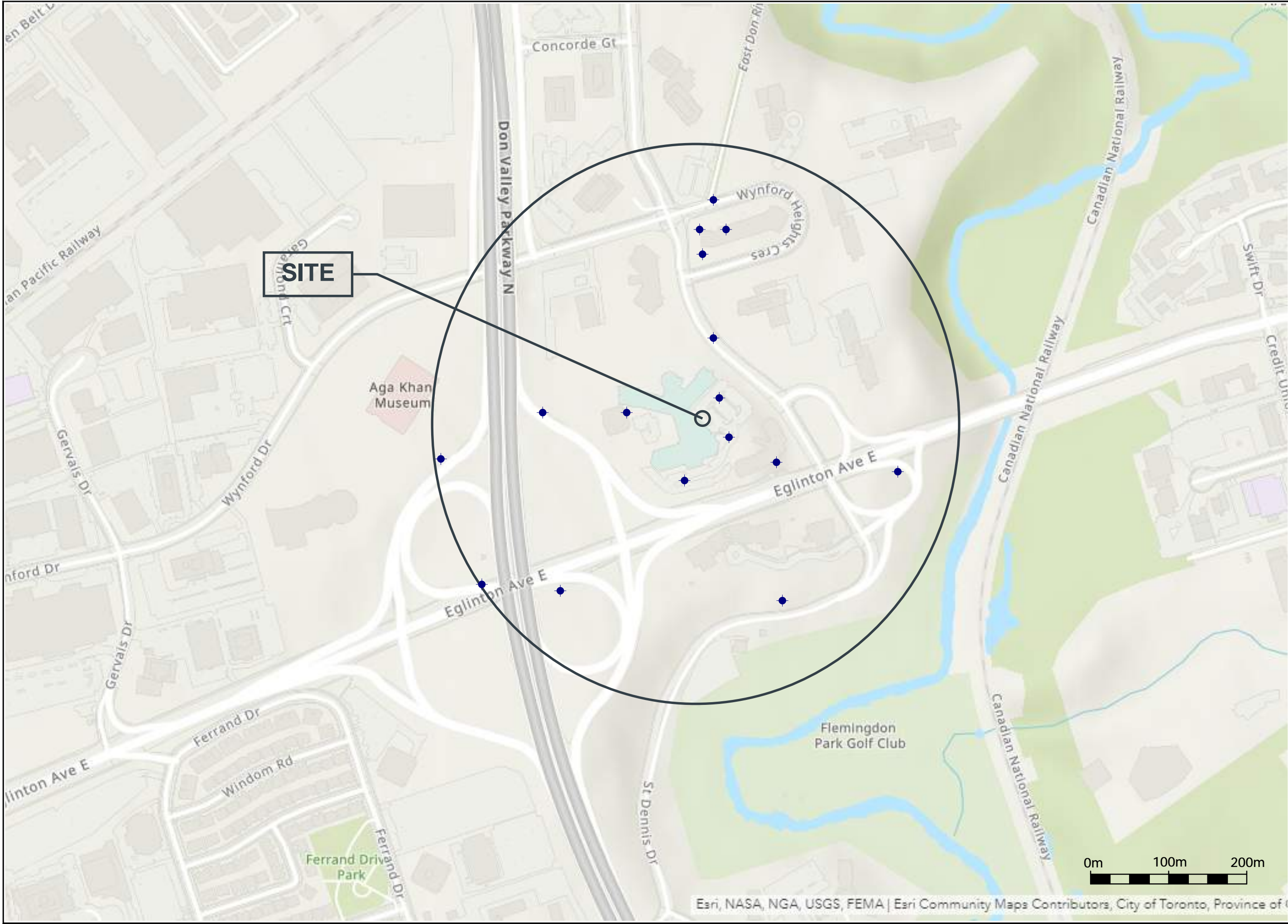
Jeremy Bobro, M_{ENV}M
Senior Consultant



Matthew Bielaski, P.Eng., QP_{ESA-RA}
Principal

FIGURES





GROUND
ENGINEERING

12 Banigan Drive, Toronto, Ont., M4H 1E9
www.groundedeng.ca

LEGEND

- STUDY AREA - 250 m RADIUS
- MECP WELL RECORD

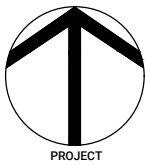
Note

Reference
ArcGIS online mapping

Project
**175 WYNFORD DRIVE,
TORONTO, ON**

Figure Title
**STUDY AREA
MAP**

North



Date
AUGUST 2020

Scale
AS INDICATED

Job No
20-153

Figure No
FIGURE 1

LEGEND

- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLESS TILLS
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- DISTURBED/REWORKED SOILS

- water level, unstabilized
- water level, stabilized

Project
**175 WYNFORD DRIVE
TORONTO, ON**

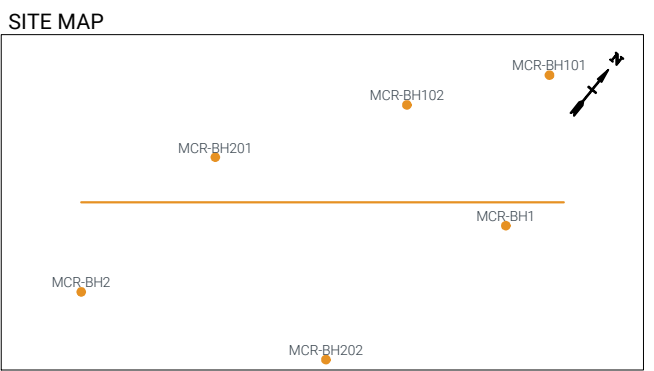
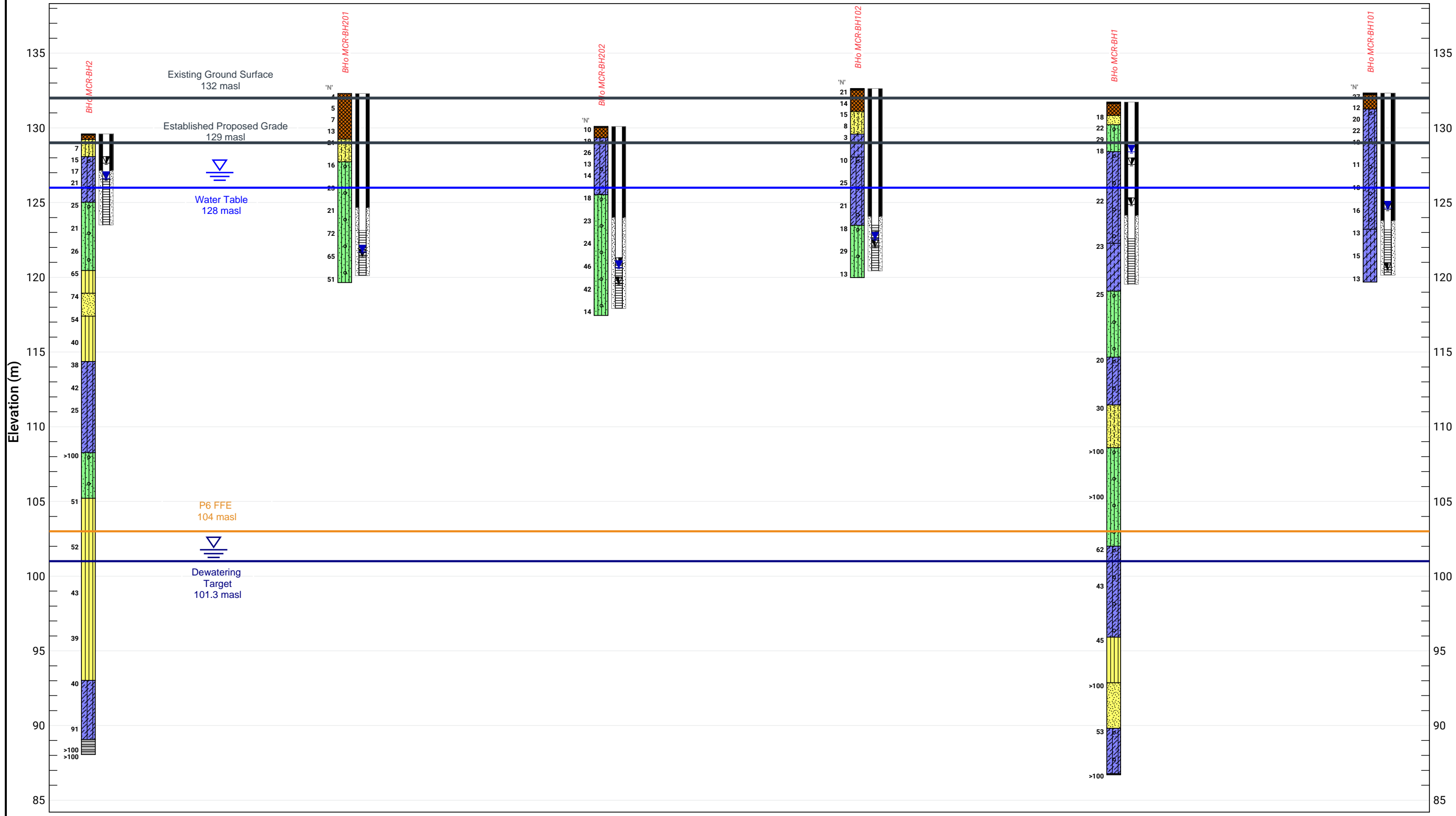
Figure Title
**SUBSURFACE
CROSS-SECTION**
**HYDROGEOLOGY
ASSESSMENT**

Date
AUGUST 2020

Scale
AS INDICATED

Job No
20-153

Figure No
FIGURE 2



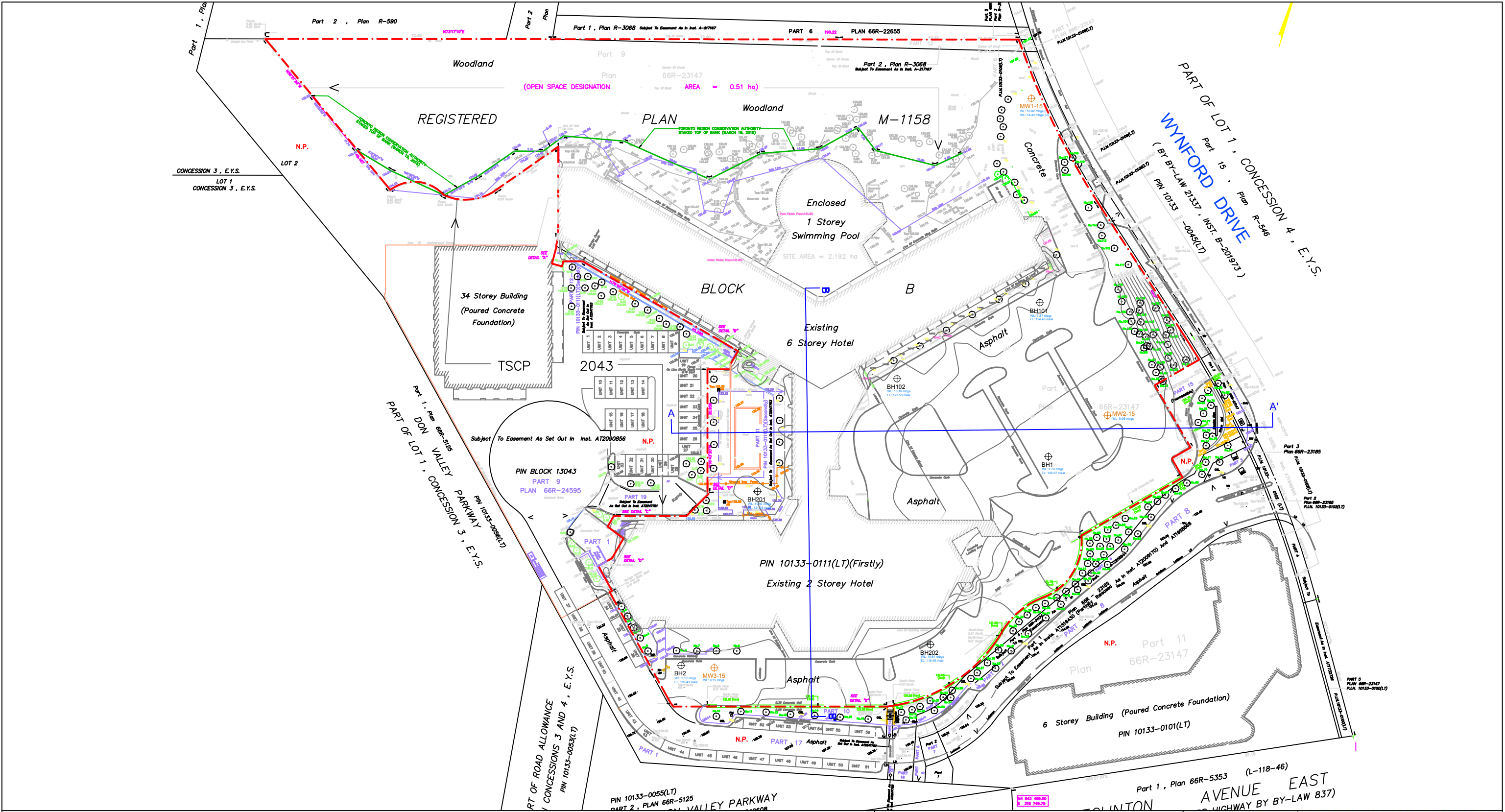
LITHOLOGY GRAPHIC LEGEND

- | | | |
|-----------------|------------------|-----------------|
| Asphalt | Clayey Silt Till | Bedrock (cored) |
| Fill | Silty Clay | Sandy Silt |
| Sand | Silty Sand | Clayey Silt |
| Sandy Silt Till | Silt | |

Boreholes Equally Spaced

APPENDIX A





LEGEND:

PROPERTY BOUNDARY

MONITORING WELL INSTALLED BY MCR, 2018

PROJECT NORTH

TRUE NORTH

01257

510

SCALE (m)

MCR

McCLYMONT & RAK

ENGINEERS, INC.

GEO-ENVIRONMENTAL CONSULTANTS

175 WYNFORD DRIVE, TORONTO, ONTARIO

BOREHOLE LOCATION PLAN

Project No. MGE5276

Date MAY 2019

Drawing No. 5

Drawing Notes: Image drafted from property survey, Toronto Maps, Google Maps, and site inspections. Not for construction purposes.

PROJECT : MGE5276										LOCATION : 175 Wynford Drive, Toronto, Ontario										STARTED : January 3, 2018										COMPLETED : January 11, 2018										MC CLYMONT & RAK ENGINEERS, INC.										SHEET 1 OF 2										DATUM Geodetic									
DEPTH SCALE (metres)		BORING METHOD		SOIL PROFILE			SAMPLES			ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa				WATER CONTENT, PERCENT				ADDITIONAL LAB. TESTING		PIEZOMETER OR STANDPIPE INSTALLATION																																													
				DESCRIPTION			ELEV. (m)			100 200 300 400				nat V - rem V -				wp w wl																																																			
				STRATA PLOT			NUMBER TYPE BLOWS/0.3m			% LEL - (hexane)				20 40 60 80				20 40 60 80																																																			
GROUND SURFACE							131.73																																																														
100 mm ASPHALT / 350 mm GRANULAR FILL							130.60																																																														
FILL: sandy silt, trace of clay, gravel and organics, brown, moist, compact.							130.28																																																														
SAND: medium to fine, trace of gravel, brown, moist, compact.							130.83																																																														
SANDY SILT TILL: trace of clay and gravel, brown, moist, compact. -wet sand seam at 1.8 m depth. -some clay at 2.3 m depth. -wet coarse sand seam at 2.6 m depth.							130.21																																																														
CLAYEY SILT TILL: trace of sand and gravel, grey, moist, very stiff.							128.38																																																														
PMT1 at elevation 125.96 m asl.							125.96																																																														
PMT2 at elevation 122.93 m asl.							122.93																																																														
SILTY CLAY: trace of sand, grey, moist to wet, very stiff							122.28																																																														
SANDY SILT TILL: some clay, trace of gravel, grey, moist to wet, compact.							119.08																																																														
PMT3 at elevation 115.34 m asl.							115.34																																																														
CLAYEY SILT TILL: trace of sand and gravel, grey, moist to wet, very stiff.							114.66																																																														
PMT4 at elevation 112.11 m asl.							112.11																																																														
SILTY SAND: trace of gravel, brown, moist, dense.							111.46																																																														
PMT5 at elevation 109.17 m asl.							109.17																																																														
SANDY SILT TILL: trace of clay, gravel and shale fragments, brown, moist, very dense.							108.57																																																														

GROUNDWATER ELEVATIONS

SHALLOW/SINGLE INSTALLATION
 WATER LEVEL: 3.42 m bgs

DEEP/DUAL INSTALLATION
 WATER LEVEL:

LOGGED : PL
 CHECKED : LM

9.14 m Long 50 mm ID PVC Riser
 3.05 m Long 50 mm ID Well Screen
 Well installed in separate borehole drilled next to BH!








MCR LOG ENVIRONMENTAL 5276.GPJ 4/28/20

RECORD OF BOREHOLE 1

PROJECT : MGE5276
 LOCATION : 175 Wynford Drive, Toronto, Ontario
 STARTED : January 3, 2018
 COMPLETED : January 11, 2018

**MC CLYMONT & RAK
 ENGINEERS, INC.**

SHEET 2 OF 2
 DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE		SAMPLES			ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	nat V -  rem V -  U - 				O -  U - 					
								100 200 300 400				20 40 60 80					
								% LEL - (hexane) 				WATER CONTENT, PERCENT					
								wp  w wl									
								20 40 60 80				10 20 30 40					
	POWER BORING ROTARY MUD DRILLING	GROUND SURFACE															
26		PMT6 at elevation 106.12 m asl. -seams with some clay at 26.2 m depth.															
28																	
30		PMT7 at elevation 102.61 m asl. CLAYEY SILT TILL: trace of sand and gravel, brown, moist, hard.															
32		PMT8 at elevation 99.90 m asl.															
34		PMT9 at elevation 96.57 m asl.															
36		SILT: some clay, trace of fine sand, grey, moist, hard.															
38	PMT10 at elevation 93.52 m asl.																
40	SAND: medium to fine, brown, moist to wet, very dense																
42	PMT11 at elevation 90.47 m asl. CLAYEY SILT TILL: trace of sand and gravel, grey, moist, hard.																
44	PMT12 at elevation 87.42 m asl.																
46	SHALE: grey, moist. End of Borehole																
48	Note: 1) Water level was not measured on completion of drilling due to use of mud. 2) Combustible vapour reading was 10 ppm at 1.8 m depth in open borehole. 3) Soil samples were screened using a RKL Eagle gas meter with methane response mode off. 4) Water level was measured at 6.94 m bgs on February 16, 2018. 5) Water level was measured at 2.76 m bgs on October 10, 2018. 6) Water level was measured at 3.42 m bgs on April 9, 2020.																
50																	

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
 WATER LEVEL: 3.42 m bgs

▼ DEEP/DUAL INSTALLATION
 WATER LEVEL:

LOGGED : PL
 CHECKED : LM

RECORD OF BOREHOLE 2

PROJECT : MGE5276
 LOCATION : 175 Wynford Drive, Toronto, Ontario
 STARTED : February 6, 2018
 COMPLETED : February 9, 2018

**MC CLYMONT & RAK
 ENGINEERS, INC.**

SHEET 1 OF 2
 DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE		SAMPLES		ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	%				WATER CONTENT, PERCENT					
								% LEL - (hexane)				WATER CONTENT, PERCENT					
		GROUND SURFACE		129.60													
		75 mm ASPHALT / 300 mm GRANULAR FILL		129.68	1	SS	0								<div>Flush Mount Cover</div> <div>Bentonite</div> <div>3.05 m Long PVC Riser</div> <div>127.15</div> <div>Silica Sand</div> <div>▽ 126.55</div> <div>3.05 m Long 50 mm ID Well Screen</div> <div>123.50</div> <div>Well installed in separate borehole drilled next to BH2</div>		
		SANDY SILT: trace of clay and gravel, sand seams, brown, moist, loose.		129.38	2	SS	7										
					128.08	3	SS	15									
2		CLAYEY SILT TILL: some sand, trace of gravel, brown, moist, very stiff. -grey below 2.45 m depth.		1.52	4	SS	17										
						5	SS	21									
4		SANDY SILT TILL: trace of clay and gravel, grey, moist, compact. -fine sand seam, wet in the upper 300 mm.		125.03	6	SS	25										
					4.57	7	SS	21									
6						8	SS	26									
8		SILT: some sand, grey, moist to wet, very dense.		120.46	9	SS	65										
					9.14												
10					118.93	10	SS	74									
		SAND: medium to fine, grey, moist to wet, very dense.		10.67													
12					117.41	11	SS	54									
		SILT: some sand, trace of clay, grey, moist to wet, very dense to dense..		12.19													
14						12	SS	40									
		CLAYEY SILT: trace of sand, grey, moist, hard to very stiff. -occasional clayey seams below 16.75 m depth.		114.36	13	SS	38										
16					15.24												
						14	SS	42									
18																	
						15	SS	25									
20																	
22		SANDY SILT TILL: some clay, trace of gravel, grey, moist, very dense.		108.26	16	SS	>100										
				21.34													

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
 WATER LEVEL: 3.07 m bgs

▼ DEEP/DUAL INSTALLATION
 WATER LEVEL:











LOGGED : PL
 CHECKED : LM

RECORD OF BOREHOLE 2

PROJECT : MGE5276
 LOCATION : 175 Wynford Drive, Toronto, Ontario
 STARTED : February 6, 2018
 COMPLETED : February 9, 2018

**MC CLYMONT & RAK
 ENGINEERS, INC.**

SHEET 2 OF 2
 DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE		SAMPLES		ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	nat V -  rem V -  O -  U - 				nat V -  rem V -  O -  U - 					
								% LEL - (hexane) 				WATER CONTENT, PERCENT					
		GROUND SURFACE		129.60													
24	POWER BORING ROTARY MUD DRILLING	SILT: some clay, trace of sand, grey, moist. hard.		105.22 24.38	17	SS	51	0									
26																	
28				18	SS	52	0										
30																	
32				19	SS	43	0										
34				20	SS	39	0										
36																	
38				93.02 36.58	21	SS	40	0									
40				-some sand below 39.6 m depth. -200 mm wet sand seam, coarse to medium at 39.9 m depth.	22	SS	91										
				SHALE: grey, moist.	89.06 40.54	23	SS	100									
42	End of Borehole Note: 1) Water level was not measured on completion of drilling due to use of mud. 2) Combustible vapour reading was 10 ppm at 1.8 m depth in open borehole. 3) Soil samples were screened using a RKL Eagle gas meter with methane response mode off. 4) Water level was measured at 3.12 m bgs on February 16, 2018. 5) Water level was measured at 3.17 m bgs on July 23, 2018. 6) Water level was measured at 3.07 m bgs on April 9, 2020.	88.07 41.53	24	SS	100												

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
 WATER LEVEL: 3.07 m bgs

▼ DEEP/DUAL INSTALLATION
 WATER LEVEL:












LOGGED : PL
 CHECKED : LM

RECORD OF BOREHOLE 101

PROJECT : MGE5276
LOCATION : 175 Wynford Drive, Toronto, Ontario
STARTED : July 9, 2018
COMPLETED : July 9, 2018

**MC CLYMONT & RAK
ENGINEERS, INC.**

SHEET 1 OF 1
DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE			SAMPLES		ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa nat V -  rem V -  Q -  U - 				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	100 200 300 400				20 40 60 80					
								% LEL - (hexane)				WATER CONTENT, PERCENT					
								20 40 60 80				wp  w  wl					
		GROUND SURFACE		132.33													
		100 mm ASPHALT / 180 mm GRANULAR FILL		132.28	1	SS	27	10								Flush Mount Cover	
		FILL: sand, trace of gravel, brown, moist, compact.		132.05 0.28													
		CLAYEY SILT TILL: trace of sand and gravel, brown, moist, stiff to very stiff. -oxidized fissures below 1.5 m depth.		131.26 1.07	2	SS	12	15									
2								15									
					3	SS	20	15									
					4	SS	22	30									
					5	SS	18	25									
4		-grey below 3.35 m depth.															
					6	SS	11	15									
6					7	SS	18	10									
8					8	SS	16	5									
10		SILTY CLAY: trace of sand, grey, moist, stiff to very stiff.		123.19 9.14	9	SS	13	5									

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
WATER LEVEL: 7.78 m bgs

▼ DEEP/DUAL INSTALLATION
WATER LEVEL:

LOGGED : FR
CHECKED : LM

RECORD OF BOREHOLE 102

PROJECT : MGE5276
 LOCATION : 175 Wynford Drive, Toronto, Ontario
 STARTED : July 9, 2018
 COMPLETED : July 9, 2018

**MC CLYMONT & RAK
ENGINEERS, INC.**

SHEET 1 OF 1
 DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE		SAMPLES		ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	nat V - rem V -				nat V - rem V -					
								100 200 300 400				20 40 60 80					
								% LEL - (hexane)				WATER CONTENT, PERCENT					
				20 40 60 80				wp w wl				10 20 30 40					
2 																	

GROUNDWATER ELEVATIONS

▽ SHALLOW/SINGLE INSTALLATION
 WATER LEVEL: 10.15 m bgs

▼ DEEP/DUAL INSTALLATION
 WATER LEVEL:













LOGGED : FR
 CHECKED : LM

RECORD OF BOREHOLE 201

PROJECT : MGE5276
 LOCATION : 175 Wynford Drive, Toronto, Ontario
 STARTED : September 28, 2018
 COMPLETED : September 28, 2018


**MC CLYMONT & RAK
 ENGINEERS, INC.**

SHEET 1 OF 1
 DATUM Geodetic

DEPTH SCALE (metres)	BORING METHOD	SOIL PROFILE		SAMPLES			ORGANIC VAPOUR READINGS (ppm)				SHEAR STRENGTH: Cu, KPa				ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	nat V -  rem V -  Q -  U - 				WATER CONTENT, PERCENT					
								% LEL - (hexane) 				wp  w  wl 					
								100	200	300	400	20	40	60	80		
								20	40	60	80	10	20	30	40		
		GROUND SURFACE		132.30													
		FILL: silty sand, medium to fine, trace of clay and gravel, slight petroleum odour, brown, moist, loose to compact.			1	SS	4				150					Flush Mount Cover	
						2	SS	5			120						
2		-wet seam at 1.8 m depth.			3	SS	7				120						
		-grey, some clay, trace of asphalt pieces and moist to wet below 2.3 m depth. -wet seam at 2.45 m depth.			4	SS	13				100					Bentonite	
		SILTY SAND: silty sand, medium to fine, trace of clay and gravel, clayey silt seams, brown, moist, compact.		129.25 3.05	5	SS	21				100						
4																	
		SANDY SILT TILL: trace of clay and gravel, grey, moist, compact to very dense,		127.73 4.57	6	SS	16				30						
6					7	SS	23				80					9.14 m Long 50 mm ID PVC Riser	
8		-moist to wet below 7.6 m depth.			8	SS	21				40				124.68		
		-wet below 9.1 m depth.			9	SS	72				40				123.16		
10																3.05 m Long 50 mm ID Well Screen	
					10	SS	65				35						
12		-moist below 12.2 m depth.			11	SS	51				35				120.11		
14		End of Borehole		119.65 12.65													
		Note: 1) Borehole remained dry on completion of drilling. 2) Soil samples were screened using a RKL Eagle gas meter with methane response mode off. 3) Water level was measured at 10.97 m bgs on October 2, 2018. 4) Water level was measured at 10.70 m bgs on October 10, 2018. 5) Water level was measured at 10.68 m bgs on April 9, 2020.															

GROUNDWATER ELEVATIONS

 SHALLOW/SINGLE INSTALLATION
 WATER LEVEL: 10.68 m bgs

 DEEP/DUAL INSTALLATION
 WATER LEVEL:

LOGGED : MH
 CHECKED : LM

MCR LOG ENVIRONMENTAL 5276.GPJ 4/28/20

LOG OF DRILLING OPERATIONS



R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

MW1d-15

Page **1** of **1**

Client: Allied Don Valley Hotel Inc.	Project Name: Don Valley Hotel HydroG Study	Logged by: D. Durham
Project No.: 300037774	Location: 175 Wynford Drive	Ground (m amsl):
Drilling Co.: Lantech Drilling Services Inc.	Date Started: 10/14/2015	Static Water Level Depth (m): 14.43
Drilling Method: Hollow Stem Auger	Date Completed: 10/14/2015	Sand Pack Depth (m):

Depth Scale (ft) (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE	Depth Scale (ft) (m)
					Num. Type Int. N.Val.	
0.0	Dark Brown TOPSOIL.		0.13		SS	0.0
1.0	SILTY SAND, light to med brown, trace to some gravel, trace clay, stiff, dry, minor plasticity.				SS	1.0
2.0	SILT AND CLAY, med grey with some mottling near 1.83m, varying sand and gravel content, some to trace gravel, sandy to some sand, soft to firm, moist, some plasticity.		1.83		SS	2.0
3.0					SS	3.0
4.0					SS	4.0
5.0	SILTY SAND, med grey, trace gravel, clayey near 5.18m, soft, moist, generally not plastic except for clayey zone near 5.18m.		4.11		SS	5.0
6.0	CLAYEY SILT, med grey, trace fine gravel, soft to firm, moist, some plasticity.		5.18		SS	6.0
7.0					SS	7.0
8.0	SANDY SILT, med grey, some clay, trace gravel, firm, moist, some plasticity. Sand is fine to very fine grained.		7.62		SS	8.0
9.0					SS	9.0
10.0	Minor sand zones at: 11.0 - 11.3 m, 13.7 - 14.0 m, and 15.2 - 15.5 m.				SS	10.0
11.0					SS	11.0
12.0					SS	12.0
13.0					SS	13.0
14.0					SS	14.0
15.0					SS	15.0
16.0					SS	16.0

Prepared By: **D. Durham** Checked By: Date Prepared: **10/23/2015**
This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND	MONITORING WELL DATA	SAMPLE TYPE
Water found @ time of drilling	Pipe: 51 mm dia. PVC	AC Auger Cutting
Static Water Level - 10/22/2015	Screen: 51 mm dia. PVC #10 slot	CS Continuous
		RC Rock Core
		SS Split Spoon
		AR Air Rotary
		WC Wash Cuttings

BHLOG ORANGEVILLE P:\GINTI\PROJECTS\300 JOBS\037774 DON VALLEY HOTEL.GPJ TEMPLATE.GDT 10/29/15

LOG OF DRILLING OPERATIONS



R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

MW1s-15

Page **1** of **1**

Client: Allied Don Valley Hotel Inc.	Project Name: Don Valley Hotel HydroG Study	Logged by: D. Durham
Project No.: 300037774	Location: 175 Wynford Drive	Ground (m amsl):
Drilling Co.: Lantech Drilling Services Inc.	Date Started: 10/13/2015	Static Water Level Depth (m): 10.82
Drilling Method: Hollow Stem Auger	Date Completed: 10/13/2015	Sand Pack Depth (m):

Depth Scale (ft) (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE				Depth Scale (ft) (m)
					Num.	Type	Int.		
0.0	Dark Brown TOPSOIL.		0.13						0.0
1.0	SILTY SAND, light to med brown, trace to some gravel, trace clay, stiff, dry, minor plasticity.								1.0
2.0	SILT AND CLAY, med grey with some mottling near 1.83m, varying sand and gravel content, some to trace gravel, sandy to some sand, soft to firm, moist, some plasticity.		1.83						2.0
3.0									3.0
4.0	SILTY SAND, med grey, trace gravel, clayey near 5.18m, soft, moist, generally not plastic except for clayey zone near 5.18m.		4.11						4.0
5.0	CLAYEY SILT, med grey, trace fine gravel, soft to firm, moist, some plasticity.		5.18						5.0
6.0									6.0
7.0									7.0
8.0	SANDY SILT, med grey, some clay, trace gravel, firm, moist, some plasticity. Sand is fine to very fine grained.		7.62						8.0
9.0									9.0
10.0	Minor sand zone at: 11.0 - 11.3 m.								10.0
11.0									11.0
12.0									12.0

12.04									12.04
-------	--	--	--	--	--	--	--	--	-------

Prepared By: D. Durham	Checked By:	Date Prepared: 10/23/2015
This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.		

LEGEND	MONITORING WELL DATA	SAMPLE TYPE	AC	Auger Cutting	SS	Split Spoon
▼ Water found @ time of drilling	Pipe: 51 mm dia. PVC	CS	Continuous	AR	Air Rotary	
▽ Static Water Level - 10/22/2015	Screen: 51 mm dia. PVC #10 slot	RC	Rock Core	WC	Wash Cuttings	

B:\LOG ORANGEVILLE P:\GINT\PROJECTS\300 JOBS\037774 DON VALLEY HOTEL.GPJ TEMPLATE.GDT 10/29/15

LOG OF DRILLING OPERATIONS



R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

MW2-15

Page **1** of **1**

Client: Allied Don Valley Hotel Inc.	Project Name: Don Valley Hotel HydroG Study	Logged by: D. Durham
Project No.: 300037774	Location: 175 Wynford Drive	Ground (m amsl):
Drilling Co.: Lantech Drilling Services Inc.	Date Started: 10/14/2015	Static Water Level Depth (m): 9.06
Drilling Method: Hollow Stem Auger	Date Completed: 10/15/2015	Sand Pack Depth (m):

Depth Scale (ft) (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE	Depth Scale (ft) (m)
Num.	Type	Int.	N.Val.			
	SS	X	27			
1.0	SS	X	23			1.0
5.0	SS	X	26			5.0
2.0	SS	X	38			2.0
10.0	SS	X	15			10.0
3.0	SS	X	17			3.0
4.0	SS	X	13			4.0
15.0	SS	X	11			15.0
20.0	SS	X	17			20.0
6.0	SS	X	18			6.0
7.0						7.0
25.0	SS	X	21			25.0
8.0						8.0
30.0	SS	X	22			30.0
9.0						9.0
10.0						10.0
35.0	SS	X	21			35.0
11.0						11.0
40.0	SS	X	22			40.0
12.0						12.0
13.0						13.0
45.0	SS	X	21			45.0
14.0						14.0

Prepared By: **D. Durham** Checked By: Date Prepared: **10/23/2015**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND

▼ Water found @ time of drilling
▽ Static Water Level - 10/22/2015

MONITORING WELL DATA

Pipe: **51 mm dia. PVC**
Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE

AC Auger Cutting
CS Continuous
RC Rock Core
SS Split Spoon
AR Air Rotary
WC Wash Cuttings

B:\LOG ORANGEVILLE P:\GINT\PROJECTS\300 JOBS\037774 DON VALLEY HOTEL.GPJ TEMPLATE.GDT 10/29/15

LOG OF DRILLING OPERATIONS



R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477









MW3-15

Page **1** of **1**

Client: Allied Don Valley Hotel Inc.	Project Name: Don Valley Hotel HydroG Study	Logged by: D. Durham
Project No.: 300037774	Location: 175 Wynford Drive	Ground (m amsl):
Drilling Co.: Lantech Drilling Services Inc.	Date Started: 10/15/2015	Static Water Level Depth (m): 9.15
Drilling Method: Hollow Stem Auger	Date Completed: 10/15/2015	Sand Pack Depth (m):

Depth Scale (ft) (m)	Stratigraphic Description	Strat. Plot	Depth (m)		SAMPLE	Depth Scale (ft) (m)
Num.	Type	Int.	N.Val.			
	SS	X	13			
	SS	X	18			
	SS	X	14			
	SS	X	19			
	SS	X	16			
	SS	X	50			
	SS	X	26			
	SS	X	22			
	SS	X	30			
	SS	X	88+			
	SS	X	86+			
	SS	X	70+			

Prepared By: **D. Durham** Checked By: Date Prepared: **10/23/2015**
This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND	MONITORING WELL DATA		SAMPLE TYPE	AC		Auger Cutting	SS		Split Spoon
 Water found @ time of drilling	Pipe:	51 mm dia. PVC		CS		Continuous	AR		Air Rotary
 Static Water Level - 10/22/2015	Screen:	51 mm dia. PVC #10 slot		RC		Rock Core	WC		Wash Cuttings

BHLOG ORANGEVILLE P:\GINTI\PROJECTS\300 JOBS\037774 DON VALLEY HOTEL.GPJ TEMPLATE.GDT 10/29/15

APPENDIX B





FINAL REPORT

CA15677-JUL20 R1

20-153, 175 Wynford Dr, Toronto, ON

Prepared for

Grounded Engineering Inc.

First Page

CLIENT DETAILS

Client Grounded Engineering Inc.

Address 12 Banigan Drive
Toronto, Ontario
M4H1E9, Canada

Contact Jory Hunter

Telephone 613-539-0347

Facsimile

Email jhunter@groundedeng.ca

Project 20-153, 175 Wynford Dr, Toronto, ON

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 CA15677-JUL20

Received 07/28/2020

Approved 08/06/2020

Report Number CA15677-JUL20 R1

Date Reported 08/06/2020

COMMENTS

RL - SGS Reporting Limit

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

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 010952

SIGNATORIES

Brad Moore Hon. B.Sc

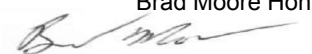




TABLE OF CONTENTS

First Page..... 1

Index..... 2

Results..... 3-10

Exceedance Summary..... 11

QC Summary..... 12-21

Legend..... 22

Annexes..... 23



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - General Chemistry (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
-----------	-------	----	----	----	--------

General Chemistry

Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 †
Total Kjeldahl Nitrogen	as N mg/L	0.5	100		0.6
Total Suspended Solids	mg/L	2	350	15	226

PACKAGE: SANSEW - Metals and Inorganics (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
-----------	-------	----	----	----	--------

Metals and Inorganics

Fluoride	mg/L	0.06	10		0.11
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Aluminum (total)	mg/L	0.001	50		0.825
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0038
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000012
Chromium (total)	mg/L	0.00008	4	0.08	0.00137
Cobalt (total)	mg/L	0.000004	5		0.000461



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.
Project: 20-153, 175 Wynford Dr, Toronto, ON
Project Manager: Jory Hunter
Samplers: Katrina Morgenroth

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

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Copper (total)	mg/L	0.0002	2	0.04	0.0021
Lead (total)	mg/L	0.00001	1	0.12	0.00081
Manganese (total)	mg/L	0.00001	5	0.05	0.398
Molybdenum (total)	mg/L	0.00004	5		0.00221
Nickel (total)	mg/L	0.0001	2	0.08	0.0011
Phosphorus (total)	mg/L	0.003	10	0.4	0.091
Selenium (total)	mg/L	0.00004	1	0.02	< 0.00004
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00060
Titanium (total)	mg/L	0.00005	5		0.0383
Zinc (total)	mg/L	0.002	2	0.04	0.008



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - Microbiology (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
E. Coli	cfu/100mL	-		200	< 2 †

Microbiology

PACKAGE: SANSEW - Nonylphenol and Ethoxylates (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
Nonylphenol	mg/L	0.001	0.02	0.001	< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2	0.01	< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01

Nonylphenol and Ethoxylates

PACKAGE: SANSEW - Oil and Grease (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
-----------	-------	----	----	----	--------



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - Oil and Grease (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

PACKAGE: SANSEW - Other (ORP) (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
Other (ORP)					
pH	No unit	0.05	11.5	9.5	7.09
Chromium VI	mg/L	0.0002	2	0.04	< 0.0002
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001

PACKAGE: SANSEW - PAHs (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
-----------	-------	----	----	----	--------



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - PAHs (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
PAHs					
Benzo(b+j)fluoranthene	mg/L	0.0001			< 0.0001

PACKAGE: SANSEW - PCBs (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001

PACKAGE: SANSEW - Phenols (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002

PACKAGE: SANSEW - SVOCs (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.
Project: 20-153, 175 Wynford Dr, Toronto, ON
Project Manager: Jory Hunter
Samplers: Katrina Morgenroth

PACKAGE: SANSEW - SVOCs (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
3,3-Dichlorobenzidine	mg/L	0.0005	0.002	0.0008	< 0.0005
Pentachlorophenol	mg/L	0.0005	0.005	0.002	< 0.0005
PAHs (Total)	mg/L	-	0.005	0.002	< 0.001
Perylene	mg/L	0.0005			< 0.0005

PACKAGE: SANSEW - SVOCs - PAHs (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	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



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.

Project: 20-153, 175 Wynford Dr, Toronto, ON

Project Manager: Jory Hunter

Samplers: Katrina Morgenroth

PACKAGE: SANSEW - SVOCs - PAHs (WATER)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
SVOCs - PAHs (continued)					
Dibenzo(a,h)anthracene	mg/L	0.0001			< 0.0001
Dibenzo(a,i)pyrene	mg/L	0.0001			< 0.0001
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)

Sample Number 8

Sample Name SW-UF-MW-3-15

Sample Matrix Ground Water

Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005



FINAL REPORT

CA15677-JUL20 R1

Client: Grounded Engineering Inc.
Project: 20-153, 175 Wynford Dr, Toronto, ON
Project Manager: Jory Hunter
Samplers: Katrina Morgenroth

PACKAGE: SANSEW - VOCs (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
VOCs (continued)					
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.0076	< 0.0005

PACKAGE: SANSEW - VOCs - BTEX (WATER)

Sample Number 8
Sample Name SW-UF-MW-3-15
Sample Matrix Ground Water
Sample Date 28/07/2020

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016
L2 = SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.016	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005



EXCEEDANCE SUMMARY

				SANSEW / WATER / - - Toronto Sewer Use By Law Table 1 - Sanitary and Combined Sewer Discharge - BL_100_2016	SANSEW / WATER / - - Toronto Sewer Use By Law Table 2 - Storm Sewer Discharge - BL_100_2016
Parameter	Method	Units	Result	L1	L2

SW-UF-MW-3-15

Total Suspended Solids	SM 2540D	mg/L	226
Manganese	SM 3030/EPA 200.8	mg/L	0.398

15
0.05



FINAL REPORT

CA15677-JUL20 R1

QC SUMMARY

Biochemical Oxygen Demand
Method: SM 5210 | 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)	BOD0059-JUL20	mg/L	2	< 2	10	30	105	70	130	nv	70	130

Cyanide by SFA
Method: SM 4500 | 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)	SKA0281-JUL20	mg/L	0.01	<0.01	ND	10	90	90	110	NV	75	125
Cyanide (total)	SKA0288-JUL20	mg/L	0.01	<0.01	ND	10	92	90	110	100	75	125

Fluoride by Specific Ion Electrode
Method: SM 4500 | 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	EWL0416-JUL20	mg/L	0.06	<0.06	0	10	102	90	110	104	75	125



QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVISKA-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	SKA0274-JUL20	mg/L	0.0002	<0.0002	0	20	97	80	120	96	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-IENVISPE-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)	EHG0021-JUL20	mg/L	0.00001	< 0.00001	ND	20	101	80	120	109	70	130



FINAL REPORT

CA15677-JUL20 R1

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-ENVISPE-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
Selenium (total)	EMS0013-AUG20	mg/L	0.00004	<0.00004	ND	20	99	90	110	90	70	130
Silver (total)	EMS0158-JUL20	mg/L	0.00005	<0.00005	ND	20	99	90	110	94	70	130
Aluminum (total)	EMS0158-JUL20	mg/L	0.001	<0.001	4	20	96	90	110	93	70	130
Arsenic (total)	EMS0158-JUL20	mg/L	0.0002	<0.0002	10	20	103	90	110	98	70	130
Cadmium (total)	EMS0158-JUL20	mg/L	0.000003	<0.000003	11	20	100	90	110	110	70	130
Cobalt (total)	EMS0158-JUL20	mg/L	0.000004	<0.000004	3	20	100	90	110	97	70	130
Chromium (total)	EMS0158-JUL20	mg/L	0.00008	<0.00008	ND	20	102	90	110	91	70	130
Copper (total)	EMS0158-JUL20	mg/L	0.0002	<0.0002	8	20	98	90	110	95	70	130
Manganese (total)	EMS0158-JUL20	mg/L	0.00001	<0.00001	1	20	97	90	110	98	70	130
Molybdenum (total)	EMS0158-JUL20	mg/L	0.00004	<0.00004	9	20	96	90	110	94	70	130
Nickel (total)	EMS0158-JUL20	mg/L	0.0001	<0.0001	2	20	100	90	110	99	70	130
Lead (total)	EMS0158-JUL20	mg/L	0.00001	<0.00001	2	20	102	90	110	98	70	130
Phosphorus (total)	EMS0158-JUL20	mg/L	0.003	<0.003	ND	20	102	90	110	NV	70	130
Antimony (total)	EMS0158-JUL20	mg/L	0.0009	<0.0009	ND	20	100	90	110	106	70	130
Selenium (total)	EMS0158-JUL20	mg/L	0.00004	<0.00004	16	20	96	90	110	87	70	130
Tin (total)	EMS0158-JUL20	mg/L	0.00006	<0.00006	9	20	95	90	110	NV	70	130
Titanium (total)	EMS0158-JUL20	mg/L	0.00005	<0.00005	ND	20	94	90	110	NV	70	130
Zinc (total)	EMS0158-JUL20	mg/L	0.002	<0.002	3	20	99	90	110	114	70	130



FINAL REPORT

CA15677-JUL20 R1

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	BAC9536-JUL20	cfu/100mL	-	ACCEPTED	ACCEPTED							
					D							

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	GCM0495-JUL20	mg/L	0.01	< 0.01			76	55	120			
Nonylphenol Ethoxylates	GCM0495-JUL20	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0495-JUL20	mg/L	0.01	< 0.01			82	55	120			
Nonylphenol	GCM0495-JUL20	mg/L	0.001	< 0.001			80	55	120			



FINAL REPORT

CA15677-JUL20 R1

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-IENVIGC-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)	GCM0483-JUL20	mg/L	2	<2	NSS	20	99	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-IENVIGC-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)	GCM0483-JUL20	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0483-JUL20	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-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	EWL0422-JUL20	No unit	0.05	NA	1		98			NA		



FINAL REPORT

CA15677-JUL20 R1

QC SUMMARY

Phenols by SFA
Method: SM 5530B-D | Internal ref.: ME-CA-IENVISFA-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	SKA0273-JUL20	mg/L	0.002	<0.002	ND	10	93	80	120	94	75	125

Polychlorinated Biphenyls
Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-IENVIGC-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	GCM0497-JUL20	mg/L	0.0001	<0.0001	ND	30	102	60	140	NSS	60	140



FINAL REPORT

CA15677-JUL20 R1

QC SUMMARY

Semi-Volatile Organics
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
3,3-Dichlorobenzidine	GCM0469-JUL20	mg/L	0.0005	< 0.0005	NSS	30	93	30	130	NSS	30	130
7Hdibenzo(c,g)carbazole	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	118	50	140	NSS	50	140
Anthracene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	103	50	140	NSS	50	140
Benzo(a)anthracene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	105	50	140	NSS	50	140
Benzo(a)pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	108	50	140	NSS	50	140
Benzo(b+j)fluoranthene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	123	50	140	NSS	50	140
Benzo[e]pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	93	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0488-JUL20	mg/L	0.0002	< 0.0002	NSS	30	108	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	95	50	140	NSS	50	140
Bis(2-ethylhexyl)phthalate	GCM0488-JUL20	mg/L	0.002	< 0.002	NSS	30	120	50	140	NSS	50	140
Chrysene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	109	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0488-JUL20	mg/L	0.002	< 0.002	NSS	30	112	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	108	50	140	NSS	50	140
Dibenzo(a,i)pyrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	109	50	140	NSS	50	140
Dibenzo(a,j)acridine	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	116	50	140	NSS	50	140
Fluoranthene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	107	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0488-JUL20	mg/L	0.0002	< 0.0002	NSS	30	109	50	140	NSS	50	140
Pentachlorophenol	GCM0488-JUL20	mg/L	0.0005	< 0.0005	NSS	30	125	50	140	NSS	50	140
Perylene	GCM0488-JUL20	mg/L	0.0005	< 0.0005	NSS	30	95	50	140	NSS	50	140
Phenanthrene	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	103	50	140	NSS	50	140



FINAL REPORT

CA15677-JUL20 R1

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	GCM0488-JUL20	mg/L	0.0001	< 0.0001	NSS	30	108	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	EWL0415-JUL20	mg/L	2	< 2	0	10	101	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	SKA0277-JUL20	as N mg/L	0.5	<0.5	2	10	105	90	110	100	75	125



FINAL REPORT

CA15677-JUL20 R1

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	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
1,2-Dichlorobenzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140
1,4-Dichlorobenzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	100	50	140
Benzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140
Chloroform	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	100	60	130	98	50	140
cis-1,2-Dichloroethene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	100	60	130	100	50	140
Ethylbenzene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140
m-p-xylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	103	60	130	103	50	140
Methylene Chloride	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	97	60	130	96	50	140
o-xylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	101	50	140
Toluene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	102	60	130	100	50	140
trans-1,3-Dichloropropene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140
Trichloroethylene	GCM0478-JUL20	mg/L	0.0005	<0.0005	ND	30	99	60	130	99	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.

This report must not be reproduced, except in full. This report supersedes all previous versions.

-- End of Analytical Report --

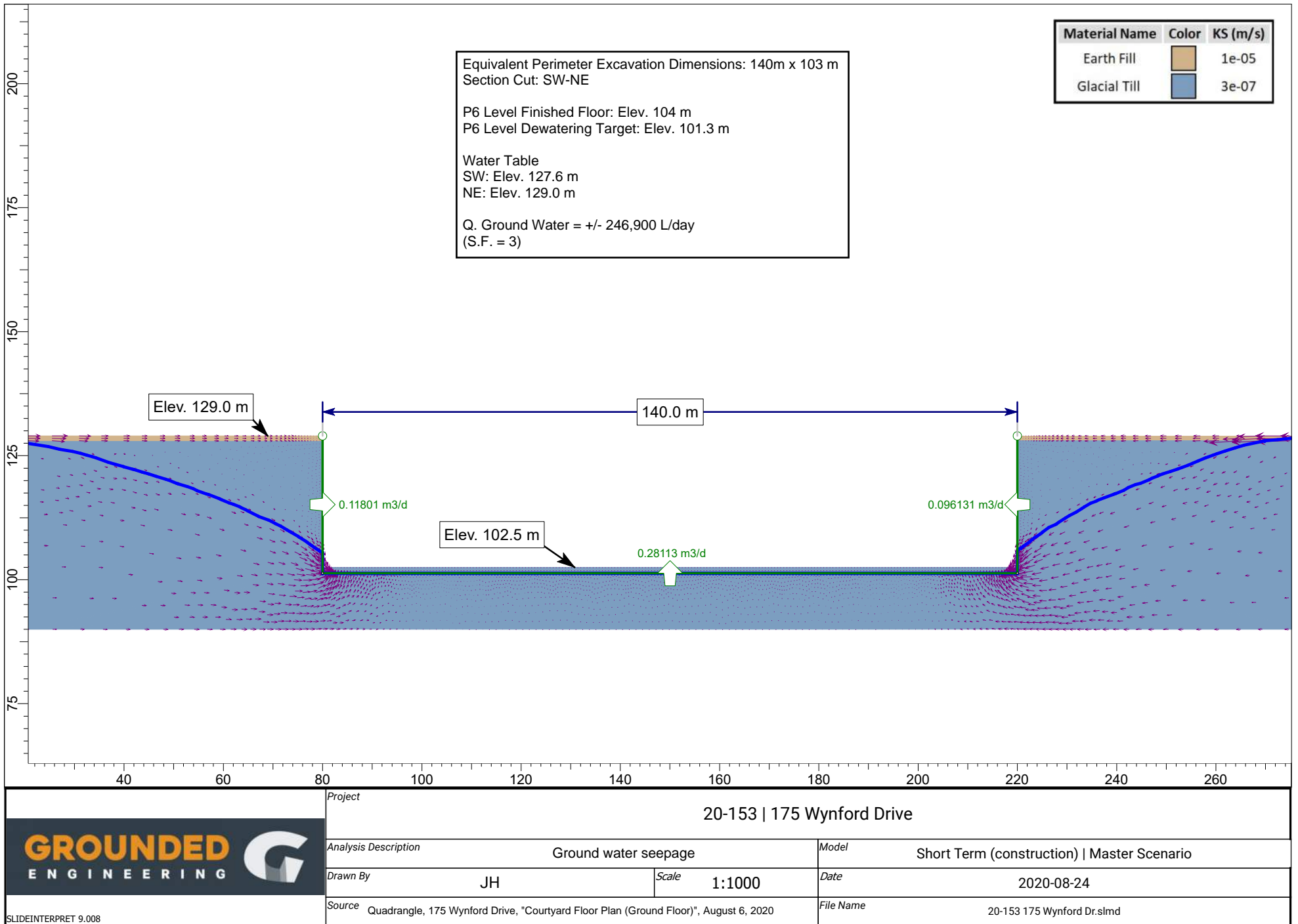
CA 15677-
Jul 20

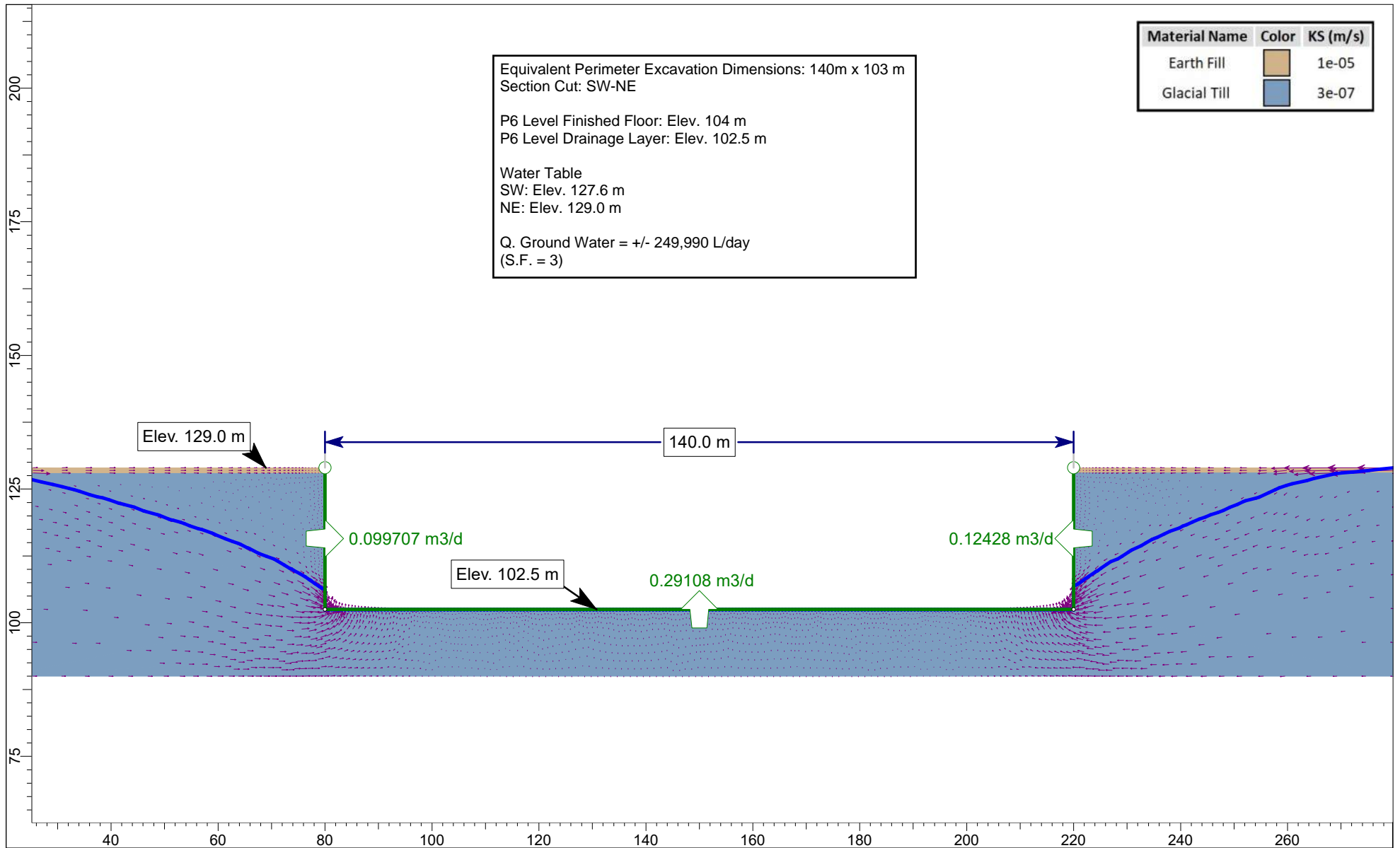
REGULATIONS	ANALYSIS REQUESTED
-------------	--------------------

[illegible]

Prepared By (NAME) _____

These figures are available upon request. Attention is drawn to the limitation of liability, maximization and jurisdiction issues defined therein.





GROUND ENGINEERING	Project			20-153 175 Wynford Drive	
	Analysis Description		Ground water seepage		Model
	Drawn By		JH		Date
	Source		Quadrangle, 175 Wynford Drive, "Courtyard Floor Plan (Ground Floor)", August 6, 2020		2020-08-24
					File Name
				20-153 175 Wynford Dr.slmd	

APPENDIX C

