Preliminary Hydrogeological Investigation

Proposed Residential Building
128 Lakeshore Road East
Mississauga, Ontario

Prepared For:

Black Tusk Group Inc.

Project No.: 21-090-100
Date: October 19, 2021

DS CONSULTANTS LTD.
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21-090-100 **October 19, 2021**

Mr. Thaine Carter
BlackTusk Group Inc.

Via email: thaine@blacktuskgroup.com

RE: Preliminary Hydrogeological Investigation – 128 Lakeshore Road East, Mississauga, ON

DS Consultants Limited (DS) was retained by Black Tusk Group Inc. to complete a Preliminary Hydrogeological Investigation for the proposed development located at 128 Lakeshore Road East, Mississauga, Ontario (Site). The Site has an approximate area of 930 m^2 and is currently developed with a single storey funeral home building. It is understood that the existing structures will be demolished, and the new development will include a 11-storey mid-rise residential building with three (3) levels of underground parking (P3).

The average ground elevation at the site is at about 79 meters above sea level (masl). The assumed maximum excavation depth for the proposed development considering footings and elevator shaft would be at about 11 meters below the existing ground surface (mbgs) (around Elev. 68 masl).

This preliminary hydrogeological investigation includes an overview of the existing geological and hydrogeological conditions at the Site and the surrounding area, an assessment of the hydrogeological constraints, impacts of the proposed development on the local groundwater, and provides an estimation of construction dewatering and permanent drainage requirements during the proposed development phase.

If needed, the results of this investigation can be used in support of an application for a Category 3 Permit to Take Water (PTTW) or an Environmental Activity Sector Registry (EASR) for construction dewatering from the Ministry of the Environment Conservation and Parks (MECP). The hydrogeological report may also be used to support Site Plan Approvals (SPA). Based on the results of this investigation, the following conclusions and recommendations are presented:

1. Based on the MECP water well records search, there are seventy-four (74) water wells within 500 meters of the Site. Sixty-seven (67) wells were noted as test holes/monitoring wells and seven (7) wells were noted as not in use or unknown. The study area is fully serviced with municipal water. It is not expected to have any use of groundwater as a source of drinking water within a radius of 500 meters from the Site.

2. On August 19, 2021, DS drilled three (3) boreholes (BH21-1 to BH21-3) and equipped all drilled boreholes with monitoring wells as part of the concurrent geotechnical and hydrogeological investigations. The boreholes were advanced to a maximum depth of 14.6 mbgs. Monitoring wells were screened to depths ranging from 4.0 to 9.3 mbgs.

3. The surficial geology at the Site and study area is dominated by coarse-textured glaciolacustrine deposits consisting of sand and gravel, minor silt and clay foreshore and basinal deposits and also modern alluvial deposits consist of clay, silt, sand and gravel which may contain organic remains. The overburden geology at the site generally consisted of cohesive deposits of silty clay to clayey silt till. The depth to bedrock was encountered at the Site during drilling at the depth of 7.6 mbgs.

4. Groundwater levels were measured in all available wells on October 12, 2021, by DS. Groundwater levels ranged from 6.46 to 8.22 mbgs or 71.40 to 71.68 masl. The estimated groundwater flow direction in the study area is inferred to be southerly towards the Lake Ontario.

5. Three (3) Single Well Response Tests (slug tests) were completed by DS on September 1st, 2021, to estimate hydraulic conductivity (k) for the representative geological units in which the wells were screened. Hydraulic conductivity (k) values were calculated using the Hvorslev method using the AquiferTest® Software. The k-values ranged between 4.77×10^{-8} to 3.39×10^{-7} m/s, indicative of generally low permeability lithology.

6. To assess the suitability for discharge of groundwater during construction to Peel Region's Sanitary/Storm Sewers, one (1) unfiltered groundwater sample was collected from monitoring well BH21-2. The reported analytical results indicated that no parameters were in exceedance of the Region's Storm Sewer Discharge By-Law criteria except Total Suspended Solid (TSS), Total Kejeldahl Nitrogen and Manganese. All parameters met the Peel Region's Sanitary Sewer Discharge By-Law criteria. Therefore, water cannot be discharged into the Region's storm sewers without basic pre-treatment. Treatment is needed to comply with the water quality limits set in Table 2 for Peel Region Storm Sewer Use By-law 53-2010 before any discharge. Treatment options include but not limited to settlement and filtration of sediments. However, groundwater can be discharged to the sanitary sewer with no pre-treatment requirements if this is an available option at the time of construction.

7. The estimated dewatering rate during construction considering the unsealed excavation method for the proposed residential building with three (3) levels of underground parking (for a block of 45x22m) would be approximately 24,900 L/day. This estimated value incorporates a 100% safety factor and a theoretical 10 mm major storm event into the open excavation during construction. The estimate will have to be refined during detail design and additional monitoring wells may need to be installed after demolishing the existing building.

8. Following the construction of the underground structure, long-term groundwater flow to the underfloor drainage system for the building will be a function of the upward flux and from drainage along the foundation wall. The estimated permanent theoretical flow rate for the building is approximately 3,600 L/day with a 100% safety factor. Site grading, shoring design, etc. may alter these estimates and these values should be confirmed during detail design.

9. Since the expected design dewatering rate for the unsealed excavation is less than 50,000 L/day, an EASR application is not required to be submitted to the MECP for short-term dewatering prior to

construction. However, since the permanent drainage rate is below 50,000 L/day, a PTTW is not required for long-term discharge.

10. Once a groundwater dewatering system is set up at the Site, daily and weekly monitoring should be implemented to assess the groundwater conditions such as water levels, measurement of discharge flow, discharge water quality and any adverse impacts as a result of dewatering.

11. There are structures and utilities within the predicted zone of influence (ZOI) of about 25 meters when considering an unsealed excavation. Since the proposed construction is anticipated to be constructed in within the low permeable silty clay to clayey silt deposits, settlement due to dewatering is not expected.

12. In conformance with Regulation 903 of the Ontario Water Resources Act, the decommissioning of any dewatering system and monitoring wells should be carried out by a licensed contractor under the supervision of a licensed water well technician.

Should you have any questions regarding these findings, please do not hesitate to contact the undersigned.

DS Consultants Ltd.

Prepared By:

Meysam Jafari, M.Sc., P.Geo.
Geologist

Reviewed By:

Martin Gedeon, M.Sc., P.Geo.
Senior Hydrogeologist

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APPENDICES:

1.0 INTRODUCTION

DS Consultants Limited (DS) was retained by Black Tusk Group Inc. to complete a Preliminary Hydrogeological Investigation for the proposed development located at 128 Lakeshore Road East, Mississauga, ON (Site). The Site has an approximate area of 930 m^2 and currently developed with a single storey funeral home building. It is understood that the existing structures will be demolished, and the new development will include a 11-storey mid-rise residential building with three (3) levels of underground parking (P3).

The average ground elevation at the site is at about 79 meters above sea level (masl). The assumed maximum excavation depth for the proposed development considering the footing and elevator shaft would be at about 11 meters below the existing ground surface (mbgs) (around Elev. 68 masl). No below-grade design was available at the time of writing this report. **Figure 1** presents the site location map that highlights the location of the site and the surrounding area.

1.1 Purpose

The purpose of this Hydrogeological Investigation is to assess the current groundwater conditions at the Site in order to evaluate the following:

- Temporary construction dewatering for the excavations of the proposed building on Site;
- Explore the potential need for a Permit to Take Water (PTTW) or Environmental Activity and Sector Registration (EASR) for the purposes of Construction Dewatering from the MECP;
- Temporary management and discharge of groundwater during short term construction dewatering
- Estimate permanent drainage requirements; and
- Assess groundwater quality to identify potential adverse impacts to Peel Region's sewer system.

1.2 Scope of Work

The scope of work for this investigation included:

- Site visits;
- Desktop review of pertinent geological and hydrogeological resources;
- Review the MECP Water Well Records and water use in the surrounding area;
- Field work including monitoring well drilling program consisting of installation of three (3) monitoring wells;

- Conducting single well response tests (slug tests) to determine hydraulic conductivity values across the site;
- Characterize the stratigraphy and measure the ground water levels across the site;
- Collection and analysis of groundwater samples in order to quantify and characterize any possible contaminants that may impact future discharge applications;
- Estimation of construction dewatering volumes, which is to be used to predict the short-term groundwater control requirements for the construction of the proposed building on site.

2.0 FIELDWORK

On August 19, 2021, DS drilled three (3) boreholes (BH21-1 to BH21-3) and equipped three (3) of the drilled boreholes with monitoring wells at the site as part of the concurrent geotechnical and hydrogeological investigations. The boreholes were advanced to a maximum depth of 14.6 mbgs. Monitoring wells were screened to depths ranging from 4.0 to 9.3 mbgs. All wells were completed with 50 mm diameter PVC pipes with 3.05 m well screens and were installed using above ground mounted protective casings. All monitoring wells were developed before any use to allow for groundwater level monitoring, hydraulic conductivity testing, and to assess groundwater quality. Three (3) single well response tests (SWRTs) were completed by performing a rising head test (slug test) to estimate hydraulic conductivity values of soils at the site. One (1) unfiltered groundwater sample was also collected and analyzed for the parameters listed under the Peel Region Sewer By-law to assess groundwater quality. The borehole (BH) and monitoring well (MW) location plan is shown in **Figure 3**.

3.0 PHYSICAL SETTING

Available topographic maps, environmental, geotechnical, and hydrogeological reports were used to develop an understanding of the physical setting of the study area. Borehole logs and the MECP WWRs were used to interpret the geological and hydrogeological conditions at the development site.

3.1 Physiography and Drainage

The topography at the Site is generally flat with a surface elevation of approximately 79 metres above sea level (masl). The topography within the study area generally slopes to the south, towards Lake Ontario. Drainage is generally controlled by streams and artificial channels. Lake Ontario is located about 320 m south of the Site.

3.2 Geology

The following presents a brief description of regional and development site geology based on the review of available information and development site-specific soil investigations.

3.2.1 Quaternary Geology

The study area (500 m radius) lies within the Sand Plain physiographic region of southern Ontario and quaternary geology characterized partially by Till, undifferentiated and predominantly sandy silt to silt matrix, commonly rich in clast, often high in carbonate content matrix and also Post-Precambrian Bedrock consist of undifferentiated carbonate and clastic sedimentary rock Based on the regional mapping, the surficial geology at the Site and study area is dominated by coarse-textured glaciolacustrine deposits consist of sand and gravel, minor silt and clay foreshore and basinal deposits and also modern alluvial deposits consist of clay, silt, sand and gravel which may contain organic remains. (as per OGS Earth). The surficial geology map is shown in **Figure 2**.

3.2.2 Bedrock Geology

Available published mapping shows that bedrock in the area is predominantly shales, limestones, dolostone and siltstone of the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member, Eastview Member (MNDM Map 2544 Bedrock Geology of Ontario). Based on the review of existing boreholes logs and well record information, the depth to bedrock in the study area is estimated to be approximately 4.8 meters below the existing surface and was encountered at the Site during drilling at the depth of 7.6 mbgs.

3.2.3 Site Geology

On-site subsurface soil conditions were summarized from the boreholes advanced by DS for the current investigation. Detailed subsurface conditions are presented in **Figure 4,** and the borehole logs are presented in **Appendix A**. The subsurface conditions in the boreholes are summarized in the following paragraphs.

Pavement Structure/Fill Materials: A 50 to 100 mm surficial layer of asphalt was encountered in all boreholes overlying fill material.

Fill material was encountered in all boreholes, extending to depth of 1.5 mbgs. The fill was heterogeneous, consisting of sandy silt, clayey silt, trace gravel. Traces of organics was also observed in the fill material.

Cohesive Glacial Deposits of Silty Clay to Clayey Silt Till: Below the fill and disturbed native material in the boreholes, cohesive deposits of silty clay to clayey silt till were encountered, extending to depths ranging from 7.6 to 8.2 mbgs. Trace sand and gravel and occasional cobble were inferred within the till deposits.

Shale bedrock: Below the cohesive deposits of silty clay to clayey silt till in all boreholes at the depth ranging from 7.6 to 8.2 mbgs, shale bedrock was encountered.

3.3 Hydrogeology

The hydrogeology at the site was evaluated using the on-site monitoring wells installed by DS and other consultants, and the MECP WWRs in the study area.

3.3.1 Local Groundwater Use

As part of the hydrogeological study, DS completed a search of the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWRs) database. Based on the MECP water well records search, there are Seventy-four (74) water wells within 500 meters of the Site (Appendix D). Sixty-seven (67) wells were noted as test holes/monitoring wells and seven (7) wells were noted as not in use or unknown. **Figure 1** shows the MECP water well location plan. The study area is fully serviced with municipal water. It is not expected to have any use of groundwater as a source of drinking water within a radius of 500 meters from the Site.

3.3.2 Groundwater Conditions

Groundwater levels were measured in all available wells on October 12, 2021, by DS staff. **Table 3-1** presents the groundwater levels in all monitoring wells. Groundwater levels ranged from 6.46 to 8.22 mbgs or 71.40 to 71.68 masl, representing the groundwater elevation at the Site which can be subject to seasonal fluctuations. The groundwater flow direction within the site area is inferred to be south towards Lake Ontario.

Table 3-1: Groundwater Levels in Monitoring Wells

Well ID	Ground Elevation (masl)	Screened Interval (mbgs)	Depth to Water (mbgs)	Groundwater Elevation (masl)
BH21-1	79.67	6.3-9.3	8.22	71.45
BH21-2	79.02	6.3-9.3	7.62	71.4
BH21-3	78.14	4.0-7.0	6.46	71.68

3.3.3 Hydraulic Conductivity

Three (3) Single Well Response Tests (slug tests) were completed by DS on September 1st, 2021, to estimate hydraulic conductivity (k) for the representative geological units in which the wells were screened. SWRTs were completed by performing a rising head test (slug test) with the use of Waterra® tubing to 'instantaneously' remove water from the well. A data logger was placed at the bottom of the wells to accurately measure the change in the hydraulic head versus time. Hydraulic conductivity (k) values were calculated using the Hvorslev method using the AquiferTest® Software. The semi-log plots for normalized drawdown versus time are provided in **Appendix B.** The k-values ranged between 4.77 x 10^{-8} to 3.39 x 10^{-7} m/s, which is consistent with typical K-values 10^{-7} to 10^{-9} m/sec. **Table 3-2** presents the Hydraulic Conductivity (k) values for the representative geological units. The highest K-value of 3.39 × 10^{-7} m/s was used in the dewatering assessment as a conservative measure.

Table 3-2: Summary of Hydraulic Conductivity (k) Test Results

Well ID	Screened Interval (mbgs)	Screened Formation	K-value (m/s)	Geomean value
BH21-1	6.3-9.3	Clayey silt till	2.53×10^{-7}	1.56×10^{-7}
BH21-2	6.3-9.3	Clayey silt till	3.39×10^{-7}	
BH21-3	4.0-7.0	Clayey silt till	4.77×10^{-8}	

3.3.4 Groundwater Quality

To assess the suitability for discharge of groundwater to the Peel Region's Sanitary and Storm Sewers, one (1) unfiltered groundwater sample was collected from monitoring well BH21-2 on September 1st, 2021. The samples were placed in pre-cleaned laboratory supplied vials and/or bottles provided with analytical test group-specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The groundwater samples were submitted to SGS Laboratories in Mississauga, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and the Canadian Standard Association (CSA). The analytical results were compared to the Peel Region's Table 1- Limits for Sanitary Sewer Discharge, and Table 2 Limits for Storm Sewer Discharge. The reported analytical results indicated that no parameters were in exceedance of the Peel Region's Storm Sewer Discharge By-Law criteria except Total Suspended Solid (TSS), Total Kejeldahl Nitrogen and Manganese. All parameters met the Region's Sanitary Sewer Discharge By-Law criteria. Therefore, water cannot be discharged to the Region's storm sewers without treatment. Treatment is needed to comply with the water quality limits set in 2 for Peel Region Storm Sewer Use By-law 53-2010 before any discharge. Treatment options include but not limited to settlement and filtration of sediments. Groundwater can be discharged to the sanitary sewer without any treatment requirements. **Table 3-3** presents a summary of the exceeded parameters, and the certificates of analyses are provided in **Appendix D.**

Table 3-3: Parameters in Groundwater Exceeding Peel Region's Sewer Use By-law 53-2010

Parameter	Unit	Peel Sanitary By-Law Criteria	Peel Storm By-Law Criteria	BH21-2
Total Suspended Solid (TSS)	mg/L	350	15	233
Total Kjeldahl Nitrogen	mg/L	100	1	3.4
Total Manganese	mg/L	5	0.05	0.501

Bold- Exceeds Sanitary Sewer Use by Law Criteria
Underlined- Exceeds Storm Sewer Use by Law Criteria

4.0 CONSTRUCTION DEWATERING

The proposed residential development will include the construction of three (3) levels of underground parking (P3). No below-grade design was available at the time of writing this report, so assumptions were made to estimate the potential construction dewatering rates. The deepest assumed finished floor elevation of the P3 for the proposed development considering the footing and elevator shaft would be approximately 11 meters below the existing ground surface (mbgs) (Elev. 68 masl). For construction

dewatering purposes the water level should be lowered at least one (1) m below the footings and elevator shaft elevation at about 67 masl. The open-cut construction excavation method for entire Site with excavation dimensions of 45 m long and 22 m wide was considered for the proposed development. Since the proposed underground structure will be below the groundwater table, dewatering will be required during the excavation of overburden material.

The following section calculates the estimated dewatering required during the construction of the proposed developments using the steady-state flow equation for an unsealed excavation.

4.1 Total Estimation of Flow Rate- (Short Term/Construction Dewatering)

This section calculates the estimated dewatering needed considering the open-cut excavation methods.

As a conservative measure, the estimated dewatering values are based on the highest k-value obtained from the in-situ hydraulic testing and highest groundwater elevation using the Dupuit expression for an unconfined aquifer in steady-state conditions.

$$Q = \frac{\pi(H^2 - h^2)}{2.3 \log\left(\frac{R_0}{re}\right)}$$ Equation 4.1

$$R_0 = C(H - h)\sqrt{k}$$ Equation 4.2

$$r_e = \sqrt{\frac{ab}{\pi}}$$ Equation 4.3

Where,

Q- Flow rate = 3,700 L/day (7.5 m^3/day)

H- Initial Elevation of Water Table = 5.63 m
h- Final Elevation of Water Table = 1 m
K- Hydraulic Conductivity= 3.39 x 10^{-7} m/s
Ro- Radius of Influence = 25 m
Re- Equivalent Radius = 17 m
a- Length of excavation = 45 m
b- Width of excavation = 22 m
C- Dimensionless constant= 3

Additional pumping capacity may be required to maintain dry conditions within the open excavations during and following a major precipitation event. The estimated flow rate is based on the excavation dimensions and a 10 mm precipitation event in 24 hours. The total estimated dewatering that may be required from a 10 mm precipitation event is approximately **9,900 L/day (9.9 m^3/day).**

The total estimated daily rate for short term construction is estimated to be **15,000 L/day (15 m^3/day)** with an applied safety factor of %100. With the addition of storm water, the total estimated maximum daily rate would result to be **24,900 L/day (24.9 m^3/day).**

It is expected that the initial dewatering rate will be higher to remove groundwater within the overburden formation. The dewatering rates are expected to decrease once the target water level is achieved in the excavation footprint as groundwater will have been removed locally from storage resulting in lower seepage rates into the excavation. The maximum flow calculation is intended to provide a conservative value to account for unforeseeable conditions that may arise during construction.

4.3 Permanent Drainage (Long-term Discharge)

Following the construction of the underground structure, long-term groundwater flow to the underfloor drainage system for the building will be a function of the upward flux and from drainage along the foundation wall. The horizontal hydraulic gradient was calculated based on the groundwater levels recorded on September 1st, 2021. The Darcy flow equation was used to estimate permanent drainage to the building as follows:

$$Q = K\,x\,i\,x\,A \qquad \textit{EQUATION 4.4}$$

Where,

K- Hydraulic Conductivity (m/day)	0.029
i- Hydraulic Gradient	0.063
A- Area (m^2)	990
Q- Flow (L/day)	**1,800**

Based on the assumed design, depth to water and given K-value, the estimated permanent theoretical flow to the development is approximately **3,600 L/day (3.6 m^3/day)** with a safety factor of 100%. The drainage control system around and beneath the buildings should be designed with enough capacity to handle the expected permanent volume. This value is recommended to be verified once the underground construction is completed and access is provided to DS to assess actual flow rates at the sumps.

4.4 Permit Requirements

4.4.1 Environmental Activity and Sector Registry (EASR) /Permit to Take Water (PTTW) Application

An EASR is required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is between 50,000 L/day and 400,000 L/ day. The EASR application is an online registry and should be submitted to the MECP before any construction dewatering. A PTTW is only required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is more than 400,000 L/ day.

Since the expected design dewatering rate for the unsealed excavation is less than 50,000 L/day, an EASR application is not required to be submitted to the MECP for short-term dewatering prior to construction. Since the permanent drainage rate is below 50,000 L/day, a PTTW is not required for long-term discharge. These values can change based on actual soil and groundwater conditions at the site.

4.4.2 Discharge Permits (Construction Dewatering)

A discharge permit may be required from the Peel Region/City of Mississauga if groundwater is to be sent to the sewer system for construction dewatering and permanent drainage.

5.0 POTENTIAL IMPACTS

The following are the predicted potential impacts due to construction dewatering:

5.1 Local Groundwater Use

The study area is fully serviced by a municipal water supply system. It is not expected to have any use of groundwater as a source of drinking water within a radius of 500 meters from the Site or zone of influence (20 m from the centre of excavation).

5.2 Point of Discharge and Groundwater Quality

The reported analytical results indicated that no parameters were in exceedance of the Peel Region's Storm Sewer Discharge By-Law criteria except Total Suspended Solid (TSS), Total Kjeldahl Nitrogen and Manganese. All parameters met the Region's Sanitary Sewer Discharge By-Law criteria. Therefore, groundwater at the Site is not suitable for direct discharge into the Region's storm sewers without treatment. Treatment is needed to comply with the water quality limits set in for Peel Region's Table 2 Limits for Storm Sewer Discharge before any discharge. Treatment options include but are not limited to settlement and filtration of sediments.

5.3 Settlement Due to Dewatering Activities

There are structures and utilities within the maximum predicted zone of influence (ZOI) about 25 meters when considering an unsealed excavation. Since the proposed construction is anticipated to be constructed within the low permeable silty clay till deposits, settlement due to dewatering would be negligible.

5.4 Well Decommissioning

Following the completion of construction activities, all dewatering wells, well points, eductors and monitoring wells installed at various stages of this project must be decommissioned. The installation and eventual decommissioning of the wells and the dewatering system must be carried out by a licenced water well contractor in accordance with Regulation 903 of the Ontario Water Resources Act.

6.0 MONITORING AND MITIGATION

Based on the finding of hydrogeological assessment and associated potential impacts due to development, the following monitoring and mitigation program is provided:

- Baseline groundwater quality has been assessed and established before construction. However, groundwater quality can change based on several factors (land-use change, spills, etc.) and should be monitored during construction dewatering and after construction to ensure that water quality meets the guideline or regulations associated with any permits from the MECP and the Region.

- Once a groundwater dewatering system is set up at the Site, daily and weekly monitoring should be implemented to assess the groundwater conditions such as water levels, measurement of discharge flow, discharge water quality and any adverse impacts as a result of dewatering include settlement.

- Based on this preliminary dewatering assessment, an EASR application is not required. Additional monitoring may be required by the MECP to be implemented during the design stage.

- A discharge permit may be required to be submitted to the Peel Region/City of Mississauga for short-term dewatering if private water is sent to the sewer system.

- Following the completion of construction activities, all dewatering wells, well points, eductors and monitoring wells installed at various stages of this project must be decommissioned. The installation and eventual decommissioning of the wells and the dewatering system must be carried out by a licensed water well contractor in accordance with Regulation 903 of the Ontario Water Resources Act.

7.0 LIMITATIONS

This report was prepared for the sole use of the addressee to provide an assessment of the hydrogeological conditions on the property. The information presented in this report is based on information collected during the completion of the hydrogeological investigation. DS Consultants Limited was required to use and rely upon various information sources produced by other parties. The information provides in this report reflects DS' judgment in light of the information available at the time of report preparation. This report may not be relied upon by any other person or entity without the written authorization of DS Consultants Ltd. The scope of services performed in the execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or reuse of this documents or finding, conclusions, and recommendations represented herein, is at the sole risk of said users. The conclusions drawn from the Hydrogeological report were based on information at selected observation and sampling locations. Different conditions between and beyond these locations may become apparent during future investigations or on-site work, which could not be detected or anticipated at the time of this investigation. DS Consultants Ltd. cannot be held responsible for hydrogeological conditions at the site that was not apparent from the available information.

Should you have any questions regarding these findings, please do not hesitate to contact the undersigned.

DS Consultants Ltd.

Prepared By:

Meysam Jafari, M.Sc., P.Geo.
Geologist

Reviewed By:

Martin Gedeon, M.Sc., P.Geo.
Senior Hydrogeologist

8.0 CONSULTANT QUALIFICATIONS

Martin Gedeon, M.Sc., P.Geo., is a Professional Geoscientist (P.Geo.) with over 25 years of experience as an environmental/hydrogeological consultant in the areas of groundwater and soil monitoring, environmental site assessments, environmental due diligence, and remediation. Martin has significant experience in physical and contaminant hydrogeology across Canada and overseas and has provided hydrogeological/environmental technical support on various projects. Martin has prepared hundreds of hydrogeological reports in support of permit applications for a private sector development application, municipal dewatering operations, and provincial infrastructure projects across the province.

Meysam Jafari, M.Sc., P.Geo., is a Professional Geoscientist (P.Geo.) with DS Consultants Ltd. Meysam holds two master's degrees in Engineering Geology and Geology (Soil & Groundwater) and has several years of experience working in the geoscience industry. Meysam has experience with conducting Phase One and Phase Two Environmental Site Assessments, hydrogeological and geotechnical investigations in the Greater Toronto Area (GTA), and has been involved with project coordination, field assessments, data interpretation and reporting.

9.0 REFERENCES

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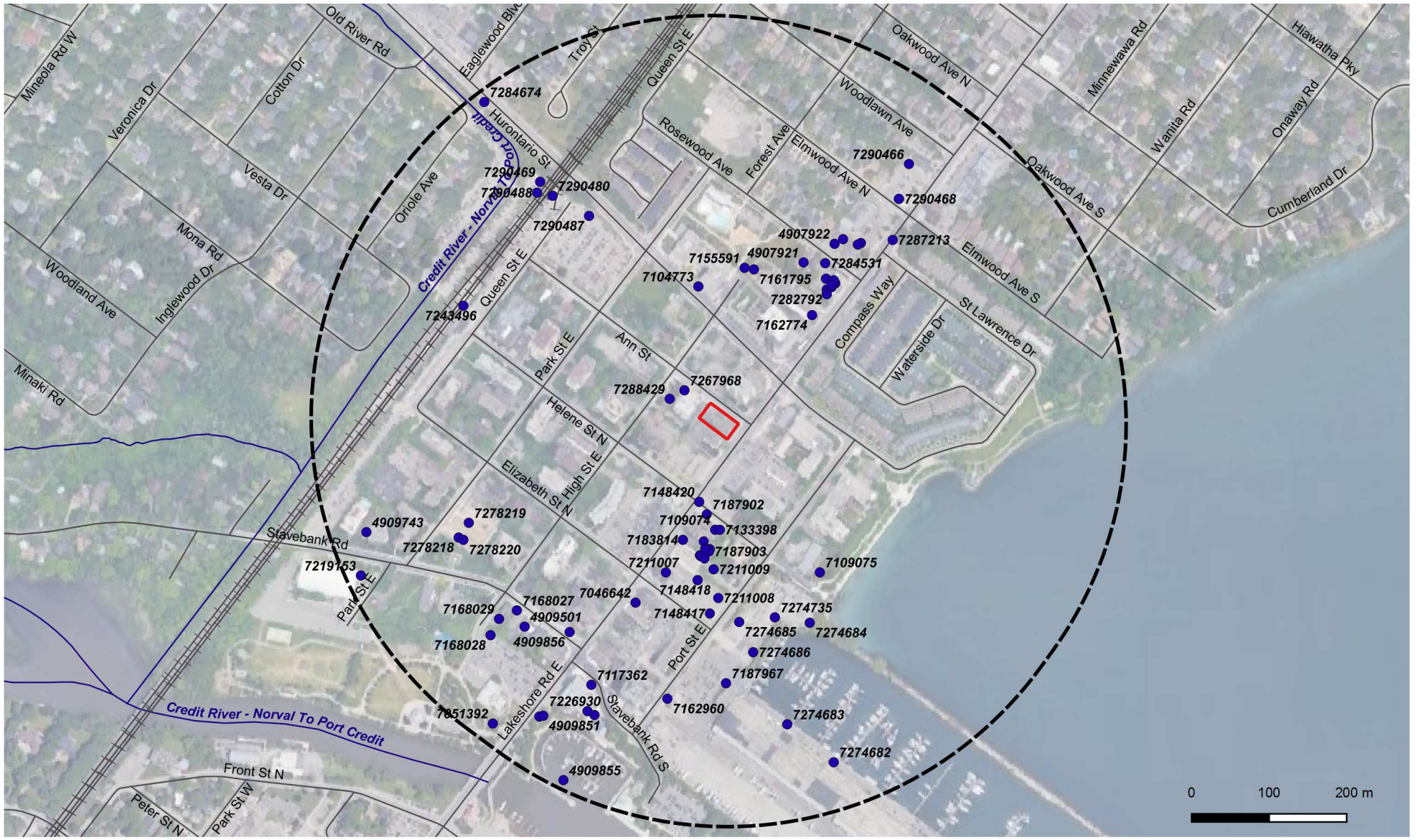
Figures

C:\0Sharon\21-090-100 128 Lakeshore Rd E\1-QGIS\HydroG\Figure 1 – Site Location and MECP Well Records.qgs Sep-22 19:29



Legend

- Approx Property Boundary
- 500m Buffer
- Registered Water Well (MECP WWR)

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Client: BLACK TUSK GROUP

Project: HYDROGEOLOGICAL INVESTIGATION
128 Lakeshore Road East, Misssissauga, ON

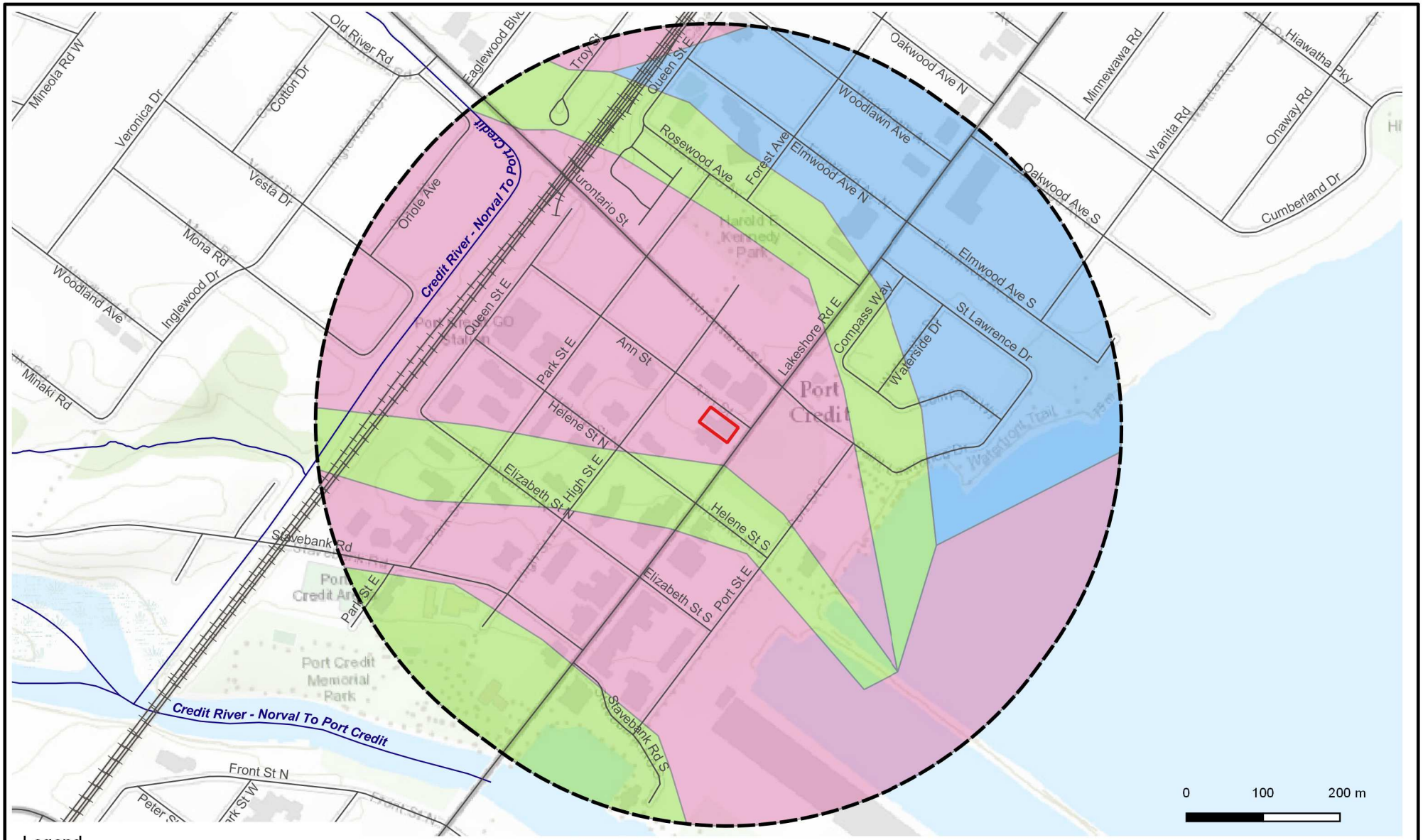
Title: **SITE LOCATION AND MECP WELL RECORDS**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	M.J	S.Y	September 2021
Rev: 0	Scale: As Shown	Project No.: 21-090-100	Figure No.: 1

Image/Map Source: *Google Satellite Image*

C:\0Sharon\21-090-100 128 Lakeshore Rd E\1-QGIS\HydroG\Figure 2 – Surficial Geology Map.qgs Sep-22 19:36



Legend

- Approx Property Boundary
- 500m Buffer
- 19 - Modern Alluvium
- 8b - Glaciolacustrine Deposits
- 9c- Coarse-textured Glacial Lake Deposits

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: HYDROGEOLOGICAL INVESTIGATION
128 Lakeshore Road East, Misssissauga, ON

Title: **SURFICIAL GEOLOGY MAP**

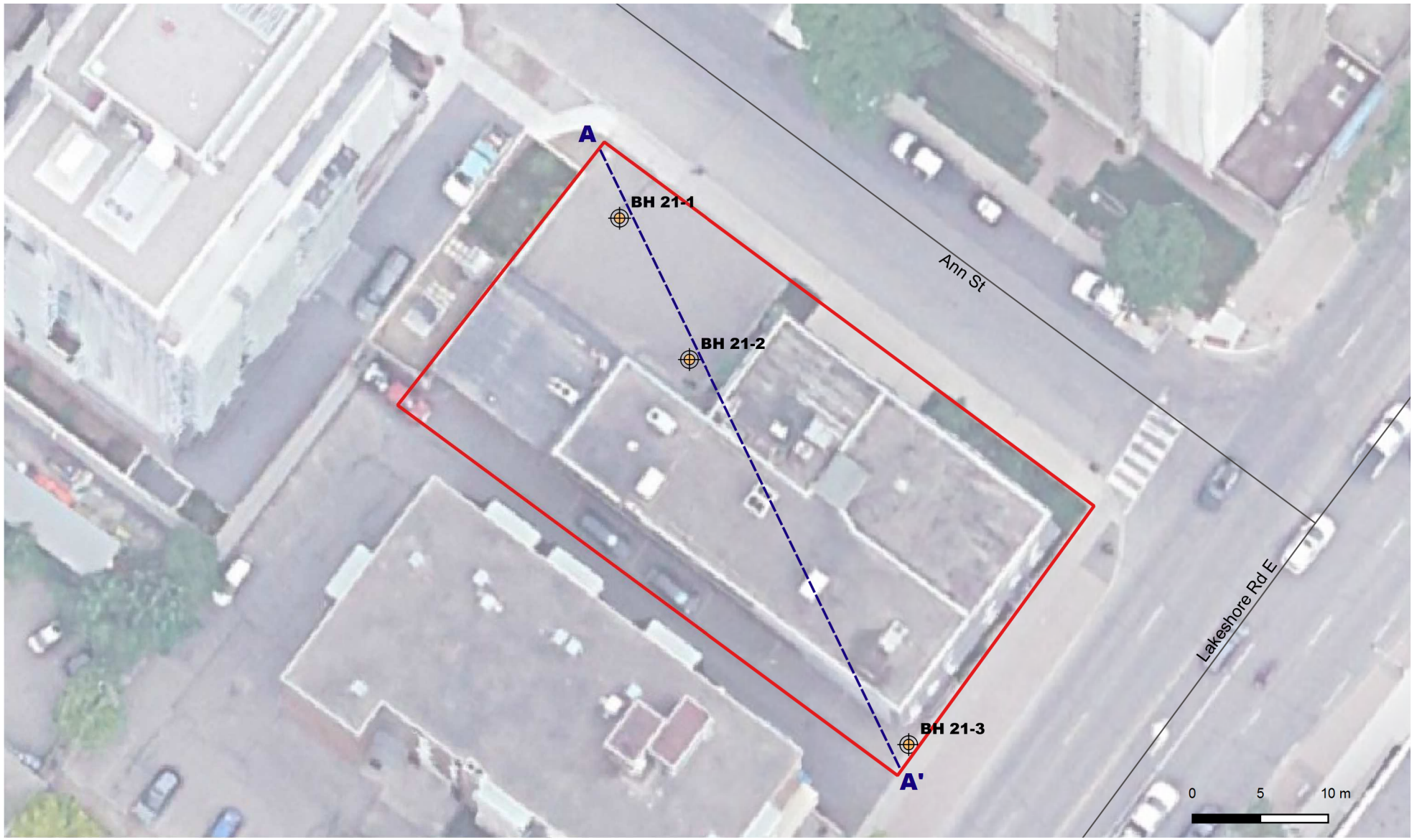
N

Client: BLACK TUSK GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	M.J	S.Y	September 2021
Rev: 0	Scale: As Shown	Project No.: 21-090-100	Figure No.: 2

Image/Map Source: *Google Satellite Image*

C:\0Sharon\21-090-100 128 Lakeshore Rd E\1-QGIS\HydroG\Figure 3 – Borehole and Monitoring Well Locations.qgs Sep-22 19:45



Legend

- Approx Property Boundary
- Cross Section
- Monitoring Well

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Vaughan, Ontario L4H 0K8
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Project: HYDROGEOLOGICAL INVESTIGATION
128 Lakeshore Road East, Misssissauga, ON

Title: **BOREHOLE AND MONITORING WELL LOCATIONS**

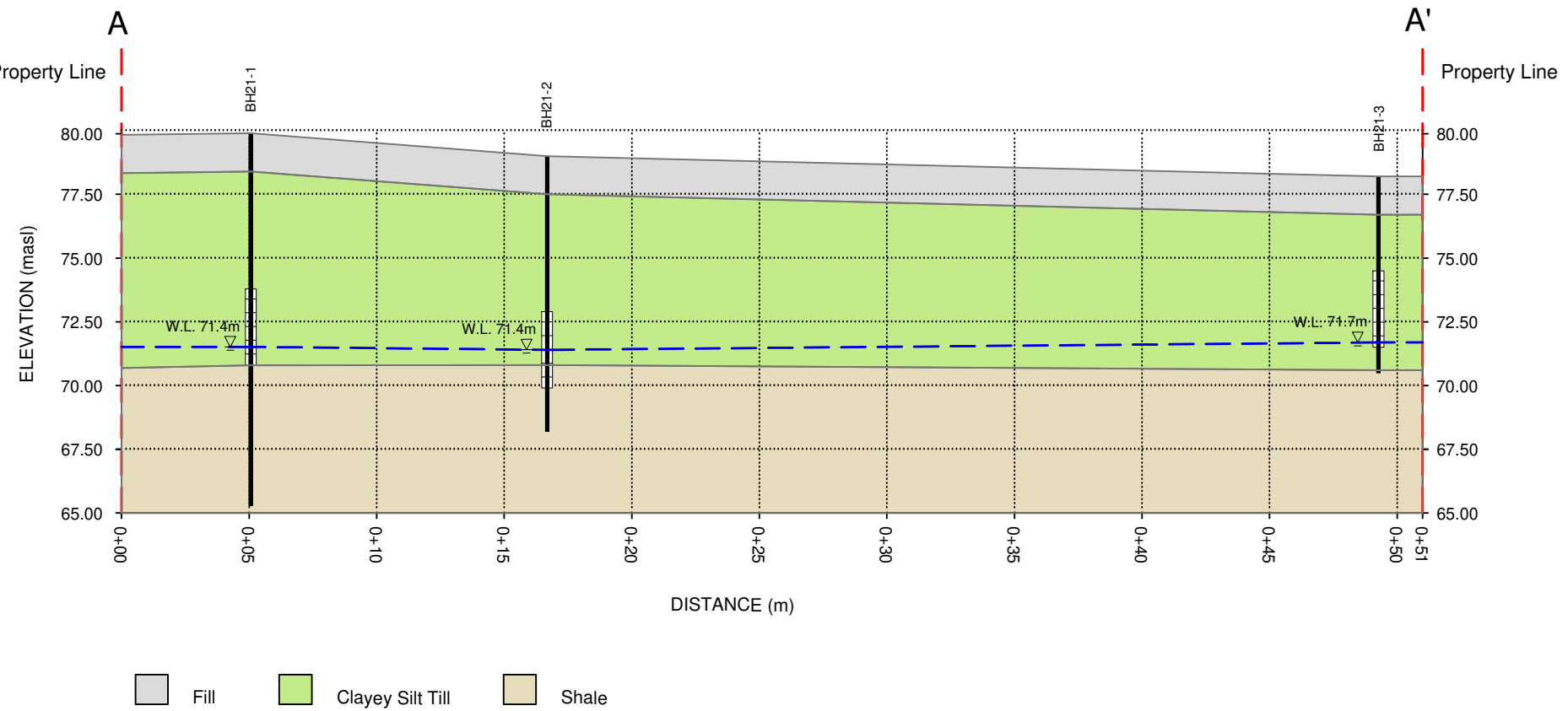
N

Client: BLACK TUSK GROUP

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	M.J	S.Y	September 2021
Rev: 0	Scale: As Shown	Project No.: 21-090-100	Figure No.: 3

Image/Map Source: *Google Satellite Image*

Path:c:\0sharon\21-090-100 128 lakeshore rd e\7-misc\cad\geological cross section 21-090.dwg



Horizontal Scale: 1:250
Vertical Scale: 1:250

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Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
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Project: HYDROGEOLOGICAL INVESTIGATION
128 Lakeshore Road East, Misssissauga, ON

Title: **GEOLOGICAL CROSS SECTION A-A'**

Client:	Size:	Approved By:	Drawn By:	Date:
BLACK TUSK GROUP	8.5 x 11	M.J	S.Y	October 2021
	Rev.	Scale: As Shown	Project No: 21-090-100	Figure No. 4

Appendices

Appendix A: Borehole Logs

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH21-1

PROJECT: Geotechnical Investigation - 128 Lakeshore Road East
CLIENT: BlackTusk Group Inc.
PROJECT LOCATION: 128 Lakeshore E, Mississauga, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4823422.96 E 614461.17

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-19-2021

REF. NO.: 21-090-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
79.7 / 0.0	**ASPHALT:** 100mm											
79.6 / 0.1	**FILL:** sandy silt, trace gravel, brown, moist, loose		1	SS	5		79					
78.9 / 0.8	**FILL:** clayey silt, trace sand, brown, moist, firm		2	SS	4							
78.2 / 1.5	**CLAYEY SILT:** trace sand, silt seams, brown, moist, stiff		3	SS	13		78					
77.4 / 2.3	**CLAYEY SILT TILL:** sandy, some gravel, occasional cobble, brown, moist, very stiff to hard grey below 3.1m		4	SS	24		77					
			5	SS	29		76					
			6	SS	39		75					
			7	SS	22		74					
72.1 / 7.6	**CLAYEY SILT TILL/SHALE COMPLEX:** sandy, some gravel, grey, moist, hard		8	SS	35		73					16 20 49 15
70.6 / 9.1	**SHALE BEDROCK:** Gerogian Bay formation, grey, weathered		9	SS	54/ 25mm	W. L. 71.5 m Oct 12, 2021	72					
			R1	RC			71					
			R2	RC			70					
			R3	RC			69					
			R4	RC			68					
65.1 / 14.6	**END OF BOREHOLE:** Notes: 1) Augar refusal at 9.1m. 2) 50mm dia. monitoring well installed upon completion. 3) Water Level Readings: Date: Water Level(mbgl): Oct. 12, 2021 8.22						67					
							66					

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 21-090-100-GEO.GPJ DS.GDT 21-10-19

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH21-2

PROJECT: Geotechnical Investigation - 128 Lakeshore Road East
CLIENT: BlackTusk Group Inc.
PROJECT LOCATION: 128 Lakeshore E, Mississauga, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4823412.55 E 614466.31

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-19-2021

REF. NO.: 21-090-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
79.0												
78.9	**ASPHALT:** 80mm											
78.8	**FILL:** sandy silt, trace organics, brown, moist, loose		1	SS	6							
78.2												
1 0.8	**FILL:** clayey silt, trace sand, silt seams, brown, moist, firm		2	SS	4		78					
77.5												
1.5	**CLAYEY SILT TILL:** some sand, some gravel, occasional cobble, brown, moist, very stiff to hard		3	SS	22		77					
2	grey below 2.3m		4	SS	25		76					
3			5	SS	40		75					
4												
5			6	SS	41		74					
6							73					
7			7	SS	25		72					
8	shale fragments below 7.6m		8	SS	38	W. L. 71.4 m Oct 12, 2021						20 18 48 14
70.8												
8.2	**SHALE BEDROCK:** Georgian Bay formation, grey, weathered		9	SS	50/ 150mm		70					
9												
10							69					
68.2												
10.8	**END OF BOREHOLE:**		10	SS	50/ 25mm							

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

Date:	Water Level(mbgl):
Oct. 01, 2021	7.62

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH21-3

PROJECT: Geotechnical Investigation - 128 Lakeshore Road East
CLIENT: BlackTusk Group Inc.
PROJECT LOCATION: 128 Lakeshore E, Mississauga, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4823383.99 E 614483.32

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-19-2021

REF. NO.: 21-090-100
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS "N" 0.3 m	GROUND WATER CONDITIONS	ELEVATION
78.1 / 0.0	**ASPHALT:** 50mm		1	SS	4		78
77.3 / 0.8	**FILL:** silty sand, trace brick pieces, brown, moist, loose						
76.6 / 1.5	**FILL:** silty clay, trace sand, brown to grey, moist, very soft		2	SS	2		77
	CLAYEY SILT TILL: sandy, trace gravel, brown, moist, stiff to hard		3	SS	14		
			4	SS	47		76
	grey below 3.1m		5	SS	35		75
			6	SS	53		74
	shale fragments at 6.1m		7	SS	57	W. L. 71.7 m Oct 12, 2021	73
70.5 / 7.6							72
70.4 / 7.7	**SHALE BEDROCK:** Georgian Bay formation, grey, weathered		8	SS			71
	END OF BOREHOLE:						

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water Level Readings:

Date:	Water Level(mbgl):
Oct. 12, 2021	6.46

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

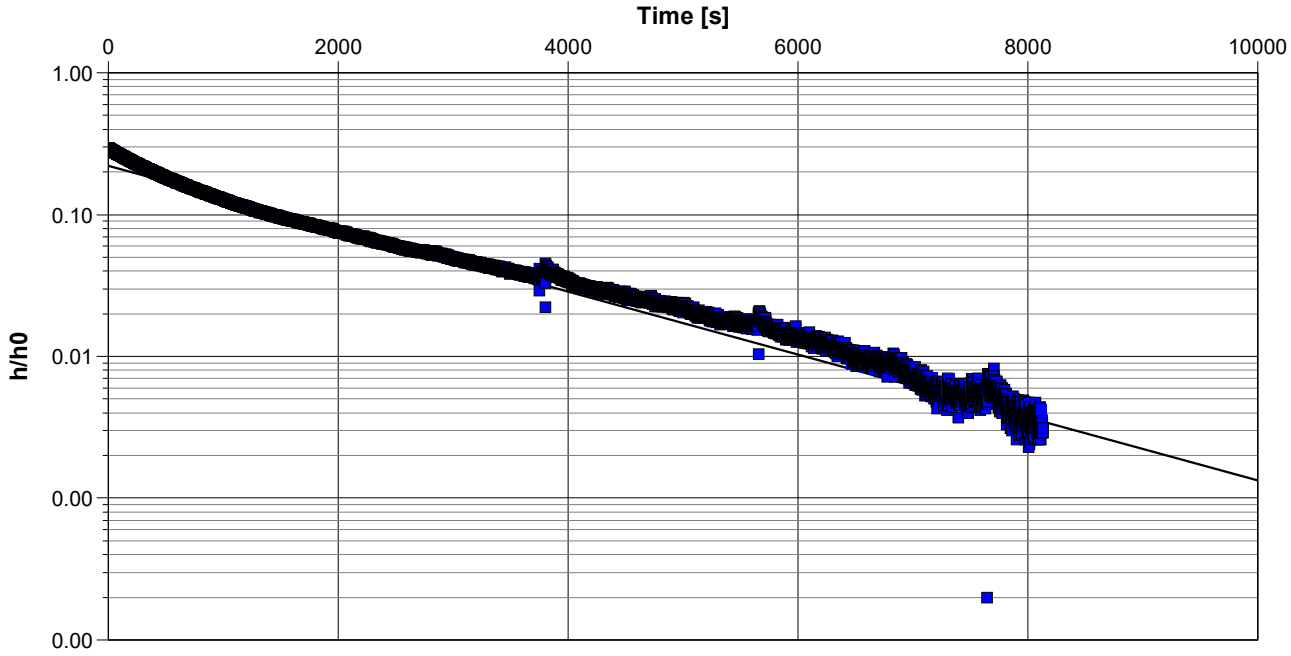
GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

Appendix B: Hydraulic Conductivity Analysis

Slug Test Analysis Report	
Project: 128 Lakeshore Road E.	
Number: 21-090-100	
Client: BlackTusk Group Inc.	

Location: Missassauga, ON	Slug Test: BH21-1	Test Well: BH21-1
Test Conducted by: HS		Test Date: 9/1/2021
Analysis Performed by: MJ	Hvorslev	Analysis Date: 9/14/2021
Aquifer Thickness:		

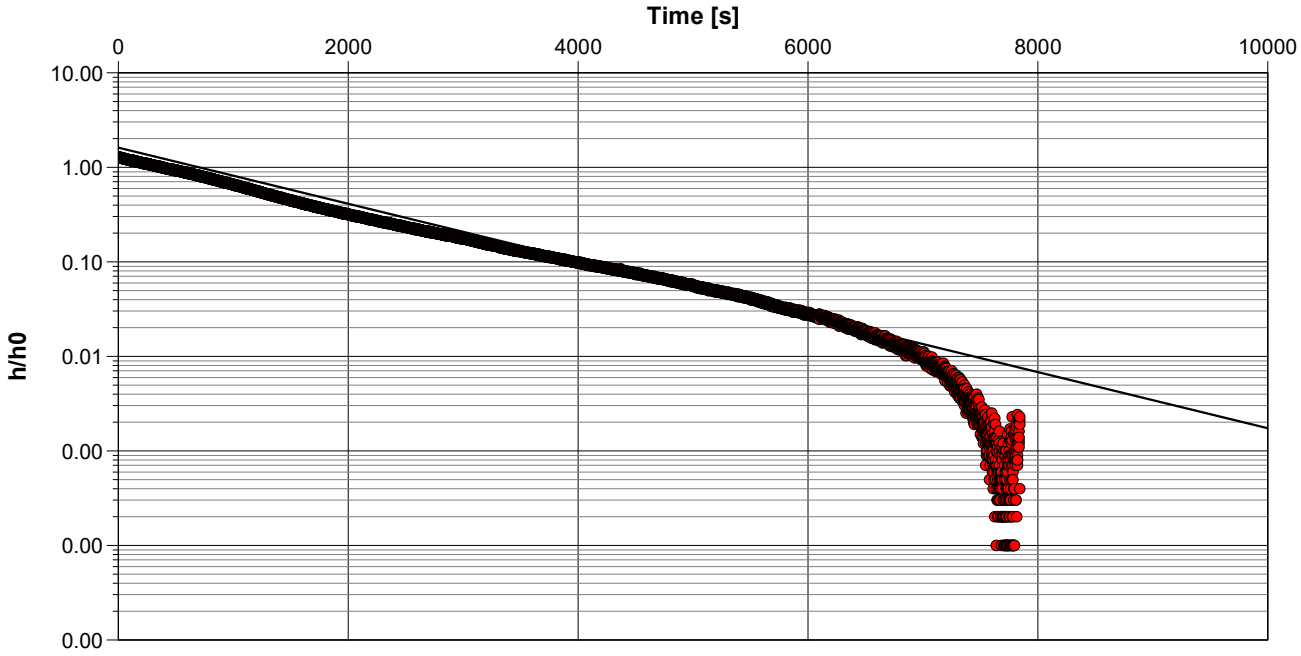


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
BH21-1	2.53×10^{-7}	

Slug Test Analysis Report	
Project: 128 Lakeshore Road E.	
Number: 21-090-100	
Client: BlackTusk Group Inc.	

Location: Missassauga, ON	Slug Test: BH21-2	Test Well: BH21-2
Test Conducted by: HS		Test Date: 9/1/2021
Analysis Performed by: MJ	Hvorslev	Analysis Date: 9/14/2021
Aquifer Thickness:		

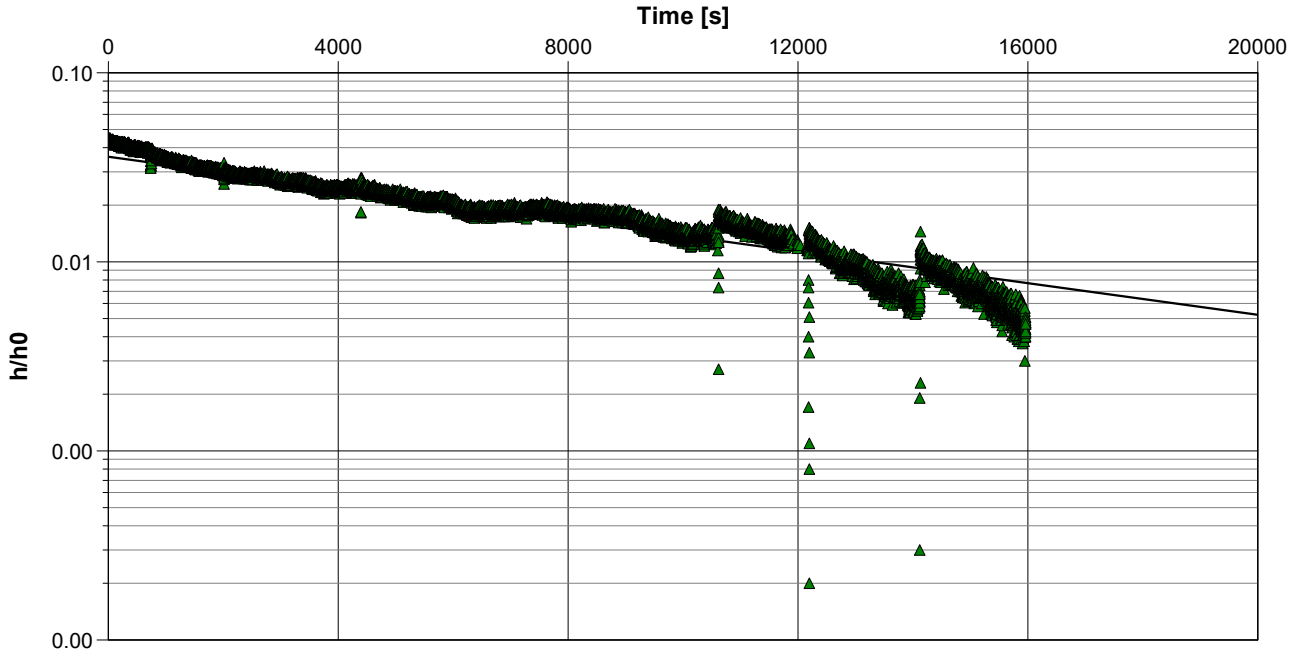


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
BH21-2	3.39×10^{-7}	

Slug Test Analysis Report	
Project: 128 Lakeshore Road E.	
Number: 21-090-100	
Client: BlackTusk Group Inc.	

Location: Missassauga, ON	Slug Test: BH21-3	Test Well: BH21-3
Test Conducted by: HS		Test Date: 9/1/2021
Analysis Performed by: MJ	Hvorslev	Analysis Date: 9/14/2021
Aquifer Thickness:		



Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
BH21-3	4.77×10^{-8}	

Appendix C: Groundwater Quality Certificate of Analysis

FINAL REPORT

CA14855-SEP21 R1

21-090-100, 128 Lakeshore Rd E

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada
Contact	Meysam Jafari
Telephone	905-264-9393
Facsimile	905-264-2685
Email	meysam.jafari@dsconsultants.ca
Project	21-090-100, 128 Lakeshore Rd E
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	CA14855-SEP21
Received	09/01/2021
Approved	09/10/2021
Report Number	CA14855-SEP21 R1
Date Reported	09/10/2021

COMMENTS

RL - SGS Reporting Limit

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

Chain of Custody Number: 026486

SIGNATORIES

Brad Moore Hon. B.Sc

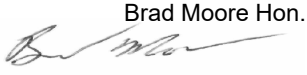


TABLE OF CONTENTS

Client: DS Consultants
Project: 21-090-100, 128 Lakeshore Rd E
Project Manager: Meysam Jafari
Samplers: Harminder Sahota

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

General Chemistry

Parameter	Units	RL	L1	L2	Result
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4 ↑
Total Suspended Solids	mg/L	2	350	15	233
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	3.4

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

Metals and Inorganics

Parameter	Units	RL	L1	L2	Result
Fluoride	mg/L	0.06	10		0.27
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		74
Aluminum (total)	mg/L	0.001	50		0.881
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0027
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000012
Chromium (total)	mg/L	0.00008	5	0.08	0.00142
Copper (total)	mg/L	0.0002	3	0.05	0.0012
Cobalt (total)	mg/L	0.000004	5		0.00160

Client: DS Consultants
Project: 21-090-100, 128 Lakeshore Rd E
Project Manager: Meysam Jafari
Samplers: Harminder Sahota

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

Metals and Inorganics (continued)

Parameter	Units	RL	L1	L2	Result
Lead (total)	mg/L	0.00009	3	0.12	0.00041
Manganese (total)	mg/L	0.00001	5	0.05	0.501
Molybdenum (total)	mg/L	0.00004	5		0.00526
Nickel (total)	mg/L	0.0001	3	0.08	0.0023
Phosphorus (total)	mg/L	0.003	10	0.4	0.094
Selenium (total)	mg/L	0.00004	1	0.02	0.00009
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00509
Titanium (total)	mg/L	0.00005	5		0.00807
Zinc (total)	mg/L	0.002	3	0.04	0.008

Client: DS Consultants
Project: 21-090-100, 128 Lakeshore Rd E
Project Manager: Meysam Jafari
Samplers: Harminder Sahota

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Sample Number: 8 Sample Name: BH21-2 Sample Matrix: Ground Water Sample Date: 01/09/2021
Microbiology					
E. Coli	cfu/100mL	-		200	< 2↑

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Sample Number: 8 Sample Name: BH21-2 Sample Matrix: Ground Water Sample Date: 01/09/2021
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Sample Number: 8 Sample Name: BH21-2 Sample Matrix: Ground Water Sample Date: 01/09/2021
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

Client: DS Consultants
Project: 21-090-100, 128 Lakeshore Rd E
Project Manager: Meysam Jafari
Samplers: Harminder Sahota

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

Parameter	Units	RL	L1	L2	Result
Other (ORP)					
pH	No unit	0.05	10	9	7.00
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

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)

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

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

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

Parameter	Units	RL	L1	L2	Result

Client: DS Consultants
Project: 21-090-100, 128 Lakeshore Rd E
Project Manager: Meysam Jafari
Samplers: Harminder Sahota

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

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

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010
L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

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
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

Client: DS Consultants
Project: 21-090-100, 128 Lakeshore Rd E
Project Manager: Meysam Jafari
Samplers: Harminder Sahota

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

L1 = SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH21-2
Sample Matrix	Ground Water
Sample Date	01/09/2021

VOCs - BTEX

Parameter	Units	RL	L1	L2	Result
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	0.27	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

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2
BH21-2					
Total Suspended Solids	SM 2540D	mg/L	233		15
Manganese	SM 3030/EPA 200.8	mg/L	0.501		0.05
Total Kjeldahl Nitrogen	SM 4500-N C/4500-NO3- F	mg/L	3.4		1

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-026

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
Sulphate	DIO5006-SEP21	mg/L	2	<2	ND	20	107	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENVIEWL-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)	BOD0002-SEP21	mg/L	2	< 2	12	30	107	70	130	86	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENVISFA-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)	SKA0056-SEP21	mg/L	0.01	<0.01	ND	10	91	90	110	NV	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENVIEWL-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	EWL0039-SEP21	mg/L	0.06	<0.06	ND	10	100	90	110	88	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0003-SEP21	mg/L	0.00001	< 0.00001	0	20	109	80	120	116	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0019-SEP21	mg/L	0.00005	<0.00005	ND	20	99	90	110	101	70	130
Aluminum (total)	EMS0019-SEP21	mg/L	0.001	<0.001	16	20	91	90	110	120	70	130
Arsenic (total)	EMS0019-SEP21	mg/L	0.0002	<0.0002	17	20	98	90	110	106	70	130
Cadmium (total)	EMS0019-SEP21	mg/L	0.000003	<0.000003	ND	20	99	90	110	98	70	130
Cobalt (total)	EMS0019-SEP21	mg/L	0.000004	<0.000004	18	20	97	90	110	104	70	130
Chromium (total)	EMS0019-SEP21	mg/L	0.00008	<0.00008	16	20	93	90	110	99	70	130
Copper (total)	EMS0019-SEP21	mg/L	0.0002	<0.0002	19	20	94	90	110	102	70	130
Manganese (total)	EMS0019-SEP21	mg/L	0.00001	<0.00001	5	20	94	90	110	99	70	130
Molybdenum (total)	EMS0019-SEP21	mg/L	0.00004	<0.00004	8	20	93	90	110	102	70	130
Nickel (total)	EMS0019-SEP21	mg/L	0.0001	<0.0001	14	20	95	90	110	100	70	130
Lead (total)	EMS0019-SEP21	mg/L	0.00009	<0.00001	11	20	104	90	110	108	70	130
Phosphorus (total)	EMS0019-SEP21	mg/L	0.003	<0.003	5	20	103	90	110	NV	70	130
Antimony (total)	EMS0019-SEP21	mg/L	0.0009	<0.0009	ND	20	104	90	110	99	70	130
Selenium (total)	EMS0019-SEP21	mg/L	0.00004	<0.00004	7	20	94	90	110	99	70	130
Tin (total)	EMS0019-SEP21	mg/L	0.00006	<0.00006	12	20	96	90	110	NV	70	130
Titanium (total)	EMS0019-SEP21	mg/L	0.00005	<0.00005	14	20	97	90	110	NV	70	130
Zinc (total)	EMS0019-SEP21	mg/L	0.002	<0.002	10	20	92	90	110	104	70	130

QC SUMMARY

Microbiology

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9038-SEP21	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0080-SEP21	mg/L	0.01	<0.01			92	55	120			
Nonylphenol Ethoxylates	GCM0080-SEP21	mg/L	0.01	0								
Nonylphenol monoethoxylate	GCM0080-SEP21	mg/L	0.01	<0.01			91	55	120			
Nonylphenol	GCM0080-SEP21	mg/L	0.001	<0.001			89	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0132-SEP21	mg/L	2	<2	NSS	20	98	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0132-SEP21	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0132-SEP21	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0035-SEP21	No unit	0.05	NA	1		100			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENVISFA-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	SKA0027-SEP21	mg/L	0.002	<0.002	ND	10	105	80	120	103	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENVIGC-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	GCM0106-SEP21	mg/L	0.0001	<0.0001	NSS	30	105	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0070-SEP21	mg/L	0.002	< 0.002	NSS	30	136	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0070-SEP21	mg/L	0.002	< 0.002	NSS	30	140	50	140	NSS	50	140

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENV]EWL-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	EWL0051-SEP21	mg/L	2	< 2	0	10	96	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENV]SFA-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	SKA0044-SEP21	as N mg/L	0.5	<0.5	ND	10	95	90	110	77	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	86	60	130	88	50	140
1,2-Dichlorobenzene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	82	60	130	80	50	140
1,4-Dichlorobenzene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	82	60	130	80	50	140
Benzene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	87	60	130	83	50	140
Chloroform	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	83	60	130	81	50	140
cis-1,2-Dichloroethene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	83	60	130	81	50	140
Ethylbenzene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	84	60	130	81	50	140
m-p-xylene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	85	60	130	84	50	140
Methyl ethyl ketone	GCM0076-SEP21	mg/L	0.02	<0.02	ND	30	91	50	140	94	50	140
Methylene Chloride	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	89	60	130	81	50	140
o-xylene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	83	60	130	81	50	140
Styrene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	85	60	130	82	50	140
Tetrachloroethylene (perchloroethylene)	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	87	60	130	84	50	140
Toluene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	85	60	130	81	50	140
trans-1,3-Dichloropropene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	84	60	130	81	50	140
Trichloroethylene	GCM0076-SEP21	mg/L	0.0005	<0.0005	ND	30	85	60	130	81	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.

-- End of Analytical Report --

DO NOT TAMPER SGS

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

Request for Laboratory Services and CHAIN OF CUSTODY

No: 026486
Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Sarah
Received Date: 09/01/2021 (mm/dd/yy)
Received Time: 16:30 (hr:min)
Received By (signature):
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C): 9c 9c 9c
LAB LIMS #: CA14855-SEP21

REPORT INFORMATION

Company: DS Consultants Ltd.
Contact: Meysam Jayari
Address: 6221 Hwy 7, Unit 16
Vaughn, ON
Phone: 647 831 5596
Fax:
Email: Meysam.jayari@dsconsultants.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email: accounting@dsconsultants.ca

Quotation #:
P.O. #:
Project #: 21-090-100
Site Location/ID: 128 Lakeshore Rd E

TURNAROUND TIME (TAT) REQUIRED

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

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

Sewer By-Law:
☑ Sanitary
☑ Storm
Municipality: PEEL

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg, pH, (B(HWS), EC, SAR – soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni,	SVOC: PAHs only	SVOC: SVOCs (all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Aroclor ☐ Total	PHC: F1-F4 + BTEX	PHC: F1-F4 only (no BTEX	VOC: VOCs (all incl BTEX	VOC: BTEX only	Pest: Pesticides (Organochlorine or specify other	Other: (Peel Storm e Sanitary use)	Other	Other	Other	Other: Sewer Use: (Specify pkg:)	Other: Water Characterization Pkg ☐ Extended ☐ General	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	BH21-2	Sept 1/21	PM	17	GW	N												✓								Non-filtered Sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Harminder Sahota	Signature: Harminder	Date: 09,01,21 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Harminder Sahota	Signature: Harminder	Date: 09,01,21 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.5
Date of Issue: 11 June 2021

Appendix D: MECP Water Wells Records

Preliminary Hydrogeological Investigation- Proposed Residential Building - 128 Lakeshore Road East, Mississauga, Ontario												
TOWNSHIP C	**UTM**	**E**	**N**	**DATE CNTR**	**CASING**	**WATER**	**UMP TES**	**WELL USE**	**SCREEN**	**WELL**	**1**	**FORMATION**
MISSISSAUGA CITY	17 W	614426	4823445	2016/06 7230						7267968	(C33944) A203341 P	
MISSISSAUGA CITY	17 W	614445	4823301	2010/06 7241	1.25			MT	0006 5	7148420	(Z116136) A099961	BRWN SAND 0008 BRWN SILT SAND 0011
MISSISSAUGA CITY	17 W	614446	4823232	2010/06 7241	1.5			MT	0005 10	7148419	(Z114391) A099909	BRWN SAND LOOS 0008 GREY SILT SAND LOOS 0015
MISSISSAUGA CITY	17 W	614443	4823200	2010/06 7241	1.5			MT	0005 10	7148418	(Z114392) A099972	BRWN SAND LOOS 0008 GREY SILT SAND 0015
MISSISSAUGA CITY	17 W	614621	4823583	2017/02 7241						7282791	(Z253454) A185650	
MISSISSAUGA CITY	17 W	614610	4823575	2017/02 7241	1.25				0002 5	7282792	(Z253456) A185651	GREY CLAY SHLE WTHD 0005 0007
MISSISSAUGA CITY	17 W	614601	4823210	2008/07 7241	1.5			MO	0006 10	7109075	(Z81870) A073010	BLCK ---- FILL LOOS 0004 BRWN SAND SILT LOOS 0010 GREY SAND SILT WBRG 0016 CLAY
MISSISSAUGA CITY	17 W	614466	4823265	2008/07 7241	1.5			MO	0006 10	7109074	(Z81860) A075601	BLCK ---- FILL LOOS 0004 BRWN SAND SILT LOOS 0010 GREY SAND SILT WBRG 0016 CLAY
MISSISSAUGA CITY	17 W	614444	4823579	2008/04 7082						7104773	(Z70743) A057183 A	
MISSISSAUGA CITY	17 W	614459	4823157	2010/06 7241	1.5			MT	0005 10	7148417	(Z116139) A099993	BRWN SAND 0008 BRWN SILT SAND 0015
MISSISSAUGA CITY	17 W	614363	4823171	2007/06 7241	1.5				0009 10	7046642	(Z74027) A061569	BRWN FILL GRVL SOFT 0007 BRWN SAND SILT FSND 0011 GREY SILT SAND
MISSISSAUGA CITY	17 W	614220	4823140	2004/06 6607	1.97	FR 0013			0015 5	4909501	(Z14488) A011790	BRWN SAND GRVL 0001 BRWN SILT SAND 0011 GREY SILT SAND 0011 0020
MISSISSAUGA CITY	17 W	614703	4823692	2017/05 6607	2			MO	0013 10	7290467	(Z248369) A224507	BRWN SAND GRVL SILT 0003 BRWN SILT TILL DNSE 0017 GREY SAND SILT
MISSISSAUGA CITY (	17 W	614447	4823231	2012/05 7241	1.58			MT	0005 10	7183549	(Z151075) A125621	BRWN SAND GRVL SOFT 0003 BRWN SAND SILT SOFT 0010 GREY SILT FSND
MISSISSAUGA CITY (	17 W	614310	4823026	2012/09 7501	2			MO	0017 10	7187652	(Z150321) A130554	BRWN SAND GRVL LOOS 0003 GREY SILT CLAY DNSE 0020 GREY SILT CLAY SAND 0027
MISSISSAUGA CITY (	17 W	614459	4823240	2010/12 7241	0.75			MT	0008 10	7157716	(Z126423) A094140	BRWN CLAY SILT SOFT 0002 BRWN SAND GRVL SOFT 0016 BRWN SAND
MISSISSAUGA CITY (	17 W	614453	4823241	2010/12 7241	0.75			MT	0004 8	7157717	(Z126421) A093952	BRWN SILT CLAY DNSE 0006 BRWN SAND SILT 0012
MISSISSAUGA CITY (	17 W	614591	4823542	2011/03 6607						7162774	(M08457) A110337 P	

MISSISSAUGA CITY (	17 W	614424	4823252	2012/05 7241	1.36			MT	0002 2	7183814	(Z151073) A113461	WHIT ---- HARD 0001 BRWN SAND GRVL SOFT 0003 GREY SILT FSND SOFT 0005
MISSISSAUGA CITY (	17 W	614404	4823047	2011/04 7215	2			TH	0005 10	7162960	(Z129084) A103116	BRWN GRVL FILL LOOS 0005 BRWN CLAY SAND SOFT 0015
MISSISSAUGA CITY (	17 W	614452	4823228	2012/05 7241	1.58			MT	0005 10	7183548	(Z151074) A125614	BRWN SAND GRVL SOFT 0003 BRWN SILT SAND SOFT 0010 GREY SILT FSND SOFT 0015
MISSISSAUGA CITY (	17 W	614187	4823150	2011/07 7241	2			MT	0010 10	7168029	(Z136784) A114323	
MISSISSAUGA CITY (	17 W	614451	4823250	2010/12 7241	1.25			MT	0006 4	7157715	(Z126422) A094139	BRWN CLAY GRVL SOFT 0003 BRWN SAND GRVL 0006
MISSISSAUGA CITY (	17 W	614176	4823129	2011/07 7241	2			MT	0010 10	7168028	(Z136783) A114329	
MISSISSAUGA CITY (	17 W	614210	4823161	2011/07 7241	2			MT	0010 10	7168027	(Z136782) A114327	BRWN SILT SAND 0008 GREY SILT SAND WBRG 0020
MISSISSAUGA CITY (	17 W	614516	4823601	2011/02 6607						7161795	(M08435) A100950 P	
MISSISSAUGA CITY (	17 W	614278	4823133	2005/06 7219	2		4///:	NU		4909856	(Z29080) A027048 A	
MISSISSAUGA CITY (	17 W	614016	4823262	2005/03 1129	1.97				0016 10	4909743	(Z26277) A025747	BRWN SAND SILT GRVL 0002 BRWN SILT FSND 0012 GREY SILT CLAY SAND
MISSISSAUGA CITY (	17 W	614239	4823024	2005/04 1129	1.97				0010 10	4909772	(Z26278) A026654	BRWN SILT SAND 0005 BRWN SAND MSND 0010 GREY SILT SAND FGRD 0020 GREY SAND MGRD 0022
MISSISSAUGA CITY (	17 W	614244	4823025	2005/06 7219	2			NU		4909851	(Z29075) A027050 A	
MISSISSAUGA CITY (	17 W	614472	4823265	2009/09 6032				MO	0004 10	7133398	(Z095900) A083930	BLCK ---- HARD 0000 BRWN SILT SAND LOOS 0008 GREY SILT STNS DNSE 0015
MISSISSAUGA CITY (	17 W	614270	4822942	2005/05 7219	2		5///:	NU		4909855	(Z29076) A027058 A	
MISSISSAUGA CITY (	17 W	614504	4823603	2010/07 6607	2.00 2.00			MO		7155591	(M07281) A100950	BRWN SILT CLAY GRVL 0011 GREY SILT CLAY GRVL 0019
MISSISSAUGA CITY (	17 W	614179	4823015	2007/06 1129	1.97		///:			7051392	(Z67536) A055502	BRWN LOAM SAND SOFT 0001 BRWN SILT CLAY DRY 0005 GREY SAND SILT MSND 0006 BRWN SILT CLAY STNS 0009 GREY CLAY SAND SOFT 0019
MISSISSAUGA CITY (	17 W	614458	4823237	2012/08 7241	2			MT	0005 10	7187903	(Z156839) A137098	BRWN FILL 0004 BRWN TILL 0006 BRWN SAND SILT 0008 GREY SILT SAND WBRG 0015
MISSISSAUGA CITY (	17 W	614306	4823065	2008/07 6607	2	4		MO		7117362	(M02487) A069693	BRWN FILL 0005 GREY CLAY 0015

MISSISSAUGA CITY (	17 W	614455	4823285	2012/08 7241	2			MT	0005 10	7187902	(Z156841) A137099	BRWN FILL 0004 BRWN TILL 0006 BRWN SAND SILT 0008 GREY SILT SAND WBRG 0015
MISSISSAUGA CITY (	17 W	614608	4823609	2017/03 7147	1.97	UT 0005			0003 5	7284531	(Z246111) A195287 A	
MISSISSAUGA CITY (	17 W	614453	4823240	2012/08 7241	2			MT	0005 10	7187901	(Z156840) A137100	BRWN FILL 0004 BRWN TILL 0006 BRWN SAND SILT 0008 GREY SILT SAND WBRG 0015
MISSISSAUGA CITY (	17 W	614610	4823569	2017/03 7147	1.25	UT 0000			0002 4	7284532	(Z246110) A185544 A	
MISSISSAUGA CITY (	17 W	614609	4823589	2017/03 7147	1.97	UT 0005			0010 4	7284533	(Z246113) A	
MISSISSAUGA CITY (	17 W	614616	4823578	2017/03 7147	1.25	UT 0000			0002 5	7284534	(Z246109) A217251 A	
MISSISSAUGA CITY (	17 W	614619	4823587	2017/03 7147	1.25	UT 0000			0002 5	7284535	(Z246108) A217243 A	
MISSISSAUGA CITY (	17 W	614168	4823817	2017/03 6607	2	UT 0019		MO	0020 5	7284674	(Z248219) A217853	BRWN SAND FILL PCKD 0005 BRWN SILT TILL DNSE 0010 GREY SILT TILL DNSE 0019 GREY SAND LOOS 0025
MISSISSAUGA CITY (	17 W	614654	4823635	2017/03 7464						7295291	(C37174) A208405 P	
MISSISSAUGA CITY (	17 W	614616	4823581	2017/02 7241	1.25				0002 5	7282790	(Z253455) A217279	GREY CLAY SHLE WTHD 0005 0007
MISSISSAUGA CITY (	17 W	614695	4823639	2017/04 7464	2			MO	0010 10	7287213	(Z234258) A222349	BRWN FILL LOOS 0003 BRWN SILT CLAY PCKD 0010 GREY SILT CLAY PCKD 0020
MISSISSAUGA CITY (	17 W	614407	4823434	7230	5	UT 0005		TH	0003 3	7288429	(Z230821) A203341 A	
MISSISSAUGA CITY (	17 W	614716	4823737	2017/05 6607	2			MO	0013 10	7290466	(Z248368) A224506	BRWN SAND GRVL SILT 0003 BRWN SILT TILL DNSE 0017 GREY SAND SILT
MISSISSAUGA CITY (	17 W	614703	4823692	2017/05 6607	2			MO	0009 10	7290468	(Z248370) A224505	BRWN SAND GRVL SILT 0003 BRWN SILT TILL DNSE 0017 GREY SAND SILT
MISSISSAUGA CITY (	17 W	614240	4823714	2017/05 6607	2			MO	0022 10	7290469	(Z248389) A224416	BLCK ---- GRVL DNSE 0001 BRWN ---- SAND LOOS 0002 BRWN SILT SAND ---- 0008 GREY SAND SILT GRVL 0033
MISSISSAUGA CITY (	17 W	614256	4823696	2017/05 6607	2			MO	0030 10	7290480	(Z248282) A209829	BRWN SAND GRVL FILL 0002 BRWN SILT SAND DNSE 0011 GREY SILT CLAY DNSE 0025 GREY CLAY SILT DNSE 0030 GREY SHLE LMSN LYRD 0039
MISSISSAUGA CITY (	17 W	614303	4823670	2017/05 6607	2			MO	0034 10	7290487	(Z248283) A224322	BRWN SAND GRVL FILL 0002 BRWN SILT SAND DNSE 0008 GREY SILT CLAY DNSE 0029 GREY SHLE LMSN LYRD

MISSISSAUGA CITY (	17 W	614236	4823700	2017/05 6607	2			MO	0032 10	7290488	(Z248281) A224419	BRWN SAND GRVL FILL 0003 BRWN SAND SILT LOOS 0007 BRWN SILT CLAY DNSE 0010 GREY SILT CLAY DNSE 0030 GREY SHLE LMSN LYRD 0044
MISSISSAUGA CITY (	17 W	614141	4823554	2015/06 7147	1.97	UT 0012		MO	0010 10	7243496	(Z203315) A175784	GREY 0001 BRWN 0011 BRWN SAND TILL 0020
MISSISSAUGA CITY (	17 W	614480	4823067	2012/08 7241	1.6			MT	0005 10	7187967	(Z148598) A131120	BRWN SAND GRVL FILL 0002 BRWN SILT SAND LOOS 0010 GREY SILT CLAY SOFT 0015
MISSISSAUGA CITY (	17 W	614402	4823210	2013/05 7472	2.04			MO	0030 10	7211007	(Z179108) A155432	BRWN FSND DNSE 0020 GREY SHLE CLAY HARD 0040
MISSISSAUGA CITY (	17 W	614470	4823177	2013/05 7472	2.04			MO	0030 10	7211008	(Z179109) A155431	BRWN FSND DNSE 0020 GREY SHLE CLAY HARD 0040
MISSISSAUGA CITY (	17 W	614464	4823214	2013/05 7472	2.04			MO	0030 10	7211009	(Z179110) A155430	BRWN FSND DNSE 0020 GREY SHLE CLAY HARD 0040
MISSISSAUGA CITY (	17 W	614301	4823031	2014/07 7241	2.04			MT	0010 10	7226930	(Z192976) A	
MISSISSAUGA CITY (	17 W	614619	4822965	2016/08 6607	2	UT		MO	0005 5	7274682	(Z229228) A201573	BRWN SAND STNS LOOS 0010
MISSISSAUGA CITY (	17 W	614559	4823014	2016/08 6607	2	UT		MO	0005 5	7274683	(Z229229) A201589	BRWN SAND STNS LOOS 0010
MISSISSAUGA CITY (	17 W	614588	4823145	2016/08 6607	2	UT		MO	0008 5	7274684	(Z229244) A209766	BRWN SAND GRVL LOOS 0003 BRWN FILL SAND LOOS 0013
MISSISSAUGA CITY (	17 W	614497	4823146	2016/08 6607	2	UT		MO	0008 5	7274685	(Z229245) A209765	BRWN SAND GRVL LOOS 0003 BRWN SILT SAND DNSE 0009 GREY SILT GRVL DNSE 0013
MISSISSAUGA CITY (	17 W	614515	4823107	2016/08 6607	2	UT		MO	0008 5	7274686	(Z229246) A209764	BRWN SAND GRVL LOOS 0003 BRWN SILT FILL LOOS 0010 GREY SILT SAND
MISSISSAUGA CITY (	17 W	614543	4823152	2016/08 6607	2	UT		MO	0008 5	7274735	(Z229247) A209763	BRWN SAND GRVL LOOS 0003 BRWN FILL ROCK LOOS 0010 GREY SILT SAND DNSE 0013
MISSISSAUGA CITY (	17 W	614135	4823255	2016/12 7238	1			MO	0039 10	7278218	(Z232728) A213503	LOAM 0005 GREY CLAY SOFT 0015 GREY CLAY 0020 CLAY GRVL 0030 LMSN 0049
MISSISSAUGA CITY (	17 W	614148	4823274	2016/12 7238	2			MO	0014 10	7278219	(Z232729) A213501	BRWN LOAM 0002 BRWN CLAY SOFT 0010 GREY CLAY SILT 0015 CLAY GRVL
MISSISSAUGA CITY (	17 W	614141	4823252	2016/12 7238	2			MO	0010 10	7278220	(Z232730) A213502	BRWN LOAM 0002 BRWN CLAY 0008 GREY CLAY SILT SOFT 0015 GREY CLAY GRVL 0025 GREY CLAY GRVL HARD
MISSISSAUGA CITY (	17 W	614009	4823206	2013/10 6809	2	FR 0012		MT	0012 5	7219153	(Z175941) A145615	BRWN FILL 0012 BRWN TILL 0015 GREY TILL 0022
MISSISSAUGA CITY (	17 W	614631	4823640	1994/10 1839		FR 0017		NU	0014 5	4907920	-148110	BRWN TILL SILT DNSE 0018 BRWN SAND GRVL DNSE 0019

MISSISSAUGA CITY (	17 W	614650	4823633	1994/10 1839		FR 0022		NU	0018 5	4907923	-148124	BRWN TILL SILT DNSE 0014 GREY SAND GRVL DNSE 0023
MISSISSAUGA CITY (	17 W	614620	4823634	1994/10 1839		FR 0013		NU	0004 10	4907922	-148109	BRWN TILL CLAY DNSE 0002 BRWN TILL SILT DNSE 0012 GREY TILL SILT
MISSISSAUGA CITY (	17 W	614580	4823610	1994/10 1839		FR 0018		NU	0013 10	4907921	-148111	BRWN TILL SILT DNSE 0007 GREY SILT DNSE 0015 GREY SAND DNSE 0023