

HYDROGEOLOGICAL INVESTIGATION 1575 HURONTARIO STREET, MISSISSAUGA ONTARIO, L5G 3H7

Prepared for:

1042967 Canada Corp. c/o Dream Maker Developments 16 McAdam Avenue Mississauga, ON M6A 0B9

Attention:

Mr. Akeel Hussain

File No 1-18-0537-46 June 12, 2019

©Terraprobe Inc.

Greater Toronto

11 Indell Lane Brampton, Ontario L6T 3Y3 (905) 796-2650 Fax: 796-2250 Hamilton – NiagaraCentral903 Barton Street, Unit 22220 BayoStoney Creek, Ontario L8E 5P5Barrie, C(905) 643-7560 Fax: 643-7559(705) 733www.terraprobe.ca

 Barrie, Ontario

 2
 220 Bayview Drive, Unit 25

 8E 5P5
 Barrie, Ontario L4N 4Y8

 -7559
 (705) 739-8355 Fax: 739-8369

Northern Ontario

1012 Kelly Lake Rd., Unit 1 **Sudbury**, Ontario P3E 5P4 (705) 670-0460 Fax: 670-0558

EXECUTIVE SUMMARY

Terraprobe Inc. (Terraprobe) was retained by 10422967 Canada Corp. c/o Dream Maker Developments (Dream Maker) to conduct a Hydrogeological Investigation for the proposed redevelopment of a Site located at 1575 Hurontario Street, Mississauga, Ontario (the "Site"). The Site is bounded by a commercial building and South Service Road/Hurontario Street intersection to the west, landscaped area and public school to the north, residential units and Maplewood Road to the east and residential units and Hurontario Street to the south. The Site is currently undeveloped vacant land. A Site location plan is provided as Figure 1.

Based on the preliminary Site Plan (Appendix F) provided by Glen Schnarr & Associates (GSAI), the proposed development of the site includes townhouse units with one level of underground parking. At the time of this report, the finished floor elevation (FFE) was not provided to Terraprobe for review. For the purpose of assessing ground water seepage volumes, the lowest FFE is assumed to be $94.0 \pm m$.

Site Stratigraphy Stratum/Formation **Depth Range (mbgs) Elevation Range (masl)** Hydraulic Conductivity (m/s) 1.0 x 10^{-6**} Earth Fill 0.8 to 2.3 116.3 to 118.1 2.70 x 10^{-5*} Silty Sand/Sand 2.1 to 6.2 115.3 to 116.6 2.88 x 10^{-7*} Silt and Clay/Clayey Silt 2.1 to 4.6 116.9-118.1 3.1 x 10^{-6**} Inferred Bedrock 2.1 to 4.6 114.3-109.9

In summary, the following four main stratigraphic units were encountered at the Site:

*Indicates conductivity was calculated by Slug Test/Pumping Test

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

The ground water conditions at the Site are as follows:

Ground Water Conditions					
Measured Ground Water Elevation (masl)	95.7 (2.4 \pm m below e	95.7 (2.4± m below existing grade)			
Ground Water Seepage Analysis	221,000 L/day (Shor	221,000 L/day (Short Term), 117,600 L/day (Long Term)			
Zone of Influence (m)	42.9± m				
Ground Water Quality					
Sample ID	Peel Region & Mississauga Storm Sewer Limits	Peel Region Storm Sanitary and Combined Sewer Limits	Sample Collection Date	Sample Expiry Date	
SW-UF	Exceeds	Meets	April 30, 2019	January 30, 2020	



TABLE OF CONTENTS

SECTION	ON	PAGE
1.0	Introduction/Background	
2.0	Study Area Map	5
3.0	Geology and Physical Hydrology	5
4.0	Wells	5
5.0	Static Water Level Analysis	6
6.0	Hydrogeolgical Testing	6
6.1	Single Well Response Test	6
6.2	Estimation from Grain Size	7
6.3	Estimation from Literature	7
7.0	Water Quality	8
8.0	Proposed Construction Methods	8
9.0	Groundwater Extraction and Discharge	8
10.0	Zone of Influence (ZOI)	
11.0	Evaluation of Impact	
11.1	City's Sewage Works	
11.2	Negative Impacts to the Natural Environment	
11.3	Local Wells and Zone of Influence	11
11.4	Contamination Sources	11
11.5	Impacts to Land Stability	11
12.0	Limitations	
13.0	Closure	

FIGURES:

Figure 1	Study Area Map
Figure 2	Borehole and Monitoring Well Location Plan (Existing Conditions)
Figure 3	Borehole and Monitoring Well Location Plan (Proposed Conditions)
Figure 4	Ground Water Elevations
Figure 5	Cross Section Location
Figure 6	Cross Section A-A'

APPENDICES:

Appendix A	Borehole Logs
Appendix B	Grain Size Analysis
Appendix C	Laboratory Certificate of Analysis
Appendix D	Aquifer Response Tests
Appendix E	Finite Element Model
Appendix F	Preliminary Site Plan



1.0 INTRODUCTION/BACKGROUND

Terraprobe Inc. (Terraprobe) was retained by 10422967 Canada Corp. c/o Dream Maker Developments (Dream Maker) to conduct a Hydrogeological Investigation for the proposed redevelopment of a site located at 1575 Hurontario Street, Mississauga, Ontario (the "Site"). A Site location plan is provided as Figure 1.

Property Information	
Location of Property	1575 Hurontario Street, Mississauga, Ontario
Ownership of Property	10422967 Canada Corp. c/o Dream Maker Developments (Dream Maker)
Property Dimensions (m)	129 m x 30.5 m
Property Area (m ²)	3,935 m ²
Existing Development	
Number of Building Structures	None
Number of Above Grade Levels	None
Number of Underground Levels	None
Sub-Grade Depth of Development (m)	N/A
Sub-Grade Area (m ²)	N/A
Land Use Classification	Commercial
Proposed Development	
Number of Building Structures	42 Units
Number of Above Grade Levels	N/A
Number of Underground Levels	1
Sub-Grade Depth of Development (m)	$4.0 \pm m$
Sub-Grade Area (m ²)	N/A
Land Use Classification	Residential



Qualified Person and Hydrogeological Review Information					
Qualified Person	Muhammad I. Shahid, P.Geo., QP _{ESA}				
Consulting Firm	Terraprobe Inc.				
Date of Hydrogeological Review	June 12, 2019				
Scope of Work	 Review of MECP Water Well Records for the area Review of geological information for the area Review of topographic information for the area Advanced three (3) boreholes to a depth of 6.7 m, which were instrumented with monitoring wells Advanced one (1) borehole to a depth of 6.1 m, which was instrumented with a monitoring well Advanced one (1) borehole to a depth 6.7 m Advanced three (3) boreholes to a depth 2.1 m Completion of slug tests in three (3) monitoring wells Ground water elevation monitoring Ground water sampling and analysis to the City of Mississauga/Region of Peel Sewer Use Limits Assessment of ground water controls and potential impacts Report preparation 				

General Hydrogeological Characterization				
Site Topography	Approximately 98.0 \pm to 94.9 \pm masl. Flat, rectangular shaped parcel of land			
Local Physiographic Features	The overburden consists of stone-poor, sandy silt to silt sand-textured till.			
Decional Dhusic graphic Factures	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.			
Regional Physiographic Features	From the escarpment, the plateau gently slopes Southward towards lakes Huron and LakeErie (elevation 173 masl). Glaciation process 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	Northeast			
Ground Water Flow Direction	Northeast			



2.0 STUDY AREA MAP

As per the requirements of the City of Mississauga, a map has been provided (Figure 2) which shows the locations of the following:

- 1. All monitoring wells identified on-Site
- 2. All boreholes identified on-Site
- 3. All buildings identified on Site
- 4. The property boundaries of the Site
- 5. Any watercourses and drainage features within the study area.

A hydrological cross-section with geology, borehole locations and water level measurements is provided in Figure 6.

3.0 GEOLOGY AND PHYSICAL HYDROLOGY

The Site stratigraphy, including soil materials, composition and texture are presented in detail on the borehole logs in Appendix A. In general, stratigraphic units that were encountered at the Site consisted of the following:

Site Stratigraphy							
Stratum/Formation	Aquifer or Aquitard	Depth Range (mbgs)	Elevation Range (masl)	Thickness (m)			
Earth Fill	Aquifer	0.8 to 2.3	97.2-95.7	1.5			
Silty Sand/Sand	Aquifer	2.1 to 6.2	95.9-91.8	4.1			
Silt and Clay/Clayey Silt	Aquitard	2.1 to 4.6	95.9-93.4	2.5			
Inferred Bedrock	Aquifer	2.1 to 4.6	95.9-93.4	2.5			

Bedrock Environment			
Stratum/Formation	Depth Range (mbgs)	Elevation Range (masl)	Thickness (m)
Weathered (Georgian Bay Formation)	4.6-6.2	90.4-88.8	1.5

Surface Water					
Surface Water Body	Distance from Site (m)	Hydraulically Connected to Site (yes/no)			
Lake Ontario	Approximately 2.0 km Southeast	No			

4.0 WELLS

The following monitoring wells were installed at the Site as part of the hydrogeological review.



Terraprobe Monitoring Wells								
Well ID	Well	Ground	Top of Screen		Bottom of Screen			
wen iD	(mm)	(masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Screened Geological Unit	
BH/MW1	50	98.0	3.0	94.9	6.1	91.9	Silty Sand	
BH/MW2	50	98.2	3.0	95.1	6.1	92.1	Silty Sand	
BH/MW3	50	97.2	3.1	94.1	6.1	91.1	Silty Sand to Sandy Silt	
BH/MW6	50	94.5	3.0	91.4	6.1	88.4	Clayey Silt	

Additional details of the monitoring well installation are presented on the enclosed borehole logs in Appendix A.

5.0 STATIC WATER LEVEL ANALYSIS

The ground water elevations were monitored in the installed monitoring wells. The ground water elevations in the monitoring wells are presented below.

Borehole	Surface	Depth of	Depth to	Unstabilized water level upon	Water Level in Well – Depth/Elevation (m)
No.	(masl)	(m)	cave (m)	completion of drilling (m)	May 1, 2019
BH/MW1	98.0	6.7	3.4	2.4	3.2 / 94.8
BH/MW2	98.2	6.7	n/a*	3.5	3.5 / 94.7
BH/MW3	97.2	6.7	n/a*	3.4	2.41 / 94.8
BH/MW6	94.5	6.1	n/a*	Dry	3.8 / 90.7

* Cave was not measured due to casing

6.0 HYDROGEOLGICAL TESTING

6.1 Single Well Response Test

The hydraulic conductivities from the monitoring wells were determined based on single well response test. This test involves the rapid removal of water or addition of a "slug" which displaces a known volume of water, from a single well and then monitoring the water level in the well until the well has recovered. The results of the single well response test were analysed using the Bouwer and Rice method (1976). The results of the analysis are presented in Appendix D.

The hydraulic properties of the strata applicable to the Site are as follows.



Monitoring Well	Well Screen Elevation (masl)	Screened Geological Unit	Hydraulic Conductivity (m/s)			
BH/MW1	94.9 to 91.9	Silty Sand	2.70 x 10 ⁻⁵			
BH/MW3	94.1 to 91.1	Silty Sand to Sandy Silt	8.92 x 10 ⁻⁶			
BH/MW6	91.4 to 88.4	Clayey Silt	2.88 x 10 ⁻⁷			

6.2 Estimation from Grain Size

The hydraulic conductivities of various soil types can also be estimated from the grain size analyses. Allen Hazen derived an empirical formula for approximating hydraulic conductivity from grain size analyses:

Equation: $K = C(D_{10})^2$

Where:

C is the Hazen's empirical coefficient, which takes a value between 0.0 and 1.5 (depending on literatures), with an average value of 1.0. A.F. Salarashayeri & M. Siosemarde usually give C as between 1.0 and 1.5.

K is the estimated hydraulic conductivity in cm/s

 D_{10} is the diameter of the 10 percentile grain size of the material in mm

The grain size analyses are provided in Appendix B. The estimated hydraulic conductivity values based upon the conducted grain size analyses are provided below.

Sample ID	D ₁₀ Grain Size (mm)	Soil Description	Estimated Hydraulic Conductivity (m/s)
BH1 SS7	4.96 x 10 ⁻²	Silty Sand	2.5 x 10 ⁻⁵
BH3 SS6	3.48 x 10 ⁻³	Silty Sand	1.2 x 10 ⁻⁷
BH6 SS4	5.76 x 10 ⁻⁴	Clayey Silt	3.3 x 10 ⁻⁹
BH7 SS2	5.66 x 10 ⁻²	Sand	3.2 x 10 ⁻⁵

6.3 Estimation from Literature

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

Soil Unit	Estimated Hydraulic Conductivity Range (m/s)
Earth Fill	10 ⁻⁶
Sand and Silt	10^{-4} to 10^{-6}
Clayey Silt	10^{-7} to 10^{-9}



7.0 WATER QUALITY

One (1) non-filtered ground water sample was collected by Terraprobe 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 BH/MW3 on May 1, 2019.

The sample was analyzed for the following parameters:

- City of Mississauga Limits for Storm Sewer Discharge
- Region of Peel Table 1 Limits for Sanitary Sewers Discharge
- Region of Peel Table 2 Limits for Storm Sewer Discharge

The results of the ground water analysis indicate the following:

Ground Water Sample (SW-UF/BH2)

The ground water sample <u>exceeded</u> the Limits for <u>Mississauga Storm Sewer Discharge</u> for the following parameters:

- Total Suspended Solids (Limit 15 mg/L, Result 79 mg/L)
- Aluminum (Limit 1.0 mg/L, Result 1.64 mg/L)
- Manganese (Limit 0.05 mg/L, Result 0.33 mg/L)

The ground water sample **<u>exceeded</u>** the Limits for **<u>Peel Storm Sewer Discharge</u>** for the following parameters:

- Total Suspended Solids (Limit 15 mg/L, Result 79 mg/L)
- Manganese (Limit 0.05 mg/L, Result 0.33 mg/L)

The ground water sample <u>met</u> the Limits for <u>Peel Sanitary Sewer Discharge</u> for all parameters analyzed.

A true copy of the certificate of analysis report and a chain of custody record for the sample is included Appendix C.

8.0 PROPOSED CONSTRUCTION METHODS

It is assumed that the proposed construction at the Site will consist of permeable soldier pile lagging.

9.0 GROUNDWATER EXTRACTION AND DISCHARGE

Numerical analyses were conducted for both the short term and long term dewatering scenarios. The modeling was conducted employing computer software (Slide 7.014, released March 30, 2016, developed by Rocscience Inc.) that utilizes the finite element modelling method. The finite element model (FEM) for ground water seepage indicates the short term (construction) and long term (post construction) dewatering requirements as provided below. The finite element model results are presented in Appendix E.

Please note that if the excavation is exposed to the elements, storm water will have to be managed. The short term control of ground water should take into account storm water management from rainfall events. A dewatering



system should be designed to take into account removal of rainfall from the excavation. Volumes for a 25 mm design storm have been provided 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 117,000 L

Ground Water	Ground Water Quantity: Short Term (Construction) - S.F. 1.5 Used													
Location	Ground W	ater Seepage	25mm Design	n Rainfall Event	Total Volume									
Location	L/day	L/min	L/day	L/min	L/day	L/min								
Total Site	190,000	131.9	21.5	221,000	153.5									
Ground Water Quantity: Long Term (Post Construction) – S.F. 1.5 Used														
Location	Ground W	ater Seepage	Infil 25mm Design	tration 1 Rainfall Event	Total Volume									
	L/day	L/min	L/day	L/min	L/day	L/min								
Total Site	115,000	79.9	2,600	1.8	81.7									
Regulatory Req	luirements													
Environmental A Posting	Activity and Sector	Registry (EASR)	Required											
Short Term Perm	nit to Take Water (I	PTTW)	Not Required											
Long Term Pern	nit to Take Water (F	PTTW)	Required											
Short Term Disc	charge Agreement C	City of Mississauga	Yes											
Long Term Disc	harge Agreement C	City of Mississauga		Ŋ	les									

The following should be noted:

- 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 report.
- On-Site containment (infiltration gallery/dry well etc.) has not been considered as part of the proposed development at this time. In the event that this considered additional work will have to be conducted (i.e. infiltration testing).

If the proposed development is designed a water tight structure, then a private water drainage system will not be required. However, the structure must then be designed to resist hydrostatic pressure and uplift forces.

If the building 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 pump 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 pump should be adequate to accommodate the ground water seepage. It is anticipated that the seepage can be controlled with typical, widely available, commercial/residential sump pumps.

10.0 ZONE OF INFLUENCE (ZOI)

The Zone of Influence (ZOI), also known as Radius of Influence (R_0), was calculated based on the estimated ground water taking rate and the average hydraulic conductivity recorded at the Site. The native stratigraphy at the Site generally consists of silty sand over a matrix of silt and sands. The ZOIs were calculated for short term (construction) and long term for the Site.

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 for the Site is:

$$\begin{split} R_0 &= 3000 * 2.75 \ m * 2.70 \ x \ 10^{\text{-5}} \ m / s^{0.5} \\ R_0 &= \pm 42.9 \ m \end{split}$$

11.0 EVALUATION OF IMPACT

11.1 City's Sewage Works

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

The quality of the proposed ground water discharge is provided in Section 9.0 above. As noted, the ground water sample <u>exceeded</u> the Limits for <u>Mississauga and Peel Storm Sewer Discharge</u> and <u>met</u> the Limits for <u>Peel</u> <u>Sanitary Sewer Discharge</u>.

Additional treatment will be required before the water can be discharged to the Storm Sewer in order to avoid impacts to the City's sewage works caused by ground water quality. Additional treatment will not be required before the water can be discharged to the Peel Sanitary Sewer.

11.2 Negative Impacts to the Natural Environment

There are no natural waterbodies within the ZOI that will be caused by the proposed construction dewatering or long term drainage. Any ground water that will be taken from the Site will be discharged (if required) into the City's sewer systems and not into any natural water body. As such there will be no impact to the natural environment caused by the water takings at the Site.



11.3 Local Wells and Zone of Influence

The Site is located in a serviced area of Mississauga. 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 Mississauga. As such, it is expected that there would be no impact to drinking water wells.

No domestic water wells are located within a 250 m radius of the Site. No domestic water wells were located on adjacent properties to the Site.

11.4 Contamination Sources

The Site and immediately surrounding area currently consists mostly of residential and commercial areas. These property 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 ground water at the Site is not anticipated to facilitate the movement of potential contaminants onto the property.

11.5 Impacts to Land Stability

Ground water level upon completion of the drilling ranged from about 2.4 m to 5.5 m below grade in Boreholes 1 to 5 while other boreholes remained dry. The ground water levels measured in the monitoring wells (installed in Boreholes 1, 2 and 6) on April 30 and May 1, 2019 indicated that the water levels ranged from about 3.2 m/Elevation 94.8 \pm (Borehole 1) to 3.8 m/Elevation 90.7 \pm (Borehole 6) below.

Based on the borehole information and preliminary design information provided, it is understood that the site excavations will likely be about 4.5 m below grade (Elevation $93.5\pm$) in the westerly portion of the site and about 1.0 m below grade (Elevation $93.5\pm$) in the easterly portion of the site for the buildings foundation. It is understood that the ground water seepage is anticipated in the excavation in the westerly portion of the property. This seepage will likely emanate from the perched ground water generally present within the earth fill and/or from the ground water seepage from the wet cohesionless silty sand/sand soils as encountered in the boreholes. The ground water seepage emanating from above the static ground water table should diminish slowly and can be controlled by continuous pumping from filtered sumps at the base of the excavation. The amount of perched water seepage is expected to increase with the depth of excavation.

For excavations extending below the static ground water level/table and/or into the wet silty sand/sand deposit, and/or below the prevailing ground water level, it will be necessary to lower the ground water level and maintain it below the excavation base prior to and during the subsurface construction, in order to avoid loosening and sloughing of the base and sides. Consideration should be given to install a skim coat of lean concrete (mud-slab) in conjunction with positive groundwater control to preserve the subgrade integrity to provide support to foundations and utilities, and a working platform, as needed. In general, prior dewatering and ground water control provisions are required for excavations penetrating about 0.6 or more into the ground water table in cohesionless soils. Pumping from the sumps, in general may be effective for shallow excavations, up to about 1.0 m below the ground water level.



It is recommended that once the design details of the development are finalized (including the invert levels of the underground utilities), trial excavations (test pits) should be conducted to obtain further information pertaining to the ground water seepage and control, and to provide further recommendations necessary for dewatering/ground water control.

12.0 LIMITATIONS

This report was prepared by Terraprobe Inc. for the use of 10422967 Canada Corp. c/o Dream Maker Developments (Dream Maker), and is intended to provide an assessment of the hydrogeological condition on the property located at 1575 Hurontario Street, Mississauga, Ontario. The report was prepared for the purpose of identifying the ground water conditions at the property and any potential ground water flow cause by either short term construction dewatering or long term permanent drainage of proposed buildings or structures. 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. Terraprobe 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.

The assessment should not be considered a comprehensive audit that eliminates all risks. The information presented in this report is based on information collected during the completion of the subsurface investigation conducted by Terraprobe Inc. It is based on conditions at the property at the time of the Site inspection. The subsurface conditions were assessed based on information collected at specific borehole and monitoring well locations. The actual subsurface conditions between the sampling points may vary.

There is no warranty expressed or implied by this report regarding the condition of the property. Professional judgment was exercised in gathering and analyzing information collected by our staff, as well as that submitted by others. The conclusions presented are the product of professional care and competence, and cannot be construed as an absolute guarantee.

In the event that during future work new information regarding the condition of the property is encountered, or the proposed development is changed from that which was provided to Terraprobe with respect to the property, Terraprobe should be notified in order that we may re-evaluate the findings of this assessment and provide amendments, as required.



13.0 CLOSURE

We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.



S. Anas Ali, Ph.D. Project Manager

Muhammad I. Shahid, P.Geo., QP_{ESA} Senior Project Manager

Show-

Shama M. Qureshi, P.Eng., P.Geo., $\ensuremath{\mathsf{QP}_{\mathsf{RA}}}$ Principal







- D	Consulting Geotechnical & Environmental Engineering Construction Materials, Inspection & Testing
*Anglewood PO	11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650 Reference: Microsoft Streets and Trips Notes:
	Legend: Property Boundary
State Of	
HOMOODYN	Project Title: Hydrogeological Investigation Site Location: 1575 Hurontario Street, Toronto, Ontario
Willer	Figure Title: SITE LOCATION MAP
and a start	Designed By: File No.: SA 1-18-0537-46 Drawn By: Scale: Reviewed By: As Shown
0 50 100m	Date: June 2019



	11 Indell Lane -	Sector Construction Mate	al & Environmental Engineering rinsi, Inspection & Testing tario L6T 3Y3 (905) 796-2650
All A		G	oogle Earth Pro 2017
	Notes:		
	Legend: F A A A M	Property Bound pproximate Bo pproximate Bo onitoring Well	dary orehole Location orehole with Location
100	Project Title:	lydrogeologia	cal Investigation
	Site Location: 1575 Hu	rontario Stre	et, Toronto, Ontario
-	Figure Title: BOREHOLE (E/ MONITOR	RING WELL LOCATIONS
St	Designed By: SA		File No.: 1-18-0537-46
6	Drawn By: MV Reviewed By: MQ		Scale: As Shown
8 0 20m	Date: June 20	19	Figure No.: 2

tt Files\2018\1-18-0537 - 1575 Hurontario Street, Mississauga\46- Hydro-G\A. Dwgs, Logs\AutoCAD\1-18-0537-46.dwg, MV



	11 Indell Lane	Reference: Title: Site I Generation Ont Reference: Title: Site I Glien: 104 Maker Dev Project No Prepared I Dated: Sep	Proble Inc. at & Environmental Engineering rials, Inspection & Testing ario LGT 3Y3 (905) 796-2650 Plan - Residential Development 22967 Canada Corp. c/o Dream elopments :17:094 y: Kirkor Arcitects + Planners itember 10, 2018
	Legend:	Property Bound	lary
	*	Approximate Bc Monitoring Well	rehole with Location
	Project Title:		
		Hydrogeologio	al Investigation
	Site Location: 1575 Hi	urontario Stre	et, Toronto, Ontario
	Figure Title:		
	BOREHOL (E/ MONITOR PROPOSED	ING WELL LOCATIONS CONDITIONS)
	Designed By: S/	Ą	File No.: 1-18-0537-46
	Reviewed By:	V	Scale: As Shown
20m	Date: June 20	S 019	Figure No.: 3



	11 Indell Lane -	Sulling Geotechnic Construction Mate Brampton On Reference: Mi	a & Environmental Engineering ratios, Inspection & Testing tario L6T 3Y3 (905) 796-2650
	Legend:	Property Bound pproximate Bo onitoring Well round Water (round Water (dary prehole Location prehole with Location Elevations; May 1, 2019
	Gi	round Water F	Flow Direction
LINE DE	Project Title: H Site Location: 1575 Hu	ydrogeologi rontario Stre	cal Investigation et, Toronto, Ontario
St	Figure Title: GR(Designed By: SA	DUND WATE	ER ELEVATIONS <i>File No.:</i> 1-18-0537-46
8 0 20m	Drawn By: JB Reviewed By: MS Date: June 20	19	Scale: As Shown Figure No.: 4



	11 Indell Lane -	Sutting Geotechnic Construction Mate Brampton Onl Reference: Mit	a & Environmental Engineering rinsk, Inspection & Testing tario L6T 3Y3 (905) 796-2650 crossoft Streets and Trips
	Legend:	Property Bound pproximate Bo pproximate Bo lonitoring Well ross Section	dary orehole Location orehole with Location Location
10000	Project Title: F Site Location: 1575 Hu	lydrogeologio	cal Investigation et, Toronto, Ontario
St Contraction	Figure Title:	ROSS SECTI	
(Drawn By: MV Reviewed By: MS	, , ;	1-18-0537-46 Scale: As Shown
8 0 20m	Date: June 20	19	5



t Flies\2018\1-18-0537 - 1575 Hurontario Street, Mississauga\46-Hydro-G\A. Dwgs, Logs\AutoCAD\1-18-0537-46.dwg, MV





		Terraprobe											L	.0	G O	F	BO	REI	HOLE 1
Proj	ect N	No. : 1-18-0537	Clie	ent	: 1	0422	967 C	anad	a Co	orp.								Origin	ated by :BR
Date	e sta	rted : April 23, 2019	Pro	ject	t :1	575 I	Huront	ario \$	Stree	et								Com	piled by:AR
She	et N	o. :1 of 1	Loc	atio	on : N	lissis	sauga	, Ont	ario									Che	cked by :SZ
Positi	on	: E: 613291, N: 4824702 (UTM 17T)				Elevati	on Datu	m : G	Geode	tic									
Rig ty	pe	: CME 55, buggy-mounted				Drilling	Method	: 5	Solid s	tem au	gers								
(E		SOIL PROFILE			SAMP	LES o	ae	Peneti (Blows	ration T s / 0.3m	est Valu)	es		Mo	oisture	Plasticity	,	e,	t .	Lab Data
Depth Scale	Elev Depth (m)		Graphic Log	Number	Type	SPT 'N' Valu	Elevation Sc (m)	Undrai O U	namic C 10 ined Sh Jnconfin Pocket P 10	one 20 ear Stre ed enetromet 80 1	3 <u>0</u> ngth (kF + F ter ■ L 120	4 <u>0</u> Pa) ield Vane ab Vane 160	Plastic Limit PL	Na Water	tural L Content	iquid Limit	Headspa Vapoul (ppm)	Instrume Details	GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CI
-0	97.8		_/ a . 9.																
-	0.2	140mm AGGREGATE SILTY SAND, trace clay, compact to dense, brown, wet		1	SS	15	-		/				c)			-FID: 0		
-1				2	SS	10	97 –						c)			-FID: 0		<u>SS2 Analysis:</u> .pH
- 2		very loose		3	SS	4	96 –							0			-FID: 5		
-				4	SS	19	-								0		-FID: 35		SS4 Analysis: PHC
-				5	SS	21									0		-FID: 5		at 3.0m, spoon wet
-4				6	SS	32	94								0		-FID: 5		
-5		sand, some silt, trace clay		7	SS	26	93 –						c)			-FID: 20		0 81 17 2
- 6	91.8			8A			- 92 -							0			-FID: 5		
-	6.2 91.3 6.7	SILT AND CLAY, trace sand, trace gravel, hard, grey, moist		8B	SS	31	_							0			-FID: 15		
	5.7	END OF BOREHOLE Unstabilized water level measured at 2.4 m below ground surface; borehole								<u>Da</u> Apr 30 May 1	WA 1 <u>te</u> 1, 2019 1, 2019	TER LE <u>Wate</u>	EVEL RE <u>r Depth</u> 3.2 3.2	eadin <u>(m)</u>	GS Elevatio 94 94	<mark>on (n</mark> .8 .8	<u>n)</u>		

Unstabilized water level measured at 2.4 m below ground surface; borehole caved to 3.4 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.

		Terraprobe											LO	g of	BO	REł	HOLE 2
Project No. : 1-18-0537 Client : 10422967 Canada Corp.																Origin	ated by :BR
Date	e sta	rted : April 23, 2019	Project : 1575 Hurontario Street											Com	piled by:AR		
She	et No	o. :1 of 1	Loc	atio	on : N	lissis	sauga	, On	tario							Cheo	cked by:SZ
Positi	on	: E: 613304, N: 4824719 (UTM 17T)		Elevation Datum : Geodetic													
Rig ty	/pe	: CME 55, buggy-mounted				Drilling	Method	: Pene	Hollow	stem a	augers				1		
Depth Scale (m)	<u>Elev</u> Depth (m) 98.2	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	(Blow XI Undr O	vs / 0.3m Dynamic C 10 ained Sh Unconfine Pocket Pe 40	one 20 ear Stre ed enetromet 80 1	3 <u>0 40</u> ngth (kPa) + Field \ er ■ Lab Va 20 160	Vane ane	Moisture / Plastic Na Limit Water	Plasticity tural Liquid Content Limit	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments draue BARAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
ľ	98.0 0.2						98 -										
-		FILL, silty sand, trace clay, trace gravel, loose to compact, brown, moist	/ 💥	1	SS	13		-					0		-FID: 0		
- 1				2	SS	6	97 -	(0		-FID: 5		
-2	95.9			3	SS	5							0		-FID: 0		
-	2.3	SILTY SAND, trace clay, compact to dense, brown, wet		4	SS	10		_					0		-FID: 0		
- 3				5	SS	23	95 -							0	-FID: 20		
-4		grey below		6	SS	41	94 -				$\left \right\rangle$			0	-FID: 25		. <u>SS6 Analysis:</u> PHC
-		sand and silt		7	SS	42		_					0		-FID: 5		· · ·
- 6	92.1						93 -										
-	91.5 6.7	SILT AND CLAY, trace sand, trace gravel, stiff, grey, moist		8	SS	9	92-						0		-FID: 0		

END OF BOREHOLE

Unstabilized water level measured at 3.4 m below ground surface; cave not measured due to casing.

50 mm dia. monitoring well installed.

WA	FER LEVEL READIN	IGS
Date	Water Depth (m)	Elevation (m)
Apr 30, 2019	3.5	94.7
May 1, 2019	3.5	94.7

	•	Terraprobe										I	LO	G C)F	BO	REł	IOL	E 3
Proje	ect N	lo. : 1-18-0537	Clie	nt	: 1	0422	2967 C	anada	a Corp.								Origin	ated by	: BR
Date	stai	ted :April 23, 2019	Proj	jec	t :1	575	Huront	ario S	street								Comp	oiled by	: AR
Shee	et No	o. :1 of 1	Loc	atio	on : N	Aissis	sauga	, Onta	ario								Cheo	ked by	: SZ
Positio	n :	E: 613322, N: 4824722 (UTM 17T)				Elevati	ion Datu	m:G	eodetic										
Rig typ	be :	CME 55, buggy-mounted				Drilling	Method	: Ho	ollow stei	n augers	S								
Ê		SOIL PROFILE			SAMP	LES 0	ale	Penetra (Blows)	tion Test V (0.3m)	alues	-	м	loisture	/ Plasticity	,	e _	s ut	L	ab Data and
Depth Scale	Elev Depth (m)		Graphic Log	Number	Type	sPT 'N' Valu	Elevation Sc (m)	X Dyn 10 Undrain O Ur • Po	amic Cone <u>20</u> led Shear S nconfined pocket Penetro	30 Strength (k + 1 meter ■ 1 120	40 Pa) Field Vane Lab Vane	Plasti – Limit F	ic Na Water	itural L Content	iquid Limit	Headspa Vapou (ppm)	Instrume Details	Unstabilized Water Leve	RAIN SIZE RAIN SIZE RIBUTION (%) (MIT)
-0	97.2	50mm ASPHALTIC CONCRETE	/			0		40	0 80	120	160		2	20 30				G	R SA SI CL
		90mm AGGREGATE	/ 👹				97 -					1							
-		FILL, silty sand, trace clay, trace gravel, very loose to compact, brown, moist		1	SS	17							0			-FID: 0			
-1				2	SS	4	96 -	$\left \left\langle \right \right\rangle$					0			-FID: 10			
-2				3	SS	11								0		-FID: 10			
-	94.9 2.3	SILTY SAND, trace clay, compact, brown, wet		4	SS	23	- 95 -	-						0		-FID: 0			
-	02.4			5	ss	22	94 -		l					0		-FID: 10		₽	
-4	3.8	SANDY SILT, trace clay, dense to very dense, grey, moist		6	ss	61	93 -					0				-FID: 40) 27 64 9 <u>ysis:</u>
-5				7	ss	34	- 92 -						c	>		-FID: 10		· <u>SS7 Anal</u> pH	<u>ysis:</u>
-								-										•	
-6	91.1 6.1 90.5	SILT AND CLAY, trace sand, trace gravel, stiff, grey, moist		8	SS	11	91 -						0			-FID: 0			
	6.7	END OF BOREHOLE Unstabilized water level measured at 3.4 m below ground surface; cave not measured due to casing.	4					1	Apr Ma	W/ <u>Date</u> 30, 2019 y 1, 2019	ATER LE <u>Wate</u> 9	EVEL R 2.4 2.4 2.4	:EADIN 1 (m)	GS <u>Elevati</u> 94 94	<u>on (m</u> .8 .8	<u>1)</u>			

50 mm dia. monitoring well installed.

		Terraprobe											L	0	G O)F	BOI	REł	HOLE 4
Pro	ject I	No. : 1-18-0537	Clie	nt	: 1	0422	2967 C	anad	la Co	rp.								Origin	ated by :BR
Dat	e sta	rted :April 24, 2019	Proj	ject	t : 1	575	Huront	ario	Stree	t								Comp	oiled by:AR
She	et N	o. :1 of 1	Loc	atic	on : N	lissis	sauga	, On	tario									Cheo	ked by:SZ
Posit	tion	: E: 613322, N: 4824741 (UTM 17T)				Elevati	ion Datu	m : (Geodet	ic									
Rig t	ype	: CME 55, buggy-mounted				Drilling	Method	:	Hollow	stem a	augers								1
Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	SAMPI ed.	SPT 'N' Value	Elevation Scale (m)	Undra	ynamic Co ynamic Co 10 2 ained She Unconfine Pocket Pe 40 5	one 20 ear Stre denetromet	es 30 4 ngth (kPa + Fie ter ■ Lat	0 a) Id Vane o Vane	Mo Plastic Limit PL 10	Na Water	Plasticity	/ Liquid Limit	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT)
-0	96.8		/ a				97												GR 3A 3I CL
-	0.2	155mm AGGREGATE FILL, silty sand, trace clay, trace gravel, trace rootlets, loose to compact, brown, moist		1	ss	13		-	/					0			-FID: 0		
-1				2	SS	9	96 -							0			-FID: 0		
-2				3	ss	12	95 -								0		-FID: 5		
-	<u>94.7</u> 2.3	SILTY SAND, trace clay, compact, brown, wet		4	SS	26		-		\mathbb{N}					0		-FID: 70		<u>\$94 Analysis:</u> P 4 IC
-3 -				5	SS	25	94 -	-						0			-FID: 15		
-4	92.9	grey		6A	SS	10	93 -								0		-FID: 5		
-		SILT AND CLAY, trace sand, trace gravel, stiff to very stiff, grey, moist		6B				_						0			-FID: 0		
-5				7	SS	14	92 -							0			-FID: 25		
-							- 91 -												
-	90.3	shale fragments		8	SS	19		-					c)			-FID: 0		

END OF BOREHOLE

Unstabilized water level measured at 2.7 m below ground surface; cave not measured due to casing.

		Terraprobe								LOG)F I	BO	REł	OLE 5
Pro	ject I	No. : 1-18-0537	Clie	nt	: 1	0422	2967 C	anada Corp	•				Origin	ated by:BR
Dat	e sta	rted : April 24, 2019	Proj	ect	t :1	575	Huront	ario Street					Com	oiled by:AR
She	eet N	o. :1 of 1	Loca	atic	on : N	lissis	sauga	, Ontario					Cheo	cked by:SZ
Posi	tion	: E: 613339, N: 4824757 (UTM 17T)				Elevati	ion Datu	m : Geodetic						
Rig t	type	: CME 55, buggy-mounted				Drilling	Method	: Hollow ste	em augers					
Depth Scale (m)	<u>Elev</u> Depth (m) 95.0	SOIL PROFILE Description GROUND SURFACE	Graphic Log	Number	SAMPI ed.	SPT 'N' Value	Elevation Scale & (m)	Penetration Test 1 (Blows / 0.3m) × Dynamic Cone 10 20 Undrained Shear O Unconfined Pocket Penetr 40 80	30 40 Strength (kPa) + Field Van rometer ■ Lab Vane 120 160	Moisture / Plastici Plastic Natural Limit Water Content PL MC LLI 10 20 33	ty Liquid Limit ·	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
-	94.7 0.3	300mm TOPSOIL FILL, silty sand, trace rootlets, loose, dark brown, moist		1	SS	6				0	-f	FID: 20		
- 1	0.8	SILTY SAND, trace clay, compact, brown, wet		2	SS	13	94 -			0	F	FID: 25		
-2				3	SS	22	93 -			0	F	FID: 10		
-	<u>92.4</u> 2.6	SILT AND CLAY, trace sand, trace gravel, firm to stiff, grey, moist		4A 4B	SS	14	-			0	-F	FID: 30		
-3				5	SS	11	92 -			0	-F	FID: 15		
-4	90.4			6	SS	7	91 -			0	F	FID: 15		
-5	4.6	INFERRED BEDROCK, weathered shale with intermittent limestone / dolostone stringers		7	SS	39	90 -			0	-F	FID: 10		
- -6	<u>88.8</u> 6.2			8	<u>ss</u>	50 / 75mm	89 -			0		FID: 0		⊻

END OF BOREHOLE

Unstabilized water level measured at 5.5 m below ground surface; cave not measured due to casing.

		Terraprobe											I	LO	GC	DF	BO	RE	HC	DLE 6
Proj	ect N	No. : 1-18-0537	Clie	nt	: 1	0422	967 C	anac	la Co	rp.								Origin	ated	by : BR
Date	e sta	rted :April 24, 2019	Proj	ect	t :1	575 I	Huron	ario	Stree	t								Com	piled	by : AR
She	et N	o. :1 of 1	Loca	atic	on : N	/issis	sauga	, On	tario									Che	cked	by : SZ
Posit	ion	: E: 613351, N: 4824764 (UTM 17T)				Elevati	on Datu	m : (Geodet	ic										
Rig t	ype	: CME 55, buggy-mounted				Drilling	Method	:	Hollow	stem a	augers								_	
Ê		SOIL PROFILE		:	SAMP	LES 0	cale	Penet (Blow	ration Te s / 0.3m	est Value	es		N	loisture	/ Plastici	ty	e _	ent s	-	Lab Data and
Depth Scale	Elev Depth (m)		Graphic Log	Number	Type	sPT 'N' Valu	Elevation Sc (m)	Vndra O	ynamic C 10 iined Sh Unconfine Pocket Pe	one 2 <u>0</u> ear Strei ed enetromet	30 4 ngth (kPa + Fie er ■ La 20 1	ļ0 a) eld Vane b Vane 60	Plast Limit	ic Nater	atural r Content MC LL	Liquid Limit	Headspa Vapou (ppm)	Instrume Details	Unstabilized Water Leve	GRAIN SIZE DISTRIBUTION (%) (MIT)
-0	94.5	100mm TOPSOIL	/ ****			0,	_									0				GR SA SI CL
-	03.7	FILL, silty sand, trace clay, trace rootlets, very soft, brown, moist		1	SS	2	94 -	\backslash							0		-FID: 15			
- 1	0.8	SILTY SAND, trace clay, compact, brown, wet		2	SS	13									0		-FID: 25			
-2	92.2			3	SS	17	93 -								0		-FID: 140		SS3 PHC	<u>Analysis:</u>
-	2.3	CLAYEY SILT, sandy, some gravel, firm to very stiff, grey, moist		4	SS	21	92 -							0 H			-FID: 35			15 27 38 20
-3				5	SS	6	91 -								0		-FID: 30		•	
-4		shale fragments		6	SS	18		-	$\left \right\rangle$					ρ			-FID: 25			
-	89.9 4.6					50 /	90 -													
-5		shale with intermittent limestone / dolostone stringers		7	SS	125mm		-					0				-FID: 10			
- 6	88.4						89 -	-					6						· · ·	
	6.1		X//	<u>\</u> 87	SS	50 / 50mm		L		1	1		<u> </u>	1			ار <u>0∷∪ا⊦</u> ⊐			
		Borehole was dry upon completion of drilling.								<u>Da</u> Apr 30 May 1,	WA ⁻ <u>te</u> , 2019 , 2019	TER LE <u>Wate</u>	EVEL F <u>r Dept</u> 3.8 3.8	readin <u>h (m)</u>	IGS <u>Elevat</u> 9 9	<u>tion (n</u> 0.7 0.7	<u>n)</u>			

50 mm dia. monitoring well installed.

file: 1-18-0537-42 bh logs.gpj



LOG OF BOREHOLE 7

Project	t No. : 1-18-0537	С	lient	: 1	0422	967 C	anad	a Coi	rp.								Origin	ated	iby:BR
Date st	tarted : April 23, 2019	P	rojec	t :1	575 I	Huront	ario	Street	t								Com	oiled	l by:AR
Sheet I	No. :1 of 1	Lo	ocati	on : N	lissis	sauga	, Ont	ario									Cheo	cked	lby:SZ
Position	: E: 613304, N: 4824689 (UTM 1	7T)			Elevati	on Datu	m : C	Geodeti	с										
Rig type	: CME 55, buggy-mounted				Drilling	Method	:	-ollow s	stem a	augers									
Ê	SOIL PROFILE			SAMPI	ES	e	Penet (Blows	ration Te s / 0.3m)	st Valu	es		M	oisture	/ Plastici	tv	e	t		Lab Data
n Scale (r	lev Description	-	nic Log	,pe	J' Value	tion Sca (m)	`×⊅ Undra	ynamic Co 1 <u>02</u> ined She	ne 0 :	30 ngth (kF	4 <u>0</u> ?a)	Plastic Limit	c Na Water	itural Content	Liquid Limit	adspac Vapour (ppm)	strumen Details	stabilized ater Level	and Comments
m (m	n)		Nur	l F	L L	levat	01	Jnconfined Pocket Per	d netromet	er ■ La	, ield Vane ab Vane	P			L	He	<u> </u>	۶š	DISTRIBUTION (%) (MIT)
0 97	7.7 GROUND SURFACE	(ر .		ц М	Ξ	4	10 8	0 1	20 1	60	1	0 2	20 30	0			<u> </u>	GR SA SI CL
07	55mm ASPHALTIC CONCRETE	/ ē.'				-	-												
0	D.3 255mm AGGREGATE	^		88	13								<u> </u>						
-	to compact, brown, moist	loose		33	13	97 -		/											
-1			2	SS	2							0							0 88 11 1
					_	-	$\left \right\rangle$					0				110.0			0 00 11 1
-			<u> </u>																
-2 05			3	SS	8	96 -	\						C			-FID: 0			
2	END OF BOREHOLE			1	1	I	L	1	1	1							L		

Borehole was dry and open upon completion of drilling.



LOG OF BOREHOLE 8

Project No. : 1-1	8-0537 (Clie	nt	: 1	0422	967 C	anac	la Co	rp.								Origina	ated by:BR
Date started : Apr	il 23, 2019	Proj	ect	: 1	575 H	luront	ario	Stree	t								Comp	oiled by:AR
Sheet No. : 1 c	f 1 I	Loca	atio	n : N	lissis	sauga	, On	tario									Chec	ked by:SZ
Position : E: 613334,	N: 4824727 (UTM 17T)			E	Elevatio	on Datu	m : (Geodet	ic									
Rig type : CME 55, bu	ggy-mounted			0	Drilling	Method	: F	Hollow	stem a	ugers								
Ê	SOIL PROFILE		S	SAMPL	.ES	le	Penet (Blow	ration Te s / 0.3m)	st Value	es		Mo	isture /	Plasticity		Ð	t	Lab Data
L c c c c c c c c c c c c c c c c c c c	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Sca (m)	` × ₪ Undra 0	ynamic Co 1 <u>0</u> 2 ined She Unconfine Pocket Pe 40	one 20 : ear Strei d netromet	3 <u>0</u> ngth (kP + Fi er ■ La 20 1	40 a) eld Vane ab Vane 60	Plastic Limit PL PL 10	Nati Water (ural Li Content L Content L	quid _imit	Headspac Vapour (ppm)	Instrumen Details	Bacilitation (%) GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
96.6 60mm ASP		o																
- 0.2 120mm AG FILL, silty sa rootlets, loos	GREGATE / Ind, trace clay, trace le to compact, brown, moist		1	SS	16	-		/				0				-FID: 5		
-1			2	SS	7	96 -								0	•	-FID: 0		
- 2 94.7	e silt, trace clay, loose, t	****	3	SS	8	95 –								0		-FID: 0		
2.1 END OF BO	REHOLE																	

Borehole was dry and open upon completion of drilling.



LOG OF BOREHOLE 9

Proj	ect N	Jo. : 1-18-0537	Clie	ent	: 1	0422	967 C	an	ada	a Co	rp.								Origin	ated by :BR
Date	e sta	rted : April 23, 2019	Pro	ject	t:1	575 I	Huront	ari	io S	Stree	t								Comp	oiled by:AR
She	et No	o. :1 of 1	Loc	atic	on : N	lissis	sauga	, C	Onta	ario									Cheo	ked by:SZ
Posit	ion	E: 613360, N: 4824776 (UTM 17T)			1	Elevati	ion Datur	m	: G	eodeti	ic									
Rig ty	/pe	CME 55, buggy-mounted				Drilling	Method		: H	ollow	stem a	ugers								
(۲		SOIL PROFILE			SAMPI	ES	ale	Pe (Bl	enetra lows	ation Te / 0.3m)	est Value	es		м	oisture	/ Plastici	tv	e e	ιt	Lab Data
Depth Scale (r	<u>Elev</u> Depth (m) 94.9	Description GROUND SURFACE	Graphic Log	Number	Type	SPT 'N' Value	Elevation Sca (m)) : Un	× Dyr 1(ndrair ○ Ui ● Po 4(namic Co 0 2 ned She nconfine ocket Pe 0 8	one 20 3 ear Strer d netromete 30 1	3 <u>0</u> ngth (kF + F er ■ L 20	4 <u>0</u> Pa) ield Vane ab Vane 160	Plasti Limit F	c Nater Water	Atural Content	Liquid Limit - 0	Headspac Vapour (ppm)	Instrumen Details	GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CI
-0		FILL, silty sand, trace clay, trace rootlets, loose, brown, moist			ss	4	-											-FID: 15		
-1	03.4	dark brown		2A 2B	ss	4	94 —											-FID: 10 -FID: 0		
-2	92.8	SAND, some silt, trace clay, compact, brown, wet		. 3	SS	12	93 –											-FID: 10		

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.















CLIENT NAME: TERRAPROBE INC. 11 INDELL LANE BRAMPTON, ON L6T3Y3 (905) 796-2650

ATTENTION TO: Jessie Wu

PROJECT: 1-18-0537-46

AGAT WORK ORDER: 19T462146

MICROBIOLOGY ANALYSIS REVIEWED BY: Rocio Morales, Inorganics Lab Supervisor

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

ULTRA TRACE REVIEWED BY: Philippe Morneau, chimiste

WATER ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

DATE REPORTED: May 13, 2019

PAGES (INCLUDING COVER): 14

VERSION*: 1

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

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

AGAT Laboratories (V1)
 Page 1 of 14

 Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
 AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory

 Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association of Alberta (ESAA)

 Benvironmental Services Association of Alberta (ESAA)
 AGAT Laboratories council of CALA) for Specific division of presenting of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. Measurement Uncertainty is not taken into consideration when stating conformity with a specified requirement.

Results relate only to the items tested. Results apply to samples as received. All reportable information as specified by ISO 17025:2017 is available from AGAT Laboratories upon request



AGAT WORK ORDER: 19T462146 PROJECT: 1-18-0537-46 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: Jessie Wu

SAMPLED BY:

Microbiological Analysis (water) DATE RECEIVED: 2019-05-01 **DATE REPORTED: 2019-05-02** SAMPLE DESCRIPTION: SU-UF SAMPLE TYPE: Water DATE SAMPLED: 2019-04-30 Unit G / S: A G / S: B RDL 164092 Parameter Escherichia coli CFU/100mL 200 200 1 ND 2 ND Fecal Coliform CFU/100mL 0

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Storm By-Law 53-2010, B Refers to ON Mississauga SM 15

6 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation. 164092 RDL >1 indicates dilutions of the sample.

ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)



AGAT WORK ORDER: 19T462146 PROJECT: 1-18-0537-46 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: Jessie Wu

SAMPLED BY:

Peel & Mississauga Region Sanitary and Combined - Organics

DATE RECEIVED: 2019-05-01

					COORIDTION	011115	
				SAMPLE DI	ESCRIPTION:	SU-UF	
				54		water	
Demonster	11	o (o . t	0 (0	DAI	E SAMPLED:	2019-04-30	
Parameter	Unit	G/S: A	G/S:B	G/S:C	RDL	164092	
Oil and Grease (animal/vegetable) in water	mg/L	150			0.5	1.0[<a]< td=""><td></td></a]<>	
Oil and Grease (mineral) in water	mg/L	15			0.5	<0.5	
Methylene Chloride	mg/L	2	0.0052		0.0003	< 0.0003	
Methyl Ethyl Ketone	mg/L	8.0			0.0009	<0.0009	
cis- 1,2-Dichloroethylene	mg/L	4	0.0056		0.0002	<0.0002	
Chloroform	mg/L	0.04	0.002		0.0002	<0.0002	
Benzene	mg/L	0.01	0.002		0.0002	<0.0002	
Trichloroethylene	mg/L	0.4	0.008		0.0002	<0.0002	
Toluene	mg/L	0.27	0.002	0.002	0.0002	<0.0002	
Tetrachloroethylene	mg/L	1	0.0044		0.0001	<0.0001	
trans-1,3-Dichloropropylene	mg/L	0.14	0.0056		0.0003	<0.0003	
Ethylbenzene	mg/L	0.16	0.002	0.002	0.0001	<0.0001	
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017		0.0001	<0.0001	
Styrene	mg/L	0.2			0.0001	<0.0001	
1,2-Dichlorobenzene	mg/L	0.05	0.0056		0.0001	<0.0001	
1,4-Dichlorobenzene	mg/L	0.08	0.0068		0.0001	<0.0001	
Total Xylenes	mg/L	1.4	0.0044	0.0044	0.0001	<0.0001	
PCBs	mg/L	0.001	0.0004		0.0002	<0.0002	
Di-n-butyl phthalate	mg/L	0.08	0.015		0.0005	<0.0005	
Bis(2-Ethylhexyl)phthalate	mg/L	0.012	0.0088		0.0005	<0.0005	
Total PAHs	mg/L			0.002	0.0003	<0.0003	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010, C Refers to ON Mississauga SM 15 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

164092

Oil and Grease animal/vegetable is a calculated parameter. The calculated value is the difference between Total O&G and Mineral O&G.

Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.

Analysis performed at AGAT Toronto (unless marked by *)

Amkal Jota

DATE REPORTED: 2019-05-06



AGAT WORK ORDER: 19T462146 PROJECT: 1-18-0537-46 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: Jessie Wu

SAMPLED BY:

Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)

DATE RECEIVED: 2019-05-01						DATE REPORTED: 2019-05-09
			SAMPLE DE	SCRIPTION:	SU-UF	
			SAI	MPLE TYPE:	Water	
			DATE	SAMPLED:	2019-04-30	
Parameter	Unit	G / S: A	G / S: B	RDL	164092	
Total Nonylphenol	mg/L	0.02		0.001	<0.001	
NP1EO	mg/L			0.001	<0.001	
NP2EO	mg/L			0.0003	< 0.0003	
Total Nonylphenol Ethoxylates	mg/L	0.2		0.001	<0.001	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary, B Refers to Peel Storm By-Law 53-2010

Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation. Analysis performed at AGAT Montreal (unless marked by *)



AGAT WORK ORDER: 19T462146 PROJECT: 1-18-0537-46 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: Jessie Wu

SAMPLED BY:

Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics

DATE RECEIVED: 2019-05-01

				SAMPLE D	ESCRIPTION:	SU-UF	
				5/	AMPLE IYPE:	Water	
Parameter	Unit	G/S·A	G/S·B	DAI G/S·C	RDI	2019-04-30	
pH	nH Units	5.5-10	6.0-9.0	60-90	NA	7 85	
Total Suspended Solids	mg/L	350	15	15	10	79[C-A]	
Fluoride	ma/L	10			0.25	<0.25	
Sulphate	mg/L	1500			0.50	229[<a]< td=""><td></td></a]<>	
Total Cyanide	mg/L	2	0.02	0.02	0.002	<0.002	
Phenols	mg/L	1.0	0.008	0.008	0.002	<0.002	
Total Phosphorus	mg/L	10	0.4	0.4	0.02	0.08[<b]< td=""><td></td></b]<>	
Total Kjeldahl Nitrogen	mg/L	100	1	1	0.10	0.19[<b]< td=""><td></td></b]<>	
Total Residual Chlorine	mg/L			1.0	0.1	<0.1	
Total Aluminum	mg/L	50		1.0	0.020	1.64[C-A]	
Total Antimony	mg/L	5			0.020	<0.020	
Total Arsenic	mg/L	1	0.02	0.02	0.015	<0.015	
Total Cadmium	mg/L	0.7	0.008	0.008	0.010	<0.010	
Total Chromium	mg/L	5	0.08	0.08	0.015	<0.015	
Total Cobalt	mg/L	5			0.020	<0.020	
Total Copper	mg/L	3	0.05	0.04	0.010	<0.010	
Total Lead	mg/L	3	0.120	0.12	0.020	<0.020	
Total Manganese	mg/L	5	0.05	0.05	0.020	0.333[C-A]	
Total Mercury	mg/L	0.01	0.0004	0.0004	0.0002	<0.0002	
Total Molybdenum	mg/L	5			0.020	<0.020	
Total Nickel	mg/L	3	0.08	0.08	0.015	<0.015	
Total Selenium	mg/L	1	0.02	0.02	0.020	<0.020	
Total Silver	mg/L	5	0.12	0.12	0.010	<0.010	
Total Tin	mg/L	5			0.025	<0.025	
Total Titanium	mg/L	5			0.020	0.047[<a]< td=""><td></td></a]<>	
Total Zinc	mg/L	3	0.04	0.04	0.020	<0.020	
Chromium VI	mg/L			0.04	0.005	<0.005	

Certified By:

Irús Verástegui

DATE REPORTED: 2019-05-07



AGAT WORK ORDER: 19T462146 PROJECT: 1-18-0537-46 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: Jessie Wu

SAMPLED BY:

Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics

DATE RECEIVED: 2019-05-01 DATE REPORTED: 2019-05-07 Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Peel Sanitary By-Law 53-2010, B Refers to Peel Storm By-Law 53-2010, C Refers to ON Mississauga SM 15 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation. 164092 Total Residual Chlorine: Headspace in the bottle.

Elevated RDLs indicate the degree of sample dilutions prior to the analysis to keep analytes within the calibration range, reduce matrix interference and/or to avoid contaminating the instrument. Analysis performed at AGAT Toronto (unless marked by *)

Jris Verastegui



Guideline Violation

AGAT WORK ORDER: 19T462146 PROJECT: 1-18-0537-46 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.agatlabs.com

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: Jessie Wu

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
164092	SU-UF	ON Mississauga SM 15	Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics	Total Aluminum	mg/L	1.0	1.64
164092	SU-UF	ON Mississauga SM 15	Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics	Total Manganese	mg/L	0.05	0.333
164092	SU-UF	ON Mississauga SM 15	Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics	Total Suspended Solids	mg/L	15	79
164092	SU-UF	ON Peel SM 53-2010	Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics	Total Manganese	mg/L	0.05	0.333
164092	SU-UF	ON Peel SM 53-2010	Peel & Mississauga Sanitary & Combined Sewer Use By-Law - Inorganics	Total Suspended Solids	mg/L	15	79



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-18-0537-46

SAMPLING SITE:

AGAT WORK ORDER: 19T462146

ATTENTION TO: Jessie Wu

SAMPLED BY:

Microbiology Analysis

1															
RPT Date:			DUPLICATE				REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acce Lin	ptable nits
		Id				l I		Lower	Upper]	Lower	Upper]	Lower	Upper
Microbiological Analysis (water)															

Escherichia coli	163990		ND	ND	NA	< 1
Fecal Coliform	164092	164092	ND	ND	NA	< 1

Comments: ND - Not Detected, NA - % RPD Not Applicable





AGAT QUALITY ASSURANCE REPORT (V1)

Page 8 of 14

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



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-18-0537-46

SAMPLING SITE:

AGAT WORK ORDER: 19T462146 ATTENTION TO: Jessie Wu SAMPLED BY:

Trace Organics Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured	Acceptable Limits		Recoverv	Acceptable Limits		Recoverv	Acce Lir	ptable nits
		la					value	Lower	Upper		Lower	Upper		Lower	Upper
Peel & Mississauga Region Sanita	ary and Co	mbined -	Organics												
Oil and Grease (animal/vegetable) in water		TW	< 0.5	< 0.5	NA	< 0.5	NA	70%	130%	102%	70%	130%	101%	70%	130%
Oil and Grease (mineral) in water		TW	< 0.5	< 0.5	NA	< 0.5	NA	70%	130%	86%	70%	130%	83%	70%	130%
Methylene Chloride	156850		< 0.0003	< 0.0003	NA	< 0.0003	113%	60%	130%	102%	60%	130%	101%	60%	130%
Methyl Ethyl Ketone	156850		< 0.0009	< 0.0009	NA	< 0.0009	109%	60%	130%	84%	60%	130%	90%	60%	130%
cis- 1,2-Dichloroethylene	156850		< 0.0002	< 0.0002	NA	< 0.0002	85%	60%	130%	96%	60%	130%	93%	60%	130%
Chloroform	156850		< 0.0002	< 0.0002	NA	< 0.0002	96%	60%	130%	87%	60%	130%	87%	60%	130%
Benzene	156850		< 0.0002	< 0.0002	NA	< 0.0002	88%	60%	130%	91%	60%	130%	92%	60%	130%
Trichloroethylene	156850		< 0.0002	< 0.0002	NA	< 0.0002	93%	60%	130%	94%	60%	130%	85%	60%	130%
Toluene	156850		< 0.0002	< 0.0002	NA	< 0.0002	79%	60%	130%	112%	60%	130%	108%	60%	130%
Tetrachloroethylene	156850		< 0.0001	< 0.0001	NA	< 0.0001	102%	60%	130%	95%	60%	130%	105%	60%	130%
trans-1,3-Dichloropropylene	156850		< 0.0003	< 0.0003	NA	< 0.0003	101%	60%	130%	103%	60%	130%	85%	60%	130%
Ethylbenzene	156850		< 0.0001	< 0.0001	NA	< 0.0001	80%	60%	130%	108%	60%	130%	105%	60%	130%
1,1,2,2-Tetrachloroethane	156850		< 0.0001	< 0.0001	NA	< 0.0001	84%	60%	130%	105%	60%	130%	104%	60%	130%
Styrene	156850		< 0.0001	< 0.0001	NA	< 0.0001	103%	60%	130%	85%	60%	130%	103%	60%	130%
1,2-Dichlorobenzene	156850		< 0.0001	< 0.0001	NA	< 0.0001	74%	60%	130%	101%	60%	130%	101%	60%	130%
1,4-Dichlorobenzene	156850		< 0.0001	< 0.0001	NA	< 0.0001	89%	60%	130%	108%	60%	130%	105%	60%	130%
PCBs	165518		< 0.0002	< 0.0002	NA	< 0.0002	94%	60%	130%	103%	60%	130%	108%	60%	130%
Di-n-butyl phthalate		TW	< 0.0005	< 0.0005	NA	< 0.0005	112%	60%	130%	104%	60%	130%	111%	60%	130%
Bis(2-Ethylhexyl)phthalate		TW	< 0.0005	< 0.0005	NA	< 0.0005	114%	60%	130%	82%	60%	130%	100%	60%	130%
Total PAHs		TW	< 0.0003	< 0.0003	NA	< 0.0003	103%	60%	130%	89%	60%	130%	94%	60%	130%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.

When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

Imkal Jata

AGAT QUALITY ASSURANCE REPORT (V1)

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

Page 9 of 14



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-18-0537-46

SAMPLING SITE:

AGAT WORK ORDER: 19T462146 ATTENTION TO: Jessie Wu

SAMPLED BY:

			U	ltra Ti	race	Anal	ysis								
RPT Date:			DUPLICATE			REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
							value	Lower	Upper		Lower	Upper		Lower	Upper
Nonylphenol and Nonylphenol Et	hoxylates	(Ontario,	mg/L)												
Total Nonylphenol	190507	164987	< 0.001	< 0.001	0.0%	< 0.001	66%	60%	140%	NA	60%	140%	NA	60%	140%
NP1EO	190507	164987	< 0.001	< 0.001	0.0%	< 0.001	83%	60%	140%	NA	60%	140%	NA	60%	140%
NP2EO	190507	164987	< 0.0003	< 0.0003	0.0%	< 0.0003	74%	60%	140%	NA	60%	140%	NA	60%	140%

Certified By:



AGAT QUALITY ASSURANCE REPORT (V1)

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

Page 10 of 14



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-18-0537-46

SAMPLING SITE:

AGAT WORK ORDER: 19T462146 **ATTENTION TO: Jessie Wu**

SAMPLED BY:

Water Analysis															
RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD	BLANK		MAT	RIX SPI	KE
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured	Acceptable Limits		Recovery	Acce	ptable nits	Recovery	Acce Lir	ptable nits
							Value	Lower	Upper		Lower	Upper		Lower	Upper
Peel & Mississauga Sanitary	& Combined S	Sewer Use	By-Law -	Inorganic	s										
рН	161313		7.72	7.75	0.4%	NA	100%	90%	110%						
Total Suspended Solids	164092	164092	79	81	2.5%	< 10	100%	80%	120%						
Fluoride	160483		<0.25	<0.25	NA	< 0.05	91%	90%	110%	92%	90%	110%	94%	80%	120%
Sulphate	160483		63.5	63.9	0.6%	< 0.10	90%	90%	110%	98%	90%	110%	106%	80%	120%
Total Cyanide	164816		<0.002	<0.002	NA	< 0.002	109%	80%	120%	95%	90%	110%	98%	70%	130%
Phenols	164092	164092	<0.002	<0.002	NA	< 0.002	100%	90%	110%	99%	90%	110%	99%	80%	120%
Total Phosphorus	160979		0.24	0.26	8.0%	< 0.02	93%	90%	110%	103%	90%	110%	100%	80%	120%
Total Kjeldahl Nitrogen	160283		0.28	0.26	NA	< 0.10	100%	80%	120%	103%	80%	120%	107%	70%	130%
Total Residual Chlorine	164092	164092	<0.1	<0.1	NA	< 0.1	102%	80%	120%	104%	85%	115%	100%	80%	120%
Total Aluminum	160979		0.111	0.103	7.5%	< 0.020	92%	90%	110%	94%	80%	120%	96%	70%	130%
Total Antimony	160979		<0.020	<0.020	NA	< 0.020	103%	90%	110%	105%	80%	120%	110%	70%	130%
Total Arsenic	160979		<0.015	<0.015	NA	< 0.015	95%	90%	110%	94%	80%	120%	97%	70%	130%
Total Cadmium	160979		<0.010	<0.010	NA	< 0.010	94%	90%	110%	92%	80%	120%	98%	70%	130%
Total Chromium	160979		<0.015	<0.015	NA	< 0.015	98%	90%	110%	96%	80%	120%	98%	70%	130%
Total Cobalt	160979		<0.020	<0.020	NA	< 0.020	95%	90%	110%	95%	80%	120%	94%	70%	130%
Total Copper	160979		0.017	<0.010	NA	< 0.010	96%	90%	110%	94%	80%	120%	91%	70%	130%
Total Lead	160979		<0.020	<0.020	NA	< 0.020	92%	90%	110%	92%	80%	120%	94%	70%	130%
Total Manganese	160979		<0.020	<0.020	NA	< 0.020	90%	90%	110%	91%	80%	120%	93%	70%	130%
Total Mercury	164092	164092	<0.0002	<0.0002	NA	< 0.0002	103%	90%	110%	99%	90%	110%	98%	80%	120%
Total Molybdenum	160979		<0.020	<0.020	NA	< 0.020	97%	90%	110%	91%	80%	120%	97%	70%	130%
Total Nickel	160979		<0.015	<0.015	NA	< 0.015	95%	90%	110%	97%	80%	120%	95%	70%	130%
Total Selenium	160979		<0.020	<0.020	NA	< 0.020	90%	90%	110%	91%	80%	120%	97%	70%	130%
Total Silver	160979		<0.010	<0.010	NA	< 0.010	96%	90%	110%	106%	80%	120%	111%	70%	130%
Total Tin	160979		<0.025	<0.025	NA	< 0.025	98%	90%	110%	80%	80%	120%	85%	70%	130%
Total Titanium	160979		<0.020	<0.020	NA	< 0.020	96%	90%	110%	91%	80%	120%	95%	70%	130%
Total Zinc	160979		0.069	0.066	NA	< 0.020	100%	90%	110%	98%	80%	120%	114%	70%	130%
Chromium VI	163286		<0.005	<0.005	NA	< 0.005	101%	90%	110%	100%	90%	110%	103%	70%	130%

Comments: NA signifies Not Applicable.

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

Certified By:

Inis Verastegui

AGAT QUALITY ASSURANCE REPORT (V1)

Page 11 of 14

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



Method Summary

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-18-0537-46

SAMPLING SITE:

AGAT WORK ORDER: 19T462146

ATTENTION TO: Jessie Wu SAMPI ED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis		1	
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration
Fecal Coliform	MIC-93-7000	SM 9222 D	Membrane Filtration
Trace Organics Analysis			
Oil and Grease (animal/vegetable) in water	VOL-91-5011	EPA SW-846 3510C & SM5520	BALANCE
Oil and Grease (mineral) in water	VOL-91-5011	EPA SW-846 3510C & SM 5520	BALANCE
Methylene Chloride	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
trans-1,3-Dichloropropylene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
Total Xylenes	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS
PCBs	ORG-91-5112	EPA SW-846 3510C & 8082A	GC/ECD
Di-n-butyl phthalate	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS
Total PAHs	ORG-91-5114	EPA SW-846 3510C & 8270D	GC/MS
Ultra Trace Analysis			
Total Nonylphenol	NA	ASTM D7065-6	LC/MS/MS
NP1EO	NA	ASTM D7065-6	LC/MS/MS
NP2EO	NA	ASTM D7065-6	LC/MS/MS
Total Nonylphenol Ethoxylates	NA	ASTM D7065-6	LC/MS/MS



Method Summary

CLIENT NAME: TERRAPROBE INC.

PROJECT: 1-18-0537-46

AGAT WORK ORDER: 19T462146 **ATTENTION TO: Jessie Wu**

SAMPLING SITE:		SAMPLED BY:							
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE						
Water Analysis									
рН	INOR-93-6000	SM 4500-H+ B	PC TITRATE						
Total Suspended Solids	INOR-93-6028	SM 2540 D	BALANCE						
Fluoride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH						
Sulphate	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH						
Total Cyanide	INOR-93-6051	MOE 3015 & SM 4500 CN- A,B,C	TECHNICON AUTO ANALYZER						
Phenols	INOR-93-6050	MOE ROPHEN-E3179 & SM 5530 D	TECHNICON AUTO ANALYZER						
Total Phosphorus	INOR-93-6022	SM 4500-P B&E	SPECTROPHOTOMETER						
Total Kjeldahl Nitrogen	INOR-93-6048	QuikChem 10-107-06-2-I & SM 4500-Norg D	LACHAT FIA						
Total Residual Chlorine	INOR-93-6055	SM 4500 CI- F	TITRATION						
Total Aluminum	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Antimony	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Arsenic	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Cadmium	MET -93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Chromium	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Cobalt	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Copper	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Lead	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Manganese	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Mercury	MET-93-6100	EPA SW 846 7470 & 245.1	CVAAS						
Total Molybdenum	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Nickel	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Selenium	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Silver	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Tin	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Titanium	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Total Zinc	MET-93-6103	EPA SW-846 3010A &6020A	ICP-MS						
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER						

Chain of Custody Record If this is a Drinking Water sample, please of the sample of th	missis Ph: 905.712.51 se Drinking Water Chain of Custody Form (potable water consi	5835 Coopers Avenue sauga, Ontario L4Z 1Y2 L00 Fax: 905.712.5122 webearth.agatlabs.com	Laboratory Use Only Work Order #:QT462146 Cooler Quantity: Arrival Temperatures:4.3 12.8 13.3					
Report Information: Company: Contact: Address: Brampton Phone: Reports to be sent to: 1. Email: 2. Email:	Regulatory Requirements: No Regulation 153/04 Regulation 153/04 Sewer Use Table Indicate One Ind/Com Sewer Use Agriculture Soil Texture (check one) Coarse Indicate One Fine MISA Is this submission for a Repo Record of Site Condition? Certification	ulatory Requirement Regulation 558 CCME Prov. Water Quality Objectives (PWQO) Other Indicate One Cate of Analysis No	Custody Seal Intact: Notes: Turnaround Time (TAT) Required: Regular TAT S to 7 Business Days Rush TAT (Rush Surcharges Apply) S Business Days OR Date Required (Rush Surcharges May Apply): Please provide prior notification for rush TAT *TAT is exclusive of weekends and statutory holidays					
Sampled By: PO: AGAT Quote #: PO: Please note: If quotation number is not provided, client will be billed full price for analysis. Invoice Information: Bill To Same: Yes No I Company: Contact: Address: Po: Email: Po:	Sample Matrix Legend 0. B Biota GW Ground Water 0 Oil P Paint S Soil SD Sediment SW Surface Water	ide Metals 🗆 153 Metals (Incl. Hydrides) 383 EC Terc CIN 523 EC Terc CIN 523 EC Terc CIN 623 EC Terc CIN 623 EC Terc CIN 623 EC Terc CIN 643 EC TERC 643 EC	F1 - F4 D Total D Aroclors ochlorine Pesticides Use PEEU					
Sample Identification Date Sampled Time Sampled # of Containers Sam Mat SU-UF Apr 30/2 - - - Image: Superstand Superstan	Comments/ Special Instructions Y/N Image: Special Special Instructions	Π Π Π Π Π Η Π Π Π Π Π Γ Π Π Π Π Regula Π Π Π Π Regula Π Π Π Π	Notatility PHCs F PHCs F					
Samples Balinquinted By (Princhame and Sign): Balance Balance Date Samples Relinquished By (Print Name and Sign): Date Time	Samples Received By (Print Name and Sign): Samples Received By (Print Name and Sign): Samples Received By (Print Name and Sign):	24116 Date 11 Date Date	Ime Pageof Time Pageof Time Nº: T 081404					











-									
2		Material Name	Color	KS (m/s)	Excavation Dimens Section Cut: N-S	ions: 88.3 m x 14.0 m			
		EARTH FILL		1e-006	P1 Level Finished I Base of Excavation	Floor: Elev. 94.0 m : Elev. 93.5 m			
-		SILTY SAND		2.7e-005	Water Table: Elev. 9	94.8 to 90.7 m			
2		CLAYEY SILT		2.88e-007	Dewatering Target:	Elev. 92.9 m			
<u>-</u> -		INFERRED BEDROCK		3.82e-007	Q Ground Water = (S.F. = 1.5)	190,000 L/day			
-									
-									
-									
-									
<u>-</u>									
-	Elev. 98 m								
	<				88.3			>	Elev. 94.9 m
		1		Elev. 93.5 m					
	4	<u> </u>	/	/					
	0.58779 m3/d	4.5		0.28	3106 m3/d				0 000743 m3/d
									0.003743113/0
			$\chi \chi$		XXXXX	XXXXX			
	K K K K K K	$X \times X$	\times	$\langle X X X$	X X X X		++++	$\langle \chi \chi \rangle$	KK V K
	0 10	20	/ · · · / · 30		50	60	70	80	90
		Notes Refer to Hydrogeologica	ıl	Project 1-18-0	537-46 1575 Hu	rontario Street, Miss	sissauga		
222	Terraprobe	Report for factual inform supporting this analysis.	nation	Analysis P1 Leve	el Dewatering, Shor	t Term, Permeable			
	Consulting Geotechnical & Environmental Engineering Construction Materials Inspection & Testing			Date 6/6/2019	Scale 1:400	File 1-18-0537-4	6 1575 Hurontario Street, N	IIssissauga 2019-06-	05.slmd
IDEINTERPRET 7	7 036			^{By} SAA	Ref.		`		

R

18

5

Ę

8

S





SITE PLAN RESIDENTIAL DEVELOPMENT

42 STACKED / BACK TO BACK TOWNHOUSE UNITS



SITE STATISTICS

LOT AREA = 3,913.32 M2 UNIT COUNT = 42 UNITS PARKING = 56 SPACES - RATIO 1.33/ PER UNIT

RESIDENTIAL DEVELOPMENT | HURONTARIO STREET, MISSISSAUGA, ONTARIO.

DREAM MAKER

PROJECT NO. 17-094 SEPTEMBER 10, 2018 SCALE 1:400

