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Consulting Geotechnical & Environmental Engineering Construction Materials Inspection & Testing

> File No. 1-20-0222-46 Brampton Office

November 26, 2020

Swaminarayan Mandir Vasna Sanstha Canada (SMVS) 114 Toryork Drive Toronto, Ontario M9L 1X6

Attention: Mr. Rasik Patel (SMVS)

RE: HYDROGEOLOGICAL ASSESSMENT REPORT 6939 KING STREET CALEDON, ONTARIO

Dear Mr. Rasik Patel:

Terraprobe Inc. is pleased to provide Swaminarayan Mandir Vasna Sanstha Canada (SMVS) with the result of the hydrogeological assessment for 6939 King Street, Caledon, Ontario. The following document is provided as part of this package:

Hydrogeological Assessment Report (Final)

The hydrogeological assessment report includes findings for groundwater monitoring program, groundwater quality assessment, and short-term construction dewatering flow rate estimation. Additionally, the report includes a pre- and post-development water balance.

If you have any questions or concerns regarding this document, please do not hesitate to contact the undersigned.

Yours truly, Terraprobe Inc.

Aleku

Amar Neku, Ph.D., P.Eng., P.Geo. Project Engineer

Narjes Alijani, M.Sc., P.Geo. Project Manager

Greater Toronto

11 Indell Lane Brampton, Ontario L6T 3Y3 (905) 796-2650 Fax: 796-2250 Hamilton – NiagaraCentra903 Barton Street, Unit 22220 BaStoney Creek, Ontario L8E 5P5Barrie,(905) 643-7560 Fax: 643-7559(705) 7www.terraprobe.ca

Terraprobe Inc.

Central Ontario 220 Bayview Drive, Unit 25 Barrie, Ontario L4N 4Y8 (705) 739-8355 Fax: 739-8369

Northern Ontario

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



HYDROGEOLOGICAL ASSESSMENT **6939 KING STREET CALEDON, ONTARIO**

Prepared for:

Swaminarayan Mandir Vasna Sanstha Canada (SMVS) 114 Toryork Drive **Toronto**, Ontario M9L 1X6

Attention:

Mr. Rasik Patel (SMVS)

File No 1-20-0222-46 November 26, 2020

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Terraprobe Inc.

Greater Toronto 11 Indell Lane Brampton, Ontario L6T 3Y3 (905) 796-2650 Fax: 796-2250 HaCaledon – Niagara 903 Barton Street, Unit 22 Stoney Creek, Ontario L8E (905) 643-7560 Fax: 643-7559

Central Ontario 220 Bayview Drive, Unit 25 Barrie, Ontario L4N 4Y8 (705) 739-8355 Fax: 739-8369 www.terraprobe.ca

Northern Ontario

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

1.0 EXECUTIVE SUMMARY

Terraprobe Inc. (Terraprobe) was retained by Swaminarayan Mandir Vasna Sanstha Canada (SMVS) to conduct a Hydrogeological Assessment for the proposed development of municipal address 6939 King Street, Caledon, Ontario (the 'Site').

The Site is parallelogram in shape with a total area of approximately $60,590 \text{ m}^2$ (14.97 acres). The Site is located in the southwest quadrant of the intersection of King Street and Centreville Creek Road, in the Town of Caledon, Ontario. A Site location plan is provided in **Figure 1**. The Site comprises a mixed use residential and agricultural land. **Table I** summarizes the existing conditions at the Site.

Table I: Existing Buildings Conditions

| Current Development | | | |
|--------------------------|------------------------------|--------------------------------------|--------------------|
| Development Phase | Land Use | Above Grade Levels | Below Grade Levels |
| 6939 King Street Caledon | Agricultural and residential | Residential House and a Farm Land | NA |

It is understood that the proposed development includes demolishing the existing building and construction of a one-storey religious temple with no basement level and at-grade parking lots. The lowest ground floor elevation (finished floor elevation) which is reported on the revised site plan prepared by Battaglia Architect Inc. dated November 9, 2020 is 267.53 metres above sea level (masl), which is 0.94 metres above the existing ground level of 266.59 masl (Front Elevation prepared by Battaglia Architect Inc. dated November 9, 2020). The base of excavation is 1.5 m below the ground as recommended by the geotechnical engineering team. The proposed development details are summarized in **Table II**.

Table II: Proposed Development Details

| Proposed Development | Above Grade Levels | Underground Levels | Approximate FFE (masl) | Approximate Base of Excavation (masl) for Construction | The Highest Shallow Groundwater Level (masl) |
|------------------------------|--------------------------|-----------------------|---------------------------|--|--|
| 6939 King Street, Caledon | 1 | Slab-On-Grade | 267.53 | 265.09 | 264.32 |

In general, two (2) main local stratigraphic units were encountered beneath the Site, in which excavation and construction will be completed. A summary of the units and the estimated hydraulic conductivity for each unit is provided in **Table III**.

Table III: Summary of Subsoil Profile and estimated hydraulic conductivity within the Proposed Excavation Depth

| Site Stratigraphy | | | |
|-------------------|----------------------------|----------------------------------|---------------------------------|
| Stratum/Formation | Depth Range (mbgs) | Elevation Range (masl) | Hydraulic Conductivity (m/s) |
| Earth Fill | 0.0 to 1.2 | 265.0 to 267.1 | 1 x 10 ⁻⁶ ** |
| Clayey Silt Till | 0.6 to the end of borehole | 266.4 to the end of the borehole | 1.14 x 10 ⁻⁷ * |
| | | | 1.14 X 10 ⁺ * |

*Indicates conductivity was calculated by Falling Head Test (Geomean of BH1, BH3 and BH5) **Indicates conductivity was estimated using typical published values from Freeze and Cherry (1979)



The groundwater elevation considered for the current short-term dewatering flow rate estimation and the anticipated conceptual zone of influence are presented in **Table IV**.

| usion in the summary of of our and water contractions | | |
|---|---|--|
| The Highest Stabilized Groundwater Elevation | 264.32 masl (2.11 \pm m below existing ground surface of BH5) | |
| Zone of Influence | 0 m (the base of excavation is above the highest groundwater level) | |

Table IV: Summary of Groundwater Conditions

*masl meters above sea level

Details of the groundwater exceedances in comparison to the Regional Municipality of Peel Sewer Use By-Law limits are presented in **Table V**.

Table V: Summary of Groundwater Exceedances to the Regional Municipality of Peel Sewer Use By-law limits

| Sample ID | Untreated Sample (Yes/No) | Sample Collection Date | Regional Municipality of Peel Storm Sewer Limits | Regional Municipality of Peel Sanitary Sewer Limits |
|-----------|------------------------------|---------------------------|--|--|
| BH3 | Yes | October 13, 2020 | Exceeds for TSS and Fecal Coliforms | No exceedances |

Short-term construction dewatering and long-term foundation drainage flow rates were estimated considering the Site plans. The findings along with the anticipated requirements are summarized in **Table VI**.

Table VI: The water taking requirements for groundwater control

| Groundwater Quantity: Short Term (Construction) | | | | | | |
|---|---|--------------|-----------------------------|----------------|--------------|--------|
| Proposed Residential | Groundwater Seepage | | 25 mm Design Rainfall Event | | Total Volume | |
| Building | L/day | L/min | L/day | L/min | L/day | L/min |
| Proposed Slab-on- grade Temple Building | 0 | 0 | 15,000 | 10.4 | 15,000 | 10.4 |
| Groundwater Quantity: Lo | Groundwater Quantity: Long Term (Post-Construction) | | | | | |
| Proposed Residential | Groundwa | iter Seepage | 25 mm Design | Rainfall Event | Total | Volume |
| Building | L/day | L/min | L/day | L/min | L/day | L/min |
| Proposed Slab-on- grade Temple Building | 0 | 0 | 0 | 0 | 0 | 0 |

Permits potentially required to be obtained for short-term and long-term dewatering are summarized in **Table VII**.



Table VII: Summary of Permits Required for Short-Term and Long-Term Dewatering

| Regulatory Requirements | |
|--|--------------|
| Environmental Activity and Sector Registry (EASR) Posting | Not Required |
| Short-Term Permit to Take Water (PTTW) | Not Required |
| Long-Term Permit to Take Water (PTTW) | Not Required |
| Short-Term Discharge Agreement Regional Municipality of Peel | Required |
| Long-Term Discharge Agreement Regional Municipality of Peel | Not Required |

The short-term construction dewatering water discharge flow rates are calculated based on the rainfall event. Any stormwater entering the excavation to be pumped and discharged to the Peel Region Sewers will require verification of quality prior to discharge to the Peel Region storm or sanitary sewer system as a part of the water collection system.

A pre- and post-development water balance assessment was completed to evaluate opportunities and constraints for developing Low Impact Development (LID) measures for the post development Site. A summary of findings is presented in **Table VIII**.

| Pre-Development Site Breakdown Areas | Precipitation (m ³ /year) | Evapotranspiration (m ³ /year) | Infiltration (m³/year) | Run off (m ³ /year) |
|---|--------------------------------------|--|---------------------------|--------------------------------|
| Pre-Development | 52,956 | 30,741 | 14,408 | 7,807 |
| Post-Development | 52,956 | 18,989 | 7,754 | 26,213 |
| Loss (-) and Gain (+) | - | -11,752 | -6,654 | +18,406 |

Table VIII: Summary of Pre- and Post-Development Water Balance Components

A review of the findings indicates a total decrease of $11,752 \text{ m}^3/\text{year}$ and $6,654 \text{ m}^3/\text{year}$ for evapotranspiration (ET) and infiltration, respectively, and an increase of $18,406 \text{ m}^3/\text{year}$ for runoff are expected for the post-development Site.

Low Impact Development (LID) measures, such as infiltration trenches and permeable pavements, could be considered to manage the generated runoff partially. The remaining volume can be discharged to the Regional Municipality of Peel storm sewer system or overland. It is assumed that details will be provided in the Stormwater Management Report.



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2.0 INTRODUCTION

2.1 Site Location and Project Description

Terraprobe Inc. (Terraprobe) was retained by Swaminarayan Mandir Vasna Sanstha Canada (SMVS) to conduct a Hydrogeological Assessment for the proposed development located at 6939 King Street, Caledon, Ontario (the "Site").

Surrounding land use consists of King Street and agriculture farm land to the north, agriculture land to the south, Centreville Creek Road to the east and, a mixed use residential and agricultural property, a vacant land and the tributary of Lindsay creek to the west boundary of the Site.

The Site is parallelogram in shape with a total area of approximately 60,590 m² (14.97 acres). The Site is located in the southwest quadrant of the intersection of King Street and Centreville Creek Road, in the Town of Caledon, Ontario. A Site location plan is provided in **Figure 1**. The Site currently comprises a mixed use residential and agricultural property. It is understood that the proposed development includes a one-storey religious temple with no basement level and at-grade parking lots. The lowest ground floor elevation (finished floor elevation) which is reported on the revised site plan prepared by Battaglia Architect Inc. dated November 9, 2020 is 267.531 metres above sea level (masl), which is 0.94 metres above the ground level of 266.591 masl. The base of excavation is considered 1.5 m below the ground as per the geotechnical investigation report prepared by Terraprobe dated October 20, 2020.

The study was undertaken to assess the hydrogeological conditions of the Site and to provide general information regarding the hydrogeologic impact of the proposed redevelopment on the local groundwater regime. The report addresses the following areas:

- Identifying the geological and hydrogeological setting of the Site;
- Confirming groundwater level(s) and flow direction(s) beneath the Site;
- Assessing groundwater quality in comparison to the Peel Region Sanitary and Storm Sewer Use By-Law;
- Evaluating potential short-term construction dewatering needs for the proposed development;
- Identifying potential impacts to the nearby groundwater receptors including water supply wells and natural heritage features;
- Providing a mitigation plan for the potential impacts to the groundwater receptors and/or natural heritage features, if applicable;
- Providing recommendations on any needs for applying for Permit To Take Water (PTTW), or posting on the Environmental Activity and Sector Registry (EASR) with Ministry of the Environment, Conservation and Parks (MECP).



The Peel Region and Town of Caledon require that a hydrogeological assessment be completed in order to assess the potential dewatering needs and associated discharge plans. Additionally, associated potential impacts of the proposed development to the system and groundwater receptors should be evaluated.

2.2 Scope of Work

The scope of work for the study consisted of the following:

- <u>Review of Available Background Information</u>: A review of available background geological and hydrogeological information for the Site was completed using Ontario Geological Survey (OGS) maps, Ministry of Environment Conservation and Parks (MECP), and Ministry of Natural Resources and Forestry (MNRF) databases.
- <u>Review of the Town of Caledon Official Plan</u>: The Town of Caledon official plans were reviewed to understand the location of the Site and the proposed development within the policy areas.
- <u>Site Inspection</u>: A visual inspection of the Site and surrounding areas to determine local topography and drainage, and an assessment of significant features.
- <u>Groundwater Level Monitoring and Hydraulic Conductivity Testing</u>: Groundwater levels within the installed monitoring wells were monitored over three (3) monitoring events. In-situ hydraulic conductivity testing was completed within the installed monitoring wells to estimate the hydraulic conductivity of the strata within the well screen interval.
- <u>Groundwater Quality Assessment:</u> Groundwater quality was assessed in comparison with the Regional Municipality of Peel Sanitary and Storm Sewer Use By-Law to assess available options to discharge the potential short-term dewatering effluent.
- <u>Review of Proposed Site Development Concept:</u> The proposed site development plans were reviewed to confirm the proposed invert elevation for developing underground structures.
- <u>Construction Dewatering Flow Rate Estimate:</u> Considering the proposed development plans, the construction dewatering flow rate (short-term dewatering) was estimated using the stable groundwater level and estimated hydraulic conductivity measured in the Site.
- <u>Long-Term Foundation Drainage:</u> Considering the proposed development plans, potential long-term foundation drainage was estimated.
- <u>Mitigation Plans for Dewatering:</u> A mitigation plan was recommended to mitigate potential short-term dewatering impacts to the nearby groundwater receptors and structures, if applicable.
- <u>Potential Dewatering Permits:</u> Considering the estimated short-term dewatering and long-term foundation drainage flow rates, recommendations were provided on any need for applying for a PTTW or posting on the EASR with MECP, if required.

The above scope of work was prepared in accordance with all of the following: Ontario Water Resources Act, and Ontario Regulation 387/04.



3.0 APPLICABLE REGULATION AND AGENCIES

The environmental regulations and policies relevant to this hydrogeological study are briefly discussed below.

3.1 Toronto and Region Conservation Authority (TRCA) Policies and Regulations (O. Reg. 166/06)

Under Section 28 of the Conservation Authorities Act, local conservation authorities are mandated to protect the health and integrity of the regional greenspace system, and to maintain or improve the hydrological and ecological functions performed by valley and stream corridors. The TRCA, through its regulatory mandate, is responsible for issuing permits under Ontario Regulation (O. Reg.) 166/06, Development, Interference with Wetlands and Alterations to Shorelines and Watercourses for development proposal or Site alteration work to shorelines and watercourses within the regulated areas.

TRCA Regulated Area online mapping was reviewed on November 2, 2020. It is our understanding that the Site is partially located within a TRCA Regulated Area. As such, it is anticipated that a permit from the TRCA under O. Reg. 166/06 will be required for the proposed development.

3.2 Town of Caledon Official Plan

The Town of Caledon's Official Plan sets up policies that deal with legislative and administrative concerns, guides physical growth, and addresses social, economic, and environmental concerns. The Official Plan provides land use planning designations and identifies areas of environmental significance where more stringent policies may apply for development applications.

Town of Caledon Official Plans were reviewed for the current study with the results summarized as below:

- Schedule A (Land Use Plan) A review of the map, dated April 2018, indicates that the Site is located within an area designated as a Prime Agriculture Area.
- Schedule S (Greenbelt in Caledon) A review of the map, dated April 2018, indicates that the Site is not located within a greenbelt area.

3.3 Permit to Take Water (PTTW) Section 34 of the Ontario Water Resource Act

For construction dewatering, water takings of more than 50,000L/day but less than 400,000L/day should be registered on the Environmental Activity and Sector Registry (EASR), while water takings of more than 400,000L/day require a Category 3 PTTW issued by the MECP. If it is identified that an EASR or PTTW is required for the Site, a hydrogeological report will need to be submitted in support of the application. Construction dewatering estimation was completed as a part of the scope of work for the current assessment.

3.4 Clean Water Act

The MECP mandates the protection of existing and future sources of drinking water under the Clean Water Act, 2006 (CWA). Initiatives under the CWA include the delineation of Wellhead Protection Areas (WHPAs),



significant groundwater recharge areas (SGRAs) and Highly Vulnerable Aquifers (HVAs) as well as the assessment of drinking water quality and quantity threats within Source Protection Areas. Source Protection Plans are developed under the CWA and include the restriction and prohibition of certain types of activities and land uses within WHPAs.

Based on regional-scale source protection mapping review on June 15, 2020, the Site is not located within a WHPA area, Intake Protection Zone, Issue Contributing Area, Event Based Area and Highly Vulnerable Aquifer. However, it is located in SGRA having a score of 4.

3.5 Peel Region Guidelines for Hydrogeologic Assessment and Reporting Requirements (July 2009)

Peel Region Guidelines for Hydrogeologic Assessment and Reporting Requirements for new developments on municipal services were reviewed in order to prepare this report.



4.0 METHODOLOGY

4.1 Borehole Advancement and Monitoring Well Installation

Drilling boreholes and the construction of monitoring wells were conducted in conjunction with a geotechnical investigation on July 14 and September 21, 2020. The program consisted of the drilling of twelve (12) boreholes (BH) and the installation of three (3) monitoring wells beneath the Site. The locations of the boreholes/monitoring wells are shown on **Figure 2**.

Borehole drilling and monitoring well construction were completed by licensed water well contractors, Profile Drilling Inc. (BH1, BH11 and BH12) and DBW Drilling Ltd. (BH2 to BH10) under the full-time supervision of geotechnical technicians from Terraprobe, who also logged the soil strata encountered during borehole advancement and collected representative soil samples for textural classification. The boreholes were drilled using continuous flight, solid-stem augers. Detailed descriptions of the encountered subsoil and groundwater conditions are presented on the borehole and monitoring well logs, on the enclosed **Appendix A**.

The monitoring wells were constructed using 50-mm diameter PVC riser pipes and screens, which were installed in selected geotechnical boreholes (BH1, BH3 and BH5) in accordance with Ontario Regulation (O. Reg.) 903. All (3) of the monitoring wells were provided with monument protective casings at the ground surface.

The UTM coordinates and ground surface elevations at the BHs, as well as the monitoring well construction details, are presented on **Table 4-1**. It should be noted that the ground surface elevations at the boreholes and monitoring well locations were confirmed by Terraprobe using a Trimble R10 GNSS System. The Trimble R10 system uses the Global Navigation Satellite System and the Can-Net reference system to determine target location and elevation. The Trimble R10 system is reported to have an accuracy of up to 10 mm horizontally and up to 30 mm vertically. It should be noted that the elevations provided on the Borehole Logs are approximate only, for the purpose of relating soil stratigraphy and should not be used or relied on for other purposes.

| | Installation | UTM Coo | rdinates (m) | Ground | Monitoring | Screen | Casing | Screened | Protective |
|---------|-----------------------|---------|--------------|------------|----------------------|---------|-----------|---------------------|------------|
| well ID | Date | Easting | Northing | El. (masl) | Well Depth (mbgs) | (mbgs) | Dia. (mm) | Geological Unit | Casing |
| BH1 | July 14, 2020 | 597212 | 4855726 | 266.8 | 7.6 | 4.6-7.6 | 50 | Clayey Silt Till | Monument |
| BH3 | September 21, 2020 | 597164 | 4855667 | 266.3 | 7.6 | 4.6-7.6 | 50 | Clayey Silt Till | Monument |
| BH5 | September 21, 2020 | 597152 | 4855725 | 266.4 | 7.6 | 4.6-7.6 | 50 | Clayey Silt Till | Monument |

 Table 4-1- Monitoring Well Installation

Notes: mbgs metres below ground surface masl metres above sea level

masi metres above sea level

4.2 Groundwater Monitoring

All three (3) installed monitoring wells were utilized to measure and monitor groundwater levels. The groundwater monitoring program has confirmed the stabilized groundwater level beneath the Site. Levels in the



monitoring wells were measured manually, starting from October 5, 2020 to October 20, 2020. The findings are presented in **Section 7.1**.

4.3 MECP Water Well Records Review

MECP Water Well Records (WWRs) were reviewed for the registered wells located at the Site and within 500 m radius of the Site boundaries (study area). The findings of the MECP well records are presented in **Section 5.6**.

4.4 In-Situ Hydraulic Conductivity Testing

Three (3) installed monitoring wells BH1, BH3 and BH5 were utilized to conduct hydraulic conductivity tests. Falling head test was conducted for all three monitoring wells. The in-situ test provides estimated hydraulic conductivity (K) for subsoil strata at the depths of the well screens. The monitoring wells were developed in advance of the test. Well development involves the purging and removal of groundwater from each monitoring well to remove remnants of clay, silt and other debris introduced into the monitoring well during construction, and to induce the flow of groundwater through the well screens.

The in-situ falling head hydraulic conductivity test involves submerging a one (1) metre long slug in the monitoring well to displace the groundwater level upward. The rate at which the water level recovers to static conditions (falling head) is tracked manually using a water level tape and a data logger. The rate at which the water table recovers to static conditions is used to estimate the K value for the water-bearing strata formation at the well screen depth using the Bouwer and Rice method (1976). The findings for the hydraulic conductivity testing are presented in Section **7.3.1**.

4.5 Hydraulic Conductivity based on Grain Size Distribution Graphs

The Hazen equation estimation method was also used to estimate the hydraulic conductivity (K) for saturated subsoils at selected depths beneath the water table below the subject Site. The method provides alternative hydraulic conductivity (K) estimates which are derived from the grain size diameter, whereby 10% by weight of the soil particles are finer and 90% are coarser (Freeze and Cherry, 1979). The soils chosen for Hazen estimation were selected primarily from above the well screen depths. Findings are presented in **Section 7.3.2**.

4.6 Groundwater Quality Assessment

Groundwater quality should be assessed in advance of earth work. As such, one (1) set of samples was collected from one (1) selected monitoring well (BH3) on October 13, 2020 to characterize its quality for evaluation against the Regional Municipality of Peel Storm and Sanitary Sewer Use By-Law parameters. This is performed to assess whether any anticipated dewatering effluent can be disposed of into the Peel Region sewer system during construction or, following site development, for any long-term foundation drainage. Based on the results, recommendations for any pre-treatment for any dewatering/drainage effluent can be developed, if required.



One (1) selected monitoring well (BH3) was developed and purged of multiple well casings volumes of groundwater prior to sample collection. The groundwater sample was collected using a bailer. In accordance with the Regional Municipality of Peel Storm and Sanitary Sewer Use By-Law sampling protocols, one complete set of groundwater samples was not filtered during collection, prior to placement in the laboratory sample bottles. Upon sampling, all of the bottles were placed on ice and packed in a cooler at about $0.3 \pm C^{\circ}$ for shipment to the analytical laboratory. Sample analysis will be performed by an accredited lab by the Canadian Association for Laboratory Accreditation Inc. (CALA). Results of the analysis are discussed in **Section 7.4**.

4.7 A Review of Regional Data and Available Reports for the Site

The maps, data, and documents provided by the MECP, Ontario Geological Survey (OGS), Ministry of Natural Resources and Forestry (MNRF), and TRCA were reviewed. Additionally, the concurrent geotechnical report, was reviewed at the time of preparation of the current hydrogeological report.



5.0 REGIONAL AND LOCAL SITE SETTING

5.1 Regional Geology

The current understanding of the surficial geological setting of the Site is based on scientific work conducted by the OGS (OGS, 2003). The Site and surrounding area are mapped Till (5d) consisting of clay to silt-textured till derived from glaciolacustrine deposits or shale. **Figure 3** illustrates the mapped surficial geology for the Site and the surrounding area.

ORMGP produced a cross-sectional geological map to aid in the characterization of the general stratigraphy of the Site and surrounding area. Considering the regional cross-section, it is understood that the overburden units prevalent in this area are as follows, with the youngest unit at the top:

- Halton Till
- Oak Ridges Moraine
- Newmarket Till
- Thorncliffe Formation

Halton Till (Upper Till): The Halton Till mainly comprises of sandy silt to clayey silt till interbedded with silt, clay and a number of discontinuous sand and gravel lenses. It was deposited approximately 12,500 years ago. Based on cross-sectional geology, the Halton Till or equivalent is present beneath the Site with an average thickness of up to 9.0 m beneath the Site.

Oak Ridges Moraine: The Oak Ridges Moraine Aquifer Complex (ORAC) is a regionally significant aquifer in southern Ontario. The majority of the aquifer's recharge occurs at the crest of the moraine north of the Site. It is primarily composed of interbedded fine sand and silt deposits with localized coarse sand and gravel deposits. The ORAC is approximately 90 m thick beneath the crest of the moraine, but thins out rapidly towards the margins. Approximate average thickness of the ORAC could reach to 53 m beneath the Site.

Newmarket Till: The Newmarket Till is a regionally extensive till formation that acts as an aquitard. Based on the ORMG cross-section, the Newmarket Till has an approximate average thickness less than a metre beneath the Site.

Thorncliffe Formation: The Thorncliffe Formation consists of glaciofluvial and glaciolacustrine sand and silt deposited approximately between 30,000 and 50,000 years ago. The Thorncliffe Formation shows a considerable variation in grain size and thickness, both locally and regionally. It acts as a regional aquifer. Based on the ORMGP cross-section, the Thorncliffe Formation has an approximate thickness of up to 15 m beneath the Site.

The underlying bedrock at the Site is the Queenston Formation, which consists of shale, limestone, dolostone and siltstone (OGS, 2007). A review of the ORMGP cross-section indicates that the bedrock could be contacted at the approximate 76 metres below ground surface (mbgs) beneath the Site.



5.2 Regional Physiography

The Site is located within Physiographic regions of Southern Ontario known as the South Slope. The South Slope within the vicinity of the Site comprises a Till Plains (Drumlinized).

The South Slope is the southern slope of the Oak Ridges Moraine, which includes a strip of south of the Peel Plain. It rises to the line of contact with the moraine at elevations ranging from 244.0 to 305.0 masl. The South Slope extends from the Niagara Escarpment to the Trent River where it covers an area of approximately 2,435.0 km². (Chapman and Putnam, 1984). **Figure 4** shows the location of the Site within the regional physiography map.

5.3 Regional Topography and Drainage

A review of a surface topography map for the Site and surrounding area indicates that the topography of the Site is relatively flat. The ground surface elevation ranges from 267.0 masl to 265.8 masl. Considering the topography map, ground surface elevation for the Site and the vicinity of the Site, slopes downwards in a southeasterly direction. As such, it is anticipated that generated runoff (if it is not managed) will flow in a southeast direction. **Figure 5** illustrates the topography of the Site and surrounding area.

5.4 Watershed Setting

TRCA interactive watershed mapping was reviewed. The Site is located within the Humber River watershed which falls within TRCA jurisdiction. The Humber River Watershed encompasses 911 km². Its waters, originating on the Niagara Escarpment and the Oak Ridges Moraine, flow down the Humber River into Lake Ontario. The West Humber begins in Caledon, in the rolling hills of the South Slope, and flows 45 km over the Peel Plain in Brampton before joining the Main Humber in Toronto (TRCA Humber River Watershed Menu, https://trca.ca/conservation/watershed-management/humber-river/watershed-features/).

5.5 Local Surface Water and Natural Heritage Features

The MNRF's database was reviewed for any natural heritage features including, watercourses, bodies of water, wetland features, Area of Natural and Scientific Interest (ANSI) and wooded areas. **Figure 6** shows the location of the Site within the surrounding Natural Heritage Features. Record review indicates that there are no records for wetland features, and ANSI within or in close proximity to the Site. However, Lindsay creek, a tributary of West Humber River flows approximately 200 m away from the northeast corner of the Site. Additionally, a tributary originates northwest of the Site, flow southeast ward direction along the west boundary of the Site and crosses the Site at the southwest corner. This tributary joins Lindsay creek approximately 1.5 km to the southeast of the Site. A small pond is also located approximately 150 m to the northeast corner of the Site.

There are wetland features scattered around the Site with the closest record located approximately 100 to the northeast corner of the Site. This wetland is not evaluated as per Ontario Wetland Evaluation System (WES). Record review also indicates that a small pond is located approximately 120 m to the northeast corner of the Site.



Furthermore, records for wooded areas are scattered around the Site with the closest record located approximately 250 m to the west of the Site.

5.6 Groundwater Resources (MECP Well Records)

MECP well record database was reviewed on October 23, 2020 for records located within a radius of 500 m from the approximate Site boundary (Study Area). The location of the well records is presented on **Figure 7**. A total of ten (10) wells were located within the study area. A summary of data obtained from record review is presented in **Table 5-1** and **Appendix B**.

| Number of the Well Records | 10 |
|--------------------------------|---------|
| Well Type | |
| Drilled Well | 9 (90%) |
| Unknown | 1 (10%) |
| Depth Ranges | |
| Less than 6.1 m (20 ft) | 2 (20%) |
| 6.1 m to 20 m (20 ft to 66 ft) | 3 (30%) |
| Unknown | 5 (50%) |
| Water Use | |
| Water Supply Wells | 6 (60%) |
| Monitoring and Test Holes | 2 (20%) |
| Observation Wells | 1 (10%) |
| Unknown | 1 (10%) |
| Reported Static Level | |
| 0 to 7.5 m (0 to 25 ft) | 3 (30%) |
| Unknown | 7 (70%) |

 Table 5-1- MECP Well Record Summary

The above summary indicates that most local wells are registered as water supply wells. Approximately 50% of the registered wells are completed up to 20 m below ground surface (mbgs). Static groundwater level was unknown for the majority of the wells. It was recorded as shallower than 7.5 mbgs within three (3) of the wells.

Additionally, since there are water supply wells within the Site and the Study Area, a door to door well survey may be required in advance of, during and after construction.

5.7 Active Permit to Take Water Application Records Review

The MECP's website was reviewed for any active PTTW application records within 1.0 km radius of the Site on October 21, 2020. Record review indicates there is one active PTTW within the Study Area as summarized in **Table 5-2**.



Table 5-2 - Active PTTW Record Summary

| Permit Number | Permit Holder | Purpose | Maximum L/day | Source Type | Distance from the Site (km) |
|---------------|--|--------------|---------------|-------------|--------------------------------|
| 4405-BN7QWR | The Corporation of the Town of Caledon | Recreational | 576,000 | Groundwater | 0.83 |



6.0 LOCAL GEOLOGY AND SUBSURFACE INVESTIGATION

Terraprobe conducted a geotechnical investigation on July 14 and September 21, 2020. The field work consisted of drilling a total of twelve (12) boreholes extending to a maximum depth of 8.1 m below existing ground surface. Information regarding borehole logs is presented in **Appendix A**. The approximate locations of boreholes are shown on **Figure 2**.

The following Site stratigraphy is based on the Terraprobe borehole findings in the field. It should be noted that the subsurface conditions are confirmed at the borehole location only, and may vary at other locations. The boundaries between the various strata represent an inferred transition rather than a precise plane of geological change. This summary is intended to correlate the data to assist in the interpretation of the subsurface conditions at the Site. For more specific subsurface details, refer to the enclosed Terraprobe Borehole Logs in **Appendix A**.

6.1 Topsoil

A topsoil layer was encountered at the ground surface in Boreholes 2 to 10. The thickness ranged from 200 to 300 mm. The topsoil was dark brown in colour and consisted of matrix of silt and sand.

The topsoil surficial layer thicknesses provided in the report were obtained at individual borehole locations, as measured through the collar of the open borehole or as inferred from non-continuous sampling. Thickness may vary between and beyond borehole locations.

6.2 Earth Fill

A earth fill zone, consisting of clayey silt with varying amounts of sand and trace amounts of gravel and organics was encountered at the ground surface in BHs 1, 11, and 12 and beneath the topsoil layer in BHs 3, 4, 6, 9, and 10 and extends to depths varying from approximately 0.6 mbgs (BH 11) to1.2 mbgs (BHs 1 and 12).

Standard Penetration Test (SPT) results (N-values) obtained from the earth fill zone ranged from 7 to 21 blows per 300 mm of penetration, indicating a firm to very stiff consistency, typically stiff. The in-situ moisture contents of the earth fill samples ranged from 10 to 19 percent by mass, indicating a moist condition.

6.3 Glacial Till

Silt and clay to clayey silt till deposit, with trace to some sand and trace amounts of gravel was encountered beneath the earth fill zone in BHs 1, 3, 4, 6, and 9 to 12 and the topsoil layer in BHs 2, 5, 7 and 8 and extended to the full depth of the investigation ranging from 2.0 mbgs (BHs 7 to 12) to 8.1 mbgs (BHs 1, 3, and 5). The upper zone of the glacial till deposit extending up to 0.8 mbgs was weathered and disturbed in BHs 2, 5, 6, and 7. The composition of the weathered and disturbed soil is generally similar to that of underlying undisturbed soil but included trace amounts of organic matter and topsoil.



The result of Standard Penetration Test (N-values) obtained from the undisturbed silt and clay to clayey silt till deposits ranged from 14 to 57 blows per 300 mm of penetration to 57 blows per 125 mm of penetration, indicating a stiff to hard consistency (typically very stiff to hard). The in-situ moisture contents of the silt and clay glacial till samples ranged from 12 to 17 percent by mass, indicating a moist condition.

It should be noted that the glacial till deposit may contain larger size particles (cobbles and boulders) that are not specifically identified in the boreholes. The size and distribution of such obstructions cannot be predicted with borings, because the borehole sampler size is insufficient to secure representative samples for the particles of this size.



7.0 LOCAL HYDROGEOLOGICAL STUDY

7.1 Groundwater Level Monitoring

A groundwater monitoring program was completed between October 5 and October 20, 2020 as a part of the hydrogeological assessment. Three (3) monitoring wells installed for the hydrogeological assessment (BH1, BH3 and BH5) were considered for monitoring program.

Monitoring wells were developed and the groundwater levels were measured using an interface probe (Solinst Interface Metre, Model 122). The measured groundwater levels, along with other monitoring wells details and findings, are presented in **Appendix C**. A summary of the groundwater observations is provided in **Table 7-1**:

| Well | ID | D October 5, 2020 October 13, 2020 October 20, 2020 | | Fluctuation (m) | | |
|------|-----------|---|--------|-----------------|------|--|
| DU1 | mbgs | 0.95 | 5.73 | 5.00 | 4 78 | |
| БПІ | masl | 265.82 | 261.04 | 261.77 | 4.78 | |
| DU2 | mbgs 3.13 | | 3.70 | 2.34 | 1.36 | |
| внэ | masl | 263.19 | 262.62 | 263.98 | 1.50 | |
| BH5 | mbgs | 2.33 | 3.72 | 2.11 | 1.61 | |
| 5115 | masl | 264.10 | 262.71 | 264.32 | 1.01 | |

Table 7-1- Static Groundwater Level Monitoring

Notes: mbgs: metres below ground surface

masl: metres above sea level

As shown in **Table 7-1**, the highest and lowest stabilized shallow groundwater levels were measured at El. 264.32 masl and 261.04 masl at monitoring wells BH5 and BH1, respectively. The highest groundwater level of 265.82 masl recorded at BH1 on October 5, 2020 is not presenting stabilized groundwater level.

In addition, the highest groundwater fluctuation of 4.78 m was measured at monitoring well BH1. The lowest fluctuation of 1.36 m was recorded at monitoring well BH3 location over the monitoring period.

7.2 Shallow Groundwater Flow Pattern

Groundwater level elevations measured on October 13, 2020 were considered to interpret the shallow groundwater flow pattern beneath the Site. **Figure 8** presents the interpreted shallow groundwater elevation contours. A review of the plan indicates that the shallow groundwater is interpreted flowing the southeast direction, in general, towards the Lindsay Creek.

7.3 Hydraulic Conductivity Testing

7.3.1 In-Situ Hydraulic Conductivity Tests

The hydraulic conductivities from the monitoring wells were determined based on a falling head single well response test (SWRT). The falling head test involves the submersion of a one metre long slug thereby increasing the water level and then monitoring the water level in the well until the well has recovered. The results of the



SWRT were analysed using the Bouwer and Rice method (1976). The results of the analysis are presented in **Appendix D**, with a summary of the findings provided in **Table 7-2** below:

| Monitoring Well | Well Screen Elevation (masl) | Screened Geological Unit | Hydraulic Conductivity (m/s) | Test Method |
|-----------------|------------------------------------|--------------------------|---------------------------------|-------------------|
| BH1 | 259.2 to 262.2 | Clayey Silt Till | 4.25 x 10 ⁻⁹ | Falling Head Test |
| BH3 | 258.7 to 261.7 | Clayey Silt Till | 1.08 x 10 ⁻⁶ | Falling Head Test |
| BH5 | 258.8 to 261.8 | Clayey Silt Till | 3.22 x 10 ⁻⁷ | Falling Head Test |

 Table 7-2– Hydraulic Conductivity Based on Rising Head Tests

The estimated hydraulic conductivity varies at different locations, which is mostly related to appearance and thickness of the sand seems and layers contacted along the monitoring wells screens. As such, geomean hydraulic conductivity is calculated as 1.14×10^{-7} m/s.

7.3.2 Hydraulic Conductivity Test Using Grain Size Distribution Graphs

The Hazen Equation method is adopted to estimate the hydraulic conductivity (K) for different soil layers which may contain groundwater during the seasonal high groundwater table (spring) period, or if they are not encountered within the screen intervals.

The Hazen Equation estimate provides an indication of the groundwater yield capacity for saturated soil strata at the depths where soils samples were selected for grain size analysis. The grain size distribution graphs were used to the estimate the hydraulic conductivity, with the details presented in **Appendix E**. A review of the graphs indicates significant amount of clay and silt suggesting a very low hydraulic conductivity. However, due to significant amount of clay and silt, values for hydraulic conductivity with acceptable accuracy cannot be estimated.

7.4 Groundwater Quality

One (1) unfiltered groundwater sample was collected by Terraprobe. The sample was collected directly from monitoring well BH3 on October 13, 2020.

BH3 was developed and one (1) set of unfiltered groundwater samples was collected. Upon sampling, all of the bottles were placed in ice and packed in a cooler at about 0.3° C for shipment to the analytical laboratory. Sample analysis was performed by ALS Canada Inc., a third party laboratory accredited by the Canadian Association for Laboratory Accreditation (CALA).

The groundwater quality test results and the certificate of analysis are presented in **Appendix F**. The samples were compared to the following:

• The Regional Municipality of Peel By-Law No. 2-03 Table 1 – Limits for Sanitary and Combined Sewers Discharge



• The Regional Municipality of Peel By-Law No. 2-03 Section 5 – Storm Sewer Requirements

The exceedances, together with the storm and sanitary criteria, are presented in Table 6-4.

| Parameter | BH3 Groundwater Quality Results (mg/L) | Region of Peel Sanitary Sewer Use Limits (mg/L) | Region of Peel Storm Sewer Use Limits (mg/L) | Lowest Detection Limit (mg/L) |
|---------------------------------|--|---|--|----------------------------------|
| Total Suspended Solids (TSS) | 164.0 | 350 | 15 | 3.0 |
| Fecal Coliforms | 200 | - | 0 | 10 |

Table 6-4 - Exceedance Table and Groundwater Quality Results

As shown above, exceedances were recorded for groundwater samples in comparison with the Regional Municipality of Peel Storm Sewer By-Law. A review of the results shows that groundwater quality at monitoring well BH3 exceeds for Total Suspended Solids (TSS) and Fecal Coliform in comparison to the Regional Municipality of Peel Storm Sewer By-Law Limits. The results review indicates that there are no exceedances for all parameters compared to the Regional Municipality of Peel Sanitary Sewer By-Law Limits at BH3.

A review of the groundwater quality results suggests that short-term dewatering discharge could be directed to the Regional Municipality of Peel Sanitary sewer system. Furthermore, pre-treatment should be considered to treat the elevated parameters noted above, if discharged groundwater is proposed to be directed to the Region's Storm Sewer System. Alternatively, dewatering effluent could be hauled and disposed using a licenced contractor.

Pre-treatment to lower TSS could involve use of settling weir tanks and/or filter bags during construction. The final design for any dewatering effluent pre-treatment system is the responsibility of the contractors undertaking construction.



8.0 CONSTRUCTION DEWATERING

8.1 **Proposed Development Plan Review**

The proposed development site plan is illustrated on **Figure 9**, prepared by Battaglia Architect Inc. dated November 9, 2020 (revised plan). The proposed development will consist of constructing a one-storey religious temple with no basement level. The lowest ground floor elevation (finished floor elevation) which is reported on the above mentioned plan is 267.531 masl which is 0.94 metres above the ground level at El 266.591 masl (Front Elevation prepared by Battaglia Architect Inc. dated November 9, 2020). The approximate plan dimension of the building is 102.3 metres by 95.5 metres.

8.2 A review of Geotechnical Investigation Report

A separate geotechnical report has been prepared by Terraprobe for this Site, which outlines in greater detail the proposed construction, shoring and foundation methodology (File. No. 1-20-0222-01). A summary of findings are presented as follows:

- The undisturbed silt and clay to clayey silt till deposit is considered suitable to support the proposed building foundations. A maximum net geotechnical reaction of 250 kPa (Serviceability Limit States, SLS) and a maximum factored geotechnical resistance of 375 kPa (Ultimate Limit States, ULS) may be used for preliminary design of conventional spread footing foundations (for vertical and concentric loads) supported on the underlying competent undisturbed silt and clay to clayey silt till deposit of very stiff to hard consistency.
- The underside of footing elevations must be designed to provide a minimum of 1.2 m of soil cover or equivalent insulation to the foundation subgrade for frost protection considerations in unheated areas. All footings must be designed to bear at least 0.3 m into the undisturbed silt and clay to clayey silt till stratum.
- The earth fill and weathered/disturbed soil would be classified as Type 3 Soil while the native glacial till deposits would be classified as Types 2 Soil above and Type 3 Soil below prevailing groundwater level under these regulations.
- Minimum support system requirements for steeper excavations are stipulated in the Occupational Health and Safety Act and Regulations for Construction Projects, and include provisions for timbering, shoring and moveable trench boxes
- The latest site plan drawing indicates that the ambient site grades will be raised by about 1 m. Where site grades are required to be raised, consideration should be given to the construction of engineered fill. The engineered fill refers to earth fill designed and constructed with a full-time inspection and testing to support the building foundations without excessive settlement. Construction of engineered fill should only be conducted under the full-time engineering guidance and supervision. Prior to the placement of the engineered fill, it is recommended that the topsoil, earth fill and weathered /disturbed



native soils be stripped from beneath and beyond the proposed building footprints (a minimum of 2 m beyond), and that the subgrade be proof rolled. Any soft or wet areas that deflect excessively during the proof roll should be sub-excavated and replaced with suitably compacted clean earth fill placed in maximum 150 mm thick lifts. It should be noted that localized subgrade stabilization measures may be required, based on proof roll assessment. The selection and sorting of the existing weathered/disturbed native soil materials present on the site should be conducted under the supervision of a geotechnical engineer.

8.3 Summary of Hydrogeological Conditions of Site Development

The results of the investigation completed by Terraprobe indicate the following hydrogeologic features for the Site:

- Underlying the fill, native deposits mainly comprises glacial till (clayey silt).
- The shallow groundwater table for design purposes should be considered to be at El. 264.32 ± masl (2.11 mbgs) measured at BH5 located within the proposed building footprint.
- The estimated hydraulic conductivity of 1.14×10^{-7} m/s (geomean from BH1, BH3 and BH5) and 1.0×10^{-6} m/s is considered for the clayey silt till and fill units, respectively.

8.4 Short-Term Groundwater Control Requirements

A review of the current development plans indicates that a one-storey temple building with no underground structure (basement) is proposed as the future development. The assumptions considered for the dewatering flow rate calculations are summarized in **Table 8-1** below.

| Proposed Development Phase | Approximate Proposed Width (m) | Approximate Proposed Length (m) | Proposed Finished Floor Elevation (masl) | Foundation Elevation (masl) | Shallow Groundwater Level (masl) |
|-------------------------------|--------------------------------------|---------------------------------------|--|--------------------------------|-------------------------------------|
| Temple Building | 95.5 | 102.3 | 267.53 | 265.09 | 264.32 |

| Table 5-1 Summary of Site Development |
|---------------------------------------|
|---------------------------------------|

Notes:

mbgs metres below ground surface

masl metres above sea level

The lowest ground floor elevation (finished floor elevation) is proposed at 267.53 masl, which is 0.94 metres above the ground level at El. 266.59 masl. As recommended by the geotechnical investigation report, the underside of footing elevations must be designed to provide a minimum of 1.2 m of soil cover or equivalent insulation to the foundation subgrade for frost protection considerations in unheated areas. It is also recommended that the foundation bear at least 0.3 m into the undisturbed silt and clay to clayey silt till stratum. As such, it is assumed that the foundation will be constructed at El. 265.09 masl. The highest known stabilized groundwater level is recorded at 264.32 masl (BH5) which is 0.77 m below the underside of the footing.

Considering the shallow groundwater level and proposed invert elevations, construction dewatering is not required for excavation and construction of the slab-on-grade building. However, anticipated precipitation



should be collected from the excavation trench that will be developed for construction of the proposed footings. As such, the perimeter of the proposed building (395 m) was considered as a length of the trench and 1.5 m was assumed as a width of the trench for dewatering assessment from rainfall sources. 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 and also are presented in **Appendix G** and proposed development plans are presented in **Appendix I**. The estimated construction dewatering flow rates for the proposed development is summarized below:

- Anticipated construction dewatering for developing the proposed slab-on-grade building is 15,000 L/day.
- As required by Ontario Regulation 63/16, a plan for discharge must consider the conveyance of storm water from a 100-year storm. The volume that will be generated in the occurrence of a 100-year storm event is approximately 56,000 L/day for construction of the proposed slab-on-grade building.

8.5 Long-Term Groundwater Control Requirements (Post Construction)

A slab-on-grade building is proposed for the future development. Additionally, the proposed building will be constructed above shallow groundwater level. As such, discharge plan for long-term foundation drainage is not required for the post development structure.

8.6 Permit Requirements

Considering the estimated short-term (construction) dewatering flow rate of 15,000 L/day from precipitation event, which is below the limit of EASR and PTTW, filing EASR or applying for PTTW with MECP is not required for short-term construction dewatering control.

Additionally, there is no estimated long-term foundation drainage flow rate. As such, applying for PTTW with MECP is not required for the long-term (post construction) foundation drainage.

Any storm water entering the excavation to be pumped and discharged to the Regional Municipality of Peel Sewer system will require verification of quality and potentially treatment (filtration and/or settling tanks) prior to discharge to the storm or sanitary sewer system as a part of the water collection system. A dewatering contractor should be consulted for dewatering activities prior to excavation.

As per the communication with the Office of General Manager, Water and Wastewater, Regional Municipality of Peel, there is no water and sanitary sewer infrastructure in the vicinity of the Site. Findings of the current hydrogeological assessment indicate that long-term foundation drainage flow is not anticipated for the Site. Additionally, groundwater seepage is not anticipated for the construction of the proposed slab-on-grade structure during construction. However, dewatering is anticipated over storm events generated from rainfall sources during construction. The generated discharge water could be managed by the private hauler or any other available option. The final decision will be the responsibility of the construction contractor.



8.7 Zone of Influence (ZOI)

Proposed development will be constructed above shallow groundwater level. As such, Zone of Influence (ZOI) for construction dewatering is not anticipated.

8.8 Potential Dewatering Impacts and Mitigation Plan

8.8.1 Ground Settlement

Since the excavation and construction will be completed above shallow groundwater level and there is no ZOI for construction, no impacts to the nearby structures are anticipated.

8.8.2 Surface Water, Wetlands and Areas of Natural Significance

Record review indicates that no natural heritage features including wetland, water bodies, watercourses and ANSI were identified on the Site. Additionally, construction will be completed above shallow groundwater level. As such, no impacts to natural heritage features are anticipated pertaining to the proposed development. Based on regional-scale source protection mapping, the Site is not located within a WHPA area, Intake Protection Zone, Issue Contributing Area, Event Based Area and Highly Vulnerable Aquifer. However, it is located in SGRA having a score of 4. Considering the location of the Site within the area regulated by TRCA, obtaining permit from TRCA is required.

8.8.3 Water Supply Wells and Zone of Influence

A review of the MECP well records confirmed that there are 6 records for active water supply wells within 500 m of the Site. Since the construction will be completed above shallow groundwater level, no concerns are anticipated regarding local groundwater users. However, a door-to-door supply water well canvasing may be required for the water supply wells located within the 500 radius of the Site boundary.

8.8.4 Contamination Sources

Terraprobe is not aware of any Environmental Site Assessment (ESA) completed for the Site. If additional information is required for environmental purposes, a Phase One Environmental Site Assessment (ESA) and possibly a Phase Two ESA should be conducted.



9.0 PRE AND POST DEVELOPMENT WATER BALANCE

As a part of the hydrogeological assessment, a pre- and post-development water balance analyses were completed to compare pre-development and post-development hydrological conditions to evaluate potential changes in recharge and runoff volumes due to the proposed development.

The discussion below provides details on the methodology used and the results obtained from the analysis. A summary of the calculations is provided in **Appendix H**.

9.1 Site Water Balance Components

A Site scale water balance analysis was completed following the Toronto and Region Source Protection Authority (TRSPA) tool provided by TRCA. The water balance method roughly estimates annual evapotranspiration, infiltration and runoff volumes. The modified water balance components were used for the pre- and post-development water balance analyses. **Table 9-1** summarizes the details for the water balance parameters adopted from TRSP tool.

| Table 9-1 | Summary | of | Water | Balance | Com | oonents |
|-----------|--------------|----------|-------|---------|-------|-----------|
| | S contract j | <u> </u> | | 2 | 00111 | 001101100 |

| Precipitation (mm/year) | Evapotranspiration (mm/year) | Infiltration (mm/year) | Runoff (mm/year) |
|-------------------------|------------------------------|------------------------|------------------|
| 874 | 514 | 241 | 119 |

9.1.1 Methodology

A Site scale water balance analysis was completed in order to estimate the components of the hydrologic cycle for the Site, and was modelled using the following equation:

$$P = DGS + ET + R + I$$

Where:

P= Precipitation, which represents the sum of all rainfall and snowfall
DGS=Change in groundwater storage
ET= Evapotranspiration *R*= Runoff
I= Infiltration

Based on the TRCA tool; (https://trca.ca/conservation/drinking-water-source-protection/trspa-water-balance-tool/), evapotranspiration in pervious areas at the Site is 514 mm/yr, runoff is 119 mm/yr and infiltration (groundwater recharge) is 241 mm/yr.

Although groundwater storage experiences both gains and losses on a short-term basis, the net change in groundwater storage (DGS) over the long-term is generally zero. For this reason, the change in groundwater storage (zero (0)) has not been included in the water balance calculations.



Evapotranspiration (ET) refers to the transfer of water from vegetation and the soil surface to the atmosphere in the form of water vapour. The term considers evaporation from the soil surface and from man-made surfaces together with transpiration from plants.

9.2 Site Water Balance

Water balance analyses were completed for pre-development and post-development conditions, separately with the details presented below:

9.2.1 Pre-Development Water Balance

The Site is s mixed used agricultural and residential property and associated driveway and sheds. The predevelopment water balance for the Site is calculated by multiplying the existing breakdown areas at the Site by the various, averaged annualized depth estimates for precipitation, ET, infiltration and runoff. Area of the existing structures within the Site were estimated using the available interactive maps. The average annual area-based estimates for each water balance component are summarized in **Table 9-2**.

| Pre-Development Site Breakdown Areas | Coverage Area (m ²) | Precipitation (m³/year) | Evapotranspiration (m ³ /year) | Infiltration (m³/year) | Run off (m³/year) |
|--|------------------------------------|----------------------------|--|---------------------------|----------------------|
| Existing house, driveway and sheds | 897 | 784 | 78 | 0 | 706 |
| Agricultural Land and Grass covered Area | 59,693 | 52,172 | 30,663 | 14,408 | 7,101 |
| Total | 60,590 | 52,956 | 30,741 | 14,408 | 7,807 |

 Table 9-2 - Summary of Pre-Development Volumetric Water Balance Components

9.2.2 Post-Development Water Balance

Based on the Site Plan provided by Battalglia Architect Inc. (**Appendix I**) and an email received on November 9, 2020 the total Site area is $60,590 \text{ m}^2$. Plan review indicates that a total of 17,808 m² is considered as buildings, 10,658 m² as paved area and 32,124 m² as landscaped area.

The post-development water balance is calculated using the same depth based components that were used for the pre-development water balance calculations, i.e., average annual precipitation and average annual ET. The estimates for runoff and ET for existing pervious surfaces are 90% and 10% of the average annual precipitation, respectively. The estimated post-development water balance volumes are provided in **Table 9-3**.

| Post-Development Site Breakdown Areas | Coverage Area (m²) | Precipitation (m ³ /year) | Evapotranspiration (m ³ /year) | Infiltration (m ³ /year) | Run off (m³/year) |
|--|-----------------------|--------------------------------------|--|--|----------------------|
| Proposed Buildings (Roof Top Area) | 17,808 | 15,564 | 1,556 | 0.0 | 14,008 |
| Proposed Paved Areas | 10,658 | 9,315 | 931 | 0.0 | 8,383 |
| Proposed Landscaped and open Area | 32,124 | 28,077 | 16,501 | 7,754 | 3,822 |

 Table 9-3 - Summary of Post-Development Volumetric Water Balance Components



| Post-Development Site | Coverage Area | Precipitation (m ³ /year) | Evapotranspiration | Infiltration | Run off |
|-----------------------|-------------------|--------------------------------------|--------------------|--------------|-----------|
| Breakdown Areas | (m ²) | | (m³/year) | (m³/year) | (m³/year) |
| Total | 60,590 | 52,956 | 18,989 | 7,754 | 26,213 |

9.3 Water Balance Analysis Results

The volumetric comparisons in evapotranspiration, infiltration and runoff between the pre-developed and post-developed Site are summarized in **Table 9-4**.

| Pre-Development Site Breakdown Areas | Precipitation (m ³ /year) | Evapotranspiration (m³/year) | Infiltration (m³/year) | Run off (m ³ /year) |
|---|--------------------------------------|---------------------------------|---------------------------|--------------------------------|
| Pre-Development | 52,956 | 30,741 | 14,408 | 7,807 |
| Post-Development | 52,956 | 18,989 | 7,754 | 26,213 |
| Loss (-) and Gain (+) | - | -11,752 | -6,654 | +18,406 |

 Table 9-4 - Pre- and Post-Development Volumetric Water Balance Components

A review of the findings indicates a total decrease of 11,752 m³/year and 6,654 m³/year for ET and infiltration, respectively, and an increase of 18,406 m³/year for runoff are expected for the post-development Site. Low Impact Development (LID) measures such as infiltration trenches and permeable pavements could be considered to partially manage the generated runoff. Remaining volume can be discharged to the Regional Municipality of Peel storm sewer system or overland. It is assumed that details will be provided in the Stormwater Management report for the development.

Based on Table 3.5.1 of Low Impact Development Stormwater Management Planning and Design Guide, issued by TRCA dated January 2010, 1.0 m interval should be considered between base of the proposed LID measures and groundwater level. Additionally, percolation rate of the soil, where the LID measures are proposed, should be confirmed using in-situ percolation testing techniques.



10.0 CONCLUSIONS AND RECOMMENDATIONS

- The Site is located within Physiographic regions of Southern Ontario known as the South Slope. The South Slope within the vicinity of the Site comprises a Till Plains (Drumlinized).
- The Site is located within an area mapped as Fine-textured glaciolacustrine deposits (5d) consisting of clay to silt-textured till derived from glaciolacustrine deposits of shale.
- The Site is located within the Humber River watershed which falls within TRCA jurisdiction, where there are no records for natural heritage features including wetland, water bodies, watercourses and ANSI within the Site. Lindsay creek which is tributary of West Humber River, a small pond and a wetland feature are located approximately 200 m, 120 m and 100 m to the northeast corner of the Site, respectively. Additionally, a small creek which is a tributary of West Humber River flows just on the verge of south west corner of the Site.
- The subsoil profile consists mainly of earth fill and glacial till (clayey silt) to termination depth of investigation at 8.1 mbgs.
- The highest and lowest stabilized shallow groundwater levels were measured at El. 264.32 masl and 261.04 masl at monitoring wells BH5 and BH1, respectively. The highest groundwater level of 265.82 masl recorded at BH1 on October 5, 2020 is not presenting stabilized groundwater level. In addition, the highest groundwater fluctuation of 4.78 m was measured at monitoring well BH1. The lowest fluctuation of 1.36 m was recorded at monitoring well BH3 location over the monitoring period.
- Estimated hydraulic conductivity using single well response test (SWRT) ranges from 4.25 x 10⁻⁹ m/s to 1.08 x 10⁻⁶ m/s for clayey silt till. Geomean hydraulic conductivity is 1.14 x 10⁻⁷ m/s.
- The analytical results for the unfiltered groundwater samples obtained from monitoring well BH3 indicates that the concentrations for all the analyzed parameters meet the Regional Municipality of Peel Sanitary Sewer By-law Limits but exceeds the Regional Municipality of Peel Storm Sewer By-law Limits for total suspended solids (TSS) and Fecal Coliforms.
- Anticipated construction (short-term) dewatering for developing the proposed slab-on-grade building is 15,000 L/day considering 25 mm precipitation event and there is no groundwater seepage as the base of excavation is above the highest groundwater table.
- A slab-on-grade building is proposed for the future development. Additionally, the proposed building will be constructed above shallow groundwater level. As such, discharge plan for long-term foundation drainage is not required for the post development structure.
- The estimated short-term construction dewatering flow rates remains below 50,000 of the EASR threshold of 50,000 L/day. As such, filling EASR or applying for PTTW with the MECP are not required.



- Construction will be completed above shallow groundwater level. As such, no impacts caused by the proposed construction, are anticipated on the nearby groundwater receptors including natural heritage features and water supply wells.
- Considering the location of the Site within the area regulated by TRCA, obtaining permit from TRCA is required.
- A review of the findings indicates a total decrease of 11,752 m³/year and 6,654 m³/year for ET and infiltration, respectively, and an increase of 18,406 m³/year for runoff are expected for the post-development Site. Low Impact Development (LID) measures such as infiltration trenches and permeable pavements could be considered for the post-development Site.



11.0 LIMITATIONS

This report was prepared at the request of, and for the exclusive use of Swaminarayan Mandir Vasna Sanstha (SMVS) and its affiliates ("the Intended User") is intended to provide an assessment of the hydrogeological conditions of the Site located at 6939 King Street, Caledon (the Site). No one other than the Intended User has the right to use and rely on the work without first obtaining the written authorization of Terraprobe Inc. and SMVS.

Terraprobe Inc. expressly excludes liability to any party except the Intended User for any use of, and/or reliance upon, the work. 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 Inc. 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 of encountering hydrogeological problems. The information presented in this report is based on information collected during the completion of the hydrogeological study by Terraprobe Inc. It was based on the conditions on the Site at the time of the hydrogeological study by a review of historical information and field investigation to assess the hydrogeological conditions of the Site, as reported herein.

There is no warranty expressed or implied by this report regarding the hydrogeological conditions for the Site. Professional judgement was exercised in gathering and analysing information collected by reviewing previous reports, data provided by government and are open to public and field work investigation. 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 hydrogeological conditions of the Site is encountered, or in the event that the outstanding responses from the regulatory agencies indicate outstanding issues on file with respect to the Site, Terraprobe Inc. should be notified in order that we may re-evaluate the findings of this assessment and provide amendments, as required.

Neither possession of the Work, nor a copy of it, carries the right of publication. All copyright in the Work is reserved to Terraprobe Inc. The Work shall not be disclosed, produced or reproduced, quoted from, or referred to, in whole or in part, or published in any manner, without the express written consent of Terraprobe Inc. or Swaminarayan Mandir Vasna Sanstha (SMVS).



12.0 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.

Amar Netu

Amar Neku, Ph.D., P. Eng., P.Geo Project Engineer

AR Narjes Alijani, M.Sc., P.Geo. Senior Hydrogeologist

PROF

Dr. Giorgio Garofalo, P.Geo., QPESA

Sr. Project Manager/Sr. Hydrogeologist



November 26, 2020 File No. 1-20-0222-46

GE

NARJES ALIJANI

PRACTISING MEMBER

13.0 REFERENCES

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- 8. Peel Region Conservation Authority, Online Regulated Area Map.
- 9. Town of Caledon, Online Official Plans.
- 10. Watershed Features Humber River (TRCA https://trca.ca/conservation/watershedmanagement/humber-river/watershed-features/)






















| | Consultin Consultin | ng Geotechnical & Environmental Engineering struction Materials, Inspection & Testing |
|---|---|---|
| n n n n n n n n n n n n n n n n n n n | References Site Plan 6939 King St. C Dwg No: A1 Dated: Nov 11, | : aledon, ON 2020 |
| Key Map | By: Battaglia Ar | rchitect Inc |
| | | Star The Gore |
| | | Creet Rd |
| Sources: Opens | Esri, HERE, G StreetMap co | armin, FAO, NOAA, USGS ontributors, and the GIS U Commu |
| Notes: | | |
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| Legend: | | |
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| Pro Dat | ject N e star | lo. : 1-20-0222-01 ted : July 14, 2020 | Clie Pro | ent ject | : S t : 6 | Swam 939 Saled | hinaray King S | an Mandir ^v treet tario | /asna S | Sanstha | an Car | ada | | | Origin Com | ated by:Sai piled by:CM |
|------------|----------------------|---|-------------|-------------|--------------|----------------------|-------------------|---|--|--------------------------------------|--|--------------------------|----------------------------------|-----------------------|----------------|---|
| Posi | tion : | E: 597212, N: 4855726 (UTM 17T) | LUC | auc | <u>л . с</u> | Elevat | ion, Or | n : Geodetic | | | | | | | Cile | Sked by . OZ |
| Rig t | ype : | Deidric 60, track-mounted | | | | Drilling | g Method | : Solid ster | n augers | | | | | | | |
| cale (m) | | SOIL PROFILE | Log | e | SAMPI | /alue | n Scale | Penetration Test (Blows / 0.3m) X Dynamic Cone 10 20 | Values | 40 | Mois Plastic | ture / Pla | sticity Liquid | lspace pour om) | ument tails | Lab Data |
| Depth So | Elev Depth (m) | | Graphic | Numb | Type | SPT 'N' \ | Elevatior (m | Undrained Shea O Unconfined Pocket Pene 40 80 | r Strength (k + i trometer ■ i 120 | Pa) Field Vane Lab Vane 160 | | | | Head Va (pi | Instri De | GRAIN SIZE GRAIN SIZE DISTRIBUTION (MIT) GR SA SI |
| -0 | 200.0 | FILL, clayey silt, trace sand, trace gravel, trace wood chips, very stiff, brown, moist | | 1 | SS | 17 | - | | | - | 0 | | | | | |
| - 1 | 265.6 | | | 2 | SS | 21 | 266 - | | | | 0 | | | - | Ţ | |
| | 1.2 | SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, stiff to very stiff, brown, moist (GLACIAL TILL) | 0 | 3 | SS | 17 | 265 - | | | | | 0 | | _ | | 2 14 48 |
| 2 | | | | | | | | | | | | | | | | |
| .3 | | | e | 4 | SS | 23 | 264 - | | | | | c | | - | | |
| 5 | | | 0 | 5 | SS | 23 | - | | | | | 0 | | | | |
| - 4 | | | | | | | 263 - | | | _ | | | | | | |
| - 5 | | grey below | | 6 | SS | 14 | 262 - | | | | | > | | _ | | |
| | | | 0 | | | | - 261 - | | | | | | | | | · · · |
| - 6 | | | | 7 | SS | 21 | | | | | c |) | | | | · |
| -7 | | | e | | | | 260 - | | | | | | | - | | |
| | | rock fragments | 0 | 8 | SS | 24 | 259 - | | | | |) | | | | |
| - 8 | 258.7 8.1 | END OF BOREHOLE | 161 | 1 | | | Ţ | | | | | | | | | |
| | | Borehole was dry and caved to 5.8 m below ground surface upon completion of drilling. | : | | | | | | W/ <u>Date</u> oct 5, 2020 ct 13, 2020 ct 20, 2020 | ATER LE <u>Water</u>) | VEL REA • Depth (1 1.0 5.7 5.0 | ADINGS <u>n) El</u> i | 265.9 265.9 261.1 261.8 | <u>n)</u> | | |
| | | 50 mm dia. monitoring well installed. | | | | | | 0 | | | 0.0 | | 201.0 | | | |

| | | erraprobe | | | | | | LOG OF | во | REł | IOLE 2 |
|---------------|----------------------|--|-------------|--------|--------------|-----------|---------------------|---|------------------------------|-----------------------|--|
| Proje | ect N | lo. : 1-20-0222-01 | Clie | ent | : S | Swam | inaray | an Mandir Vasna Sansthan Canada | | Origin | ated by:SM |
| Date | e star | ted : September 21, 2020 | Pro | ject | : 6 | 939 | King S | reet | | Com | oiled by :CM |
| Shee | et No | o. :1 of 1 | Loc | atic | on : C | aled | on, Or | ario | | Cheo | ked by :SZ |
| Positi | on : | E: 597188, N: 4855697 (UTM 17T) | | | | Elevati | ion Datu | n : Geodetic | | | |
| Rig ty | rpe : | Track-mounted | | _ | | Drilling | Method | : Solid stem augers | | - | • |
| pth Scale (m) | <u>Elev</u> Depth | SOIL PROFILE | tphic Log | lumber | Type Type | "N" Value | vation Scale (m) | Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) O Unconfined + Field Vane PL MC LL | Headspace Vapour (ppm) | Instrument Details | Lab Data and and Comments GRAIN SIZE DISTRIBUTION (%) |
| ے _0 | (m) 266.2 | GROUND SURFACE | 0 Lu | 2 | | SPT | Ele | | | | (MIT) GR SA SI CL |
| Ū | 265.9 | 300mm TOPSOIL | 17 - 74 | | ~~~ | | 266 - | | _ | | |
| - | 0.3 | (WEATHERED/DISTURBED) | | | 55 | 10 | | | | | |
| -1 | 26 <u>5.4</u> 0.8 | SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, very stiff to hard, brown, moist | | 2 | SS | 40 | 265 - | • • | | | |
| | | (GLACIAL TILL) | ø | \sum | | | 200 | | | | |
| - 2 | | | | 3 | SS | 28 | - | ○ | | | |
| | | | P | | | | 264 - | | _ | | |
| | | | | 4 | SS | 51 | | • • | | | |
| -3 | | | K | 5 | SS | 31 | 263 - | O | _ | | |
| -4 | | | | | | | - 262 | | _ | | |
| -5 | | grey below | | 6 | SS | 30 | | 0 | | | |
| - 6 | | | | | | | 261 - | | | | |
| | 259.6 | | ø | 7 | SS | 30 | 260 - | | _ | | |

END OF BOREHOLE

Borehole was dry and caved to 5.5 m below ground surface upon completion of drilling.



| | | Perraprobe | | | | | | | | | | LOG | OF | BO | REF | 10 | LE 4 |
|-----------------|---|--|-------------|--------|--------------|---------------|------------------------|--|---|---|-------------------------------------|---|-----------------------------------|------------------------------|-----------------------|-----------------------------|---|
| Proje | ect N | o. : 1-20-0222-01 | Clie | ent | : S | Swam | inaray | an Mandii | r Vas | na Sa | anstha | an Canada | | | Origina | ated | by:SM |
| Date | star | ted : September 21, 2020 | Pro | ject | : : 6 | 939 | King S | treet | | | | | | | Comp | oiled | by:CM |
| Shee | et No | o. :1 of 1 | Loc | atic | on : C | aled | on, Or | itario | | | | | | | Chec | ked | by:SZ |
| Positio | on : | E: 597189, N: 4855745 (UTM 17T) | | | l | Elevati | on Datu | m : Geodet | ic | | | | | | | | |
| Rig ty | pe : | Track-mounted | | | | Drilling | Method | : Solid st | em au | gers | | | | | | _ | |
| Depth Scale (m) | <u>Elev</u> Depth (m) 266.3 | SOIL PROFILE Description GROUND SURFACE | Graphic Log | Number | AMPI Type | SPT 'N' Value | Elevation Scale (m) | Penetration 16 (Blows / 0.3m) × Dynamic C 1,0 2 Undrained Shi O Unconfine ● Pocket Pe 40 | one 20 : ear Strei enetromet 30 1 | as 3 <u>0 4</u> ngth (kPa + Fi∈ er ■ La 20 16 | 0 a) bld Vane b Vane 50 | Moisture / Plastic Natural Limit Water Con PL MC 10 20 | asticity Liquid Itent Limit | Headspace Vapour (ppm) | Instrument Details | Unstabilized Water Level | Lab Data and Comments GRAIN SIZE IISTRIBUTION (%) (MIT) GR SA SI CL |
| -0 | 266.0 | 250mm TOPSOIL | 1/ 1/ | - | | | | | | | | | | | | | |
| - | 0.3 | FILL, clayey silt, trace to some sand, trace organics, stiff, brown, moist | | 1 | SS | 9 | 266 - | | | | | 0 | | | | | |
| -1 | 0.8 | SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, very stiff to hard, brown, moist (GLACIAL TILL) | | 2 | SS | 24 | 265 - | | \mathbf{n} | | | 0 | | | | | |
| - | | | | | | | 200 | | | | | | | | | | |
| -2 | | | | 3 | SS | 30 | | | | | | 0 | | | | | |
| - | | | | 4 | SS | 57 | 264 - | | | | | 0 | | | | | |
| -3 | | | | 5 | SS | 52 | 263 - | | | | | 0 | | | | | |
| - 4 | | | a la | | | | - 262 - | | | | | | | | | | |
| - | | arev below | | | | | 202 | | | / | | | | | | | |
| -5 | | | | 6 | SS | 34 | | | | | | 0 | | | | | |
| - | | | | | | | 261 - | | | | | | | | | | |
| - 6 | 259.7 | | | 7 | SS | 33 | 260 - | | | | | 0 | | | | | |

END OF BOREHOLE

Borehole was dry and open upon completion of drilling.

| Proj | ect N | lo. : 1-20-0222-01 | Clie | nt | : S | Swam | ninaray | an Mandir Va | asna Sansth | an Canada | | Origin | ated by :SM |
|-----------|-----------------------|--|---------|------|--------|----------|------------------|--|--------------------------------|--|-----------------------------|---------------------|--|
| Date | e star | ted : September 21, 2020 | Proj | ject | : 6 | 939 | King S | treet | | | | Com | piled by :CM |
| She | et No | o. :1 of 1 | Loc | atio | on : C | aled | on, Or | itario | | | | Che | cked by :SZ |
| Positi | on : | E: 597152, N: 4855725 (UTM 17T) | | | l | Elevati | ion Datu | m : Geodetic | | | | | |
| Rig ty | pe : | Track-mounted | | | | Drilling | Method | : Solid stem : Penetration Test Va | augers | | | 1 | |
| Scale (m) | Elev | SUL PROFILE | lic Log | nber | | l' Value | ion Scale (m) | (Blows / 0.3m) X Dynamic Cone <u>1,0</u> <u>2,0</u> Undrained Shear S | <u>30 40</u> | Moisture / Plasticity Plastic Natural Liqu Limit Water Content Lin | iadspace /apour (ppm) | strument Details | Lab Data and Comments |
| Depth | (m) | | Graph | Nur | Ţ | PT 'N | Elevai | O Unconfined Pocket Penetron | + Field Vane meter Lab Vane | | Ŧ | <u> </u> | S ^S GRAIN SIZE DISTRIBUTION (%) (MIT) |
| -0 | 266.4 266.1 0.3 | 300mm TOPSOIL | | 1 | SS | 11 | 266 - | 40 00 | | 0 | | | GR SA SI CL |
| - | 26 <u>5.8</u> 0.6 | SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, very stiff to | | | | | | | | | | | |
| -1 | | hard, brown, moist (GLACIAL TILL) | P | 2 | SS | 32 | 265 - | | | 0 | | | |
| - | | | | 3 | SS | 40 | | | | 0 | | | 0 13 40 47 |
| -2 | | | P | | | | 264 - | | | | | ⊻ ⊻ | |
| - | | | | 4 | SS | 30 | | | | 0 | | | |
| -3 | | | | 5 | SS | 34 | 263 - | | | 0 | | | |
| - | | | | | | | | | | | | Ā | |
| - 4 | | | | | | | 262 - | | | | | | |
| - | | grey below | 0 | 6 | SS | 26 | 202 | | | 0 | | | |
| -5 | | | P | | | | 261 - | | | | | | |
| - | | | | | | | | | | | | | |
| - 6 | | | P | 7 | SS | 33 | 260 - | | | 0 | | | |
| - | | | | | | | 200 | | | | | | · · |
| -7 | | | | | | | 250 - | | | | | | |
| - | | | | 8 | SS | 32 | 200- | | | 0 | | | |
| - 8 | 258.3 8.1 | | ĽÐ | 1 | | |] | | | | | | |
| | | END OF DOREHULE | | | | | | | WATER L | EVEL READINGS | <i>.</i> . | | |

| | | ?erraprobe | | | | | | | LOG OF | во | REF | IOLE 6 |
|-------------|--------------------------------------|--|--------------|--------|--------|--------------|--------------------|---|---|--------------------------|-------------------|---|
| Proj | ect N | lo. : 1-20-0222-01 | Clie | ent | : S | Swam | inaray | an Mandir Vasna Sansth | an Canada | | Origina | ated by :SM |
| Date | e star | ted : September 21, 2020 | Pro | ject | t:6 | 939 | King S | treet | | | Comp | oiled by :CM |
| She | et No | o. :1 of 1 | Loc | catio | on : C | aled | on, Or | itario | | | Chec | ked by :SZ |
| Positi | on : | E: 597138, N: 4855685 (UTM 17T) | | | | Elevati | ion Datu | m : Geodetic | | | | |
| Rig ty | rpe : | Track-mounted | | | | Drilling | Method | : Solid stem augers | | | | |
| (m) e | | SOIL PROFILE | 0 | | Sampi | LES ୁ | cale | (Blows / 0.3m) | Moisture / Plasticity |) r | ent s | Lab Data _{য় ক} and |
| Depth Scale | <u>Elev</u> Depth (m) 266.5 | Description | Graphic Lo | Number | Type | SPT 'N' Valu | Elevation S (m) | 10 20 30 40 Undrained Shear Strength (kPa) O Unconfined + Field Vane 40 80 120 160 | Plastic Natural Liquid Limit Water Content Limit PL MC LL 10 20 30 | Headsp: Vapou (ppm | Instrum Detail | Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI C |
| 0 | 266.3 | 200mm TOPSOIL | <u>x 1,,</u> | | | | | | | | | |
| | 0.2 | FILL, clayey silt, trace sand, trace gravel, trace organics, stiff, brown, moist | | 1 | SS | 14 | 266 - | | 0 | | | |
| 1 | 265.7 0.8 | SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, very stiff to hard, brown, moist | | 2 | SS | 36 | | | 0 | | | |
| | | (GLACIAL TILL) | P | | | | 265 - | | | | | |
| 2 | | | | 3 | SS | 37 | | | 0 | | | |
| | | | | 4 | SS | 36 | 264 - | | 0 | | | |
| 3 | | | | | | | - | | | | | |
| | | | | | 55 | 42 | - 263 - | | 0 | | | |
| · 4 | | | | | | | | | | | | |
| | | grey below | 8 | 6 | SS | 26 | 262 - | | 0 | | | |
| 5 | | | | | | | 261 - | | | | | |
| - 6 | 259 9 | | | 7 | ss | 33 | - 260 - | | 0 | | | spoon wet |

END OF BOREHOLE

Borehole was dry and caved to 5.8 m below ground surface upon completion of drilling.



Sheet No.

LOG OF BOREHOLE 7

Originated by : SM

Compiled by : CM

Project No. : 1-20-0222-01

Client : Swaminarayan Mandir Vasna Sansthan Canada Date started : September 21, 2020

Project : 6939 King Street

Location : Caledon, Ontario

Checked by : SZ :1 of 1 : E: 597139, N: 4855778 (UTM 17T) Position Elevation Datum : Geodetic Drilling Method : Solid stem augers Rig type Track-mounted Penetration Test Values (Blows / 0.3m) SOIL PROFILE SAMPLES Lab Data Scale Moisture / Plasticity Headspace Vapour (ppm) Depth Scale (m) Instrument Details 'N' Value and X Dynamic Cone Graphic Log Unstabilized Water Level Plastic Limit Natural Water Content Liquid Limit Comments 10 20 30 40 Number Elevation (m) Type <u>Elev</u> Depth (m) Description Undrained Shear Strength (kPa) GRAIN SIZE DISTRIBUTION (%) (MIT) O Unconfined + Field Vane ● Pocket Penetrometer Lab Vane 40 80 120 160 SPT -30 10 0 20 266.6 GROUND SURFACE GR SA SI CL 0 × 14. 300mm TOPSOIL 266.3 0.3 *''* SS 12 0 11 (WEATHERED/DISTURBED) 266.0 266 0.6 1 SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, hard, brown, moist 1 2 SS 33 0 (GLACIAL TILL) 265 SS 33 3 0 264.6 2.0

END OF BOREHOLE



Sheet No.

LOG OF BOREHOLE 8

Originated by : SM Compiled by : CM

Checked by : SZ

Project No. : 1-20-0222-01

:1 of 1

Client : Swaminarayan Mandir Vasna Sansthan Canada Date started : September 21, 2020

Project : 6939 King Street

Location : Caledon, Ontario

| _ | | | | | | | | | | | | | | | | | | | | |
|----------|--------------|---|---------|-----|-------|----------|----------------|----------------------|------------------------------------|---------------------------|-------------------------------|--------------------------|---------|---------|---------------------|-----------------|-------------------------|-----------------|----------------------|---|
| Pos | ition | : E: 597081, N: 4855716 (UTM 17T) | | | E | Elevati | on Datu | n :G | eodeti | с | | | | | | | | | | |
| Rig | type | : Track-mounted | | | [| Drilling | Method | : S | olid ste | em au | gers | | | | | | | | | |
| Ê | | SOIL PROFILE | | | SAMPL | ES | e | Penetra (Blows | ation Te: / 0.3m) | st Valu | es | | M | oisture | / Plasti | sity | ۵ | t | | Lab Data |
| Scale (n | Elov | | c Log | oer | Ð | Value | on Sca n) | X Dy | namic Co 0 2 | ne 0 ; | 3,0 4 | Ļ0 | Plastic | c Nate | atural r Content | Liquid Limit | dspace apour opm) | rumen etails | abilized er Level | and Comments |
| Depth \$ | Depth (m) | Description | Graphic | Num | Typ | PT 'N' | Elevatio (r | Undrain OU ● P | ned She Inconfined ocket Per | ar Strei i netromet | ngth (kPa + Fie er ■ La | a) eld Vane b Vane | P | | | ц Н | Hea | D | Unsta Wate | GRAIN SIZE DISTRIBUTION (%) (MIT) |
| -0 | 267.0 | GROUND SURFACE | - 11 | | | S | ш 267 | 4 | 08 | 0 1 | 20 10 | 60 | 1 | 0 : | 20 : | 30 | | | | GR SA SI CL |
| | | 300mm TOPSOIL | <u></u> | | | | | | | | | | | | | | | | | |
| | 266.7 | | Éri | 1 | SS | 14 | | | | | | | | 0 | | | | | | |
| ╞ | 266.4 | (WEATHERED/DISTURBED) | | | | | - | | | | | | | | | | | | | |
| | 0.6 | SILT AND CLAY to CLAYEY SILT, trace | 167 | | | | | | | | | | | | | | | | | |
| | | to some sand, trace gravel, very stiff to | Ш | | | | | | | | N | | | | | | | | | |
| -1 | | hard, brown, moist | KN - | 2 | SS | 38 | 266 - | | | | | | | 0 | | | | | | 4 11 42 43 |
| | | | | 1 | | | | | | | | | | | | | | | | |
| | | | M | | | | | | | | | | | | | | | | | |
| F | | | K | | | | | | | | / | | | | | | | | | |
| | | | Ŵ | 3 | SS | 28 | | | | 1 | | | | 0 | | | | | | |
| | 265.0 | | M | Ĭ | | | | | | | | | | | | | | | | |
| 1 | 2.0 | 1 | | - | | | J | | | | | | | | 1 | | | | - | |

END OF BOREHOLE



Originated by : SM

Compiled by : CM

Project No. : 1-20-0222-01

Client : Swaminarayan Mandir Vasna Sansthan Canada Date started : September 21, 2020

Project : 6939 King Street

Location : Caledon, Ontario

Checked by : SZ Sheet No. :1 of 1 : E: 597140, N: 4855634 (UTM 17T) Position Elevation Datum : Geodetic Drilling Method : Solid stem augers Rig type Track-mounted Penetration Test Values (Blows / 0.3m) SOIL PROFILE SAMPLES Lab Data Scale Moisture / Plasticity Headspace Vapour (ppm) Depth Scale (m) Instrument Details 'N' Value and X Dynamic Cone Graphic Log Unstabilized Water Level Plastic Limit Natural Water Content Liquid Limit Comments 10 20 30 40 Number Elevation (m) Type <u>Elev</u> Depth (m) Description Undrained Shear Strength (kPa) GRAIN SIZE DISTRIBUTION (%) (MIT) O Unconfined + Field Vane ● Pocket Penetrometer Lab Vane 40 80 120 160 SPT -30 10 0 20 266.6 GROUND SURFACE GR SA SI CL 0 ×14. 300mm TOPSOIL 266.3 0.3 SS 11 φ FILL, clayey silt, trace sand, trace gravel, trace organics, stiff, brown, moist 266 265.8 0.8 SILT AND CLAY to CLAYEY SILT, trace 1 to some sand, trace gravel, hard, brown, 2 SS 42 φ moist (GLACIAL TILL) ...rock fragments 265 SS 33 0 3 264.6

END OF BOREHOLE



Originated by : SM

Compiled by : CM

Project No. : 1-20-0222-01

: Swaminarayan Mandir Vasna Sansthan Canada Client Date started : September 21, 2020

Project : 6939 King Street

Location : Caledon, Ontario

Checked by : SZ Sheet No. :1 of 1 : E: 597111, N: 4855589 (UTM 17T) Position Elevation Datum : Geodetic Drilling Method : Solid stem augers Rig type Track-mounted Penetration Test Values (Blows / 0.3m) SOIL PROFILE SAMPLES Lab Data Scale Moisture / Plasticity Headspace Vapour (ppm) Depth Scale (m) Instrument Details 'N' Value and X Dynamic Cone Graphic Log Unstabilized Water Level Plastic Limit Natural Water Content Liquid Limit Comments 10 20 30 40 Number Elevation (m) Type <u>Elev</u> Depth (m) Description Undrained Shear Strength (kPa) GRAIN SIZE DISTRIBUTION (%) (MIT) O Unconfined + Field Vane ● Pocket Penetrometer Lab Vane 40 80 120 160 SPT -30 10 20 265.8 GROUND SURFACE GR SA SI CL 0 ×14. 250mm TOPSOIL 265.5 0.3 SS 0 FILL, clayey silt, trace sand, trace gravel, stiff, brown, moist 11 265.0 0.8 265 SILT AND CLAY to CLAYEY SILT, trace to some sand, trace gravel, hard, brown, 1 2 SS 32 Ο moist (GLACIAL TILL) 3 SS 32 0 264 263.8

END OF BOREHOLE



Originated by : Saif

Compiled by : CM

Project No. : 1-20-0222-01

Client : Swaminarayan Mandir Vasna Sansthan Canada Date started : July 14, 2020

Project : 6939 King Street

Location : Caledon, Ontario

Checked by : SZ Sheet No. :1 of 1 Position : E: 597083, N: 4855653 (UTM 17T) Elevation Datum : Geodetic Deidric 60, track-mounted Drilling Method Rig type : Continuous sampling Penetration Test Values (Blows / 0.3m) SOIL PROFILE SAMPLES Lab Data Scale Moisture / Plasticity Headspace Vapour (ppm) Depth Scale (m) Instrument Details 'N' Value and X Dynamic Cone Graphic Log Unstabilized Water Level Plastic Limit Natural Water Content Liquid Limit Comments 10 20 30 40 Number Elevation (m) Type <u>Elev</u> Depth (m) Description Undrained Shear Strength (kPa) GRAIN SIZE DISTRIBUTION (%) (MIT) O Unconfined + Field Vane ● Pocket Penetrometer Lab Vane 40 80 120 160 SPT -30 10 0 20 267.1 GROUND SURFACE GR SA SI CL 0 267 · FILL, clayey silt, sandy, trace gravel, firm, brown, moist SS 0 1 7 266. 0.6 SILT AND CLAY to CLAYEY SILT, trace 12 to some sand, trace gravel, very stiff to 2 SS 0 6 13 41 40 24 hard, brown, moist (GLACIAL TILL) - 1 266 SS 35 0 3 265.3 1.8

END OF BOREHOLE



Project No. : 1-20-0222-01 Date started : July 14, 2020 Client : Swaminarayan Mandir Vasna Sansthan Canada

Project : 6939 King Street

Location · Caledon Ontario

Originated by : Saif

Compiled by : CM

| She | et No | o. :1 of 1 | Loc | atic | on : C | aled | on, Or | tario | Chec | ked by :SZ |
|----------------|-------------------------------|---|-------------|--------|--------|---------------|-----------------------|---|------------|--|
| Positi | on : | E: 597025, N: 4855676 (UTM 17T) | | | [| Elevati | ion Datur | n : Geodetic | | |
| Rig ty | pe : | Deidric 60, track-mounted | | | i | Jrilling | j Metnoa | : Continuous sampling | _ | |
| | 1 | SOIL PROFILE | | ! ! | SAMPI | LES | Φ | Penetration Test Values (Blows / 0.3m) Mointure (Directicity (1) | | Lab Data |
| Depth Scale (m | Elev Depth (m) 267.1 | Description GROUND SURFACE | Graphic Log | Number | Type | SPT 'N' Value | Elevation Scal (m) | X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) Plastic Natural Liquid O Unconfined + Field Vane PL MC 40 80 120 160 10 20 30 | Instrument | and Comments Instruction (%) (MIT) GR SA SI CL |
| -0 | | FILL, clayey silt, trace sand, trace gravel, trace organics, trace top soil inclusions, stiff, brown, moist | | × 1 | SS | 11 | 267 - | 0 | | |
| -1 | 265.9 | l | | 2 | SS | 10 | 266 - | o | | |
| - | 1.2 265.3 | SILT AND CLAY, trace sand, trace gravel, very stiff, brown, moist (GLACIAL TILL) | P | 3 | SS | 18 | | • • | | |
| 1 | 1.8 | | | | | | | | | |

END OF BOREHOLE



TOWN OF CALEDON PLANNING RECEIVED

Dec 24, 2020

Appendix B

MECP Well Records Summary

| WEL | MECP* | Construction Method | Well Depth | Well I | Usage | Water Found | Static Water Level | Top of Screen Depth | Bottom of Screen Depth | Date Completed |
|-----|---------|------------------------|------------|--------------------------|------------|-------------|-----------------------|------------------------|---------------------------|------------------------------|
| LID | WWK ID | Methou | (111) | Final Status | First Use | (111)** | (m)** | (m)** | (m)** | |
| 1 | 4904482 | Boring | - | Water Supply | Domestic | 7.02 | - | - | - | Tuesday, July 16, 1974 |
| 2 | 7205984 | - | - | - | - | - | - | - | - | Wednesday, July 3, 2013 |
| 3 | 4903012 | Cable Tool | - | Water Supply | Domestic | 10.98 | 0.31 | - | - | Wednesday, July 10, 1968 |
| 4 | 4908359 | Cable Tool | 18.30 | Water Supply | Domestic | 13.73 | - | 15.56 | 18.30 | Thursday, September 10, 1998 |
| 5 | 4906340 | Boring | - | Water Supply | Domestic | 7.32 | 7.32 | - | - | Friday, June 7, 1985 |
| 6 | 7130480 | Boring | 10.37 | Observation Wells | Monitoring | 7.93 | - | 7.32 | 10.37 | Tuesday, May 5, 2009 |
| 7 | 4902999 | Boring | - | Water Supply | Domestic | 17.39 | - | - | - | Thursday, May 9, 1968 |
| 8 | 7291154 | Direct Push | 4.58 | Monitoring and Test Hole | Test Hole | - | - | 3.05 | 4.58 | Tuesday, June 13, 2017 |
| 9 | 7291153 | Direct Push | 4.58 | Monitoring and Test Hole | Test Hole | - | - | 0.03 | 4.58 | Tuesday, June 13, 2017 |
| 10 | 4904010 | Cable Tool | 32.64 | Water Supply | Domestic | 27.45 | 0.00 | 31.72 | 32.64 | Monday, September 11, 1972 |

*MECP WWID: Ministry of the Environment , Conservation and Parks Water Well Records Identification

**metres below ground surface



TOWN OF CALEDON PLANNING RECEIVED ference No. 1-20-0222-46 Dec 24, 2020

6939 King Street, Caledon

Ground Water Depths (m below ground surface)

| | | | | READING 1 | READING 2 | READING 3 |
|-----------------|----------------------------|----------------------------------|---------------------------------------|--|--|--|
| Monitoring Well | Ground Elevation (masl) | Measured Well Depth (mbgs) | Well Top of Screen Depth (mbgs) | Water Depth October 5, 2020 (mbgs) | Water Depth October 13, 2020 (mbgs) | Water Depth October 20, 2020 (mbgs) |
| BH1 | 266.77 | 7.60 | 4.60 | 0.95 | 5.73 | 5.00 |
| BH3 | 266.32 | 7.60 | 4.60 | 3.13 | 3.70 | 2.34 |
| BH5 | 266.43 | 7.60 | 4.60 | 2.33 | 3.72 | 2.11 |

Ground Water Elevations (m above sea level)

| | | | | READING 1 | READING 2 | READING 3 |
|-----------------|----------------------------|--|--|---|---|---|
| Monitoring Well | Ground Elevation (masl) | Well Screen (10 feet) Bottom Elevation (masl) | Well Screen (10 feet) Top Elevation (masl) | Groundwater Elevation October 5, 2020 (masl) | Groundwater Elevation October 13, 2020 (masl) | Groundwater Elevation October 20, 2020 (masl) |
| BH1 | 266.77 | 259.17 | 262.17 | 265.82 | 261.04 | 261.77 |
| BH3 | 266.32 | 258.72 | 261.72 | 263.19 | 262.62 | 263.98 |
| BH5 | 266.43 | 258.83 | 261.83 | 264.10 | 262.71 | 264.32 |

Note: mbgs - meters below ground surface

masl - meters above sea level





| • - | | | Slug Te | est Analysi | s Report | |
|-------------------------------|--------------------------|-------------------|----------|-------------|-----------------------------|-------|
| 2222 TO | rrapro | be | Project: | 6939 King S | Street | |
| | | | Number | 1-20-0222-4 | 46 | |
| Construction Ma | terials Engineering, Ins | pection & Testing | Client: | Swaminara | yan Mandir Vasna Sansthan C | anada |
| Location: Caledon | Slug | Test: BH1 | | | Test Well: BH1 | |
| Test Conducted by: JB | 1 - | | | | Test Date: 10/13/2020 | |
| Analysis Performed by: AN | BH1 | - FHT | | | Analysis Date: 10/14/2020 | |
| Aquifer Thickness: 1.40 m | | | | | | |
| | | | | | | |
| | | Т | ime [s] | | | |
| | 80 | 160 | | 240 | 320 | 400 |
| | | | | | | |
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| Calculation using Bouwer & Ri | ce | | | | | |
| Observation Well | Hydraulic Conductivity | | | | | |
| | [m/s] | | | | | |
| BH1 | 4.25 × 10 ⁻⁹ | | | | | |
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Dec 24, 2020

| • - | | | Slug Test Analysis Report | | | |
|--------------------------------|--------------------------|-------------------|---|-----|---------------------------|-------|
| 2222 TO | rrapro | be | Project: 6939 KIng Street | | | |
| Consulting Con | tashningi & Environmen | atal Engineering | Number: 1-20-0222-46 | | | |
| Construction Mat | terials Engineering, Ins | pection & Testing | Client: Swaminarayan Mandir Vasna Sansthan Canada | | | anada |
| Location: Caledon | Slug | Test: BH3 | | | Test Well: BH3 | |
| Test Conducted by: JB | | | | | Test Date: 10/13/2020 | |
| Analysis Performed by: AN | BH3 | - FHT | | | Analysis Date: 10/14/2020 | |
| Aquifer Thickness: 3.40 m | | | | | | |
| | | | | | | |
| | | Т | ime [s] | | | |
| 0 1F-1 | 50 | 100 | | 150 | 200 | 250 |
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| Calculation using Bouwer & Rid | | | | | | |
| Observation Well | Hydraulic Conductivity | | | | | |
| | 1 08 × 10 ⁻⁶ | | | | | |
| | 1.06 * 10 | | | | | |
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| • - | | | Slug Test Analysis Report | | | |
|--------------------------------|--------------------------|-------------------|--|--------------|---------------------------|------|
| 2222 TO | rrapro | be | Project: | 6939 King \$ | Street | |
| Consulting Con | technical & Environme | ntal Engineering | Number: 1-20-0222-46 | | | |
| Construction Mat | terials Engineering, Ins | pection & Testing | Client: | | | |
| Location: Caledon | Slug | Test: BH5 | | | Test Well: BH5 | |
| Test Conducted by: JB | | | | | Test Date: 10/13/2020 | |
| Analysis Performed by: AN | BH5 | - FHT | | | Analysis Date: 10/14/2020 | |
| Aquifer Thickness: 3.50 m | | | | | | |
| | | | | | | |
| | | _ | | | | |
| 0 | 80 | 160 T | ime [s] | 240 | 320 | 400 |
| 1E-1 | | | | | | |
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| Calculation using Bouwer & Rid | ce | 1 | | | | |
| Observation Well | Hydraulic Conductivity | | | | | |
| | [m/s] | | | | | |
| BH5 | 3.22 × 10 ⁻⁷ | | | | | |
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Hydraulic Conductivity Using Grain Size Distribution Graphs

TERRAPROBE INC.
















TERRAPROBE-BRAMPTON ATTN: AMAR NEKU 11 Indell Lane Brampton ON L6T 3Y3 Date Received: 14-OCT-20 Report Date: 21-OCT-20 14:49 (MT) Version: FINAL

Client Phone: 905-796-2650

Certificate of Analysis

Lab Work Order #: L2516019

Project P.O. #: Job Reference: C of C Numbers: Legal Site Desc:

6939 KING STREET, CALEDON

NOT SUBMITTED

1-20-0222-46

Smi

Emil Smith Account Manager [This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26 , Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927 ALS CANADA LTD Part of the ALS Group An ALS Limited Company

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www.alsglobal.com

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Summary of Guideline Exceedances

| Guideline | | | | | | | | | |
|--|-----------------|--|------------------------|----------------|-----------------|-----------|--|--|--|
| ALS ID | Client ID | Grouping | Analyte | Result | Guideline Limit | Unit | | | |
| Ontario Reg. Mun. of Peel Sanitary Bylaw #53-2010 (APR. 2011) - Reg. Mun. of Peel Sanitary by-law #53-2010 (No parameter exceedances) | | | | | | | | | |
| Ontario Reg | J. Mun. of Peel | Sanitary Bylaw #53-2010 (APR. 2011) - Peel Sto | rm Sewer By-Law #53-20 | 1- (APR. 2011) | | | | | |
| L2516019-1 | BH3 | Physical Tests | Total Suspended Solids | 164 | 15 | mg/L | | | |
| | | Bacteriological Tests | Fecal Coliforms | 200 | 0 | CFU/100mL | | | |



L2516019 CONT'D Job Reference: 1-20-0222-46 PAGE 3 of 17 21-OCT-20 14:49 (MT)

Physical Tests - WATER

| | ; | L Sample Sam | ab ID Date ple ID | L2516019-1 13-OCT-20 BH3 |
|------------------------|----------|--------------------|-------------------------|--------------------------------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| рН | pH units | 5.5-10 | 6-9 | 7.98 |
| Total Suspended Solids | mg/L | 350 | 15 | 164 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010

Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made. Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 4 of 17 21-OCT-20 14:49 (MT)

Anions and Nutrients - WATER

| | | L | .ab ID | L2516019-1 |
|-------------------------|------|-------------|--------------|------------|
| | | Sample | e Date | 13-OCT-20 |
| | | Sam | ple ID | BH3 |
| Analyte | Unit | Guide #1 | Limits #2 | |
| Fluoride (F) | mg/L | 10 | - | 0.388 |
| Total Kjeldahl Nitrogen | mg/L | 100 | 1 | 0.350 |
| Phosphorus, Total | mg/L | 10 | 0.4 | 0.235 |
| Sulfate (SO4) | mg/L | 1500 | - | 45.8 |
| | | | | |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010

Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D Job Reference: 1-20-0222-46 PAGE 5 of 17 21-OCT-20 14:49 (MT)

Cyanides - WATER

| | | l Sample Sam | Lab ID e Date ple ID | L2516019-1 13-OCT-20 BH3 |
|----------------|------|--------------------|----------------------------|--------------------------------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| Cyanide, Total | mg/L | 2 | 0.02 | <0.0020 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made. Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D Job Reference: 1-20-0222-46 PAGE 6 of 17 21-OCT-20 14:49 (MT)

Bacteriological Tests - WATER

| | Lat Sample D Sample | D ID L2516019-1 Pate 13-OCT-20 D ID BH3 |
|-----------------|---------------------------|---|
| Analyte | Guide Lir Unit #1 # | nits 2 |
| E. Coli | CFU/100m - 2 L | 200 0 |
| Fecal Coliforms | CFU/100m - L | 0 200 DLM |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 7 of 17 21-OCT-20 14:49 (MT)

Total Metals - WATER

| | | Sampl Sam | Lab ID e Date iple ID | L2516019-1 13-OCT-20 BH3 |
|-----------------------|------|--------------|-----------------------------|--------------------------------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| Aluminum (AI)-Total | mg/L | 50 | - | 0.586 |
| Antimony (Sb)-Total | mg/L | 5 | - | 0.00058 |
| Arsenic (As)-Total | mg/L | 1 | 0.02 | 0.00238 |
| Cadmium (Cd)-Total | mg/L | 0.7 | 0.008 | 0.0000085 |
| Chromium (Cr)-Total | mg/L | 5 | 0.08 | 0.00157 |
| Cobalt (Co)-Total | mg/L | 5 | - | 0.00056 |
| Copper (Cu)-Total | mg/L | 3 | 0.05 | 0.0017 |
| Lead (Pb)-Total | mg/L | 3 | 0.120 | 0.000747 |
| Manganese (Mn)-Total | mg/L | 5 | 0.05 | 0.0496 |
| Mercury (Hg)-Total | mg/L | 0.01 | 0.0004 | <0.000050 |
| Molybdenum (Mo)-Total | mg/L | 5 | - | 0.00482 |
| Nickel (Ni)-Total | mg/L | 3 | 0.08 | 0.00177 |
| Selenium (Se)-Total | mg/L | 1 | 0.02 | 0.000235 |
| Silver (Ag)-Total | mg/L | 5 | 0.12 | <0.000050 |
| Tin (Sn)-Total | mg/L | 5 | - | 0.00472 |
| Titanium (Ti)-Total | mg/L | 5 | - | 0.0153 |
| Zinc (Zn)-Total | mg/L | 3 | 0.04 | 0.0050 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010

Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made. Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 8 of 17 21-OCT-20 14:49 (MT)

Aggregate Organics - WATER

| | | l Sample | Lab ID e Date | L2516019-1 13-OCT-20 |
|-------------------------|------|-------------|------------------|-------------------------|
| | | Sam | BH3 | |
| | | Guide | l imits | |
| Analyte | Unit | #1 | #2 | |
| BOD Carbonaceous | mg/L | 300 | 15 | 4.2 |
| Oil and Grease, Total | mg/L | - | - | <5.0 |
| Animal/Veg Oil & Grease | mg/L | 150 | - | <5.0 |
| Mineral Oil and Grease | mg/L | 15 | - | <2.5 |
| Phenols (4AAP) | mg/L | 1 | 0.008 | 0.0014 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010

Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 9 of 17 21-OCT-20 14:49 (MT)

Volatile Organic Compounds - WATER

| | | L Sample Sam | L2516019-1 13-OCT-20 BH3 | |
|----------------------------|------|--------------------|--------------------------------|-------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| Acetone | ug/L | - | - | <20 |
| Benzene | ug/L | 10 | 2 | <0.50 |
| Bromodichloromethane | ug/L | - | - | <1.0 |
| Bromoform | ug/L | - | - | <1.0 |
| Bromomethane | ug/L | - | - | <0.50 |
| Carbon Disulfide | ug/L | - | - | <1.0 |
| Carbon tetrachloride | ug/L | - | - | <0.20 |
| Chlorobenzene | ug/L | - | - | <0.50 |
| Dibromochloromethane | ug/L | - | - | <1.0 |
| Chloroethane | ug/L | - | - | <1.0 |
| Chloroform | ug/L | 40 | 2 | <1.0 |
| Chloromethane | ug/L | - | - | <1.0 |
| 1,2-Dibromoethane | ug/L | - | - | <0.20 |
| 1,2-Dichlorobenzene | ug/L | 50 | 5.6 | <0.50 |
| 1,3-Dichlorobenzene | ug/L | - | - | <0.50 |
| 1,4-Dichlorobenzene | ug/L | 80 | 6.8 | <0.50 |
| Dichlorodifluoromethane | ug/L | - | - | <1.0 |
| 1,1-Dichloroethane | ug/L | - | - | <0.50 |
| 1,2-Dichloroethane | ug/L | - | - | <0.50 |
| 1,1-Dichloroethylene | ug/L | - | - | <0.50 |
| cis-1,2-Dichloroethylene | ug/L | 4000 | 5.6 | <0.50 |
| trans-1,2-Dichloroethylene | ug/L | - | - | <0.50 |
| Dichloromethane | ug/L | 2000 | 5.2 | <2.0 |
| 1,2-Dichloropropane | ug/L | - | - | <0.50 |
| cis-1,3-Dichloropropene | ug/L | - | - | <0.30 |
| trans-1,3-Dichloropropene | ug/L | 140 | 5.6 | <0.30 |
| Ethylbenzene | ug/L | 160 | 2 | <0.50 |
| n-Hexane | ug/L | - | - | <0.50 |
| 2-Hexanone | ug/L | - | - | <20 |
| Methyl Ethyl Ketone | ua/L | 8000 | - | ~20 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



L2516019 CONT'D Job Reference: 1-20-0222-46 PAGE 10 of 17 21-OCT-20 14:49 (MT)

Volatile Organic Compounds - WATER

| | | l Sample Sam | L2516019-1 13-OCT-20 BH3 | |
|---------------------------------|------|--------------------|--------------------------------|-------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| Methyl Isobutyl Ketone | ug/L | - | - | <20 |
| МТВЕ | ug/L | - | - | <0.50 |
| Styrene | ug/L | 200 | - | <0.50 |
| 1,1,1,2-Tetrachloroethane | ug/L | - | - | <0.50 |
| 1,1,2,2-Tetrachloroethane | ug/L | 1400 | 17 | <0.50 |
| Tetrachloroethylene | ug/L | 1000 | 4.4 | <0.50 |
| Toluene | ug/L | 270 | 2 | <0.40 |
| 1,1,1-Trichloroethane | ug/L | - | - | <0.50 |
| 1,1,2-Trichloroethane | ug/L | - | - | <0.50 |
| Trichloroethylene | ug/L | 400 | 8 | 1.21 |
| Trichlorofluoromethane | ug/L | - | - | <1.0 |
| Vinyl chloride | ug/L | - | - | <0.50 |
| o-Xylene | ug/L | - | - | <0.30 |
| m+p-Xylenes | ug/L | - | - | <0.40 |
| Xylenes (Total) | ug/L | 1400 | 4.4 | <0.50 |
| Surrogate: 4-Bromofluorobenzene | % | - | - | 104.8 |
| Surrogate: 1,4-Difluorobenzene | % | - | - | 101.3 |
| | | | | |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made. Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 11 of 17 21-OCT-20 14:49 (MT)

Phthalate Esters - WATER

| | | L2516019-1 13-OCT-20 BH3 | | |
|-----------------------------|------|--------------------------------|--------------|------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| Bis(2-ethylhexyl)phthalate | ug/L | 12 | 8.8 | <2.0 |
| Surrogate: 2-fluorobiphenyl | % | - | - | 90.2 |
| Surrogate: p-Terphenyl d14 | % | - | - | 84.5 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 12 of 17 21-OCT-20 14:49 (MT)

Semi-Volatile Organics - WATER

| V | | | | |
|-----------------------------|-----------|--------|--------|------------|
| | | I | _ab ID | L2516019-1 |
| | | Sample | e Date | 13-OCT-20 |
| | Sample ID | | | BH3 |
| | | 0 | 1 | |
| | | Guide | Limits | |
| Analyte | Unit | #1 | #2 | |
| Di-n-butylphthalate | ug/L | 80 | 15 | <1.0 |
| Surrogate: 2-Fluorobiphenyl | % | - | - | 90.2 |
| Surrogate: p-Terphenyl d14 | % | - | - | 84.5 |
| | | | | |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Suide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 13 of 17 21-OCT-20 14:49 (MT)

Polychlorinated Biphenyls - WATER

| | | Sampl Sam | Lab ID e Date iple ID | L2516019-1 13-OCT-20 BH3 |
|---------------------------------|------|--------------|-----------------------------|--------------------------------|
| Analyte | Unit | Guide #1 | Limits #2 | |
| Aroclor 1242 | ug/L | - | - | <0.020 |
| Aroclor 1248 | ug/L | - | - | <0.020 |
| Aroclor 1254 | ug/L | - | - | <0.020 |
| Aroclor 1260 | ug/L | - | - | <0.020 |
| Surrogate: Decachlorobiphenyl | % | - | - | 57.5 |
| Total PCBs | ug/L | 1 | 0.4 | <0.040 |
| Surrogate: Tetrachloro-m-xylene | % | - | - | 95.2 |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made. Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



L2516019 CONT'D.... Job Reference: 1-20-0222-46 PAGE 14 of 17 21-OCT-20 14:49 (MT)

Organic Parameters - WATER

| | | l Sample Sam | _ab ID e Date ple ID | L2516019-1 13-OCT-20 BH3 | |
|-------------------------------|------|--------------------|----------------------------|--------------------------------|--|
| Analyte | Unit | Guide #1 | Limits #2 | | |
| Nonylphenol | ug/L | 20 | - | <1.0 | |
| Nonylphenol Diethoxylates | ug/L | - | - | <0.10 | |
| Total Nonylphenol Ethoxylates | ug/L | 200 | - | <2.0 | |
| Nonylphenol Monoethoxylates | ug/L | - | - | <2.0 | |

Guide Limit #1: Reg. Mun. of Peel Sanitary by-law #53-2010 Guide Limit #2: Pool Storm Sover By-Law #52-201 (APP 201

Guide Limit #2: Peel Storm Sewer By-Law #53-201- (APR. 2011)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Dec 24, 2020

| Qualifiers for Individual I | Parameters Lis | sted: | |
|---|--|---|--|
| Qualifier Description | on | | |
| DLM Detection | Limit Adjusted | due to sample matrix effects (e.g. chemic | cal interference, colour, turbidity). |
| Methods Listed (if applic | able): | | |
| ALS Test Code | Matrix | Test Description | Method Reference** |
| 625-BIS-2-PHTH-WT | Water | Bis(2-ethylhexyl)phthalate | SW846 8270 |
| Aqueous samples are e | extracted and ex | stracts are analyzed on GC/MSD. | |
| 625-DNB-PHTH-WT | Water | Di-n-Butyl Phthalate | SW846 8270 |
| Aqueous samples are e | extracted and ex | stracts are analyzed on GC/MSD. | |
| BOD-C-WT | Water | BOD Carbonaceous | APHA 5210 B (CBOD) |
| This analysis is carried and incubating a sampl glass fibre filter prior to | out using proce e for a specified dilution. Carbor | edures adapted from APHA Method 5210E d time period, and measuring the oxygen naceous BOD (CBOD) is determined by a | 3 - "Biochemical Oxygen Demand (BOD)". All forms of biochemical oxygen demand (BOD) are determined by diluting depletion using a dissolved oxygen meter. Dissolved BOD (SOLUBLE) is determined by filtering the sample through a idding a nitrification inhibitor to the diluted sample prior to incubation. |
| CN-TOT-WT | Water | Cyanide, Total | ISO 14403-2 |
| Total cyanide is determ combination of barbitur | ined by the con ic acid and ison | nbination of UV digestion and distillation. icotinic acid to form a highly colored com | Cyanide is converted to cyanogen chloride by reacting with chloramine-T, the cyanogen chloride then reacts with a plex. |
| When using this metho ALS recommends analy | d, high levels of ysis for thiocyar | f thiocyanate in samples can cause false nate to check for this potential interference | positives at ~1-2% of the thiocyanate concentration. For samples with detectable cyanide analyzed by this method, e |
| EC-SCREEN-WT | Water | Conductivity Screen (Internal Use Only) | APHA 2510 |
| Qualitative analysis of o | conductivity whe | ere required during preparation of other te | sts - e.g. TDS, metals, etc. |
| EC-WW-MF-WT | Water | E. Coli | SM 9222D |
| A 100 mL volume of sa | mple is filtered | through a membrane, the membrane is pl | laced on mFC-BCIG agar and incubated at 44.5 –0 .2 °C for 24 – 2 h. Method ID: WT-TM-1200 |
| F-IC-N-WT | Water | Fluoride in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are ar | alyzed by Ion C | Chromatography with conductivity and/or L | JV detection. |
| FC-WW-MF-WT | Water | Fecal Coliforms | APHA 9223B |
| FC-WW-MF-WT | Water | Fecal Coliforms | SM 9222D |
| HG-T-CVAA-WT | Water | Total Mercury in Water by CVAAS | EPA 1631E (mod) |
| Water samples undergo | o a cold-oxidatio | on using bromine monochloride prior to re | duction with stannous chloride, and analyzed by CVAAS. |
| MET-T-CCMS-WT | Water | Total Metals in Water by CRC ICPMS | S EPA 200.2/6020A (mod) |
| Water samples are dige | ested with nitric | and hydrochloric acids, and analyzed by | CRC ICPMS. |
| Method Limitation (re- | Sulfur): Sulfide : | and volatile sulfur species may not be reco | overed by this method. |
| | | | |

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

Reference Information

L2516019 CONT'D Job Reference: 1-20-0222-46 PAGE 16 of 17 21-OCT-20 14:49 (MT)

Dec 24, 2020 M

| Methods Listed (if applica | ıble): | | |
|--|-------------------------------------|--|--|
| ALS Test Code | Matrix | Test Description | Method Reference** |
| NP,NPE-LCMS-WT | Water | Nonylphenols and Ethoxylates by LC/MS-MS | J. Chrom A849 (1999) p.467-482 |
| Water samples are filte | red and analyz | ed on LCMS/MS by direct injection. | |
| OGG-SPEC-CALC-WT | Water | Speciated Oil and Grease A/V Calc | CALCULATION |
| Sample is extracted with | n hexane, samp | ole speciation into mineral and animal/vege | etable fractions is achieved via silica gel separation and is then determined gravimetrically. |
| OGG-SPEC-WT | Water | Speciated Oil and Grease-Gravimetric | 2 APHA 5520 B |
| The procedure involves determined gravimetrica | an extraction o Illy. | of the entire water sample with hexane. Sa | mple speciation into mineral and animal/vegetable fractions is achieved via silica gel separation and is then |
| P-T-COL-WT | Water | Total P in Water by Colour | APHA 4500-P PHOSPHORUS |
| This analysis is carried | out using proce | edures adapted from APHA Method 4500-F | P "Phosphorus". Total Phosphorus is deteremined colourimetrically after persulphate digestion of the sample. |
| PCB-WT | Water | Polychlorinated Biphenyls | EPA 8082 |
| PCBs are extracted from | n an aqueous s | sample at neutral pH with aliquots of dichlo | romethane using a modified separatory funnel technique. The extracts are analyzed by GC/MSD. |
| PH-WT | Water | рН | APHA 4500 H-Electrode |
| Water samples are anal | yzed directly b | y a calibrated pH meter. | |
| Analysis conducted in a samples under this regu | ccordance with Ilation is 28 day | the Protocol for Analytical Methods Used ys | in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011). Holdtime for |
| PHENOLS-4AAP-WT | Water | Phenol (4AAP) | EPA 9066 |
| An automated method is colorimetrically. | s used to distill | the sample. The distillate is then buffered | to pH 9.4 which reacts with 4AAP and potassium ferricyanide to form a red complex which is measured |
| SO4-IC-N-WT | Water | Sulfate in Water by IC | EPA 300.1 (mod) |
| Inorganic anions are an | alyzed by Ion C | Chromatography with conductivity and/or U | V detection. |
| SOLIDS-TSS-WT | Water | Suspended solids | APHA 2540 D-Gravimetric |
| A well-mixed sample is | filtered through | a weighed standard glass fibre filter and the | ne residue retained is dried in an oven at 104–1°C for a minimum of four hours or until a constant weight is achieved. |
| TKN-F-WT | Water | TKN in Water by Fluorescence | J. ENVIRON. MONIT., 2005,7,37-42,RSC |
| Total Kjeldahl Nitrogen i | s determined u | using block digestion followed by Flow-inject | tion analysis with fluorescence detection |
| VOC-ROU-HS-WT | Water | Volatile Organic Compounds | SW846 8260 |
| Aqueous samples are a | nalyzed by hea | adspace-GC/MS. | |
| XYLENES-SUM-CALC- | NT Water | Sum of Xylene Isomer Concentrations | CALCULATION |

Total xylenes represents the sum of o-xylene and m&p-xylene.

| TOWN OF CALEDON PLANNING RECEIVED | | | Reference Information | L2516019 CONT′D Job Reference: 1-20-0222-46 PAGE 17 of 17 | | | | | | |
|---|---|-----------------------------------|---|---|--|--|--|--|--|--|
| Dec 24, 2020 | | | | 21-OCT-20 14:49 (MT) | | | | | | |
| Methods Listed (| if applicable): | | | | | | | | | |
| ALS Test Code | Matrix | Test Description | Method Reference** | | | | | | | |
| **ALS test method | **ALS test methods may incorporate modifications from specified reference methods to improve performance. | | | | | | | | | |
| The last two lette | ers of the above test co | de(s) indicate the laboratory tha | t performed analytical analysis for that test. Refer to the list below: | | | | | | | |
| Laboratory Defi | nition Code Labora | atory Location | | | | | | | | |
| WT | ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA | | | | | | | | | |
| GLOSSARY OF | REPORT TERMS | | | | | | | | | |

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory. UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



| | | Workorder: | L251601 | 9 | Report Date: 27 | I-OCT-20 | | Page 1 of 13 |
|-----------------------------------|--|-------------------------------|------------------|-----------|-----------------|----------|--------|--------------|
| Client: | TERRAPROBE-BRAMPT 11 Indell Lane Brampton ON L6T 3Y3 | ON | | | | | | |
| Tost | AMAR NERU | Poforonco | Posult | Qualifier | Unite | PPD | Limit | Applyzod |
| | Watitx | Reference | Result | Quaimer | Units | KFD | Liiiit | Analyzeu |
| 625-BIS-2-PHT | H-WT Water | | | | | | | |
| Batch WG342469 Bis(2-ethyll | R5256683 5-2 LCS nexyl)phthalate | | 92.2 | | % | | 50-140 | 19-OCT-20 |
| WG342469 Bis(2-ethyll | 5-1 MB nexyl)phthalate | | <2.0 | | ug/L | | 2 | 19-OCT-20 |
| Surrogate: | 2-fluorobiphenyl | | 84.5 | | % | | 40-130 | 19-OCT-20 |
| Surrogate: | p-Terphenyl d14 | | 109.7 | | % | | 40-130 | 19-OCT-20 |
| 625-DNB-PHTI | H-WT Water | | | | | | | |
| Batch | R5256683 | | | | | | | |
| WG342469 Di-n-butylpl | 5-2 LCS hthalate | | 102.5 | | % | | 50-150 | 19-OCT-20 |
| WG342469 Di-n-butylpl | 5-1 MB hthalate | | <1.0 | | ug/L | | 1 | 19-OCT-20 |
| Surrogate: | 2-Fluorobiphenyl | | 84.5 | | % | | 40-130 | 19-OCT-20 |
| Surrogate: | p-Terphenyl d14 | | 109.7 | | % | | 40-130 | 19-OCT-20 |
| BOD-C-WT | Water | | | | | | | |
| Batch | R5258656 | | | | | | | |
| WG3425230 BOD Carbo | D-2 DUP Dnaceous | L2515944-2 <2.0 | <2.0 | RPD-NA | mg/L | N/A | 30 | 15-OCT-20 |
| WG3425230 BOD Carbo | D-3 LCS Dnaceous | | 96.5 | | % | | 85-115 | 15-OCT-20 |
| WG3425230 BOD Carbo | D-1 MB pnaceous | | <2.0 | | mg/L | | 2 | 15-OCT-20 |
| CN-TOT-WT | Water | | | | | | | |
| Batch | R5256341 | | | | | | | |
| WG3426144 Cyanide, To | 1-8 DUP otal | WG3426144-1 <0.0020 | 0 <0.0020 | RPD-NA | mg/L | N/A | 20 | 16-OCT-20 |
| WG342614 Cyanide, Te | 1-7 LCS otal | | 90.6 | | % | | 80-120 | 16-OCT-20 |
| WG3426144 Cyanide, T | 4-6 MB otal | | <0.0020 | | mg/L | | 0.002 | 16-OCT-20 |
| WG3426144 Cyanide, To | 1-9 MS otal | WG3426144-1 | 0 93.2 | | % | | 70-130 | 16-OCT-20 |
| EC-WW-MF-W | T Water | | | | | | | |
| Batch | R5255753 | | | | | | | |
| WG342492 2 E. Coli | 2-1 MB | | 0 | | CFU/100mL | | 1 | 15-OCT-20 |



| | | Workorder: | L2516019 |) | Report Date: 21- | OCT-20 | | Page 2 of 13 |
|--|--|---------------------------------|-------------------|-----------|------------------|--------|----------|--------------|
| Client: TERR 11 Ind Bramp | APROBE-BRAMPTO lell Lane oton ON L6T 3Y3 | ON | | | | | | |
| Contact: AMAR | R NEKU | | | | | | | |
| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
| F-IC-N-WT | Water | | | | | | | |
| Batch R52567 WG3426090-19 DU Fluoride (F) | 759 IP | WG3426090-20 0.387 |) 0.387 | | mg/L | 0.2 | 20 | 16-OCT-20 |
| WG3426090-17 LC Fluoride (F) | S | | 102.8 | | % | | 90-110 | 16-OCT-20 |
| WG3426090-16 ME Fluoride (F) | 3 | | <0.020 | | mg/L | | 0.02 | 16-OCT-20 |
| WG3426090-18 MS Fluoride (F) | 6 | WG3426090-20 |) 105.2 | | % | | 75-125 | 16-OCT-20 |
| FC-WW-MF-WT | Water | | | | | | | |
| Batch R52557 | 759 | | | | | | | |
| WG3424925-3 DU Fecal Coliforms | P | L2516019-1 200 | 180 | | CFU/100mL | 11 | 50 | 15-OCT-20 |
| WG3424925-1 ME Fecal Coliforms | 3 | | 0 | | CFU/100mL | | 1 | 15-OCT-20 |
| HG-T-CVAA-WT | Water | | | | | | | |
| Batch R52550 WG3424921-3 DU Mercury (Hg)-Total |)25 P | L2515437-4 <0.0000050 | <0.000005 | C RPD-NA | mg/L | N/A | 20 | 15-OCT-20 |
| WG3424921-2 LC Mercury (Hg)-Total | S | | 108.0 | | % | | 80-120 | 15-OCT-20 |
| WG3424921-1 ME Mercury (Hg)-Total | 3 | | <0.000005 | iC | mg/L | | 0.000005 | 15-OCT-20 |
| WG3424921-4 MS Mercury (Hg)-Total | ; | L2515437-5 | 104.6 | | % | | 70-130 | 15-OCT-20 |
| MET-T-CCMS-WT | Water | | | | | | | |
| Batch R52548 | 331 | | | | | | | |
| WG3424604-4 DU | P | WG3424604-3 | 0.000 | | | | | |
| Aluminum (Al)-Total | | 0.257 | 0.260 | | mg/L | 1.2 | 20 | 15-OCT-20 |
| Antimony (Sb)- i otal | | 0.00053 | 0.00054 | | mg/L | 1.5 | 20 | 15-OCT-20 |
| Arsenic (As)-Total | | 0.00106 | 0.00099 | | mg/L | 6.6 | 20 | 15-OCT-20 |
| | | 0.0000063 | 0.0000076 | • | mg/L | 19 | 20 | 15-OCT-20 |
| Chromium (Cr)-Tota | I | 0.00093 | 0.00093 | | mg/∟ | 0.5 | 20 | 15-OCT-20 |
| Cobalt (Co)-Total | | 0.00019 | 0.00018 | | mg/L | 3.1 | 20 | 15-OCT-20 |
| Copper (Cu)-Total | | 0.00206 | 0.00209 | | mg/L | 1.4 | 20 | 15-OCT-20 |
| Lead (Pb)-Total | | 0.000727 | 0.000749 | | mg/L | 2.9 | 20 | 15-OCT-20 |
| Manganese (Mn)-To | tal | 0.00790 | 0.00793 | | mg/L | 0.5 | 20 | 15-OCT-20 |



Workorder: L2516019 Report Date: 21-OCT-20 Page 3 of 13 **TERRAPROBE-BRAMPTON** Client: 11 Indell Lane Brampton ON L6T 3Y3 AMAR NEKU Contact: Test Matrix Reference Result Qualifier Units RPD Limit Analyzed MET-T-CCMS-WT Water R5254831 Batch WG3424604-4 DUP WG3424604-3 Molybdenum (Mo)-Total 0.00230 0.00239 mg/L 3.7 20 15-OCT-20 Nickel (Ni)-Total 0.00129 0.00130 mg/L 0.9 20 15-OCT-20 0.000138 Selenium (Se)-Total 0.000136 mg/L 1.2 20 15-OCT-20 Silver (Ag)-Total < 0.000050 < 0.000050 **RPD-NA** mg/L N/A 20 15-OCT-20 Tin (Sn)-Total < 0.00010 < 0.00010 **RPD-NA** mg/L N/A 20 15-OCT-20 Titanium (Ti)-Total 0.00697 0.00708 mg/L 1.6 20 15-OCT-20 Zinc (Zn)-Total 0.0037 0.0036 mg/L 3.9 20 15-OCT-20 WG3424604-2 LCS Aluminum (Al)-Total 104.7 % 80-120 15-OCT-20 Antimony (Sb)-Total 106.9 % 80-120 15-OCT-20 Arsenic (As)-Total 101.4 % 80-120 15-OCT-20 Cadmium (Cd)-Total 102.2 % 80-120 15-OCT-20 Chromium (Cr)-Total 101.5 % 80-120 15-OCT-20 % Cobalt (Co)-Total 101.2 80-120 15-OCT-20 Copper (Cu)-Total 102.1 % 80-120 15-OCT-20 Lead (Pb)-Total 106.2 % 80-120 15-OCT-20 Manganese (Mn)-Total 102.9 % 80-120 15-OCT-20 Molybdenum (Mo)-Total 105.8 % 80-120 15-OCT-20 Nickel (Ni)-Total 100.3 % 80-120 15-OCT-20 Selenium (Se)-Total 97.6 % 80-120 15-OCT-20 Silver (Ag)-Total 106.0 % 80-120 15-OCT-20 Tin (Sn)-Total 99.0 % 80-120 15-OCT-20 99.6 Titanium (Ti)-Total % 80-120 15-OCT-20 Zinc (Zn)-Total 101.6 % 80-120 15-OCT-20 WG3424604-1 MB < 0.0050 0.005 Aluminum (Al)-Total mg/L 15-OCT-20 Antimony (Sb)-Total 0.0001 < 0.00010 mg/L 15-OCT-20 Arsenic (As)-Total < 0.00010 mg/L 0.0001 15-OCT-20 Cadmium (Cd)-Total 0.000005 < 0.0000050 mg/L 15-OCT-20 Chromium (Cr)-Total < 0.00050 0.0005 mg/L 15-OCT-20 Cobalt (Co)-Total < 0.00010 mg/L 0.0001 15-OCT-20 0.0005 Copper (Cu)-Total mg/L < 0.00050 15-OCT-20 Lead (Pb)-Total < 0.000050 0.00005 mg/L 15-OCT-20 Manganese (Mn)-Total < 0.00050 mg/L 0.0005 15-OCT-20



| | | Workorder | Workorder: L2516019 | | | Report Date: 21-OCT-20 | | | Page 4 of 13 | |
|------------------------------|---|---------------------------|---------------------|-----------|---------|------------------------|---------|-----------|--------------|--|
| Client: | TERRAPROBE-BRAM 11 Indell Lane Brampton ON L6T 3Y | PTON ′3 | | | | | | | | |
| | AMAR NEKU | Poforonao | Popult | Qualifiar | Unito | PPD | Limit | Applyzod | | |
| Test | Matrix | Reference | Result | Quaimer | Units | RPD | Limit | Anaryzed | | |
| MET-T-CCMS | S-WT Water | | | | | | | | | |
| Batch WG34246 Molybden | R5254831 04-1 MB um (Mo)-Total | | <0.00005 | 50 | mg/L | | 0.00005 | 15-OCT-20 | | |
| Nickel (Ni |)-Total | | <0.00050 | 0 | mg/L | | 0.0005 | 15-OCT-20 | | |
| Selenium | (Se)-Total | | <0.00005 | 50 | mg/L | | 0.00005 | 15-OCT-20 | | |
| Silver (Ag |)-Total | | <0.00005 | 50 | mg/L | | 0.00005 | 15-OCT-20 | | |
| Tin (Sn)-1 | otal | | <0.00010 | 0 | mg/L | | 0.0001 | 15-OCT-20 | | |
| Titanium | (Ti)-Total | | <0.00030 | 0 | mg/L | | 0.0003 | 15-OCT-20 | | |
| Zinc (Zn)- | Total | | <0.0030 | | mg/L | | 0.003 | 15-OCT-20 | | |
| WG34246 | D4-5 MS | WG3424604 | -3 N/A | MCD | 0/_ | | | 45 007 00 | | |
| Antimony | (Sb)-Total | | 108.8 | IVIO-D | % % | | - | 15-0CT-20 | | |
| Arsenic (A | As)-Total | | 100.0 | | % | | 70-130 | 15-OCT-20 | | |
| Cadmium | (Cd)-Total | | 99.9 | | % | | 70-130 | 15-OCT-20 | | |
| Chromiun | (Cr)-Total | | 101.4 | | % | | 70-130 | 15-0CT-20 | | |
| Cobalt (C | o)-Total | | 99.0 | | % | | 70-130 | 15-OCT-20 | | |
| Copper (C | Cu)-Total | | 96.1 | | % | | 70-130 | 15-OCT-20 | | |
| Lead (Pb) | -Total | | 102.1 | | % | | 70-130 | 15-OCT-20 | | |
| Mangane | se (Mn)-Total | | 97.5 | | % | | 70-130 | 15-OCT-20 | | |
| Molybden | um (Mo)-Total | | 109.4 | | % | | 70-130 | 15-OCT-20 | | |
| Nickel (Ni |)-Total | | 97.2 | | % | | 70-130 | 15-OCT-20 | | |
| Selenium | (Se)-Total | | 96.7 | | % | | 70-130 | 15-OCT-20 | | |
| Silver (Ag |)-Total | | 102.5 | | % | | 70-130 | 15-OCT-20 | | |
| Tin (Sn)-1 | otal | | 101.0 | | % | | 70-130 | 15-OCT-20 | | |
| Titanium | (Ti)-Total | | 103.0 | | % | | 70-130 | 15-OCT-20 | | |
| Zinc (Zn)- | Total | | 94.0 | | % | | 70-130 | 15-OCT-20 | | |
| NP,NPE-LCM | S-WT Water | | | | | | | | | |
| Batch | R5255550 | | | | | | | | | |
| WG34242 Nonylphe | 86-3 DUP nol | L2515579-1 <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 16-OCT-20 | | |
| Nonylphe | nol Monoethoxylates | <2.0 | <2.0 | RPD-NA | ug/L | N/A | 30 | 16-OCT-20 | | |
| Nonylphe | nol Diethoxylates | <0.10 | <0.10 | RPD-NA | ug/L | N/A | 30 | 16-OCT-20 | | |
| WG34242 | 86-2 LCS | | 07 / | | - | | 75 405 | 44.007.00 | | |
| Nonvinte | nol Monoethovulatoo | | 01.4 102 F | | 70 | | 75-125 | 14-001-20 | | |
| Nonvinho | | | 103.5 | | /u % | | 75-125 | 14-001-20 | | |
| nonyiphe | In Diethoxylates | | 101.0 | | 70 | | 10-120 | 14-001-20 | | |



| | | Workorder: | L251601 | 9 | Report Date: 2 | 1-OCT-20 | | Page 5 of 13 |
|---------------------------------------|--|-----------------------------|------------------|-----------|----------------|----------|--------|--------------|
| Client: | TERRAPROBE-BRAMPT 11 Indell Lane Brampton ON L6T 2V2 | ON | | | | | | |
| Contact: | AMAR NEKU | | | | | | | |
| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
| NP,NPE-LCMS-V | VT Water | | | | | | | |
| Batch I WG3424286-1 Nonylphenol | R5255550 MB | | <1.0 | | ug/L | | 1 | 16-OCT-20 |
| Nonylphenol I | Monoethoxylates | | <2.0 | | ug/L | | 2 | 16-OCT-20 |
| Nonylphenol I | Diethoxylates | | <0.10 | | ug/L | | 0.1 | 16-OCT-20 |
| WG3424286-4 Nonylphenol | 4 MS | L2515579-1 | 109.0 | | % | | 50-150 | 16-OCT-20 |
| Nonylphenol I | Monoethoxylates | | 110.0 | | % | | 50-150 | 16-OCT-20 |
| Nonylphenol I | Diethoxylates | | 90.7 | | % | | 50-150 | 16-OCT-20 |
| OGG-SPEC-WT | Water | | | | | | | |
| Batch I WG3424589-2 | R5254997 2 LCS | | 07.0 | | 97 | | 70.400 | 45 007 00 |
| Mineral Oil ar | | | 97.2 88.2 | | 78 9/ | | 70-130 | 15-0CT-20 |
| WG2424589-1 | MB | | 00.2 | | 70 | | 70-130 | 15-001-20 |
| Oil and Greas | se, Total | | <5.0 | | mg/L | | 5 | 15-OCT-20 |
| Mineral Oil ar | nd Grease | | <2.5 | | mg/L | | 2.5 | 15-OCT-20 |
| P-T-COL-WT | Water | | | | | | | |
| Batch I WG3424638-3 Phosphorus, | R5255501 3 DUP Total | L2515964-1 0.0354 | 0.0316 | | mg/L | 11 | 20 | 16-OCT-20 |
| WG3424638-2 Phosphorus, | 2 LCS Total | | 99.4 | | % | | 80-120 | 16-OCT-20 |
| WG3424638-1 Phosphorus, | l MB Total | | <0.0030 | | mg/L | | 0.003 | 16-OCT-20 |
| WG3424638-4 Phosphorus, | MS Total | L2515964-1 | 91.5 | | % | | 70-130 | 16-OCT-20 |
| PCB-WT | Water | | | | | | | |
| Batch I | R5257556 | | | | | | | |
| WG3424730-2 Aroclor 1242 | 2 LCS | | 93.7 | | % | | 65-130 | 20-OCT-20 |
| Aroclor 1248 | | | 89.3 | | % | | 65-130 | 20-OCT-20 |
| Aroclor 1254 | | | 90.9 | | % | | 65-130 | 20-OCT-20 |
| Aroclor 1260 | | | 94.0 | | % | | 65-130 | 20-OCT-20 |
| WG3424730-3 Aroclor 1242 | B LCSD | WG3424730-2 93.7 | 2 91.3 | | % | 2.5 | 50 | 20-OCT-20 |
| Aroclor 1248 | | 89.3 | 89.3 | | % | 0.0 | 50 | 20-OCT-20 |



| | | | Workorder: | L251601 | 9 | Report Date: 21 | -OCT-20 | | Page 6 of 1 | 3 |
|--|------------------------------------|------------------------------------|------------------------------|-------------------|-----------|-----------------|---------|---------|-------------|---|
| Client: | TERRAPF 11 Indell L Brampton | ROBE-BRAMPTO Lane ON L6T 3Y3 | N | | | | | | | |
| Contact: | AMAR NE | KU | | | | | | | | |
| Test | | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed | |
| PCB-WT | | Water | | | | | | | | |
| Batch F WG3424730-3 Aroclor 1254 | LCSD | | WG3424730-2 90.9 | 91.0 | | % | 0.1 | 50 | 20-OCT-20 | |
| Aroclor 1260 | | | 94.0 | 93.5 | | % | 0.5 | 50 | 20-OCT-20 | |
| WG3424730-1 Aroclor 1242 | МВ | | | <0.020 | | ug/L | | 0.02 | 20-OCT-20 | |
| Aroclor 1248 | | | | <0.020 | | ug/L | | 0.02 | 20-OCT-20 | |
| Aroclor 1254 | | | | <0.020 | | ug/L | | 0.02 | 20-OCT-20 | |
| Aroclor 1260 | | | | <0.020 | | ug/L | | 0.02 | 20-OCT-20 | |
| Surrogate: De | cachlorobi | phenyl | | 120.8 | | % | | 50-150 | 20-OCT-20 | |
| Surrogate: Te | trachloro-n | n-xylene | | 67.2 | | % | | 50-150 | 20-OCT-20 | |
| PH-WT | | Water | | | | | | | | |
| Batch F WG3425057-4 | R5255649 DUP | | WG3425057-3 | 7 70 | | | | | | |
| рн WG3425057-2 | LCS | | 7.73 | 1.12 | J | pH units | 0.01 | 0.2 | 15-OCT-20 | |
| pН | | | | 7.01 | | pH units | | 6.9-7.1 | 15-OCT-20 | |
| PHENOLS-4AAP- | ·wт | Water | | | | | | | | |
| Batch F WG3424636-7 Phenols (4AA | 85256835 DUP P) | | L2516311-1 <0.0010 | <0.0010 | RPD-NA | mg/L | N/A | 20 | 16-OCT-20 | |
| WG3424636-6 Phenols (4AA | LCS P) | | | 99.8 | | % | | 85-115 | 16-OCT-20 | |
| WG3424636-5 Phenols (4AA | MB P) | | | <0.0010 | | mg/L | | 0.001 | 16-OCT-20 | |
| WG3424636-8 Phenols (4AA | MS P) | | L2516311-1 | 97.2 | | % | | 75-125 | 16-OCT-20 | |
| SO4-IC-N-WT | | Water | | | | | | | | |
| Batch F | 85256759 | | | | | | | | | |
| WG3426090-1 Sulfate (SO4) | 9 DUP | | WG3426090-20 45.8 | 0 45.8 | | mg/L | 0.1 | 20 | 16-OCT-20 | |
| WG3426090-1 Sulfate (SO4) | 7 LCS | | | 104.2 | | % | | 90-110 | 16-OCT-20 | |
| WG3426090-1 Sulfate (SO4) | 6 MB | | | <0.30 | | mg/L | | 0.3 | 16-OCT-20 | |
| WG3426090-1 Sulfate (SO4) | 8 MS | | WG3426090-20 | 0 105.4 | | % | | 75-125 | 16-OCT-20 | |



| | | Workorder: | L251601 | 9 F | Report Date: 2 | 21-OCT-20 | | Page 7 of 13 |
|---------------------------------|--|---------------------|---------|-----------|---------------------|-----------|--------|--------------|
| Client: T 1 E | ERRAPROBE-BRAMPT 1 Indell Lane Brampton ON L6T 3Y3 | ON | | | | | | |
| Contact: | AMAR NEKU | | | | | | | |
| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
| SOLIDS-TSS-WT | Water | | | | | | | |
| Batch R5 | 5258157 | | | | | | | |
| WG3426552-3 | DUP ad Solids | L2516335-1 | ~3.0 | | ma/l | NI/A | 20 | 20 007 20 |
| WG3426552-2 | | <0.0 | <5.0 | KFD-NA | iiig/L | IN/A | 20 | 20-001-20 |
| Total Suspende | ed Solids | | 98.0 | | % | | 85-115 | 20-OCT-20 |
| WG3426552-1 | МВ | | | | | | | |
| Total Suspende | ed Solids | | <3.0 | | mg/L | | 3 | 20-OCT-20 |
| TKN-F-WT | Water | | | | | | | |
| Batch R5 | 5254844 | | | | | | | |
| WG3424637-3 Total Kieldahl N | DUP Jitrogen | L2515823-1 0.270 | 0.190 | .1 | ma/l | 0 080 | 0.1 | 15-OCT-20 |
| WG3424637-2 | ICS | 0.210 | 01100 | 0 | <u>9</u> / - | 0.000 | 0.1 | 13 001 20 |
| Total Kjeldahl N | litrogen | | 100.8 | | % | | 75-125 | 15-OCT-20 |
| WG3424637-1 | МВ | | | | | | | |
| Total Kjeldahl N | litrogen | | <0.050 | | mg/L | | 0.05 | 15-OCT-20 |
| WG3424637-4 Total Kjeldahl N | MS Jitrogen | L2515823-1 | 101.0 | | % | | 70-130 | 15-OCT-20 |
| VOC-ROU-HS-WT | Water | | | | | | | |
| Batch R5 | 5255673 | | | | | | | |
| WG3425708-4 | DUP | WG3425708-3 | 0.50 | | | | | |
| 1,1,1,2-Tetrach | loroethane | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 1,1,2,2-1 etrach | athane | <0.50 | <0.50 | | ug/L | N/A | 30 | 19-OCT-20 |
| 1 1 2-Trichloroe | athane | <0.50 | <0.50 | | ug/L | N/A | 30 | 19-OCT-20 |
| 1,2-Dibromoeth | ane | <0.00 | <0.00 | | ug/L | N/A | 30 | 19-OCT-20 |
| 1.1-Dichloroeth | ane | <0.50 | <0.50 | RPD-NA | ua/L | N/A | 30 | 19-OCT-20 |
| 1.1-Dichloroeth | vlene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 1.2-Dichlorober | nzene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 1,2-Dichloroeth | ane | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 1,2-Dichloropro | pane | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 1,3-Dichlorober | nzene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 1,4-Dichlorober | nzene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| 2-Hexanone | | <20 | <20 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Acetone | | <20 | <20 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Benzene | | 0.69 | 0.65 | | ug/L | 6.0 | 30 | 19-OCT-20 |
| Bromodichloron | nethane | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |



Workorder: L2516019

Report Date: 21-OCT-20

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TERRAPROBE-BRAMPTON Client: 11 Indell Lane

Brampton ON L6T 3Y3 AMAR NEKU

Contact:

| Test Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|--|-------------|--------|-----------|-------|-----|--------|-----------|
| VOC-ROU-HS-WT Water | | | | | | | |
| Batch R5255673 | | | | | | | |
| WG3425708-4 DUP | WG3425708-3 | 3 | | | | | |
| Bromororm | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Bromomethane | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Carbon tetrachloride | <0.20 | <0.20 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Chlorobenzene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Chloroethane | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Chloroform | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Chloromethane | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| cis-1,2-Dichloroethylene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| cis-1,3-Dichloropropene | <0.30 | <0.30 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Dibromochloromethane | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Dichlorodifluoromethane | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Dichloromethane | <2.0 | <2.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Ethylbenzene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| m+p-Xylenes | <0.40 | <0.40 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Methyl Ethyl Ketone | <20 | <20 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Methyl Isobutyl Ketone | <20 | <20 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| n-Hexane | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| МТВЕ | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| o-Xylene | <0.30 | <0.30 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Styrene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Tetrachloroethylene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Toluene | 0.86 | 0.87 | | ug/L | 1.2 | 30 | 19-OCT-20 |
| trans-1,2-Dichloroethylene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| trans-1,3-Dichloropropene | <0.30 | <0.30 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Trichloroethylene | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Trichlorofluoromethane | <1.0 | <1.0 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| Vinyl chloride | <0.50 | <0.50 | RPD-NA | ug/L | N/A | 30 | 19-OCT-20 |
| WG3425708-1 LCS 1,1,1,2-Tetrachloroethane | | 93.3 | | % | | 70-130 | 16-OCT-20 |
| 1.1.2.2-Tetrachloroethane | | 122.7 | | % | | 70-130 | 16-OCT-20 |
| 1,1,1-Trichloroethane | | 104.6 | | % | | 70-130 | 16-OCT-20 |
| 1,1,2-Trichloroethane | | 94.6 | | % | | 70-130 | 16-OCT-20 |



Client:

Contact:

Test

Quality Control Report

Workorder: L2516019 Report Date: 21-OCT-20 Page 9 of 13 TERRAPROBE-BRAMPTON 11 Indell Lane Brampton ON L6T 3Y3 AMAR NEKU Matrix Reference Result Qualifier Units RPD Limit Analyzed VOC-ROU-HS-WT Water R5255673

| Batch R5255673 | | | | |
|--------------------------|-------|---|--------|-----------|
| 1,2-Dibromoethane | 92.7 | % | 70-130 | 16-OCT-20 |
| 1,1-Dichloroethane | 87.4 | % | 70-130 | 16-OCT-20 |
| 1,1-Dichloroethylene | 100.0 | % | 70-130 | 16-OCT-20 |
| 1,2-Dichlorobenzene | 98.8 | % | 70-130 | 16-OCT-20 |
| 1,2-Dichloroethane | 102.2 | % | 70-130 | 16-OCT-20 |
| 1,2-Dichloropropane | 104.5 | % | 70-130 | 16-OCT-20 |
| 1,3-Dichlorobenzene | 96.5 | % | 70-130 | 16-OCT-20 |
| 1,4-Dichlorobenzene | 97.7 | % | 70-130 | 16-OCT-20 |
| 2-Hexanone | 105.8 | % | 60-140 | 16-OCT-20 |
| Acetone | 112.0 | % | 60-140 | 16-OCT-20 |
| Benzene | 104.4 | % | 70-130 | 16-OCT-20 |
| Bromodichloromethane | 119.4 | % | 70-130 | 16-OCT-20 |
| Bromoform | 111.8 | % | 70-130 | 16-OCT-20 |
| Bromomethane | 134.4 | % | 60-140 | 16-OCT-20 |
| Carbon Disulfide | 102.0 | % | 70-130 | 16-OCT-20 |
| Carbon tetrachloride | 103.6 | % | 70-130 | 16-OCT-20 |
| Chlorobenzene | 95.1 | % | 70-130 | 16-OCT-20 |
| Chloroethane | 111.1 | % | 70-130 | 16-OCT-20 |
| Chloroform | 106.6 | % | 70-130 | 16-OCT-20 |
| Chloromethane | 126.4 | % | 60-140 | 16-OCT-20 |
| cis-1,2-Dichloroethylene | 109.0 | % | 70-130 | 16-OCT-20 |
| cis-1,3-Dichloropropene | 101.7 | % | 70-130 | 16-OCT-20 |
| Dibromochloromethane | 90.4 | % | 70-130 | 16-OCT-20 |
| Dichlorodifluoromethane | 100.4 | % | 50-140 | 16-OCT-20 |
| Dichloromethane | 102.6 | % | 70-130 | 16-OCT-20 |
| Ethylbenzene | 95.4 | % | 70-130 | 16-OCT-20 |
| m+p-Xylenes | 95.2 | % | 70-130 | 16-OCT-20 |
| Methyl Ethyl Ketone | 110.5 | % | 60-140 | 16-OCT-20 |
| Methyl Isobutyl Ketone | 118.7 | % | 50-150 | 16-OCT-20 |
| n-Hexane | 102.6 | % | 70-130 | 16-OCT-20 |
| МТВЕ | 108.9 | % | 70-130 | 16-OCT-20 |
| o-Xylene | 102.0 | % | 70-130 | 16-OCT-20 |
| Styrene | 93.3 | % | 70-130 | 16-OCT-20 |
| | | | | |



Test

Carbon tetrachloride

Chlorobenzene

Chloromethane

cis-1,2-Dichloroethylene

cis-1,3-Dichloropropene

Chloroethane

Chloroform

Quality Control Report

Workorder: L2516019 Report Date: 21-OCT-20 Page 10 of 13 **TERRAPROBE-BRAMPTON** Client: 11 Indell Lane Brampton ON L6T 3Y3 AMAR NEKU Contact: Matrix Reference Result Qualifier Units RPD Limit Analyzed VOC-ROU-HS-WT Water R5255673 Batch WG3425708-1 LCS Tetrachloroethylene 95.3 % 70-130 16-OCT-20 Toluene 96.7 % 70-130 16-OCT-20 trans-1,2-Dichloroethylene 99.1 % 70-130 16-OCT-20 trans-1,3-Dichloropropene 96.0 % 70-130 16-OCT-20 Trichloroethylene % 106.3 70-130 16-OCT-20 Trichlorofluoromethane 98.0 % 60-140 16-OCT-20 Vinyl chloride 112.0 % 16-OCT-20 60-140 WG3425708-2 MB 0.5 1,1,1,2-Tetrachloroethane < 0.50 ug/L 16-OCT-20 1,1,2,2-Tetrachloroethane <0.50 ug/L 0.5 16-OCT-20 1,1,1-Trichloroethane < 0.50 ug/L 0.5 16-OCT-20 1,1,2-Trichloroethane < 0.50 ug/L 0.5 16-OCT-20 1,2-Dibromoethane <0.20 ug/L 0.2 16-OCT-20 1,1-Dichloroethane < 0.50 ug/L 0.5 16-OCT-20 1,1-Dichloroethylene 0.5 <0.50 ug/L 16-OCT-20 1,2-Dichlorobenzene < 0.50 ug/L 0.5 16-OCT-20 1.2-Dichloroethane < 0.50 ug/L 0.5 16-OCT-20 1,2-Dichloropropane < 0.50 ug/L 0.5 16-OCT-20 1,3-Dichlorobenzene 0.5 <0.50 ug/L 16-OCT-20 1,4-Dichlorobenzene <0.50 ug/L 0.5 16-OCT-20 20 2-Hexanone ug/L <20 16-OCT-20 Acetone <20 20 ug/L 16-OCT-20 Benzene < 0.50 ug/L 0.5 16-OCT-20 Bromodichloromethane <1.0 ug/L 1 16-OCT-20 Bromoform <1.0 ug/L 1 16-OCT-20 Bromomethane < 0.50 ug/L 0.5 16-OCT-20 1 Carbon Disulfide <1.0 ug/L 16-OCT-20

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L

0.2

0.5

1

1

1

0.5

0.3

16-OCT-20

16-OCT-20

16-OCT-20

16-OCT-20

16-OCT-20

16-OCT-20

16-OCT-20

<0.20

<0.50

<1.0

<1.0

<1.0

< 0.50

< 0.30



Client:

Contact:

Quality Control Report

 Workorder:
 L2516019
 Report Date:
 21-OCT-20
 Page
 11 of
 13

 TERRAPROBE-BRAMPTON
 11 Indell Lane
 Brampton ON L6T 3Y3
 AMAR NEKU
 Amalyzed

| Test | Matrix | Reference | Result | Qualifier | Units | RPD | Limit | Analyzed |
|--------------------------|-----------|-------------|--------|-----------|-------|-----|--------|-----------|
| VOC-ROU-HS-WT | Water | | | | | | | |
| Batch R5255673 | | | | | | | | |
| WG3425708-2 MB | | | | | | | | |
| Dibromochloromethane | | | <1.0 | | ug/L | | 1 | 16-OCT-20 |
| Dichlorodifluoromethane | Э | | <1.0 | | ug/L | | 1 | 16-OCT-20 |
| Dichloromethane | | | <2.0 | | ug/L | | 2 | 16-OCT-20 |
| Ethylbenzene | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| m+p-Xylenes | | | <0.40 | | ug/L | | 0.4 | 16-OCT-20 |
| Methyl Ethyl Ketone | | | <20 | | ug/L | | 20 | 16-OCT-20 |
| Methyl Isobutyl Ketone | | | <20 | | ug/L | | 20 | 16-OCT-20 |
| n-Hexane | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| MTBE | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| o-Xylene | | | <0.30 | | ug/L | | 0.3 | 16-OCT-20 |
| Styrene | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| Tetrachloroethylene | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| Toluene | | | <0.40 | | ug/L | | 0.4 | 16-OCT-20 |
| trans-1,2-Dichloroethyle | ne | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| trans-1,3-Dichloroprope | ne | | <0.30 | | ug/L | | 0.3 | 16-OCT-20 |
| Trichloroethylene | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| Trichlorofluoromethane | | | <1.0 | | ug/L | | 1 | 16-OCT-20 |
| Vinyl chloride | | | <0.50 | | ug/L | | 0.5 | 16-OCT-20 |
| Surrogate: 1,4-Difluorob | enzene | | 101.3 | | % | | 70-130 | 16-OCT-20 |
| Surrogate: 4-Bromofluor | robenzene | | 100.8 | | % | | 70-130 | 16-OCT-20 |
| WG3425708-5 MS | | WG3425708-3 | 3 | | | | | |
| 1,1,1,2-Tetrachloroetha | ne | | 95.5 | | % | | 50-150 | 19-OCT-20 |
| 1,1,2,2-Tetrachloroetha | ne | | 101.7 | | % | | 50-150 | 19-OCT-20 |
| 1,1,1-Trichloroethane | | | 103.9 | | % | | 50-150 | 19-OCT-20 |
| 1,1,2-Trichloroethane | | | 94.7 | | % | | 50-150 | 19-OCT-20 |
| 1,2-Dibromoethane | | | 91.7 | | % | | 50-150 | 19-OCT-20 |
| 1,1-Dichloroethane | | | 102.6 | | % | | 50-150 | 19-OCT-20 |
| 1,1-Dichloroethylene | | | 97.7 | | % | | 50-150 | 19-OCT-20 |
| 1,2-Dichlorobenzene | | | 99.7 | | % | | 50-150 | 19-OCT-20 |
| 1,2-Dichloroethane | | | 103.1 | | % | | 50-150 | 19-OCT-20 |
| 1,2-Dichloropropane | | | 105.2 | | % | | 50-150 | 19-OCT-20 |
| 1,3-Dichlorobenzene | | | 117.2 | | % | | 50-150 | 19-OCT-20 |
| 1,4-Dichlorobenzene | | | 114.4 | | % | | 50-150 | 19-OCT-20 |
| 2-Hexanone | | | 84.7 | | % | | 50-150 | 19-OCT-20 |



Test

Quality Control Report

Workorder: L2516019 Report Date: 21-OCT-20 Page 12 of 13 TERRAPROBE-BRAMPTON Client: 11 Indell Lane Brampton ON L6T 3Y3 Contact: AMAR NEKU Matrix Reference Result Qualifier Units RPD Limit Analyzed VOC-ROU-HS-WT Water R5255673 Batch WG3425708-3 WG3425708-5 MS Acetone 101.4 % 50-150 19-OCT-20 Benzene 103.8 % 50-150 19-OCT-20 Bromodichloromethane 120.3 % 19-OCT-20 50-150 Bromoform 102.3 % 50-150 19-OCT-20 Bromomethane % 130.4 50-150 19-OCT-20 Carbon Disulfide 104.6 % 50-150 19-OCT-20 Carbon tetrachloride % 102.3 50-150 19-OCT-20 Chlorobenzene 95.6 % 50-150 19-OCT-20 Chloroethane 108.6 % 50-150 19-OCT-20

| 106.7 | % | 50-150 | 19-OCT-20 |
|-------|---|--|--|
| 122.6 | % | 50-150 | 19-OCT-20 |
| 109.0 | % | 50-150 | 19-OCT-20 |
| 101.7 | % | 50-150 | 19-OCT-20 |
| 90.4 | % | 50-150 | 19-OCT-20 |
| 91.0 | % | 50-150 | 19-OCT-20 |
| 103.5 | % | 50-150 | 19-OCT-20 |
| 96.5 | % | 50-150 | 19-OCT-20 |
| 96.6 | % | 50-150 | 19-OCT-20 |
| 105.0 | % | 50-150 | 19-OCT-20 |
| 104.6 | % | 50-150 | 19-OCT-20 |
| 99.7 | % | 50-150 | 19-OCT-20 |
| 108.3 | % | 50-150 | 19-OCT-20 |
| 103.6 | % | 50-150 | 19-OCT-20 |
| 95.3 | % | 50-150 | 19-OCT-20 |
| 94.9 | % | 50-150 | 19-OCT-20 |
| 94.6 | % | 50-150 | 19-OCT-20 |
| 99.4 | % | 50-150 | 19-OCT-20 |
| 94.4 | % | 50-150 | 19-OCT-20 |
| 106.8 | % | 50-150 | 19-OCT-20 |
| 95.2 | % | 50-150 | 19-OCT-20 |
| 107.6 | % | 50-150 | 19-OCT-20 |
| | 106.7 122.6 109.0 101.7 90.4 91.0 103.5 96.5 96.6 105.0 104.6 99.7 108.3 103.6 95.3 94.9 94.6 99.4 94.4 106.8 95.2 107.6 | 106.7%122.6%109.0%101.7%90.4%91.0%103.5%96.5%96.6%105.0%104.6%99.7%108.3%95.3%94.6%99.4%94.6%95.2%107.6% | 106.7%50-150122.6%50-150109.0%50-150101.7%50-15090.4%50-15091.0%50-150103.5%50-15096.6%50-150105.0%50-150104.6%50-15099.7%50-150108.3%50-150103.6%50-15099.7%50-15099.7%50-15099.7%50-15099.7%50-15099.7%50-15099.4%50-15094.6%50-15094.6%50-15094.4%50-15094.4%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.2%50-15095.3%50-15095.4%50-15095.5%50-15095.2%50-15095.3%50-150 |

Quality Control Report PLANNING RECEIVED Workorder: L2516019 Report Date: 21-OCT-20 Dec 24, 2020 Client: **TERRAPROBE-BRAMPTON** 11 Indell Lane Brampton ON L6T 3Y3 Contact: AMAR NEKU Legend: Limit ALS Control Limit (Data Quality Objectives)

| DUP | Duplicate |
|------|-------------------------------------|
| RPD | Relative Percent Difference |
| N/A | Not Available |
| LCS | Laboratory Control Sample |
| SRM | Standard Reference Material |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| ADE | Average Desorption Efficiency |
| MB | Method Blank |
| IRM | Internal Reference Material |
| CRM | Certified Reference Material |
| CCV | Continuing Calibration Verification |
| CVS | Calibration Verification Standard |
| LCSD | Laboratory Control Sample Duplicate |
| | |

Sample Parameter Qualifier Definitions:

| Qualifier | Description |
|-----------|--|
| J | Duplicate results and limits are expressed in terms of absolute difference. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RPD-NA | Relative Percent Difference Not Available due to result(s) being less than detection limit. |

Hold Time Exceedances:

TOWN OF CALEDON

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form

Canada Toil Free: 1 800 668 9878



COC Number: 15 -

Page

of St

SAV

| | www.alsglobal.com | | | | | | 19-C | OFC | • # #/ | | 1 | | | | • | 1 | U |
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| Report To | Contact and company name below will a | ppear on the final report | | Report Forma | t / Distribution | | | - C | | | /= | LP TATs v | vith your A | M - surcha | rges will a | apply | |
| Company: | Terraprobe | | Select Report F | Format: 🔽 PDF | | D (DIGITAL) | 1 | | | | TA | T if receiv | ved by 3 p | om - busin | ess days | - no surch | arges apply |
| Contact: | Amar Neku | | Quality Control | (QC) Report with F | Report 🔲 YES | | Î. | 4 0 | ay [P4] | _ | | 2 | 1 Bus | iness d | av [E1] | | П |
| Phone: | 905-796-2650 | | Compare Result | ts to Criteria on Report | provide details belo | w if box checked | CRIT C R | 3 0 | lay [P3] | | | IGENC | Same | Dav W | /ookon | dor | |
| | Company address below will appear on the fin | al report | Select Distribut | | | FAX | PRI Bush | 2 0 | lay [P2] | | | EMER | Stat | utory ho | oliday | [E0] | |
| Street: | 11 Indell Ln. | | Email 1. or Fax | aneku@terraprob | e.ca | | | Date an | d Time Re | quired for | ali E&P 1 | TATs: | | d | d-mmr | n-yy hh: | mm _ |
| City/Province: | Brampton, ON | | Email 2 | | | | For test | ts that ca | n not be per | formed acc | ording to t | the service | e level sele | ected, you v | vill be co | ntacted. | |
| Postal Code: | L6T 3Y3 | | Email 3 | | | | | | | | A | nalysis | s Reque | est | | | |
| Invoice To | Same as Report To | | | Invoice Di | stribution | | | Indic | ate Filtere | (F), Prese | erved (P) | or Filtere | d and Pre | served (F/ | P) below | , | |
| | Copy of Invoice with Report YES | | Select Invoice I | Distribution: 🔽 EM | | FAX | | | | | | | | T | | | 1 |
| Company: | Terraprobe | | Email 1 or Fax | aneku@terraprob | e.ca | | Ş | | | | | | | | -+ | | 1 |
| Contact: | Lorena Rossi | | Email 2 | Irossi@terraprobe | e.ca | | | | | | | | | | | | |
| | Project Information | | Oil | and Gas Require | d Fields (client | use) | i i i | | | | | | | | | 1 | Jers |
| ALS Account # | # / Quote #: Q71850 (2020 S | SOA) | AFE/Cost Center: | | PO# | | ۲ ۳ | | | | | | | | | | itair |
| Job #: | 1-20-0222-46 | | Major/Minor Code: | | Routing Code: | | Ĕ | | | | | | | | | | l 5 |
| PO / AFE: | | P | Requisitioner | | Intouring oode: | | Ξ | | | | | | | | | | ō |
| LSD: | 6939 King Street, Caledon | , n | Location: | | | | s'z | | | | | | | | | | - aper |
| | | | Lucation. | | · · · · · | | | | | | | | | | | | |
| ALS Lab Wor | rk Order # (lab use only) | 16019 | ALS Contact: | Emily Smith | Sampler: | SB | ver Us | | | | | | | | | | _ |
| ALS Sample # | Sample Identificatio | on and/or Coordinates | • • • • • • • • • • • • • • • • • • • | Date | Time | | Se l | ľ | | | | | | | | | |
| (lab use only) | (This description will | appear on the report) | | (dd-mmm-yy) | (hh:mm) | Sample Type | Peel | | | | | | | | | | |
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| | | · | | | | Water | | | | | | | | | | | |
| Drinking | Water (DW) Samples ¹ (client use) | Special Instructions / Sp | pecify Criteria to a | dd on report by clic | king on the drop- | down list below | 1 | l,, | SA | MPLE C | ONDIT | ION AS | RECE | VED (la | b use (| only) | |
| | | | (elec | tronic COC only) | | | Froze | n | Ľ |] | | SIF Ob | servatio | ons Y | es 🗌 | No | |
| Are samples take | en from a Regulated DW System? | | | | | | lce Pa | acks | | e Cubes | M | Custod | y seal ir | ntact Y | es 🗋 |] No | |
| | S 🖸 NO | | | | | | Coolir | ng Initia | ated |] | <u> </u> | | | | | | |
| GLAND2QC_ON-SAN/STORM | | STORM-PEEL | | | | <u> </u> | INIITIA | L COOLE | RTEMPER | ATURES | °C | | FINAL C | OOLER | TEMPER/ | TURES °C | |
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| neleased by: | Date: | Time: | Received by: | | Date: | | Time: | | Receive | d by: | A | • | Dat | 1. 1m | | | Time: |
| REFER TO BACK | PAGE FOR ALS LOCATIONS AND SAMPL | | narin | parian | 10/14/ | 2020 | <u>14:7</u> | 1 | 005: | | (\mathbf{W}) | | $ 0\rangle$ | 117/0 | <u>K)</u> | | 1442 |
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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy. 1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



Appendix G

TOWN OF CALEDON PLANNING RECEIVED Réference No. 1-20-0222-46 Dec 24, 2020

6939 King Street, Caledon

Short-Term Construction Dewatering Flow Rate Estimate Details Construction of Footing Wall (Proposed Building)

| Dewatering flow rate from Groundwater Source | | | | | | |
|--|--------------|---|--|--|--|--|
| Excavation Dimensions | | | | | | |
| | | | | | | |
| Total perimeter | | | | | | |
| length of the trench | 395 | | | | | |
| Width of the trench | 1.5 | | | | | |
| Area (m²) | 592.5 | | | | | |
| Perimeter (m) | - | | | | | |
| | | - | | | | |
| | | _ | | | | |
| Total Flow (m ³ /day) | Flow (I/day) | | | | | |
| 0.00 | 0.00 | | | | | |

| Dewatering Flow Rate from Rainfall Event | | | | | | |
|--|----------------|--------|--|--|--|--|
| Rain | Rainfall Event | | | | | |
| | | | | | | |
| | | | | | | |
| Year | 2 | 100 | | | | |
| Hour | 3 | 12 | | | | |
| Depth (mm) | 25 | 94 | | | | |
| Depth (m) | 0.025 | 0.094 | | | | |
| | | | | | | |
| 2 Year Event (L/day) | 14,813 | 15,000 | | | | |
| 100 Year Event (L/Day) | 55,695 | 56,000 | | | | |

Estimated Short-Term Dewatering Flow Rate

| 2 Year Event (L/day) | 15,000.00 |
|------------------------|-----------|
| 100 Year Event (L/day) | 56,000.00 |

| TOWN OF CAL PLANNING RECEIVED | EDON G D |
|-------------------------------------|---|
| Dec 24, 202 | 20 |
| | APPENDIX H Pre- and Post-Development Water Balance Analyses |
| | TERRAPROBE INC. |
Dec 24, 2020 -20-0222-46

Appendix H

Pre- and Post Water Balance - 6939 King Street, Caledon

| 1. Climate Information (using TRSP Water Balance Tool) | | | | | | | | | | | | | |
|--|--|--|----------|---|--|---|---|---|---|--|--|--|--|
| | Row Data | Modified | | 3. Annual Pre-Development Water Balance | | | | | | | | | |
| Precipitation | 874 mm/a | 874 mm/a | 0.87 m/a | Land Use | Area (m ²) | Precipitation (m ³ /yr) | Evapotranspiration (m ³ /yr) | Infiltration (m ³ /yr) | Runoff (m3/yr) | | | | |
| Evapotranspiration | 747 mm/a | 514 mm/a | 0.51 m/a | Existing Structures | 897 | 784 | 78 | 0 | 706 | | | | |
| Runoff | 173 mm/a | 119 mm/a | 0.12 m/a | Agricultural Land and Green Area | 59,693 | 52,172 | 30,663 | 14,408 | 7,101 | | | | |
| Recharge | 351 mm/a | 241 mm/a | 0.24 m/a | TOTAL | 60,590 | 52,956 | 30,741 | 14,408 | 7,807 | | | | |
| The site development area is underlain by clayey silt fill and weathered silt and clay/clayey silt till | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 2. Site Statistics | | | | | | | | | | | | | |
| Pre- Development Site Coverage | Subcatchmer | nt Areas | | | | | | | | | | | |
| Existing House, Driveway and Sheds | 897 m ² | 0.09 ha | | | | | | | | | | | |
| Agricultural Land and Grass Covered Area | 59,693 m ² | 5.97 ha | | 4. Annual Post-Development Water Balance | | | | | | | | | |
| Total Site Area | 60,590 m ² | 6.06 ha | | Land Use | Area (m ²) | Precipitation (m ³ /yr) | Evapotranspiration (m ³ /yr) | Infiltration (m ³ /yr) | Runoff (m3/yr) | | | | |
| | | | | Proposed Buildings | 17,808 | 15,564 | 1,556 | 0 | 14,008 | | | | |
| 1 | | | | | | | | | | | | | |
| | | | | Proposed Paved Area | 10,658 | 9,315 | 931 | 0 | 8,383 | | | | |
| Post-Development Site Coverage | | | | Proposed Paved Area Proposed Landscaped Area | 10,658 32,124 | 9,315 28,077 | 931 16,501 | 0 7,754 | 8,383 3,822 | | | | |
| Post-Development Site Coverage | Subcatchmer | nt Areas | | Proposed Paved Area Proposed Landscaped Area TOTAL | 10,658 32,124 60,590 | 9,315 28,077 52,956 | 931 16,501 18,989 | 0 7,754 7,754 | 8,383 3,822 26,213 | | | | |
| Post-Development Site Coverage Area Covered by Proposed Buildings (Roof Top) | Subcatchmer 17,808 m ² | nt Areas 1.78 ha | | Proposed Paved Area Proposed Landscaped Area TOTAL | 10,658 32,124 60,590 | 9,315 28,077 52,956 | 931 16,501 18,989 | 0 7,754 7,754 | 8,383 3,822 26,213 | | | | |
| Post-Development Site Coverage Area Covered by Proposed Buildings (Roof Top) Area Covered by Proposed Paved Area | Subcatchmer 17,808 m ² 10,658 m ² | it Areas 1.78 ha 1.07 ha | | Proposed Paved Area Proposed Landscaped Area TOTAL | 10,658 32,124 60,590 | 9,315 28,077 52,956 Precipitation (m ³ /yr) | 931 16,501 18,989 Evapotranspiration (m ³ /yr) | 0 7,754 7,754 1nfiltration (m ³ /yr) | 8,383 3,822 26,213 Runoff (m3/yr) | | | | |
| Post-Development Site Coverage Area Covered by Proposed Buildings (Roof Top) Area Covered by Proposed Paved Area Area Covered by Proposed Landscaped Area and the Area | Subcatchmer 17,808 m ² 10,658 m ² | nt Areas 1.78 ha 1.07 ha | | Proposed Paved Area Proposed Landscaped Area TOTAL | 10,658 32,124 60,590 | 9,315 28,077 52,956 Precipitation (m ³ /yr) | 931 16,501 18,989 Evapotranspiration (m ³ /yr) | 0 7,754 7,754 Infiltration (m ³ /yr) | 8,383 3,822 26,213 Runoff (m3/yr) | | | | |
| Post-Development Site Coverage Area Covered by Proposed Buildings (Roof Top) Area Covered by Proposed Paved Area Area Covered by Proposed Landscaped Area and the Area that will remain untouched. | Subcatchmer 17,808 m ² 10,658 m ² 32,124 m ² | nt Areas 1.78 ha 1.07 ha 3.21 ha | | Proposed Paved Area Proposed Landscaped Area TOTAL Pre-Dr | 10,658 32,124 60,590 | 9,315 28,077 52,956 Precipitation (m ³ /yr) 52,956 | 931 16,501 18,989 Evapotranspiration (m ³ /yr) 30,741 | 0 7,754 7,754 Infiltration (m ³ /yr) 14,408 | 8,383 3,822 26,213 Runoff (m3/yr) 7,807 | | | | |
| Post-Development Site Coverage Area Covered by Proposed Buildings (Roof Top) Area Covered by Proposed Paved Area Area Covered by Proposed Landscaped Area and the Area that will remain untouched. | Subcatchmer 17,808 m ² 10,658 m ² <u>32,124</u> m ² 60,590 m ² | nt Areas 1.78 ha 1.07 ha 3.21 ha 6.06 ha | | Proposed Paved Area Proposed Landscaped Area TOTAL Pre-Dr Post-Dr | 10,658 32,124 60,590 evelopment | 9,315 28,077 52,956 Precipitation (m³/yr) 52,956 52,956 | 931 16,501 18,989 Evapotranspiration (m ³ /yr) 30,741 18,989 | 0 7,754 7,754 Infiltration (m ³ /yr) 14,408 7,754 | 8,383 3,822 26,213 Runoff (m3/yr) 7,807 26,213 | | | | |
| Post-Development Site Coverage Area Covered by Proposed Buildings (Roof Top) Area Covered by Proposed Paved Area Area Covered by Proposed Landscaped Area and the Area that will remain untouched. TOTAL: | Subcatchmer 17,808 m ² 10,658 m ² <u>32,124</u> m ² 60,590 m ² | nt Areas 1.78 ha 1.07 ha 3.21 ha 6.06 ha | | Proposed Paved Area Proposed Landscaped Area TOTAL Pre-D Post-D G G | 10,658 32,124 60,590 evelopment evelopment ain/Loss (-) | 9,315 28,077 52,956 Precipitation (m ³ /yr) 52,956 52,956 | 931 16,501 18,989 Evapotranspiration (m ³ /yr) 30,741 18,989 -11,752 | 0 7,754 7,754 Infiltration (m ³ /yr) 14,408 7,754 -6,654 | 8,383 3,822 26,213 Runoff (m3/yr) 7,807 26,213 18,406 | | | | |

<u>https://trca.ca/conservation/drinking-water-source-protection/trspa-water-balance-tool/</u>

Terroprobe Inc.











The contractor shall check and verify all dimensions and report all errors and omissions to the Architect before proceeding with the work. This drawing is the property of the Architect and must be returned on completion of the work. Do not scale drawings.

BATTAGLIA ARCHITECT INC.

1050 McNicoll Avenue Unit 14 Scarborough, On. M1W 2L8 T: 416-492-7772 F: 416-848-7967 e-mail: battaglia.arch@gmail.com

| PROJECT | DRAWING | No. | Revision | Date By | | date NOV 09, 2020 |
|---------------------------------------|---|-----|----------|---------|---|---|
| 6936 KING STREET KLEINBERG ONTARIO | FRONT(WEST) REAR(REAR) ELEVATIONS | | | | ABCHARCES ABCHARCES THOSEPH D. BATTAGLIA LICENCE 5924 | Scale 1/16"=1'-0" Drawn By L.M. project no. drawing no. A3 |