REPORT ON
PRELIMINARY HYDROGEOLOGICAL INVESTIGATION
PROPOSED DEVELOPMENT
Caledon Station
&
Argo King I & II
BOLTON, ONTARIO

FOR:

Draft Plan of Subdivision (21T-22001) and for Amendment for the Zoning By-Law (RZ 2022-0002)

Draft Plan of Subdivision (21T-22002), Zoning By-Law (RZ 2022-0003)

Draft Plan of Subdivision (PRE-2023-0080)

PREPARED FOR:

Caledon Community Partners
c/o Glen Schnarr & Associates

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

Project No: 20-169-100
Date: June 11, 2024

20-169-104 **June 11, 2024**

Liz Hurst
Caledon Community Partners
c/o Glen Schnarr & Associates
700-10 Kingsbridge Garden Circle
Mississauga, ON, L5R 3K6

Via email: lizh@gsai.ca

RE: Hydrogeological Investigation – Caledon Station (Caledon Station (Argo Macville I, Argo Macville II, Argo Macville III, Argo Macville V, Argo Humber Station, Humberking (I) Developments & Humberking (IV) Developments) & Argo King I & II, Caledon (Bolton), ON

DS Consultants Limited (DS) was retained by Caledon Community Partners to complete a Hydrogeological Investigation on the Argo Macville I, Argo Macville II, Argo Macville III, Argo Macville V, Argo Humber Station, Humberking (I) Developments & Humberking (IV) Developments, herein referred to as Caledon Station, and 7675 King Steet, Bolton, here in referred to as Argo King I & II. These sites are portions of a greater study area completed for the Bolton Option 3 Landowner's group. The Caledon Station and ARGO Humber Station lands include the development of approximately 107.19 hectares (ha) and 5.61 ha of land situated on The Gore Road and Humber Station Road in Bolton, ON, respectively. Argo King I & II lands include the development of approximately 8.7 ha of land situated south of King Street, approximately 400 m east from the Gore Road. The area is primarily agricultural with some residential lots. The proposed development of these lands includes residential and mixed-use land uses, open spaces, parks, trails, commercial uses, the Bolton GO Station, natural heritage features and areas designated for stormwater management (SWM Ponds). The development will also include the construction of roadways including storm and sanitary sewer and water distribution infrastructure.

This Hydrogeological Investigation provides an overview of the existing geological and hydrogeological conditions at the Site and surrounding area and provides an assessment of hydrogeological constraints and potential impacts of the proposed development on local groundwater resources. A significant aim of the study is to provide mitigation measures to reduce or eliminate the impacts of development on local water resources, groundwater users, and the natural environment. It also includes an estimation of construction dewatering requirements and groundwater permanent drainage conditions.

If needed, the results of this investigation can be used in support of an application for a Category 3 Permit to Take Water (PTTW) or an Environmental Activity Sector Registry (EASR) for construction dewatering from the Ministry of the Environment, Conservation and Parks (MECP) and discharge permitting from the Town of Caledon.

Based on the results of our investigation, the following conclusions and recommendations are presented:

1. The Site is located within the Main Humber sub watershed part of the larger Humber River watershed. The surface water and drainage setting at the Site comprises a total of eight (8) wetlands within the

Caledon Station and three (3) wetlands within the Argo King I & II development, which are incorporated into the tributaries of the Humber River and ultimately flow into Lake Ontario. Relief across the Site ranges from approximately 281 masl in the northwest corner of the Site to 262.0 masl in the southwest corner of the Site. The study area is characterized as having moderate drainage, which is directed overland into various streams on the Site.

2. The Site is situated within the South Slope Physiographic Region of Southern Ontario (Chapman and Putnam, 1984), and lies within a Drumlinized Till Plain Physiographic Landform. Surficial geology mapping made available by the Ontario Geological Survey (2010) indicates that the study area is covered entirely by Halton till. There are some glacial deposits of sand and gravel to the west of the site and modern alluvial deposits of silt, sand, and gravel to the east along tributaries to the Humber River. The overburden in the vicinity of the site is clayey silt to sandy silt till deposits (Halton till).

3. Based on the MECP water well records search, there are ninety-eight (98) water wells within 500 meters of the Site. Forty-nine (49) water wells are noted as domestic and/or livestock supply wells, five (5) water wells were noted for commercial use, two (2) wells were noted for industrial use, and two (2) wells were noted for municipal use. All other remaining wells are either abandoned, not in use or monitoring/test hole wells. Private domestic and commercial water supply wells are drilled into sandy aquifers confined under clay till. The depths of these wells range from 7.5 to 63.4 mbgs. It is recommended that a private door-to-door water well survey be completed within a 500 m radius of the Site to confirm private use of groundwater in the study area.

4. To assess soil and groundwater conditions at the Site, DS used sixteen (16) exploratory boreholes advanced during the geotechnical investigations at the Caledon Station Site carried out in July 2020 which included thirteen (13) monitoring wells (MWs). Three (3) boreholes were advanced April 22nd, 2021, in which two (2) MWs were installed. Between August 19th and September 7th, 2022, forty-two (42) exploratory boreholes were advanced in which twenty-three (23) MWs were installed. Between June 19th and June 21st, 2019. Between June 23rd and July 4th, 2023, eight (8) exploratory boreholes were advanced within the southwestern quadrant of the Site which included seven (7) monitoring wells. Between June 19th and June 21st, 2019, seven (7) boreholes were advanced at the Argo I & Argo II Site in which four (4) MWs were installed. Between October 13th and October 17th nine (9) boreholes were advanced in which five (5) MWs installed. Monitoring wells were constructed with two (2) inch PVC casing and a 1.5 m or 3.0 m length of screen installed at varying depths ranging from 4.0 to 21.0 meters below ground surface (mbgs).

5. Based on the subsurface investigation, the stratigraphic setting of the Site comprises of topsoil/fill /disturbed native materials underlain by native soil deposits. The native soil deposits at the Site includes clayey silt till to silty clay till (Halton till) to depths ranging from 1.5 m to 11.3 mbgs, which in turn is underlain by silt/sandy silt/silty sand (Newmarket till) extending to the maximum depth of investigation. Modern alluvium deposits consisting of sand and gravel were encountered in the southeast corner of the Site. Bedrock was not encountered during the subsurface investigation.

6. **DS** implemented a groundwater monitoring program at the Caledon Station Site in August 2020 on bi-monthly basis and at Argo King I & II in October 2022 on a monthly basis to assess long-term groundwater fluctuations. Groundwater was found in monitoring wells at depths ranging from 255.2 to 277.16 mbgs at the Caledon Station Site and from 255.8 to 261.0 masl at the Argo King I & II Site throughout their respective monitoring periods. Artesian conditions were encountered within the northeaster quadrant of the Argo King I & II Site and the southwestern quadrant of the Caledon Station Site. Groundwater outlets to surface streams at the southwest and southeast limits of the Sites. Continuous groundwater monitoring at the Site indicates groundwater levels in the monitoring wells have generally gradually declined during the late summer to the fall monitoring period, and then increasing throughout the winter peaking in mid spring.

7. Single Well Response Tests (SWRTs) were completed by DS in nine (9) monitoring wells on August 6th and 7th, 2020 and in eighteen (18) monitoring wells between November 1st and November 3rd, 2022 at the Caledon Station Site and SWRTs were completed in nine (9) monitoring wells between June 2019 and October 2022 at Argo King I & II, and at six (6) monitoring wells in at the Caledon Station Site at the Speirs property in July 2023 to estimate hydraulic conductivity (K) for the representative geological units in which the wells were screened. The hydraulic conductivity values between the sites ranged from 2.9 x 10^{-10} m/sec within the low permeably clay silt till to 4.0 x 10^{-5} m/sec within the highly permeable sand.

8. In-situ infiltration testing was conducted by **DS** field personnel on September 2nd, 2020. The testing was completed at a depth of 0.5m and 1.5 m mbgs at ten monitoring well locations (BH20-1, BH20-2 and BH20-5 through BH20-16). Based on the test results, the site primarily consists of a low permeable silty clay till with a measured infiltration rate ranging from about 16 to 38 mm/hr with an average of 26 mm/hr. One test location at (BH20-16 - southeast corner of the Site) with sand and gravel deposits, produced an infiltration rate of 108 mm/hr. Soils with infiltration rates over 15 mm/hr are considered suitable for Soakaways, infiltration trenches and chambers (TRCA, 2010).

9. Five (5) unfiltered groundwater samples were collected from select monitoring well locations (BH22-13 BH22-17 and BH22-32), on November 3rd, 2023, and from BH23-1 on July 17th, 2023, and PW1 on August 14th, 2023, from the Caledon Station Site and two (2) unfiltered groundwater samples were collected from BH22-1 and BH22-5 on October 26th, 2022, from Argo King I & II. Groundwater quality results were compared to parameters limits outlined in the Peel Region Sanitary and Storm Sewer Discharge By-Law 53-2010 and the Provincial Water Quality Objectives (PWQO) for surface water to assess the suitability of discharge to the Region’s sewer system and nearby surface water features. Based on the results of the analytical testing, Total Suspended Solids (TSS) and manganese exceeded at most locations in addition to phosphorus and zinc exceedance detected at the Argo King I & II Site at BH22-1. Multiple exceedances were reported against PWQO standards. Pre-treatment of the pumped water will be required prior to discharging into a natural surface water feature.

10. DS collected two (2) non-filtered surface water samples on October 24, 2020, from the Caledon Station Site; one (1) from the surface water stream in the southwest corner of the Site (Surface Station: SG W2-1); and one (1) sample from the surface water stream in the southeast corner of the Site (Surface Station: SG W8-1). The baseline water quality samples were compared against the PWQO standards. Based on the results of the analytical testing, the water quality exceeded the PWQO criteria for various metal parameters and phosphorus.

11. **DS** commenced continuous pre-construction monitoring at the Site including the onsite wetlands on the Caledon Station and Argo King I & II Sites to determine the interaction between surface and groundwater. The continuous pre-construction surface water and groundwater monitoring program of the Caledon Station and Argo King I & II Sites are currently underway. The findings from the data collected to-date are from during the August 2020 to May of 2024 and October 2022 to May 2024 monitoring periods.

12. Based on the monitoring during the August to October period in 2020, all wetlands at the Site appear to be ephemeral features. The monitoring program to-date generally indicated an upward shallow groundwater gradient at Wetlands 1 through 3, and Wetland 8, and a downward shallow groundwater gradient at Wetlands 4 through 7 within the Caledon Station Site. The monitoring program to date at the Argo King I & II Site generally indicated an upward gradient at wetland 1 and a downward gradient for wetlands 2 and 3.

13. Results of the Site water balance show a decrease in annual infiltration (96,414 m^3/year), from pre-development to post-development conditions. The effects are the result of increased impervious areas replacing pervious areas of the Site. Considering the high groundwater elevations across the Site, lot level mitigation was considered the best approach for improving infiltration in the post-development condition. The current LID plan includes connecting about 11.2 ha of impervious surfaces with 24.3 ha of pervious area to maximize infiltration potential. Additionally, Silva Cells is utilized road ROWs and parks. The post-development with mitigation infiltration deficit is reduced to 34,803 m^3/yr from pre-development conditions.

14. Changes to wetland catchment size directly affect the volume and timing of stormwater contributions to downgradient features. A Wetland Water Balance Risk Evaluation following TRCA guidelines (TRCA, Nov 2017) showed there is high risk to wetlands W1 to W6 as a result of reduced catchment size. In order to understand the effects of the reduced catchment area and evaluate the magnitude of actual hydrological changes, a wetland water balance is currently being completed by Urbantech using a continuous model. The results of the ongoing pre-construction wetland monitoring program undertaken by DS will be used in conjunction with the continuous model to assess the actual risks to the wetlands. Based on the findings of the water balance results, a wetland mitigation plan will be developed.

15. It is understood that the provided site grading plan and the design of the four (4) storm water management ponds are currently preliminary and the proposed site servicing plan and the

architectural drawings with the final basement floor slab elevations of all structures to be constructed below grade have not been finalized at this stage. DS made numerous assumptions, as outlined in Section 6.0 of this report, in support of the groundwater seepage assessment during the construction period. The requirements for dewatering/control during the construction period is as follows:

15.0 Medium Density Residential Blocks – 346,830 L/day (incl. 50% safety factor on anticipated seepage rates and contribution from a 2-year storm) per block;

15.1 Townhouse and Single Detached Units – 186,705 L/day (incl. 50% safety factor on anticipated seepage rates and contribution from a 2-year storm) per unit;

15.2 Site Servicing (Developmental Site area / Newmarket Till) – 15,500 L/day (incl. 50% safety factor on anticipated seepage rate and contribution from a 2-year storm) per unit trench segment;

15.3 Storm Water Management Pond 2A – 236,500-445,000 L/day (incl. 50% safety factor on anticipated rate; and contribution from a 10 mm storm event). Further investigation is required to determine whether the upper unit and lower unit are hydraulically connected.; and

15.4 Interim Storm Water Management Pond – 240,500 L/day (incl. 50% safety factor on anticipated rate; and contribution from a 10 mm storm event)

16. All low-rise residential blocks, institutional and commercial zones are not anticipated to require any permanent groundwater drainage control as they are expected to be constructed with a water-proofing membrane. The proposed SWM pond designs will require permanent groundwater control. Based on preliminary designs provided to DS. The requirements for dewatering/control during the construction period is as follows:

16.0 Storm Water Management Pond 2A – 10,500-189,000 L/day (incl. 50% safety factor on anticipated rate). It is important to note that the safe excavation depth established near SMW Pond 2A was estimated to be approximately 3 mbgs (Elev. 259 masl). Two (2) pump tests are recommended within the SWM Pond 2A footprint, one (1) in the upper silty clay to clayey silt till (aquitard) zone and one (1) in the lower sandy silt to silty sand (aquifer) zone to determine whether the two (2) units are hydraulically connected.; and

16.1 Interim Storm Water Management Pond – 45,000 L/day (incl. 50% safety factor on anticipated rate)

17. In August 2023, aquifer pumping tests were conducted on the pumping wells PW at the proposed SWM Pond 1 location and PW2 at the proposed SWM Pond 2B location to provide indications of the quantity of water available from each single well and to calculate the aquifer hydraulic coefficients (Transmissivity and Storativity).

17.0 From the data gathered and analyzed at PW1 and PW2, calculated Transmissivity values were 40.3 m^2/day (2,700 igpd/ft.) and 2.5 m^2/day (165 igpd/ft.), respectively.

17.1 The total volumetric pumping rate to control groundwater from the aquifer during construction is estimated to be approximately 365 L/min or 525,600 L/day (525.6 m^3/day) and 29 L/min or 41,760 L/day (41.8 m^3/day) for SWM Pond 1 and SWMP Pond 2B, respectively.

17.2 The zone of influence (Ro) of pumping during construction will extend until boundary flow conditions are reached and sufficient water inputs are equal to the discharge rate due to pumping. The estimated Ro ranges from 2 for a 30m x 2m site servicing trench to up to 121m at SWM Pond 2A.

18. The proposed SWM Ponds (SWM Ponds 1 & 2B) will require permanent groundwater control. This is required to prevent hydrostatic pressure from up-lift to the base of the pond. Based on pump test results for SWM Pond 1 and SWM Pond 2B, the estimated permanent drainage with a 50% safety factor is 565,920 L/day and 41,040 L/day, respectively.

19. During the construction period, the requirements to obtain any water taking permits (EASR/PTTW) will depend on the ownership structure of the Site and the staging for development. It is anticipated that an EASR Posting will likely be required, however if the construction dewatering rates exceed 400,000 L/day on any given day, a PTTW Registration with the MECP will be required. Based on the construction dewatering values for SWM Ponds 1 & 2A, a PTTW will be required.

20. During the post-construction period, the anticipated permanent drainage flows for SWM Ponds 1 & 2A are expected to be greater than 50,000 L/day. Given that the estimated permanent drainage flows are expected to be greater than the MECP threshold of 50,000 L/day, a long-term PTTW will be required in support of permanent groundwater control for the SWM Ponds should design details corroborate the assumptions made in this assessment.

21. A discharge permit may be required from the Toronto and Region Conservation Authority (TRCA), Region of Peel and/or Town of Caledon if the water is to be discharged to a nearby/on-site surface water body as a result of construction dewatering. A discharge and monitoring plan will need to be prepared prior to obtaining a discharge approval from the TRCA, Peel Region and/or Town of Caledon. Based on the results of the groundwater analytical testing pre-treatment of the pumped water will be required to ensure compliance with the Peel Region sewer use by-law/PWQO criteria prior to discharging into the sewer system or natural surface water features.

Region's approval required

22. During the post-construction period, a sewer discharge agreement with the local upper and/or lower tier municipality may be required prior to any discharging operations into the municipal sewer system.

23. Dewatering activities adjacent to the on-site wetland features has the potential to lower the groundwater and/or surface water levels in the wetlands. Once a groundwater dewatering system is set up at the Site, daily and weekly monitoring should be implemented to assess the groundwater

conditions such as water levels, measurement of discharge flow, discharge water quality and any adverse impacts as a result of dewatering, if any.

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

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

DS Consultants Ltd.

Prepared By: Reviewed By:

Dorothy Santos, M.Sc.
Project Manager

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

Scott Watson, B.A.T.
GeoBase Solution (GBS) Ltd.

Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

DS Consultants Limited (DS) was retained by Caledon Community Partners to complete a Hydrogeological Investigation on the Argo Macville I, Argo Macville II, Argo Macville III, Argo Macville V, Argo Humber Station, Humberking (I) Developments & Humberking (IV) Developments, herein referred to as Caledon Station, and 7675 King Steet, Bolton, here in referred to as Argo King I & II. These sites are portions of a greater study area completed for the Bolton Option 3 Landowner's group.

The Caledon Station and ARGO Humber Station lands include the development of approximately 107.19 ha and 5.61 ha of land, respectively, situated on The Gore Road and Humber Station Road in Bolton, ON. Argo King I & II lands include the development of approximately 8.7 ha of land situated south of King Street, approximately 400 m east from the Gore Road. The Site locations are shown in **Figure 1**. The area is primarily agricultural with some residential lots. The proposed development of these lands includes residential and mixed-use land uses, open spaces, parks, trails, commercial uses, the Bolton GO Station, natural heritage features and areas designated for stormwater management (SWM Ponds). The development will also include the construction of roadways including storm and sanitary sewer and water distribution infrastructure.

This hydrogeological investigation includes characterization of existing geological, hydrogeological and hydrologic conditions of the Site and local features including eight (8) wetland units within the Caledon Station property boundary, and three (3) wetland units within the Argo King I & II property boundary. The investigation provides an assessment of opportunities and constraints including potential impacts on local groundwater resources. A significant aim of the study is to provide mitigation measures to reduce or eliminate the impacts of development on local water resources, groundwater users, and the natural environment. The study also provides an estimation of construction dewatering requirements and groundwater permanent drainage conditions.

1.1 Purpose

The purpose of this investigation is to characterize groundwater conditions over the study area and provide construction dewatering estimates and recommendations for design and mitigation measures to reduce or eliminate impacts of development on local water resources. The investigation will inform a water balance study to help define potential risks to the wetlands features within the Site. This investigation also includes an asassessment of dewatering requirements and provides recommendations for the obtaining the necessary permits prior to construction such as a Permit to Take Water (PTTW) or registry on the Environmental Activity Sector Registry (EASR) from the Ministry of Environment and Conservation and Parks (MECP).

1.2 Scope of Work

The scope of work for this investigation includes:

(i) Drilling and installation of monitoring wells, piezometers, and stream flow monitoring instrumentation;

(ii) Collecting and interpreting available reports and data including the MECP Water Well Records (WWR), geotechnical, hydrogeological and environmental studies completed at the Site;
(iii) In-situ hydraulic conductivity testing
(iv) Field work including a test well drilling program consisting of two (2) pumping wells (PW1 & PW2);
(v) Pumping tests conducted at the two (2) pumping wells to estimate aquifer hydraulic coefficients (Transmissivity and Storativity);
(vi) Estimation of temporary groundwater flow rate during the construction phases;
(vii) Estimation of permanent drainage volumes to the underfloor of the building following construction;
(viii) Assessing groundwater quantity and quality to evaluate discharge options;
(ix) Stream water level and flow monitoring including seasonal fluctuation;
(x) Water quality assessment for surface water and groundwater;
(xi) Site water balance assessment;
(xii) Feature based water balance assessment;
(xiii) Wetland water balance assessment;
(xiv) Data analyses and report preparation, and;
(xv) Review and response to agency comments.

2.0 PREVIOUS STUDIES

DS reviewed the following previous studies during our background review:

- *"Headwater Drainage Feature Assessment: In Support of the Bolton Residential Expansion Study"*, by Aquafor Beech Ltd., dated June 16. 2013, File No.: 65473

- *"Preliminary Geotechnical Investigation, Proposed Residential Subdivision, Bolton Option 3 Lands, Bolton, Ontario"*, by DS Consultants Ltd., dated September 4, 2020, File No.: 20-169-100

- *"A Report to Humberking (I) Developments Limited and Humberking (IV) Developments Limited, A Geotechnical Investigation for Proposed Mixed-Use Development, King Street and Humber Station Road, Town of Caledon", prepared by Soil Engineers Ltd., dated December 2021, File No. 2108-S069*

- *"Draft- A Report to Humberking (I) Developments Limited and Humberking (IV) Developments Limited, Hydrogeological Assessment, Proposed Mixed Use Development King Street and Humber Station Road, Town of Caledon", prepared by Soil Engineers Ltd., dated December 2022, File No. 2108-W069*

- "Updated Preliminary Geotechnical Comments and Recommendations Proposed SWM Ponds, Caledon Station Subdivision, Caledon Ontario," by DS Consultants Ltd., dated May 31st, 2024. File No. 20-169-104.

A brief summary of the findings from each investigation/report is provided in the following sections.

2.1 Headwater Drainage Feature Assessment: In Support of the Bolton Residential Expansion Study (Aquafor Beech Ltd., 2014)

Aquafor Beech Limited (Aquafor) completed a *Headwater Drainage Feature Assessment* (2014) in support of the BRES Study being carried out by the Town of Caledon. The objectives of the investigation included delineation of Headwater Drainage Features (HDF) within the Caledon Station Site. The study identified and classified a total of four (4) HDFs as summarized below:

- Headwater Drainage Feature-1 (HDF-1) is located in the eastern portion of the Site and consists of fifteen (14) stream reaches (1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i, 1j, 1k, 1l, 1m and 1n);
- Headwater Drainage Feature-2 (HDF-2) is located along the eastern boundary of the Site and consists of two (2) stream reaches (2a and 2b);
- Headwater Drainage Feature-3 (HDF-3) is located within the western portion of the Site and consists of seven (7) stream reaches (3a, 3b, 3c, 3d, 3e, 3f and 3g); and,
- Headwater Drainage Feature-4 (HDF-4) is located along the western property boundary of the Site and consists of three (3) stream reaches (4a, 4b and 4c). Stream reach 4b is noted to be an existing pond.

The Headwater Drainage Map by Aquafor (2014) is provided in **Appendix A**.

2.2 Preliminary Geotechnical Investigation, Proposed Residential Subdivision, Bolton Option 3 Lands, Bolton, Ontario (DS Consultants Limited, 2020)

A Preliminary Geotechnical Investigation was completed by DS Consultants Ltd., for the greater site, Bolton Option 3 Lands. The investigation involved advancing a total of sixteen (16) boreholes to depths ranging from 6.7 m to 11.3 mbgs. Groundwater monitoring wells were installed in thirteen (13) borehole locations (BH20-1, BH20-2, BH20-3, BH20-4, BH20-5, BH20-6, BH20-7, BH20-9, BH20-11, BH20-12, BH20-14, BH20-15 and BH20-16) to permit monitoring of groundwater levels at the Site.

Based on the subsurface investigation completed at the Site, the Site was underlain by a surficial layer of topsoil, fill and/or disturbed native materials to depths of 0.8 mbgs, which in turn was underlain by native soils extending to the full depth of investigation. The native soils at the Site comprised of clayey silt/silty clay till material underlain by a lower cohesionless silt to sandy silt and silty sand deposits. Bedrock was not encountered to the full depth of investigation.

The clayey silt till was encountered under the fill layer in all borehole locations except BH20-4 and extended to depths ranging from 1.5 m to 7.7 mbgs and to the termination depth in Boreholes BH20-6, BH20-7, BH20-10, BH20-14 and BH20-15. The clayey silt to silty clay layer contained sand seams and trace to some amounts of sand, gravel and cobbles. The unit was noted to be moist to very moist and wet at the bottom of some borehole locations. The soil was generally found to be brown to grey in colour.

The lower cohesionless silt to sandy silt and silty sand deposits was found underlying the clayey silt to silty clay deposits in Boreholes BH20-1 to BH20-3, BH20-5, BH20-8, BH20-9, BH20-11 to BH20-13 and BH20-16 and extended to the full depth of investigation. This unit contained layers of sand and gravel/gravelly sand materials in the location of Borehole BH20-16 at various depths ranging from 1.5 m to 6.2 mbgs. The unit was noted to be moist to wet and brown to grey in colour.

The investigation involved equipping thirteen (13) borehole locations with 50 mm diameter monitoring wells to permit the monitoring of groundwater levels at the Site. On-completion groundwater levels were collected and noted to range from 2.3 m to 9.1 mbgs. Groundwater levels in the monitoring wells were measured in August 2020 and ranged from 0.2 m to 6.8 mbgs (Elev. 260.4 masl to 275.7 masl). Monitoring Well BH20-7 was found to be dry.

2.3 A Report to Humberking (I) Developments Limited and Humberking (IV) Developments Limited, A Geotechnical Investigation for Proposed Mixed-Use Development, King Street and Humber Station Road, Town of Caledon (Soil Engineers Ltd., 2021).

A Geotechnical Investigation was completed by Soil Engineers Ltd., for the northeast and northwest quadrant of King Street and Humber Station Road in the Town of Caledon. The investigation involved advancing a total of eighteen (18) boreholes to a depth of 6.6 mbgs. Groundwater monitoring wells were installed in eight (8) borehole locations (BH1, BH4, BH5, BH6, BH8, BH14, BH16 and BH18) to permit monitoring of groundwater levels at the Site.

Based on the subsurface investigation completed at the Site, the Site was underlain by a surficial layer of topsoil, fill and/or disturbed native materials, which in turn was underlain by native soils extending to the full depth of investigation. The native soils at the Site comprised of silty clay/sandy till material underlain by a lower cohesionless sand and sandy silt deposits. Bedrock was not encountered to the full depth of investigation.

The clayey silt till was encountered under the fill layer in all borehole locations and extended to the maximum explored depths except for BH18. In BH18 a dense cohesionless sandy silt layer was encountered in 2.9 mbgs and extending to 5.6 mbgs underlain by sand extending to the maximum explored depth of the borehole.

The investigation involved equipping eight (8) borehole locations with 50 mm diameter monitoring wells to permit the monitoring of groundwater levels at the Site. On-completion groundwater levels were collected, and all boreholes were noted as dry, except for BH17 where groundwater was found at 6.1 mbgs (260.1 masl).

2.4 Draft- A Report to Humberking (I) Developments Limited and Humberking (IV) Developments Limited, Hydrogeological Assessment, Proposed Mixed Use Development King Street and Humber Station Road, Town of Caledon (Soil Engineers Ltd. 2022).

A Hydrogeological Investigation was completed by Soil Engineers Ltd., at the development site located at King Street and Humber Station Road in the Town of Caledon. The investigation involved the use of the eight (8) monitoring wells advanced as part of the Geotechnical Investigation by Soil Engineers Ltd. In 2021 to permit monitoring of groundwater levels at the Site. The following findings are summarized below:

- The site is within the till plains within the south slope physiographic region of Southern Ontario and is underlain by the Halton Till. The Site lies within Humber River Watershed and Main Humber Sub-watershed.

- Groundwater levels were measured on October 21, November 4 and on November 16, 2021, with a maximum groundwater fluctuation of 1.67 m. Groundwater levels ranged from 1.308 to 4.93 mbgs (241.60to 243.67 masl). Monitoring wells in BH1 and BH4 were dry throughout the monitoring period. The groundwater flow direction was inferred to flow in an easterly and southeasterly direction.

- Six (6) Single Well Response Tests were completed to determine the yield capacity and flow of groundwater for the ground water-bearing subsurface. Estimated hydraulic conductivity (k) values ranged from 4.2×10^{-8} to 2.5×10^{-6} m/s.

- Construction dewatering for the underground basement structures and for the installation of the associated underground services and storm water management infrastructure were estimated.

    - The maximum estimated dewatering rate for a housing structure (west of Humber Station Road) ranged from 26,663.4 to 84,317.2 L/day with a 3x safety factor for 25 x 13 m for proposed housing structures with a permitter of 88m;

    - The maximum estimated dewatering rate for an excavation of 175 x 150m (west of Humber Station Road) ranged from 196,945.8 to 622,797.2 L/day with a 3x safety factor for the proposed housing structures with a permitter of 88m;

    - For a 50m site servicing trench the estimated maximum dewatering rate ranged from 8,298.0 to 26,240.7 L/day.

2.5 Revised Report on Preliminary Geotechnical Investigation Proposed Residential Development 7675 King Street Argo King I & II, Bolton, ON (DS Consultants Limited, 2024).

A Revised Preliminary Geotechnical Investigation was completed by DS Consultants Ltd., for the development located at 7675 King Street, Bolton, ON (Argo King I & II). The investigation involved advancing a total of seventeen (17) boreholes to depths ranging from 6.5 m to 11.3 mbgs. Groundwater monitoring wells were installed in twelve (12) borehole locations (BH19-1, BH19-3 to BH19-7, BH22-1, BH22-5 , and

BH22-7 to BH22-9)) to permit monitoring of groundwater levels at the Site. Detailed subsurface conditions are provided in section 4.2.3 of this report.

2.6 Revised Report on Preliminary Geotechnical Investigation Proposed Development Caledon Station, Bolton, ON (DS Consultants Limited, 2024).

A Revised Preliminary Geotechnical Investigation was completed by DS Consultants Ltd., for the development Caledon Station (Argo Macville I, Argo Macville II, Argo Macville III, Argo Macville V, Argo Humber Station, Humberking (I) Developments & Humberking (IV) Developments), in connection with a preliminary framework plan to establish the Macville Community Secondary Plan area, located at The Gore Road and King Street in Bolton, ON. The investigation involved advancing a total of sixty-nine (69) boreholes across the Site to depths ranging from 4.0 m to 21.9 mbgs. Groundwater monitoring wells were installed in forty-five (45) borehole locations to permit monitoring of groundwater levels at the Site. Detailed subsurface conditions are provided in section 4.2.3 of this report.

2.7 Updated Preliminary Geotechnical Comments and Recommendations Proposed SWM Ponds, Caledon Station Subdivision, Caledon, Ontario (DS Consultants Limited, 2024)

An updated Preliminary Geotechnical letter was completed by DS Consultants Ltd. to provide comments and recommendations for the proposed SWM Ponds at the Site. The following findings are summarized below:

- SWMP 1: Based on seasonal high groundwater levels (March 2023), and the proposed bottom elevation of SWMP 1 (261 masl), the hydrostatic pressure at the base of the clay liner will be high and would cause uplift stability issues. Under-line drainage is required to reduce the uplift hydrostatic pressure at the base of the liner. The clay liner used is assumed to be 1 m. However, without an under-drainage system, the clay liner would need to be significantly thicker (7.6 m) to reduce the hydrostatic pressure at the base of the liner.

- SWMP 2A: The proposed bottom elevation of SWM 2A is 259 masl. Based on the subsurface investigation silty clay to clayey silt till extended to approximately 15.3 mbgs and is underlain by a cohesionless deposit of watering bearing sandy silt to silty sand which extended to the maximum explored depth within the SWM Pond footprint (21.9 mbgs). Artesian conditions were encountered within the monitoring well (BH23-1) screened within the cohesionless deposit. The save excavation depths (SEDs) based on the subsurface investigation within the SWM Pond footprint ranged from 3.0 to 6.0 mbgs. A liner and under-line drainage to protect against uplift would not be required if the SWM Pond is to extend to the SED limit.

- SWMP 2B: The water levels are near the ground surface, and the proposed bottom elevation of SWMP 2B is 256 masl. The prevailing subsurface deposits in the boreholes within the vicinity of the SWMP 2B consisted of clayey silt to silty clay till which will serve as an appropriate clay liner, and a liner is not considered necessary for SWMP 2B. Additional boreholes are recommended to confirm that a liner and under-line drainage to protect against uplift would not be required.

3.0 FIELD INVESTIGATION

To assess soil and groundwater conditions at the Site, DS used sixteen (16) exploratory boreholes advanced during the geotechnical investigations at the Caledon Station Site carried out in July 2020 which included thirteen (13) monitoring wells (MWs) installed at borehole locations BH20-1 through BH20-7, BH20-9, BH20-11 through BH20-12, and BH20-14 through BH20-16. Three (3) boreholes were advanced April 22nd, 2021. Two (2) MWs installed in boreholes BH21-1 and BH21-2. Between August 19th and September 7th, 2022, forty-two (42) exploratory boreholes were advanced. Twenty-three (23) MWs were installed at borehole locations BH22-1, BH22-3, BH22-5, BH22-10, BH22-11, BH22-13 through BH22-15, BH22-17, BH22-20, BH22-22, BH22-25, BH22-27 through BH22-29, BH22-32, BH22-33, BH22-35, BH22-36A, BH22-39A, BH22-40, BH22-40A, and BH22-42. Between June 23rd and July 4th, 2023, eight (8) exploratory boreholes were advanced within the southwestern quadrant of the Site. Seven (7) MWs were installed at borehole locations BH23-1, BH23-1A, BH23-2, BH23-4, BH23-5, BH23-7 and BH23-8.

Between June 19th and June 21st, 2019, seven (7) boreholes were advanced at the Argo I & Argo II Site in which four (4) MWs were installed at borehole locations BH19-1, and BH19-3 through BH19-7. Between October 13th and October 17th, 2019, nine (9) boreholes were advanced in which five (5) MWs installed in boreholes BH22-1, BH22-5, and BH22-7 through BH22-9.

The borehole and monitoring well locations are as shown in **Figure 4A**. The detailed subsurface conditions are provided in the boreholes logs in **Appendix B**. MWs were constructed in accordance with O.Reg. 903, with 2-inch PVC casing and a 1.5 m or 3.0 m length of screen. Screens were installed at varying depths ranging from 4.0 to 21.0 mbgs.

Monitoring wells were developed before use to allow for groundwater level monitoring, hydraulic conductivity testing, and to assess groundwater quality. Monitoring wells were developed before use to allow for groundwater level monitoring, hydraulic conductivity testing, and to assess groundwater quality. Thirty-six (36) single well response tests (SWRTs) were completed by performing a rising head test to estimate hydraulic conductivity values of the overburden at the Site.

Test holes PW1 and PW2 were advanced between July 6th and July 10th, 2023, to a depth ranging from 15.2 to 21.3 mbgs. **Appendix A** shows the Driller's description of the test holes and the well construction features of the pumping wells. The overburden material in PW1 consisted of silty clay to sandy silt overlying a fine sand unit extending to the maximum borehole depth. The overburden in PW2 generally consisted of silty clay to clayey silt till extending to the maximum explored depth. The Drillers' logs and field observations were used in the design for a 150 mm (6 inch) diameter wells.

The well screen assembly consisted of 150 mm diameter, 20 slot PVC screens installed from 9.1 to 21.3 mbgs (30 to 70 ft) in PW1 and from 7.6 to 13.7 mbgs in PW2. The static water level measured on August 11th, 2023, in PW1 was 3.4 mbgs. The water was above ground surface on August 24th, 2023, in PW2. **Appendix A** features the test hole log and well design of the Pumping Wells.

Five (5) unfiltered groundwater samples were collected from the Caledon Station Site and two (2) unfiltered groundwater samples were collected from the Argo King I & II Site. Groundwater quality results were compared to parameters limits outlined in the Peel Region Sanitary and Storm Sewer Discharge By-Law 53-2010 and the Provincial Water Quality Objectives (PWQO) for surface water to assess the suitability of discharge to the Region's sewer system and nearby surface water features as part of the hydrogeological investigation.

Two (2) unfiltered surface water samples were collected from the Caledon Station Site for comparison of water quality against the PWQO to assess baseline water quality conditions at the Site prior to commencing construction activities.

4.0 PHYSICAL SETTING

Available topographic maps, environmental, geotechnical, and hydrogeological reports, and the Ontario Geological Survey were used to develop an understanding of the physical setting of the study area. The borehole logs from all investigations at the site as well as the Ministry of the Environment, Conservation and Parks Water Wells Records (MECP WWRs) used to interpret the geological and hydrogeological conditions at the Site.

4.1 Physiography and Drainage

The Site is located within a physiographic region of Southern Ontario known as the South Slope and within a physiographic landform feature known as the Drumlinized Till Plain (Chapman and Putnam, 1984). The South Slope physiographic region lies between the Oak Ridges Moraine in the north and the Peel Plain in the south. Much of the land surface topography and geology in southern Ontario was formed during the most recent glaciation period, known as the Wisconsin Glaciation, which was accompanied by various meltwater lakes and channels. The Pleistocene deposits present in the Caledon and Brampton area are associated with the advancing and retreating of this ice sheet. The South Slope consists of low-lying till plains, with undulating to gently rolling terrain and incised valleys around larger creeks and rivers. The South Slope has a gently, but steady slope to the southeast towards Lake Ontario, which results in overall good drainage.

The study area generally comprises of two main aquifers. The deeper aquifer is the Scarborough Aquifer Complex usually at depths greater than 40 or shallower sections of sand and silty sand associated with the Thorncliffe Aquifer complex. A second localized shallower aquifer consists of discontinuous sand lenses within the Halton till or the upper sandy silt of the ORM Aquifer Complex at depths up to 20 mbgs. The Scarborough Aquifer complex is overlain by the Newmarket and Halton till aquitards that also sandwich the ORM Aquifer Complex, therefore displaying he piezometric surface of a confined aquifer system, varying between 5 and 20 mbgs (Bolton Residential Expansion Study Background Environmental Study, 2014).

The Site is located within the Main Humber subwatershed, part of the larger Humber River Watershed. There are numerous headwater drainage features located within the Site (Section 4.3.5). The closest surface watercourse to the Site is the Humber River, located approximately 1 km east of the Site. The topography within the Site is gently rolling with a general slope towards the south/southeast. The study area is characterized as having a moderate drainage and is directed overland into various streams on the Site.

4.2 Geology

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

4.2.1 Quaternary Geology

The surficial geology at the Site and in the surrounding area is predominantly comprised of clay to silt-textured silt (Ontario Geological Survey, 2010). A pocket of surficial ice-contact stratified deposits consisting of sand and gravel with minor amounts of clay, silt and till are present west of the Site. There are modern alluvial deposits consisting of clay, silt, sand and gravel deposits present along the Humber River and its tributaries in the east. An illustration of surficial geology for the Site and surrounding area is provided in **Figure 2B.**

4.2.2 Bedrock Geology

Available published mapping indicates that bedrock in the area predominantly comprises of shale and minor limestone part of the Queenston Formation (MNDM Map 2544 Bedrock Geology of Ontario). Bedrock was not encountered as part of the borehole drilling program within the Caledon Station Site area. Based on the MECP water well records, there are ten (10) water well records which were reportedly completed into bedrock. The thickness of the overburden generally ranged from 24.7 mbgs to 75.0 mbgs, based on nine (9) well records (MECP WWR No. 4903854, 7275497, 4906470, 4908193, 4908194, 4904437, 4905615, 7267796, and 4907399). There is one (1) well record (MECP WWR No. 4905839) located approximately 490 northeast of the Site with a reported depth to bedrock of 11.0 mbgs. This well record is located within the valley lands of the Humber River, and for this reason the ground surface elevation of the well is likely significantly lower than surface elevations across the Site.

4.2.3 Site Geology

The stratigraphic setting of the Sites was interpreted from the soil encountered during the current subsurface investigation. In summary, the Sites are underlain by a surficial layer of topsoil / fill / disturbed native material, which in turn was underlain by native soil deposits extending to the full depth of investigation. The native soil deposits at the Site comprised of clayey silt till to silty clay till (Halton Till), which in turn was underlain by silt to sandy silt/sandy silt deposits. Bedrock was not encountered during the subsurface investigation.

The stratigraphic conditions encountered at the Sites during the current subsurface investigations were generally consistent with the findings from the previously completed Preliminary Geotechnical Investigation (Sections 2.4 and 2.5).

The stratigraphic conditions encountered in the boreholes are in detail summarized below.

Table 5: Summary of Stratigraphic Conditions

Caledon Station	Argo King I & II
Topsoil/Fill/Disturbed Native	
Topsoil: 200-550 mm encountered in all BHs	Topsoil: 200-350 mm encountered in BHs except for BH19-5
Earth fill/disturbed native material was encountered at all BH locations and extended to a maximum depth of 2.3 mbgs.	Earth fill/disturbed native material was encountered at all BH locations and extended to a maximum depth of 1.5 mbgs.
Fill/disturbed native material consist of sandy silt to clayey silt with trace grave and trace amounts of topsoil/organics	Fill/disturbed native material consist of clayey silt to silty clay with trace topsoil and organics
Halton Till Deposits (Clayey Silt Till to Silty Clay Till)	
Glacial Till- clayey silt to silty clay with trace amounts of sand and gravel was encountered in all BHs except for BH20-4, BH22-6, BH22-7, BH22-9, BH22-1 and BH22-13.	Glacial Till- clayey silt to silty clay was encountered in all BHs
Occasional wet silt/sand seams	Range from 2.1 to 11.3 mbgs and to borehole termination depth in CH19-1, BH19-2, BH19-5, BH19-8, BH22-4 to BH22-6 and BH22-8
Range from 1.5 to 15.3 mbgs and to borehole termination depth in BH20-6, BH20-10, BH20-15, BH22-14, BH22-16, BH22-17, BH22-19, BH22-20, BH22-21, BH22-24, BH22-34, BH22-37, BH22-38 through BH22-41 and BH23-4	
Newmarket Till (Silt/Sandy Silt/ Silty Sand)	
Silt/sandy silt/silty sand was encountered in all BHs except for BH20-6, BH20-10, BH20-15, BH21-1, BH21-3, BH22-34 and BH23-4 underlying the Halton Till or Fill	Silt/sandy silt/silty sand was encountered in all BHs except for BH19-2, BH19-8, BH22-4 to BH22-6 and BH22-8

Range from 1.0 to 12.2 mbgs between BHs BH21-2, BH22-24, BH22-30, BH22-31 and BH22-36, BH23-7 and BH23-8 to the maximum explored depth in all other encountered BHs.	Ranged from 4.8 to 11.3 mbgs. The deposits were water bearing and present in a loose to dense state.
Sand, Sand & Gravel	
A sand/sand and gravel unit were encountered in BHs BH22-2, BH22-4, BH22-29, BH22-30 extending to depths of 4.6 to 12.2 and to the maximum explored depth in BH22-30, BH23-7 and BH23-8	Not encountered

The location of the boreholes and monitoring wells is provided in **Figure 4**. The borehole logs are provided in **Appendix B**. Geological Cross-Sections A-A' to F-F', which depict the stratigraphic setting at the Site are provided in **Figures 5A to 5H**.

4.3 Hydrogeology

The hydrogeology at the Site was evaluated using the on-site monitoring wells, piezometers, and staff gauges installed by DS, local domestic wells and existing hydrogeological and environmental reports for the area.

4.3.1 Local Groundwater Use

As part of the hydrogeological study, DS completed a search of the Ministry of the Environment, Conservation and Parks (MECP) Water Well Record (WWR) database for both sites. Based on the MECP water well records search, there are ninety-eight (98) water wells within 500 meters of the two Sites. Forty-nine (49) water wells are noted as domestic and/or livestock supply wells, five (5) water wells were noted for commercial use, two (2) wells were noted for industrial use, and two (2) wells were noted for municipal use. All other remaining wells are either abandoned, not in use or monitoring/test hole wells. Private domestic and commercial water supply wells are drilled into sandy aquifers confined under clay till. The depths of these wells range from 7.5 to 63.4 mbgs. Domestic water supply records exist for wells drilled between the dates of January 1957 to June 2016. The water well record summary is included **in Appendix C. Figure 3** shows the MECP water well location plan.

It is recommended that a door-to-door private water well survey be completed within a 500 m radius of the Site to confirm the use of groundwater for private servicing in the study area.

There are zero (0) records of permit to take water (PTTW) within 1 km of the site.

4.3.2 Groundwater Conditions

DS implemented a groundwater monitoring program at the Caledon Station Site in August 2020 on bi-monthly basis and at Argo King I & II in October 2022 on a monthly basis. Monitoring programs began with a Site visit to collect groundwater levels to assess long-term groundwater fluctuations. Currently, the monitoring has been conducted from August 2020 to May 2024 at the Caledon Station Site and from October 2022 to May 2024 at Argo King I & II and will be ongoing until August 2024. **Figure 4** shows the monitoring well locations. **Table 1** and **Table 2** presents a summary of the measured groundwater level elevations in all monitoring wells and piezometers.

Caledon Station

Throughout the study area, groundwater levels were found to range between 255.2 masl (BH20-7) and 277.16 masl (BH22-1) in the proposed developmental area, which represent the groundwater levels within the overburden at the Site. Based on the groundwater elevation contours, the direction of groundwater flow is generally expected to be in a southeasterly direction. Flow diverges across the site to the south and east into their respective tributaries of the Humber River. The average hydraulic gradient flowing west to east is estimated to be 0.007 m/m. The average hydraulic gradient from the north to the south is estimated to be approximately 0.010 m/m. Groundwater outlets to surface streams at the southwest and southeast limits of the site. The Inferred groundwater maps are provided in **Figure 6**.

Continuous water level monitoring was conducted on four (4) monitoring well at BH20-5, BH20-7, BH20-12 and BH20-16 since August 2020 and from an additional eight (8) MWs at BH20-1, BH20-9, BH20-11, BH22-13, BH22-22, BH22-29, BH22-26, BH22-42, since September-November 2022. Continuous monitoring was completed using a fixed interval pressure and temperature data recording device (Levelogger^{TM}) which was corrected for atmospheric pressure from a central location on the site.

Based on continuous and manual monitoring, the water levels in the monitoring wells have not varied significantly during the current monitoring period. The groundwater levels in the monitoring wells have generally gradually declined during the late summer to the fall monitoring period, and then increasing throughout the winter peaking in mid spring. Groundwater levels in MWs increased following precipitation events. Season variation ranged from 0.9 m (BH20-12) to 3.8 m (BH20-11) during the monitoring period.

The hydrographs for the continuous groundwater monitoring are provided in **Appendix J**.

Argo King I & II

Throughout the study area, groundwater levels were found to range between 255.8 masl (BH22-7) and 261.0 masl (BH22-5) in the proposed developmental area, which represent the groundwater levels within the overburden at the Site. Groundwater levels in MWs BH19-1, BH19-3, BH19-4, BH19-5, BH22-1, BH22-5 and BH22-9 were generally above the ground surface. Water levels in BH22-7, occasionally rose above the ground surface. The water levels in monitoring wells BH19-1, BH19-3, and BH22-5 gradually increased above the ground surface in the winter (January 2023) and remained elevated for the remainder of the monitoring period. Based on the groundwater elevation contours, the direction of groundwater flow is generally expected to be in a southwesterly direction. Flow diverges across the site to the south and west into their respective tributaries of the Humber River. The average estimated hydraulic gradient flowing west to east is estimated to be 0.002 m/m. The average estimated hydraulic gradient from the north to the south is estimated to be approximately 0.002 m/m. Groundwater outlets to surface streams at the southwest and southeast limits of the site. A groundwater elevation contour and flow map are provided in **Figure 6**.

Continuous water level monitoring was conducted at three (3) MWs at BH19-7, BH22-5 and BH22-7. Continuous monitoring was completed using a fixed interval pressure and temperature data recording device (Levelogger^{TM}) which was corrected for atmospheric pressure from a central location on the site.

Based on continuous and manual monitoring, the water levels in the monitoring wells have not varied significantly during the current monitoring period, with the exception of an increase of water levels above the ground surface for the above noted monitoring wells. The groundwater levels generally increased following major precipitation events.

The hydrographs for the continuous groundwater monitoring are provided in **Appendix J**.

4.3.3 Hydraulic Conductivity

Single Well Response Tests (SWRTs) were completed by DS in nine (9) monitoring wells on August 6th and 7th, 2020, in eighteen (18) monitoring wells between November 1st and November 3rd, 2022 at the Caledon Station Site, in nine (9) monitoring wells between June 2019 and October 2022 at Argo King I & II, and at six (6) monitoring wells in at the Caledon Station Site at the Speirs property in July 2023 to estimate hydraulic conductivity (K) for the representative geological units in which the wells were screened. SWRTs were completed by performing a rising head test (slug test) using a bailer to remove water from the well. A data logger was placed at the bottom of the wells to monitor recovery. Hydraulic conductivity (k) values were calculated using the Bouwer and Rice method. **Table 6** presents a summary of the hydraulic conductivity (K) results for the representative geological units. The hydraulic conductivity values between the sites ranged from 2.9×10^{-10} m/sec within the low permeably clay silt till to 4.0×10^{-5} m/sec within the highly permeable sand. The hydraulic testing results are provided in **Appendix D.**

Table 6: Summary of Hydraulic Conductivity (K) Test Results

Well ID	Screen Interval (masl)	Screened Formation	K- Value(m/s)
Caledon Station			
BH20-1	272.2 m to 273.7 m	Silt	7.3×10^{-7}
BH20-5	264.0 m to 275.5 m	Silty sand	5.3×10^{-7}
BH20-6	262.5 m to 264.0 m	Clayey silt till, sand seams	1.4×10^{-7}
BH20-9	266.5 m to 268.0 m	Silty clay till, some sand	3.2×10^{-6}
BH20-11	261.0 m to 262.5 m	Silt, some sand	5.2×10^{-8}
BH20-12	258.9 m to 260.4 m	Silt	6.0×10^{-7}
BH20-14	257.4 m to 258.9 m	Silty Clay Till	7.3×10^{-7}
BH20-15	255.1 m to 256.6 m	Clayey Silt Till	7.4×10^{-9}

BH20-16	258.1 m to 259.6 m	Silty Sand	1.5×10^{-8}
BH22-1	271.4 m to 274.5	Silty Clay to Clayey Silt Till & Sandy Silt	3.0×10^{-6}
BH22-3	268.6 m to 271.6	Sandy Silt Till	2.8×10^{-7}
BH22-5	272.2 m to 275.2	Sandy Silt & Silt	4.3×10^{-8}
BH22-10	260.8 m to 263.8	Sandy Silt to Silty Sand	3.0×10^{-7}
BH22-13	264.1 m to 267.1 m	Sandy Silt	1.6×10^{-6}
BH22-14	259.4 m to 262.4 m	Silty Clay to Clayey Silt Till	2.9×10^{-10}
BH22-17	261.5 m to 264.5 m	Silty Clay to Clayey Silt Till	1.2×10^{-8}
BH22-20	258.8 m to 261.8 m	Silty Clay to Clayey Silt Till	1.0×10^{-8}
BH22-22	260.2 m to 263.2 m	Silty Clay to Clayey Silt Till	1.8×10^{-8}
BH22-25	260.3 m to 263.3 m	Silty Sand	3.6×10^{-7}
BH22-27	259.0 m to 262.0 m	Sandy Silt	1.9×10^{-6}
BH22-28	260.3 m to 263.3 m	Sandy Silt	3.4×10^{-6}
BH22-29	259.8 m to 262.8 m	Sand	6.7×10^{-6}
BH22-32	253.1 m to 256.1 m	Sandy Silt	5.4×10^{-6}
BH22-33	257.5 m to 260.5 m	Sandy Gravel & Silty Sand to Sandy Silt	4.6×10^{-6}
BH22-36	257.8 m to 260.8 m	Native, Sandy Silt and Silty Clay Till	5.3×10^{-9}
BH22-40	256.4 m to 259.4 m	Silty Clay Till	1.1×10^{-9}
BH22-42	259.1 m to 262.1 m	Silty Clay Till & Sand	2.5×10^{-9}
BH23-1 (deep)	239.6 m to 246.2 m	Sandy Silt to Silty Sand	4.0×10^{-6}
BH23-1 (shallow)	252.4 m to 255.4 m	Silty Clay to Clayey Silt Till	5.4×10^{-9}
BH23-2	259.7 m to 265.7 m	Silt and Sandy Silt to Silty Sand	5.9×10^{-7}
BH23-4	261.1 m to 264.2 m	Silty Clay to Clayey Silt Till	4.9×10^{-9}
BH23-5	257.9 m to 260.9 m	Sandy Silt to Silty Sand	2.4×10^{-5}
BH23-8	262.0 m to 265.0 m	Sandy Silt to Silty Sand and Sand	6.6×10^{-7}
Argo King I & II			
BH19-1	255.7 m to 257.2	Sand & Clayey Silt Till	9.9×10^{-7}
BH19-3	253.7 m to 255.2	Clayey Silt Till and Sandy Silt Till	1.1×10^{-7}
BH19-4	256.6 m to 258.1 m	Silty Sand	4.1×10^{-5}
BH19-5	254.6 m to 256.1 m	Sandy Silt Till	1.9×10^{-8}
BH19-6	253.3 m to 254.8 m	Sandy Silt Till	1.0×10^{-7}
BH19-7	254.2 m to 255.7 m	Sandy Silt Till	2.4×10^{-7}
BH22-5	251.5 m to 254.5 m	Silty Clay Till	5.5×10^{-8}
BH22-7	246.7 m to 249.7 m	Clayey Silt Till	3.8×10^{-9}
BH22-8	250.3 m to 253.3 m	Silty Clay to Clayey Silt Till	8.0×10^{-9}

4.3.4 In-Situ Infiltration Testing

In-situ infiltration testing was conducted by DS field personnel on September 2nd, 2020. The testing was completed in the location of monitoring wells (BH20-1, BH20-2, BH20-5, BH20-6, BH20-9, BH20-11 and BH20-15) as shown below in **Table 7**, to provide a preliminary field assessment of infiltration rates of surficial soils across the Site. Testing was completed following the guidelines outlined in the Low Impact

Development (LID) Stormwater Management Planning and Design Guide for Stormwater Infiltration, 2010 (Appendix C Site Evaluation and Soil Testing Protocol).

To estimate the infiltration rate of soils in the test locations, **DS** completed in-situ infiltration testing at a depth of 0.5m and 1.5 mbgs. The testing included the use of a constant head infiltrometer which operates using the Marriott Bottle principal, whereby a shallow ponded head of water is maintained at a constant depth within an augured borehole. The steady-state flow of water into the subsurface soil following saturated conditions is regarded as the field saturated hydraulic conductivity (K_{fs}) rate respective of the depth of the head utilized. The results of the infiltration testing are summarized below in **Table 7**.

Table 7: Summary of Test Pits and Estimated Soil Infiltration Rates

Test Location	Test Depth (mbgs)	Soil Type	Water Head	Steady State Rate of Water Level Change (cm/min)	K_{fs} (cm/sec)	Infiltration Rate (mm/hr)
BH20-1	0.5	Sandy Silt	0.05 m	0.34	3.20E-05	34.1
	1.5	Silty Clay	0.05 m	0.03	2.82E-06	17.8
BH20-2	0.5	Sandy Silt	0.05 m	0.28	2.63E-05	32.4
	1.5	Silty Clay	0.05 m	0.02	1.88E-06	16.0
BH20-5	0.5	Sandy Silt	0.05 m	0.20	1.88E-05	29.6
	1.5	Silty Clay	0.05 m	0.04	3.76E-06	19.2
BH20-6	0.5	Silty Clay	0.05 m	0.11	1.03E-05	25.2
	1.5	Silty Clay	0.05 m	0.02	1.88E-06	16.0
BH20-9	0.5	Silty Clay	0.05 m	0.08	7.52E-06	23.1
	1.5	Silty Clay	0.05 m	0.03	2.82E-06	17.8
BH20-11	0.5	Silty Clay	0.05 m	0.48	4.51E-05	37.4
	1.5	Silty Clay	0.05 m	0.04	3.76E-06	19.2
BH20-15	0.5	Silty Clay	0.05 m	0.40	3.76E-05	35.6
	1.5	Silty Clay	0.05 m	0.06	5.64E-06	21.4

Notes:
-mbgs– meters below ground surface
-Infiltration Rate approximated from Kfs using calculations provided in Figure C1 of Appendix C - Site Evaluation and Soil Testing Protocol (Low Impact Development (LID) Stormwater Management Planning and Design Guide for Stormwater Infiltration, 2010)

Based on the results of the infiltration testing, the site primarily consists of a low permeable silty clay till with a measured infiltration rate ranging from about 16 to 38 mm/hr with an average of 25 mm/hr. Soils with infiltration rates over 15 mm/hr are considered suitable for Soakaways, infiltration trenches and chambers (TRCA, 2010).

For the purpose of calculating design infiltration rates for on-site LID measures, Table C2 in the "Low Impact Development Stormwater Management Planning and Design Guide" (Appendix C), was used to determined safety correction factors for each of the test pit locations. The safety factors are applied to the measured infiltration rates of soils for each location to address heterogeneity of the soils. The calculated safety correction factors and the design infiltration rates for each location was determined to be 2.5. As a result of applying the safety correction factors, an infiltration rate ranging from about 6 to 15 mm/hr (average 10 mm/hr), can be considered for design purposes at the tested locations within the silty clay soils. A design infiltration rate of 43 mm/hr was calculated for the tested location within the sand and gravel deposits.

Continued water level monitoring at all locations is recommended to ensure a minimum of 1 m clearance between the top of the seasonally high-water table and the bottom of any infiltration measure.

4.3.5 Groundwater Quality

Five (5) unfiltered groundwater samples were collected from select monitoring well locations (BH22-13 BH22-17 and BH22-32), on November 3rd, 2023, and from BH23-1 on July 17th, 2023, and PW1 on August 14th, 2023, from the Caledon Station Site and two (2) unfiltered groundwater samples were collected from BH22-1 and BH22-5 on October 26th, 2022, and from PW2 on August 14th, 2024, from Argo King I & II. Samples were collected to assess groundwater quality. The samples were placed in pre-cleaned laboratory supplied vials and/or bottles provided with analytical test group-specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The groundwater samples were submitted to SGS Laboratories in Lakefield, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and the Canadian Standard Association (CSA). Groundwater quality results were compared to parameters limits outlined in the Peel Region Sanitary and Storm Sewer Discharge By-Law 53-2010 and the Provincial Water Quality Objectives (PWQO) for surface water to assess the suitability of discharge to the Region's sewer system and nearby surface water features as part of the hydrogeological investigation. **Table 8** and **Table 9** presents a summary of exceeded parameters.

Table 8: Parameters in Groundwater Exceeding the Peel Region Bylaw Discharge Criteria

				Caledon Station					Argo King I & II	
Parameter	**Unit**	**Storm Guideline limit**	**Sanitary Guideline limit**	**BH22-13**	**BH22-17**	**BH22-32**	**BH23-1**	**PW1**	**BH22-1**	**BH22-5**
Total Suspended Solids (TSS)	mg/L	15	350	**<u>492</u>**	**169**	**32**	**139**	3	**<u>38,300</u>**	**94**
Manganese	mg/L	0.05	5	**0.132**	**0.101**	0.0462	**0.0849**	0.0449	**2.17**	**0.148**
Phosphorus	mg/L	0.4	10	0.011	0.098	0.073	0.129	0.006	**3.12**	0.171
Zinc	mg/L	0.04	3	<0.002	0.0006	0.004	0.012	0.023	**0.057**	0.019
Note: 0.00- Exceeded Storm Bylaw <u>0.00</u>- Exceeded Sanitary Bylaw										

Table 9: Parameters in Groundwater Exceeding MECP PWQO Guidelines

			Caledon Station					Argo King I & II	
Parameter	**Unit**	**Guideline limit**	**BH22-13**	**BH22-17**	**BH22-32**	**BH23-1**	**PW1**	**BH22-1**	**BH22-5**
Arsenic	mg/L	0.005	0.001	0.0009	<0.0002	0.0012	0.0004	**0.072**	**0.0061**
Cadmium	mg/L	0.0001	<0.000003	0.000013	0.000005	0.000014	0.000004	**0.000178**	0.000024
Cobalt	mg/L	0.0009	0.000676	**0.00106**	0.000342	**0.00108**	0.000365	**0.0125**	**0.00314**
Copper	mg/L	0.001	0.0005	**0.0025**	**0.0011**	**0.0042**	**0.0024**	**0.0266**	**0.0056**
Lead	mg/L	0.005	<0.00009	0.00108	0.00043	0.00157	<0.00009	**0.018**	0.00155

Phosphorous	mg/L	0.01	**0.011**	**0.098**	**0.073**	**0.129**	0.006	**3.12**	**0.171**
Zinc	mg/L	0.02	<0.002	0.006	0.004	0.012	**0.023**	**0.057**	0.0019
4AAP-Phenolics	mg/L	0.001	**0.003**	**0.002**	**<0.002***	**<0.002***	**<0.002***	**<0.002***	**<0.002***
0.00 – Exceeds PWQO parameter * – Result exceeds detection limit									

4.3.6 Surface Water Conditions

Caledon Station

The surface water and drainage setting at the Site comprises a total of eight (8) wetlands (Wetland 1, 2, 3, 4, 5, 6, 7 and 8), which are incorporated into the tributaries of the Humber River and ultimately flow into Lake Ontario. All accessible wetlands at the Site were instrumented with surface stations consisting of staff gauges and associated nested piezometer set.

A continuous pre-construction surface water and groundwater monitoring program of the Site is currently underway, and this report includes the findings from the data collected to-date during the August 2020 to May 2024 monitoring period. All staff gauges installed within the wetlands at the Site have been instrumented with a Levelogger™ to allow for continuous monitoring at every 15-minute interval. The monitoring program includes a Site visit on an every bi-monthly basis to retrieve the water level data from the Levelogger™ and to collect manual readings within all surface stations and monitoring wells at the Site.

As discussed in Section 2.1, Aquafor (2014) completed a *Headwater Drainage Feature Assessment* of the Site and delineated the four (4) Headwater Drainage Features (HDFs) and their associated reaches at the Site. The surface stations are installed within the delineated drainage reaches at the Site.

The location of the wetlands is provided in **Figure 4B**. A discussion on the surface water conditions at all surface stations is provided below.

Wetland 1 and 2

Wetlands 1 and 2 are located within the southwestern corner of the Site along The Gore Road and within the Headwater Drainage Feature HDF-4. Due to accessibility constraints, Wetland 1 could not be instrumented with a surface station to permit monitoring within the wetland. Wetland 2 was equipped with a staff gauge, SG W2-1, and a nested piezometer set, W2-PZS and W2-PZD within Reach 4a. The shallow and deep nested piezometers were installed to depths of 1.1 m (Elev. 260.5 masl) and 2.0 m (259.5 masl) below existing ground surface, respectively. Staff gauge SG W2-1 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the low point of the wetland where it exits/outlets from the Site. The ground surface elevation at the location of staff gauge SG W2-1 is approximately 261.3 masl. Piezometer W2-PZD was instrumented with a datalogger in September 2022 to allow for continuous monitoring of shallow groundwater levels. The ground surface elevation at the location of W2-PZD is approximately 261.4 masl.

During the continuous monitoring of staff gauge SG W2-1 in Wetland 2, the Reach 4a channel has generally remained dry during late spring & summer monitoring periods (May to September from 2020 to 2024 monitoring period, with some flow observed following precipitation events. This flow was noted to diminish into dry conditions within 1-2 days after the cessation of the storm event. Ponding of surface water is also observed at the staff gauge intermittently during the year due to its location surrounded by thick vegetation which impeded flow resulting in higher water levels. Increased flows were recorded between 2020 to 2024 in the winter and early spring generally between the months of November and March indicative of flows primarily sourced from strong precipitation events and snow melt, with maximum flow rate of 660,096 L/day measured in May 2022.

The groundwater monitoring in the nested piezometer indicate that the shallow and deep piezometer water levels are generally slightly above the base of the Reach 4a channel during the current monitoring period. The water level in the shallow piezometer was found to be approximately 0.1 m to 0.2 m above the base of the Reach 4a channel, with the exception of December 2020, May 2022 and March 2023 where the shallow piezometer water levels were below the base of the Reach 4a. The water level in the deep piezometer was found to be above the base of Reach 4a to maximum of 0.37 m above the base of the Reach 4a channel observed in April 2021. The shallow groundwater gradient at the location of Reach 4a was found to be upward during the current monitoring period with the exception of monitoring events in September to October 2020, and September 2022 showcasing a downward gradient; with an upward gradient generally ranging from 0.42 in the spring (April 2021) to 0.04 m/m in the Fall (November 2022), and a downward gradient ranging from -0.03 m/m in the Fall (December 2020) to -0.01 in the Summer (July 2022).

The flow observed in the monitoring data for the Reach 4a channel after precipitation events and in the Winter may potentially be as a result of the low permeability surficial silty clay till soils precluding the free infiltration of storm water into the ground. This allows for the saturation of the near surficial soils creating perched groundwater conditions, which in turn further reduces the soil infiltration rates and allows for increased surface runoff along the Reach 4a channel. Nearby Monitoring Well BH20-7 indicates the deep groundwater level to be measured at 1.1 m below existing grade (Elev. 261.7 masl) during highest point in the current monitoring period. For this reason, groundwater is not considered to be recharging the Reach 4a channel. There is also a potential for recharging of the surface water in the Reach 4a channel from the up-gradient Reach 4b (pond) and 4c of HDF-4. Given that the primary source of flow in the Reach 4a channel during the current monitoring period is determined to be from precipitation events, this channel is considered an ephemeral feature.

The hydrographs for Wetlands 1 and 2 are provided in **Appendix J**.

Wetland 3

Wetland 3 is located within the southwestern portion of the Site and within the Headwater Drainage Feature HDF-3. The wetland was equipped with a staff gauge, SG W3-1 and a nested piezometer set, W3-PZS and W3-PZD within Reach 3c of HDF-3. The shallow and deep nested piezometers were installed to depths of 1.0 m (Elev. 269.9 masl) and 1.9 m (269.1 masl) below existing ground surface, respectively. Staff gauge SG W3-1 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the low point of the wetland at approximate ground surface elevation of 270.7 masl. Wetland 4 is located downstream of this wetland location with respect to surface water flow.

During the continuous monitoring of staff gauge SG W3-1 in Wetland 3, Reach 3c has generally remained dry during the 2020 through 2024 monitoring period, with very minimal response to precipitation events. Based on the reach's headwater characteristics in the early stage of forming its source from the catchment area, intermittent flow was recorded in Reach 3c, and diminished into dry conditions within the same day. Peak flow was recorded on May 2022 as 21,168 L/day. The manual groundwater monitoring in the nested piezometer indicate that the shallow and deep piezometer water levels are generally below the base of Reach 3c but have risen above the base of the Reach 3c from April to November 2021, peaking in June 2021 and gradually decreasing to below the base of Reach 3c in January 2022. Water levels have generally remained below or near the base the reach of Reach 3c for the remainder of the monitoring period, except for monitoring events which occurred in March 2022 fallowing a major precipitation event, where the deep piezometer water level rose above the base of Reach 3c and sporadically increases above the Reach of 3c from January to July 2023 and from December 2023 to May 2024. The water level in the shallow piezometer was found to range between approximately 0.05 m to 0.82 m below the base of Reach 3c throughout the monitoring period rising above the base of Reach 3c in the spring ranging approximately between 0.07 to 1.0 m above the base of Reach 3c. The water level in the deep piezometer was found to be approximately 0.02 m to 1.2 m below the base of Reach 3c throughout the monitoring period rising in the winter to above the bed of Reach 3c to approximately 0.04 m to 0.19 m above the base of Reach 3c. The shallow groundwater gradient at the location of Reach 3c was found to be generally upward during the current monitoring period with the exception for the monitoring period of June to September 2021, November 2022, and February 2024 where the gradient shifts downward; with an upward gradient generally ranging from 0.51 in the spring (March 2022) to 0.00 m/m in the Summer (July 2023), and a downward gradient ranging from -0.69 m/m in the Summer (June 2021) to -0.01 in the Winter (February 2024).

Reach 3c is located within tiled agricultural cropland without a discernable channel (Aquafor, 2014). The short-lived flow observed in the monitoring data for Reach 3c following precipitation is not considered to be a prevalent flow due to the absence of a defined channelized morphology at this location. Further, shallow groundwater levels recorded in the nested piezometers for the monitoring period April through September 2021, from January to July 2023, and from December 2023 to May 2024 are above the base of Reach 3c, suggesting contributions to the feature from groundwater during the spring through the fall period, and later through the winter to the spring/summer period (2023 & 2024). Flow observed in May 2022 and January 2022 are likely the result of precipitation/melt events as the shallow groundwater levels are considerably below the base of Reach 3c. Given that Reach 3c had some minor response to precipitation events, the feature is considered ephemeral.

The hydrograph for Wetland 3 is provided in **Appendix J**.

Wetland 4

Wetland 4 is located within the southwestern corner of the Site, east of Wetland 2 within the Headwater Drainage Feature HDF-3. Wetland 4 was equipped with a staff gauge, SG W4-1, and a nested piezometer set, W4-PZS and W4-PZD within the Reach 3a channel. The shallow and deep nested piezometers were installed to depths of 0.6 m (Elev. 260.7 masl) and 1.6 m (259.5 masl) below existing ground surface, respectively. Staff gauge SG W4-1 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the low point of the wetland where it exits/outlets from the Site. The ground surface elevation at the location of staff gauge SG W4-1 is approximately 261.0 masl. The stations were removed in May 2021 due to road construction and reinstalled in August 2022. The ground surface elevation at the re-installed location of the staff gauge SG W4-1 is approximately 260.8 masl. The shallow and deep re-installed nested piezometers were installed to depths of 0.7 m (Elev. 260.5 masl) and 1.7 m (259.5 masl) below existing ground surface, respectively.

During the continuous monitoring of staff gauge SG W4-1 in Wetland 4, the Reach 3a channel has generally remained dry during the August to October 2022 monitoring period, with very minimal response to precipitation events. Intermittent flow was recorded in Reach 3a, diminishing into dry conditions within the same day. Water levels gradually increased in December 2022 and remained above the Reach of 3a throughout the monitoring period.

A peak of 0.7 m (261.6 masl) above the base of the reach with corresponding flow of 307,584 L/day was measured in February 2024. Peak flow was measured on July 2023 (1,674,864 L/day) when the water level was approximately 0.2m above the base of the reach. The manual groundwater monitoring in the nested piezometer indicate that the shallow and deep piezometer water levels were below the base of Reach 3a at the onset of monitoring (September 2020) increasing above the base of Reach 3a until April 2021 when the station was removed. The station was reinstalled in August of 2022. Water levels in the nested piezometers were below the base of Reach 3c throughout the fall of 2022, increasing in the winter to above the reach in January 2023 where water levels were sustained for the remainder of the monitoring period, apart from the September 2023 monitoring event. There is generally a downward gradient at the location, with a maximum magnitude of 0.25 m/m (April 2021). An upward gradient is recorded between January 2023 until the remainder of the monitoring period apart from September 2023 monitoring event. There is no data available for the summer periods of 2022, however, a general relationship based on the available early spring and summer 2023 data would indicate a shift from downward gradient to upgradient, indicative of recharge conditions shifting to discharge conditions.

All up-gradient reaches (3b, 3c, 3d, 3e, 3f and 3g) in HDF-3 are located within tile agricultural cropland without discernible channels (Aquafor, 2014). For this reason, based on the current data, recharge of surface flows for Reach 3a from up-gradient reaches in HDF-3 is not considered to be likely. Given that the shallow groundwater levels recorded in the nested piezometers during the current monitoring period are generally below the base of Reach 3a, there is no contribution to the feature from groundwater during the late summer and fall period. Given that Reach 3a had some minor response to precipitation events, it is considered an ephemeral feature. Further monitoring will be required to confirm the seasonal fluctuations and to confirm the surface/groundwater interaction dynamics.

The hydrograph for Wetland 4 is provided in **Appendix J**.

Wetland 5 and 6

Wetlands 5 and 6 are located near the southern boundary of the Site along King Street, east of Wetland 4 within the Headwater Drainage Feature HDF-3. Both wetlands are equipped with a single staff gauge, SG W5-1, and a nested piezometer set, W5-PZS and W5-PZD within Reach 3g. The shallow and deep nested piezometers were installed to depths of 0.8 m (Elev. 260.5 masl) and 1.8 m (259.4 masl) below existing ground surface, respectively. Staff gauge SG W5-1 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the low point of the wetland where it exits/outlets from the Site. The ground surface elevation at the location of staff gauge SG W5-1 is approximately 261.1 masl. The stations were removed in May 2021 due to road construction and reinstalled in August 2022. The ground surface elevation at the re-installed location of the staff gauge SG W5-1 is approximately 260.9 masl. The shallow and deep re-installed nested piezometers were installed to depths of 0.8 m (Elev. 260.5 masl) and 1.6 m (259.6 masl) below existing ground surface, respectively.

During the continuous monitoring of staff gauge SG W5-1, the Reach 3g channel has generally remained dry during the monitoring period, with minimal flow observed following precipitation events. This flow was noted to diminish into dry conditions within 1-2 days after the cessation of the storm event. The surface water levels and flow in SG W5-1 was intermittent throughout the monitoring period and observed to be strong during the late winter period and early spring period, with flows dissipating with time until dry conditions persist starting in late spring 2021 and 2023. A steep increase in water levels is observed during late winter months (February), likely the result of snow melt, where a peak of 0.4 m (261.5 masl) above the reach base was observed in March 2023 with a corresponding peak flow as a result of snow melt was 385,776 L/day. The groundwater monitoring in the nested piezometers indicate the following:

- The water level in the shallow piezometer was consistently above the base of the Reach 3g throughout the entire monitoring period apart from October 2020. A gradual increase in water level is observed in late fall during October (2020, 2022 & 2023) and remained at elevated levels until late spring (2021 and 2023) based on the current available data. A peak water level of 0.35 m (261.4 masl) above the reach base was observed during April 2021 and was 0.013 m (261.08 masl) below the reach base at one occurrence during October 2020. Responses to precipitation in W5-PZS were low to moderate.

- The water level in the deep piezometer followed the same general trend as the shallow piezometer and was consistently above the base of the Reach 3g throughout most of the monitoring period from September 2020 to June 2023. The water level is observed to be close the reach base during late fall (2020 and 2022) and gradually increases and remains elevated till late spring (2021 and 2023). The water level was observed to fall below the base of Reach 3g in June 2023 reaching a maximum of 0.51 m below the reach to an approximate elevation of 260.3 masl in September 2023. Water levels gradual increase to the base of the reach throughout the remainder of the monitoring period. A peak in the water level was noted to be 0.33 m (261.2 masl) in March 2023. Responses to precipitation in W5-PZD were low to moderate.

The shallow groundwater gradient at the location of Reach 3g was found to be downward during most of the monitoring period; with a rise in the gradient from 0.019 m/m to 1.1 m/m between September and October 2020. The downward gradient remains persistent during 2020 to 2021 monitoring period, however, the gradient reverses to and upward gradient during 2022 to 2023 monitoring period, indicating a change towards greater ground water inputs into the reach. Furthermore, the deep piezometer water levels were consistently above the streambed and shallow piezometer water levels during the 2022 and 2023 monitoring events, indicating groundwater contribution.

The flow observed in the monitoring data for the Reach 3g channel after precipitation events may potentially be as a result of the low permeability surficial silty clay till soils precluding the free infiltration of storm water into the ground. This allows for the saturation of the near surficial soils creating perched groundwater conditions, which in turn further reduces the soil infiltration rates and allows for increased surface runoff along the Reach 3g channel. Based on the monitoring of Wetland 5 and 6 during the late summer and fall monitoring period, groundwater was not considered a source for contributions to surface water flow in Reach 3g. Groundwater levels observed in the shallow piezometer at the elevation of the Reach 3g streambed is considered to be perched groundwater conditions. All up-gradient reaches (3f and 3g) in HDF-3 are located within tile agricultural cropland without discernible channels (Aquafor, 2014). For this reason, based on the current data, recharge of surface water flows for Reach 3g from up-gradient reaches in HDF-3 is not considered to be likely. Given that the primary source of flow in the Reach 3g channel during the current monitoring period is determined to be from precipitation events, this channel is considered an ephemeral feature. Further monitoring will be required to confirm the seasonal fluctuations and to confirm the surface/groundwater interaction dynamics.

The hydrographs for Wetlands 5 and 6 are provided in **Appendix J**.

Wetland 7

Wetland 7 is located within the southeastern portion of the Site, north of Wetland 8 and within the Headwater Drainage Feature HDF-1. The wetland was equipped with a staff gauge, SG W7-1 and a nested piezometer set, W7-PZS and W7-PZD within Reach 1d of HDF-1. The shallow and deep nested piezometers were installed to depths of 1.1 m (Elev. 269.9 masl) and 1.8 m (269.1 masl) below existing ground surface, respectively. An additional staff gauge SG W7-2 was installed on the upstream end of the wetland within Reach 1e. Staff gauge SG W7-1 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the local low point of the wetland at its upstream location. Piezometer W7-PZD was instrumented with a datalogger in September 2022 to allow for continuous monitoring of shallow groundwater levels. The ground surface elevation at the location of staff gauge SG W7-1 is approximately 265.3 masl.

During the continuous monitoring of staff gauge SG W7-1 in Wetland 7, both Reach 1d and Reach 1e have consistently remained dry in the summer periods during the 2020 to 2023 period. Generally, the surface water levels in the staff gauge remained dry during summer periods and gradually increases during late fall and early winter in which the water levels remain elevated throughout the winter until late spring, where a gradual recession is noted until dry conditions are once again reached in the summer. The surface water levels observed in the staff gauge during late spring and early summer is accompanied by ponding, where elevated surface water levels were sustained long after seasonal spring melt and precipitation events, which in turn subsequently feeds into southern limits of Reach 1e. Peak surface water levels were observed 0.52

m (265.827 masl) above the base of the reach with peak flow of 250,128 L/day recorded in March 2023. Staff gauge SG W7-1 did not display any response to precipitation events apart from a major precipitation event in September 2021.

The water levels in the shallow and deep piezometers had similar seasonal trends and were observed to be consistently above the base of the reach throughout the monitoring period, apart from the summer to late fall in June to November 2022 and intermittent monitoring events during 2020 and 2021. Both piezometers remained dry during early fall season (2020 to 2023) and remain dry till the end of fall, following a steep increase in water levels remaining elevated until late spring. The water levels peak in March with peak water levels were recorded in March 2023 of 0.5 m (265.8 masl) above reach base for W7-PZD, and 0.47 m (265.77 masl) above reach base for W7-PZS. Responses to precipitation in the piezometers were low to moderate.

All up-gradient reaches (1e, 1f, 1k, 1l, 1m and 1n) are located in tiled agricultural croplands without discernable channels. For this reason, there is likely no surface water recharge from any upstream reaches in HDF-1. Further, the dry conditions indicate that there is no surface water and groundwater interaction during the August to October period. There is a slight upward gradient observed during the winter of 2021 and 2023 and spring period of 2023 indicating slight contributions of ground water inputs into the reach. At this stage, Reach 1d is considered a non-perennial surface water feature.

The hydrograph for Wetland 7 is provided in **Appendix J**.

Wetland 8

Wetland 8 is located in the southeastern portion of the Site along Humber Station Road and within the Headwater Drainage Feature HDF-1. Wetland 8 was equipped with a staff gauge, SG W8-1, and a nested piezometer set, W8-PZS and W8-PZD within the Reach 1a channel. The shallow and deep nested piezometers were installed to depths of 0.8 m (Elev. 262.8 masl) and 1.7 m (261.9 masl) below existing ground surface, respectively. Staff gauge SG W8-1 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the low point of the wetland where it exits/outlets from the Site. The ground surface elevation at the location of staff gauge SG W8-1 is approximately 263.4 masl. Piezometer W8-PZD was instrumented with a datalogger in September 2022 to allow for continuous monitoring of shallow groundwater levels.

During the continuous monitoring of staff gauge SG W8-1 in Wetland 8, the Reach 1a channel has sustained flow for the majority of the monitoring period with increased response to precipitation events. The flow in the Reach 1a channel was noted to become dry at the end of September and transitioning into the October 2020 period and throughout the summer periods of 2021, 2022 and 2023 periods when there were no large precipitation events. Reach 1a channel did not display much response to any storm events for most of the monitoring period, however, there was a noticeable relationship to larger precipitation events during the dry periods in the summer and fall season of 2021 and 2022 and winter of 2023, corresponding to steep rises and gradual recessions in the water levels following precipitation events. Surface water levels tended to rise during late fall (2020 to 2023) and in the early winter during 2022, where they stay elevated until late spring where dry conditions persist there after. Peak surface water levels were recorded during March of 2022 and 2023 at 0.31 m (263.6 masl) above the reach base and peak flow of 6,885,648 L/day during

March 2023. The groundwater monitoring in the nested piezometers indicate the following:

- The water level in the shallow piezometer was consistently above the reach base throughout the monitoring period apart from a few occurrences in the summer and fall when it fell below the base with dry conditions observed in October 2020 and June 2021. The water level tends to rise in the early fall period (2020 to 2022) and peaked at 0.3 m (263.6 masl) above the reach base in March 2023. Responses to precipitation in W8-PZS was low to moderate.

- The groundwater in the deep piezometer is generally consistent with the trend of the shallow piezometer and remains above the reach base throughout from September 2020 to May 2022 from where water levels fall slightly below the reach and gradually increase above the base of the reach in January 2023 remaining above the base of the reach. The water levels dip below the base of the reach in the summer of 2023 and gradually increase above the base of the reach until the current monitoring period. Dry conditions observed in June 2021. The water levels rise during early fall and gradually increase and peak during late winter and spring, where they gradually decrease during late spring (2020 to 2023). The water levels reach a peak water level of 0.26 m (263.8 masl) above reach base in March 2023. Responses to precipitation in W8-PZD was low to moderate.

The shallow groundwater gradient at the location of Reach 1a was found to be upward throughout the monitoring period, however, with the exception of monitoring events in June 2021, January 2023 to May 2024, where a downward gradient is observed, indicating a mixed relationship of ground water recharge conditions and contributions into the reach.

Up-gradient Reaches 1d, 1e, 1f, 1g, 1i, 1j, 1k, 1l, 1m and 1n are located within tile agricultural cropland without discernable channels (Aquafor, 2014). Further, upstream Reaches 1b and 1c comprise of a well-defined channel, which may allow for flow of surface water downgradient into Reach 1a. Reach 1h also has a reported well-defined channel, however connectivity with Reach 1a is lost as a result of the absence of a channel along the intermediary Reach 1g (Aquafor, 2014). It is likely that surface water flows carried from Reach 1b and 1c allows for recharge to Reach 1a following precipitation events and/or at times of high groundwater tables. Based on the groundwater elevation contours (**Figure 6**), the deeper groundwater level in the area of Reach 1a during the current monitoring period is expected to be approximately 262.0 masl to 263.0 masl. Given that monitoring from the nested piezometer indicated an upward shallow groundwater gradient for majority of the monitoring period, it is likely that surface water flows in Reach 1a may receive contribution from groundwater. For this reason, Reach 1a is likely an intermittent surface water feature.

The hydrograph for Wetland 8 is provided in **Appendix J**.

Argo King I & II

The surface water and drainage setting at the Site comprises a total of three (3) wetlands (Wetland 1, 2 and 3), which are incorporated into the tributaries of the Humber River and ultimately flow into Lake Ontario. All accessible wetlands at the Site were instrumented with surface stations consisting of staff gauges and associated nested piezometer set.

A continuous pre-construction surface water and groundwater monitoring program of the Site is currently underway, and this report includes the findings from the data collected to-date from the October 2022 to May 2024 monitoring period. All staff gauges installed within the wetlands at the Site have been instrumented with a Levelogger™ to allow for continuous monitoring at every 15-minute interval. The monitoring program includes a Site visit on monthly basis to retrieve the water level data from the Levelogger™ and to collect manual readings within all surface stations and monitoring wells at the Site.

The location of the wetlands is provided in **Figure 4**.

A discussion on the surface water conditions at all surface stations is provided below.

Wetland 1

Wetland 1 is located within the eastern portion of the Site along a tributary of Lindsay Creek. Wetland 1 was equipped with a staff gauges, SG1-1, SG1-2, and SG1-3 with a nested piezometer set, PZ1-1S and PZ1-1D; PZ1-2S and PZ1-2D; and PZ1-3S and PZ1-3D. The shallow piezometers for PZ1-1S, PZ1-2S, and PZ1-3S were installed to depths of 0.9 m (Elev. 258.0 masl), 1.1 m (Elev. 255.7 masl) and 1.2 m (256.9 masl) below existing ground surface, respectively. The deep piezometers for PZ1D, PZ2D, and PZ3D were installed to depths of 1.9 m (Elev. 257.0 masl), 2.0 m (Elev. 254.9 masl) and 1.9 m (256.2 masl) below existing ground surface, respectively. All staff gauge and deep piezometer locations were instrumented with a datalogger to allow for continuous monitoring of surface water levels and shallow groundwater levels. The ground surface elevation at the location of staff gauges (SG1 to SG3) ranges from 259.4 to 260.5 masl.

During the continuous monitoring of staff gauge SG1 through SG3 in Wetland 1, the channel was dry during the beginning of the monitoring period in the fall (October to November 2022). Water levels gradually increased above the base of the channel in December and remained above the base of the channel until Fall of 2023 at SG1-1 & SG1-2, gradually increasing above the base of the channel throughout the winter months and remained elevated for the remainder of the monitoring period. SG1-3 water levels gradually decreased to the base of the channel and rapidly increased in the winter (December 2023) and remained elevated until May 2024. This is likely the response to some major precipitation events. Moderate increases during this time frame (December 2023 to May 2024) were also observed at SG1-1. Peak water level and flow recorded in March 2023 at SG1-2 of 0.1 m above the base of the channel (Elev. 257.0 masl) and 2,790,720 L/day, respectively. No flow was observed from the October 2022 through February 2023, September 2023, December 2023 and May 2024 monitoring periods. The channel had minimal to moderate response to precipitation events, diminishing to baseline conditions within 1-2 days after the cessation of the storm event.

The manual groundwater monitoring in the nested piezometer indicates that the shallow and deep piezometer water levels were generally below the base of the channel during the current monitoring period. The water level in the shallow piezometers were found to range from 4.1 mbgs (256.44 masl) at SG1-2 to 1.2 mbgs (258.82 masl) at SG1-1. The water level in the deep piezometer was found to range from 3.9 mbgs (256.64 masl) at SG1-2 to 0.87 mbgs (259.18) at SG1-1. The shallow groundwater gradient at the location of Wetland 1 was generally found to be upward for the current monitoring period, apart from November to December 2022 and August to September 2023 at SG1-1, August 2023 at SG1-2, and May 2024 at SG1-3.

The hydrographs for Wetland 1 are provided in **Appendix J**.

Wetland 2

Wetland 2 is located within the central portion of the Site. The wetland was equipped with a staff gauge, SG2 and a nested piezometer set, PZ2S and PZ2D. The shallow and deep nested piezometers were installed to depths of 1.2 m (Elev. 258.7 masl) and 2.0 m (258.0 masl) below existing ground surface, respectively. Staff gauge SG2 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and at approximate ground surface elevation of 259.9 masl.

During the continuous monitoring of staff gauge SG2 in Wetland 2, the channel was dry during the beginning of the monitoring period in the fall (October to December 2022). Water levels gradually increased above the base the channel in January but decrease to dry conditions until December 2023 from where water levels slightly decrease above the base of the channel and remain elevated for the remainder of the monitoring period. Peak water level was recorded in May 2024 of 0.47 m above the base of the channel (Elev. 261.7 masl). No flow was recorded for the current monitoring period. The channel had minimal to moderate response to precipitation events, diminishing into baseline conditions within 1-2 days after the cessation of the storm event.

The manual groundwater monitoring in the nested piezometer indicates that the shallow and deep piezometer water levels were generally below the base of the channel with water levels gradually increasing throughout the Winter to late Spring and decreasing in the Fall. The water level in the shallow piezometers were found to range from 2.5 mbgs (258.8 masl) to 1.2 mbgs (260.0 masl). The water level in the deep piezometer was found to range between 2.6 mbgs (258.7 masl) to 1.2 mbgs (260.0 masl). The shallow groundwater gradient at the location of Wetland 2 was generally found to be downward for the current monitoring period.

The hydrograph for Wetland 2 is provided in **Appendix J**.

Wetland 3

Wetland 3 is located along the eastern boundary of the property. Wetland 3 was equipped with a staff gauge, SG3, and a nested piezometer set, PZ3S and PZ3D. The shallow and deep nested piezometers were installed to depths of 1.4 m (Elev. 257.9 masl) and 2.1 m (2572 masl) below existing ground surface, respectively. Staff gauge SG3 was instrumented with a datalogger to allow for continuous monitoring of surface water levels and was installed within the low point of the wetland where it exits/outlets from the Site. The ground surface elevation at the location of staff gauge SG3 is approximately 259.2 masl.

During the continuous monitoring of staff gauge SG3 in Wetland 3, the channel has generally remained dry during the current monitoring period, apart from monitoring events in December 2022, February-March 2023 and from December 2023 for the remainder of the monitoring period where water levels remain slightly above or at the base of the channel. Peak water levels were recorded in February 2023 at 0.1 m above the base of the channel. Peak flow was recorded in March 2023 of 761,400 L/day. No flow was observed for the October 2022 to February 2023 and from May 2023 to May 2024 monitoring periods.

The manual groundwater monitoring in the nested piezometer indicate that the shallow and deep piezometer water levels were generally below the base of the channel. The water level in the shallow piezometer was found to range from 2.6 mbgs (257.9 masl) to 1.2 mbgs (259.3 masl). The water level in the deep piezometer was found to range 2.9 mbgs (257.6 masl) to 1.2 mbgs.(259.29 masl). The shallow groundwater gradient at the wetland location was found to be downward during the current monitoring period, apart from the December 2023 monitoring period.

The hydrograph for Wetland 3 is provided in **Appendix J**.

4.3.7 Surface Water Quality

DS collected two (2) non-filtered surface water samples on October 24, 2020, from the Caledon Station Site; one (1) from the surface water stream in the southwest corner of the Site (Surface Station: SG W2-1); and one (1) sample from the surface water stream in the southeast corner of the Site (Surface Station: SG W8-1). The samples were placed in pre-cleaned laboratory supplied vials and/or bottles provided with analytical test group-specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The surface water samples were submitted to SGS Laboratories in Lakefield, Ontario. SGS is certified by the Canadian Association of Laboratory Accreditation Inc. (CALA) and the Canadian Standard Association (CSA). The samples were analyzed for general chemistry parameters, total suspended solids and dissolved oxygen against PWQO standards to establish baseline conditions as part of the Hydrogeological Investigation. **Table 10** presents a summary of exceeded parameters**.**

Table 10: Parameters in Surface Water Exceeding the PWQO

				Caledon Station	
Parameter Exceeded	Unit	Sample Location	Guideline limit	Concentration (SG W2-1)	Concentration (SG W8-1)
Aluminum	ug/L	Surface stream	75	**2,610**	**2,400**
Aluminum (dissolved)	ug/L	Surface stream	0.015	**0.034**	**0.096**
Arsenic	ug/L	Surface stream	5	**12.0**	1.0
Cobalt	ug/L	Surface stream	0.9	**1.86**	**1.87**
Copper	ug/L	Surface stream	5	**6.9**	3.2
Iron	ug/L	Surface stream	300	**36,800**	**4,300**
Phosphorus	ug/L	Surface stream	0.01	**1.93**	**0.358**
Zinc	ug/L	Surface stream	20	**24**	**19**

Bold – parameter exceeds the PWQO standards.

Based on the analytical testing results, both surface water samples exceeded the PWQO for various parameters.

The certificate of analysis report is provided in **Appendix E.**

5.0 SITE WATER BALANCE

To understand and compare existing hydrologic conditions, a Thornthwaite site water balance was completed. The Thornthwaite water balance (Thornthwaite, 1948; Mather, 1978; 1979) is an accounting type method used to analyze the allocation of water among various components of the hydrologic cycle. Inputs to the model are monthly temperature, Site latitude, precipitation, and stormwater run-on. Outputs include monthly potential and actual evapotranspiration, evaporation, water surplus, total infiltration, and total runoff. For ease of calculation, a spreadsheet model was used for the computation.

When precipitation (P) occurs, it can either runoff (R) through the surface water system, infiltrate (I) to the water table, or evaporate/evapotranspiration (ET) from the earth's surface and vegetation. The sum of R and I is termed as the water surplus (S). When long-term averages of P, R, I and ET are used, there is no net change in groundwater storage (ST). Annually, however, there is a potential for small changes in ST. The annual water budget can be stated as **P = ET + R + I + ST** and the components are discussed below.

Precipitation (P)

Based on the 30-year average for the Toronto Pearson Airport Climate Station in Ontario, the average precipitation for the area is about 786 mm/year for the period between 1981 and 2010. Also, the average monthly temperature from this station has been used. The monthly distribution of precipitation is presented in **Table K-1, Appendix K.**

Storage (St)

Groundwater storage (ST) of native soils for the existing Site was estimated using values of Water Holding Capacity (mm) of respective land use and soil types identified in Table 3.1 of the Storm Water Management (SWM) Planning & Design Manual (MOE, March 2003). The land uses, soil types and respective water holding capacities chosen to represent existing conditions at the Site include the following with their respective water holding capacity applied to March for monthly calculations:

- Pasture/Shrubs, Silty Clay Soils – 200 mm
- Moderately Rooted Crop, Silty Clay Soils – 150 mm
- Urban Lawns, Pervious Development – 75 mm

Using the procedures outlined in the SWM Planning & Design Manual for the above land use and soil type, the annual change in storage is zero (0).

Evapotranspiration (Et)

Monthly Potential Evapotranspiration (PET) is estimated using monthly temperature data and is defined as a water loss from a homogeneous vegetation-covered area that never lacks water (Thornthwaite,1948; Mather, 1978). In the Thornthwaite water balance model, PET is calculated using the Hamon equation (Hamon, 1061);

PET Hamon = 13.97 * d * D2 * Wt

Where:
d = the number of days in the month
D = the mean monthly hours of daylight in units of 12 hours
Wt = a saturated water vapour density term = 4.95 * e0.627/100
T = the monthly mean temperature in degrees Celsius

The calculated Actual Evapotranspiration (AET) is based on PET and changes in ST (Δ ST). Where there is not enough P to satisfy PET, a reduction in ST occurs. As a result, volumes of AET are less than PET. Also, it is assumed that evaporation will occur and will amount to approximately 15% of the total precipitation for an impervious cover.

Precipitation Surplus (S)

Precipitation surplus is calculated as P–ET. For pervious areas, ET is considered AET and for impervious areas, ET is evaporation.

Infiltration (I) and Runoff (R)

For pervious areas, precipitation surplus has two components in the Thornthwaite model: a runoff component (overland flow that occurs when soil moisture capacity is exceeded) and an infiltration component. The accumulation of infiltration factors for topography, soil types and cover as prescribed in Table 3.1 of the SWM Planning & Design Manual give infiltration factors for existing conditions on the Site as shown below in **Table 11**. The runoff component calculated in the pre-development model is the remaining volume of precipitation surplus following AET, ET, and infiltration. For existing agricultural areas with tile drainage, there is expected to be a significant reduction in infiltration.

Table 11 - Existing Conditions – Infiltration Factor

Land uses / soil types	Topography	Soil	Cover	Total Infiltration Factor
Pasture & Shrubs / Clay Loam	0.1	0.15	0.15	0.4
Moderately Rooted Crop / Clay Loam	0.1	0.15	0.1	0.35
Tile Drained Moderately Rooted Crop / Clay Loam	0.05	0.05	0.05	0.15
Urban Lawns / Clay Loam	0.1	0.15	0.05	0.3

5.1 Pre-development Water Balance

The Site boundary used for the water balance has a total area of 188.7 ha and is predominantly comprised of landscaped/vegetated areas with only 2.0% of the total Site area comprising of existing buildings and asphalt/paved hard surfaces. **Figure 7** shows the pre-development conceptual model considered for establishing current hydrologic conditions. To predict outputs of the pre-development water balance, various inputs were entered into the Thornthwaite model including monthly precipitation and temperature, site latitude, water holding capacity values for native soils and factors of infiltration. Various inputs and outputs of the model are summarised below.

The average annual precipitation rate for the area is approximately 786 mm/year. In the pervious area of the Site, the PET is estimated to be 605 mm/year, which is approximately 77% of the total annual precipitation rate. Based on the monthly distribution of soil storage for all pervious areas of the Site characteristic of silty clay soils, the resulting annual AET rate for each pervious area will be as follows:

- Pasture/Shrubs – 551.6 mm/year

- Moderately Rooted Crop – 533.9 mm/year
- Urban Lawn – 501.8 mm/year

There will not be any evapotranspiration from the existing impervious area of the Site however a loss of 15% from all incoming precipitation and surface runoff due to evaporation is accounted for in the water balance model. All water surplus in the existing impervious area of the Site will convert into surface runoff.

Based on the above, the resulting annual evapotranspiration, infiltration and runoff volumes for each area of the Site during the pre-development period is summarized in **Table 12** below.

Table 12 – Summary of Pre-Development Water Balance

Land Uses / Soil Types	ET Volume (m^3/year)	AET Volume (m^3/year)	Infiltration Volume (m^3/year)	Runoff Volume (m^3/year)
Pasture & Shrubs / Clay Loam	NIL	105,407	17,917	26,875
Moderately Rooted Crop / Clay Loam	NIL	623,703	103,100	191,471
Tile Drained Moderately Rooted Crop / Clay Loam	NIL	207,421	14,695	83,269
Urban Lawns / Clay Loam	NIL	51,215	8,702	20,306
Impervious Areas	4,383	NIL	NIL	24,838
Total	***3,734***	***987,746***	***144,413***	***321,921***

The detailed calculations are provided in **Table K-2, Appendix K**.

5.2 Post-development Water Balance

A post-development water balance was completed to predict hydrologic changes to the Site as a result of proposed conditions. The conceptual model considered for establishing proposed hydrologic conditions is provided in **Figure 8.** Ten (10) separate drainage areas are shown with boundaries and imperviousness provided by Urbantech as reported in the Functional Servicing Report (FSR) for the Caledon Station Secondary Plan (Urbantech, June 2024).

To predict outputs of the post-development water balance, the same elements of the 30-year average weather data and site latitude inputs were used. Various inputs and outputs of the post-development model are described in detail below. The detailed calculations are presented in **Table K-3, Appendix K**.

PRECIPITATION (P)

Based on the 30-year average for the Toronto Pearson Airport Climate Station, the average precipitation for the area is about 786 mm/year for the period between 1981 and 2010. Also, the average monthly temperature from this station has been used. The monthly distribution of precipitation is presented in **Table K-1, Appendix K.**

STORAGE (ST)

Groundwater storage (ST) of native soils for the post-development scenario was estimated using the values of soil moisture holding capacity or respective land use and soil types identified in Table 3.1 of the Storm

Water Management (SWM) Planning and Design Manual (MOE, March 2003). The land uses, soil types and respective water holding capacities chosen to represent existing conditions at the Site including the following with their respective water holding capacity applied to March for monthly calculations:

- Pasture/Shrubs, Silty Clay Soils – 200 mm
- Urban Lawns/Landscaped, Previous Development – 75 mm

Similar to the pre-development conditions, using the procedures outlined in the SWM Planning & Design Manual for each land use, the annual change in storage is 0. The monthly distribution of ST for each of the land use/soil types is presented in **Table K-1, Appendix K**.

EVAPORATION / EVAPOTRANSPIRATION (ET)

The proposed plans for development during the post-construction period will result in an increase in the total impervious hard surfaces across the Site. The total impervious area following the proposed plans for development is approximately 1,333,864 m^2 , or about 71% of the total area. In the impervious areas, it is assumed that only evaporation will occur and will amount to approximately 15% of the total precipitation. Considering a total annual precipitation of 786 mm/year, evaporation is estimated at 118 mm. On this basis, the total annual volume of evaporation is estimated at 157,263 m^3/year. The detailed calculations for evaporation are included in **Table K-3, Appendix K**.

For post-development pervious areas, monthly PET is estimated using the same inputs and calculations described in the pre-development model respective of land use and soil moisture holding capacity. In the post-development scenario, annual AET is 53,535 m^3/year for the pasture/shrubs area and 228,934 m^3/year for the pervious landscape/development area of the Site. The monthly distribution of Post-development AET and detailed calculations are presented in **Table K-3, Appendix K**.

PRECIPITATION SURPLUS (S)

For post-development pervious surfaces at the site, precipitation surplus is calculated as the difference between precipitation and actual evapotranspiration (P–AET), which is summarized below for each of the post-development pervious catchment areas:

- Pasture/Shrubs – 234.4 mm/year
- Pervious Landscaped – 284.2 mm/year

For Impervious surfaces at the site, surplus is P-ET where ET is estimated at 15% of P. The resulting precipitation surplus is about 668 mm/year. The more detailed calculations are included in **Table K-3, Appendix K**.

INFILTRATION (I)

The same accumulation of infiltration factors for topography, soil types and cover as prescribed in Table 3.1 of the SWM Planning & Design Manual were used give infiltration factors for post-development conditions.

Considering the infiltration factors used, the total volume of Infiltration (I) estimated for post-development conditions of each pervious areas of the Site is summarized below:

- Pasture/Shrubs – 9,100 m^3/year
- Previous Landscaped – 38,900 m^3/year

On this basis, the resulting infiltration during the post-construction period is estimated to be 48,000 m^3/year. The more detailed calculations are presented in **Table K-3, Appendix K**.

RUNOFF (R)

The runoff component calculated in the post-development model is a combination of the remaining volume of precipitation surplus for both pervious and impervious areas. The total volume of runoff (R) estimated for the post-development conditions of the pervious areas is summarized below:

- Pasture/Shrubs – 13,649 m^3/year
- Pervious Landscaped – 981,922 m^3/year

All precipitation water over impervious hard surfaces will convert into surface runoff after accounting for evaporative losses. On this basis, the resulting surface runoff during the post-construction period is estimated to be 995,571 m^3/year.

The more detailed calculations are presented in **Table K-3, Appendix K**.

5.3 Site Water Balance Results

Based on the results of the pre-development and post-development water balance completed, the proposed development is expected to produce a decrease in annual infiltration of 96,414 m^3/year and an increase in annual runoff of 648,812 m^3/year. The effects are the result of increased impervious areas replacing pervious areas of the Site. The analysis is summarised in **Table K-5, Appendix K.**

A summary of the results from the pre- and post-development water balance without mitigation is provided in **Table 13** below:

Table 13 – Summary of Pre- and Post-Development Site Water Balance (without Mitigation)

	Pre-Development	Post-Development	Change
ET (m^3/year)	4,383	157,263	-152,879
AET (m^3/year)	987,746	282,468	705,278
Infiltration (m^3/year)	144,413	48,000	96,414
Runoff (m^3/year)	346,759	995,571	-648,812

Note: (-ve value implies a net gain)

5.4 Post-development Water Balance (With Mitigation)

Groundwater elevations across the Site are high and present a challenge for mitigating infiltration deficits. With this in mind, best efforts have been made to reduce the infiltration deficit using lot level, passive Low Impact Development (LID) measures. The location and design of the LIDs are provided in the FSR (Urbantech, June 2024). The mitigation was entered into the post-development water balance to assess the effectiveness at addressing infiltration deficits. The following mitigation considered.

Connected Impervious and Pervious Surfaces

Considering the high groundwater elevations across the Site, lot level mitigation was considered the best approach for improving infiltration in the post-development condition. The current LID plan includes connecting about 11.2 ha of impervious surfaces with 24.3 ha of pervious area to maximize infiltration potential. The areas considered include impervious roofs and paved areas to rear yards and pervious areas of parks, channels and SWM ponds from Catchments 101, 102, 104, 105, 106, Channels, Pond 2A and Pond 2B. Stormwater generated from the impervious areas contribute to the pervious area during precipitation events and is made available for evapotranspiration, infiltration and runoff. The result is increased evapotranspiration and surplus available for infiltration and runoff. The effectiveness of connecting the impervious and pervious areas is estimated to provide and infiltration benefit of 6,467 m^3/yr. Detailed calculations are presented in **Table K-4, Appendix K**.

Silva Cells

The Silva Cell is a patented modular suspended pavement system that holds unlimited amounts of lightly compacted soil while supporting traffic loads. That soil serves to provide stormwater treatment and storage for on-site infiltration. Areas considered as contributing catchments for the Silva Cells includes approximately 5.2 ha impervious area and about 5.1 ha pervious area, from road ROWs and parks in Catchment 101, 102, 103, 104, 105 and 106. The Silva Cells are designed to capture a 25mm storm event for each respective catchment. As a result, it is expected that the Cells are capable of storing and infiltrating a maximum of 90% annual rainfall depth. The effectiveness of the Silva Cells is estimated to provide an infiltration benefit of 41,947 m^3/yr. Detailed calculations are presented in **Table K-4, Appendix K**.

The mitigated water balance is summarized in **Table K-5, Appendix K**. With mitigation, the post-development infiltration deficit is reduced to 34,803 m^3/yr from pre-development conditions.

It should be noted that the detailed design of the LID facilities at the Site during the post-construction period have not been finalized. Changes or additions to the LID plan should include a revised water balance. Please refer to the above-referenced Functional Service Report (FSR) by Urbantech (June 2024) for further information regarding the LIDs under consideration.

6.0 FEATURE BASED WATER BALANCE

6.1 Pre-development Sub catchments

Pre-development catchment mapping showing topographical drainage divides and wetland catchments were provided by Urbantech (2021) to document existing drainage patterns across the site and determine which areas are within the catchments of wetlands W1 through W9. The mapping was completed to inform the proposed functional servicing for the development. Wetland and constraints mapping was provided by Beacon. The Pre-Development catchment map is presented in **Figure 9**.

The pre-development mapping shows catchments for 9 wetland units including W1 through W9. Catchments for wetlands W1 to W6 includes west areas of the Site which drain south across King Rd. Each of these catchments are limited to within the Site boundaries with exception to some ditch and road runoff from the east side of The Gore Rd. The largest subcatchment is mapped draining directly into W7 and includes approximately 75.9 ha of upgradient area which runs onto the Site via HDF WHT6-E. The drainage feature appears to be captured within a collector pipe which is observed to transect the Site from the north boundary to somewhere between wetland W7 and W8. The entire catchment area within the Site is currently tile drained. Flow exists the Site at wetland W8 via a culvert across Humber Station Road approximately 30m north of the southeast corner of the Site. Wetland catchment W9 is located east of the Site and the CP Rail. The wetland is not within the Sites boundaries however there is a small portion of the catchment within the proposed development area.

6.2 Post-Development Subcatchments

Post-development wetland catchments were provided by Urbantech to document proposed changes to existing drainage patterns for wetland catchments W1 to W6. The Post-Development Catchment Map is provided in Drawings 501 to 503 in Functional Servicing Report (Urbantech 2023). Based on the post-development wetland catchments provided, changes to catchment boundaries for Wetland 1 to 6 include area reductions of about 48 to 87%. The post development boundaries are limited to the wetland / constraint's boundaries with exception to about 90 residential lots which are proposed to drain uncontrolled into the wetland features. The uncontrolled drainage includes runoff from pervious back yards and half of the roof area which includes roof leaders discharging to backyards. A summary of changes to catchment size and imperviousness is provided in **Appendix G, Table G-6**.

Wetlands W7 and W8 are proposed to be relocated and so were not included in the post-development water balance assessment. It should be noted that the external run-on from HDF WHT6-E which is currently conveyed to wetlands W7/W8 via a drainage pipe is proposed it be redirected toward the relocated features to provide runoff contributions as required. Wetland W9 was also not included in the water balance assessment as it is located off Site and was not accounted for in the post-development catchment mapping.

6.3 Wetland Water Balance Risk Evaluation

To aid in determining the level of risk and evaluation requirements for the study, an assessment was completed using the Wetland Water Balance Risk Evaluation guidelines provided by the Toronto and Region Conservation Authority (TRCA, Nov 2017). The guideline provides criteria used to evaluate the magnitude of potential hydrological impact on a wetland. The criteria include:

i) The proportion of impervious cover in the catchment of the wetland that would result from the proposal;
ii) The degree of change in the size of the wetland catchment;

iii) Water taking from, or discharge to, surface water bodies or aquifers directly connected to the wetland, and;

iv) The impact on locally significant recharge areas.

Considering the above criteria, increases to impervious cover and changes to wetland catchment size were evaluated.

6.3.1 Impervious Cover Score

An increase in the percent of impervious cover within a wetland catchment has the effect of reducing infiltration and potentially decreasing baseflow and/or interflow contributions to the wetland. It further increases runoff contributions and risks of flooding and potentially increases stormwater sediment and contaminant loading. To assess the risk of the proposed impervious surfaces on sensitive features including Wetlands 1, 2, 3 and 5/6, the Impervious Cover Score (S) was calculated for each of the catchments. The equation defining S is as follows:

$$S = \frac{IC \cdot Cdev}{C}$$

where,

IC is the proportion of impervious cover proposed within the specific catchment (as a percentage between 0 and 100)
C dev is the total proposed development area within the catchment (in ha)
C is the size of the wetland's catchment (in ha).

Results of the calculation are provided in **Table 14** and show that wetland catchment W1 to W6 are presented with low risk based on the calculated S.

Table 14 –Impervious Cover Score - Probability and Magnitude of Hydrological Change

Subcatchment Area Name	Pre-development Catchment Size (m^2)	Proposed Impervious Cover (m^2)	Impervious Cover Score (S) (%)	Sensitive Feature	magnitude of hydrological change
Wetland 1 (W1)	13,402	72.2	0. 5	Wetland	Low
Wetland 2 (W2)	50,784	0	0	Wetland	Low
Wetland 3 (W3)	225,600	352	0.2	Wetland	Low
Wetland 4 (W4)	62,040	918	1.5	Wetland	Low
Wetland 5 (W5)	74,225	502	0.7	Wetland	Low
Wetland 6 (W6)	47,447	62	0.1	Wetland	Low

Note: * Impervious Cover Score (S) calculated using equation 1 (TRCA - Wetland Water Balance Risk Evaluation, Nov 2017)

6.3.2 Change in Catchment Size

Changes to catchment size directly effects the volume and timing of stormwater contributions to downgradient features. To evaluate the magnitude of hydrological change these effects can have, pre-development and post-development catchments were compared. **Table 15** provides the area breakdown for pre- and post-development conditions. The same magnitude thresholds used for impervious cover (10% and 25 %) are used as thresholds to define catchment size alteration. As a result, changes to catchment size for W1 to W6 is considered high risk.

Table 15 –Changes to Catchment Size - Probability and Magnitude of Hydrological Change

Subcatchment Area Name	Pre-development catchment area (m^2)	Post-Development Catchment Area (m^2)	% Change in Catchment Area	Sensitive Feature	Magnitude of Hydrological Change *
W1	13,402	3,843	71% decrease	Wetland	High
W2	50,784	30,519	40% decrease	Wetland	High
W3	225,600	29,108	87% decrease	Wetland	High
W4	62,040	19,451	68% decrease	Wetland	High
W5	74,225	18,423	75% decrease	Wetland	High
W6	47,447	8,854	81% decrease	Wetland	High

Note: * Based on Table 2: Criteria used to evaluate the probability and magnitude of hydrological change (TRCA - Wetland Water Balance Risk Evaluation, Nov 2017)

6.4 Wetland Water Balance

To estimate potential hydrologic changes to the wetland catchments as a result of the proposed development, a Thornthwaite Water Balance was completed for all retained onsite wetlands with catchments identified as intersecting the site. The model was developed using the same input as the site water balance with the exception of including only those areas which fall within the Wetland catchments.

6.4.1 Existing Conditions

The existing conditions across the wetland catchments W1 to W6 include a silty clay loam soil type on a rolling terrain with pervious cover consisting of cultivated agricultural areas, pasture and shrub (NHS areas) and urban lawn and impervious surfaces associated with existing developed areas of the Site. **Table 16** shows the pre-development catchment breakdown of land uses for each subcatchment.

Table 16 – Pre-Development Conditions

Subcatchment Area Name	Pre-development catchment area (m^2)	Mature Forest (m^2)	Pasture and Shrub (m^2)	Moderately Rooted Crop (m^2)	Landscaped (m^2)	Impervious Surface (m^2)
W1	13,402	0	5,161	4,003	1,881	2,357
W2	50,784	0	26,743	18,870	1,486	3,685
W3	225,600	0	35,599	163,350	21,470	5,181
W4	62,040	0	8,313	52,371	0	1,356
W5	74,225	0	19,471	50,398	3,331	1,025

Subcatchment Area Name	Pre-development catchment area (m^2)	Mature Forest (m^2)	Pasture and Shrub (m^2)	Moderately Rooted Crop (m^2)	Landscaped (m^2)	Impervious Surface (m^2)
W6	47,447	0	16,702	27,448	1,989	1,307

6.4.2 Proposed Development

It is expected that the proposed plans for development will result in a decrease in the total catchment area size for Wetlands 1 to 6 during the post-development conditions. In order to understand the effects of the reduced catchment area and evaluate the magnitude of actual hydrological changes, a wetland water balance is currently being completed by Urbantech, which includes the use of a continuous model. A pre-construction wetland monitoring program by **DS** is currently underway and will be ongoing for a minimum of a 1-year period to establish baseline conditions throughout the hydroperiods for Wetlands 1 to 6. The results of the baseline wetland monitoring will be used in combination with the continuous modeling to assess the actual risk to the wetlands. Based on the findings of the water balance results, a wetland mitigation plan will be developed.

7.0 CONSTRUCTION DEWATERING & PERMANENT GROUNDWATER CONTROL

Based on the preliminary designs, the proposed plans for development will consist of low-rise residential blocks, commercial and institutional zones, Stormwater Management (SWM) Ponds and greenspace. The development will also include the construction of roadways and associated storm, sanitary sewer and water distribution infrastructure. Detailed design of the proposed plans for the developments are not currently finalized, it is assumed that the proposed residential blocks will comprise of one (1) level of underground basement and/or parking. Further, the institutional and mixed commercial use blocks and the GO station block will be constructed slab-on-grade.

Based on the findings of the subsurface drilling investigation, there are significant variations noted in the subsurface stratigraphic and groundwater conditions across the Sites. The construction of the low-rise residential blocks and the site servicing will be dispersed across the Site areas and therefore will encounter varying subsurface conditions at different locations of the Sites. Grading plans and site plans for the Site located at Argo King I & II were not provided to **DS**, and therefore flow rates will be provided once grading plans and site plan designs are received. The following preliminary grading plans for the Caledon Station Site were provided to **DS** for review in estimating the requirements for groundwater control and dewatering during the construction period:

- *"Drawing No. 301 - Preliminary Grading Plan (1 of 4), Town of Caledon, Regional Municipality of Peel, Macville Secondary Plan (BRES Option 3 Lands)"*, by Urbantech Consulting, dated Jan 2021, File No.: 15-458
- *"Drawing No. 302 - Preliminary Grading Plan (2 of 4), Town of Caledon, Regional Municipality of Peel, Macville Secondary Plan (BRES Option 3 Lands)"*, by Urbantech Consulting, dated Jan 2021, File No.: 15-458

- *"Drawing No. 601 – SWM Pond 1, Town of Caledon, Regional Municipality of Peel, Macville Secondary Plan,"* by Urbantech Consulting, dated Sep 2021, File No.: 15-458
- *"Drawing No. 602 – Interim SWM Pond, Town of Caledon, Regional Municipality of Peel, Macville Secondary Plan,"* by Urbantech Consulting, dated Sep 2021, File No.: 15-458
- *"Drawing No. 603 – SWM Pond 2A, Town of Caledon, Regional Municipality of Peel, Macville Secondary Plan,"* by Urbantech Consulting, dated Sep 2021, File No.: 15-458
- *"Drawing No. 604 – SWM Pond 2B, Town of Caledon, Regional Municipality of Peel, Macville Secondary Plan,"* by Urbantech Consulting, dated Sep 2021, File No.: 15-458

Based on the review of the proposed preliminary grading plans, it is understood that the site grades will generally range from approximately 280.0 masl in the northwestern corner to an approximate elevation of 275.0 masl in the southwest and 267.6 masl in the southeastern corner of the Site. For the purpose of assessing the requirements for groundwater control and dewatering during the construction period, a conceptual model of the Site has been prepared based on the proposed site grading and the worst-case subsurface conditions, which can be encountered during the trenching/excavation for the low-rise residential blocks and site servicing. Conceptual models for the mid-rise residential developments are prepared based on inference from nearby boreholes and monitoring wells in the locality of these proposed structures.

It is expected that the trenching and excavation earthwork during the construction period will extend below the groundwater table in certain areas of the Site and groundwater control and dewatering will be required to ensure the excavation area remains dry and safe. Generally, the excavations will be completed into the cohesive clayey silt till, however will extend into the underlying silty sand till / silt unit in certain locations.

The dewatering estimates also include provisions for controlling storm water in the excavation area from an incidental 2-year storm event. As per the Ministry of Transportation (MTO) Intensity-Distribution-Frequency (IDF) curves for the Town of Caledon, a 2-Year storm that is 2-hours in duration would result in a 13.5 mm/hr of rainfall intensity.

This section calculates the estimated dewatering required during the construction of the proposed residential buildings and private services.

7.1 Estimation of Flow Rate – Medium Density Residential Blocks, Low-Rise Development

It is understood that the architectural designs for the proposed structures at the Site are not finalized at this time. For the purpose of assessing groundwater seepage rates during the construction period, the following assumptions were made:

- An excavation for one (1) residential block within the larger Site development will comprise of fifteen (15) medium density residential blocks. The development is to include a series of townhouses and single detached homes. This will result in an excavation that will be approximately 80 m x 130 m in area for one block.

- The low-rise residential development will comprise of one (1) level of underground basement extending to approximately 2 m below ground surface. The excavation will extend an additional 0.5 m below the finished floor basement slab for the foundation. On this basis, the base of excavation for each low-rise residential block will be advanced to 2.5 m below ground surface.

As previously indicated, the excavations for the proposed residential blocks will be dispersed across the Site area and therefore will encounter varying subsurface conditions at different locations of the Site. Generally, it is expected that the excavations for the low-rise residential blocks will be completed above the groundwater table and construction dewatering/control will be minimal for the majority of the Site, and particularly during the summer period. To assess the requirements for groundwater control and dewatering during the construction period, a conceptual site model was prepared assuming the worst-case scenario with respect to the depth of excavation below the ground water table at the Site. Based on the proposed preliminary grading plan, it is anticipated that these conditions will likely be present in the south-central portion of the Site. For the purpose of estimating the requirements for groundwater control and dewatering during the construction period, the groundwater table in the conceptual site model was set to Elev. 268.0 masl (BH22-27, March 2023). The elevation at the base of excavation will be Elev. 265.2 masl. On this basis, the excavation will be advanced to a depth of 2.5 m below the ground surface. There will be a requirement to lower the groundwater table to an elevation of 0.5 m below the base of excavation.

The groundwater seepage volume in the excavation is estimated using the Dupuit-Forcheimer analytical model for flow into a linear trench from a system of wells of equivalent radius under unconfined groundwater conditions. The anticipated groundwater seepage rates are estimated to be on the order of 44,020 L/day. An incidental 2-year storm event will result in a total of 280,800 L of water to be removed from the excavation. The total **unit** dewatering rate during the construction period for **one (1) residential low-rise block** development at the Site is estimated to be **346,830 L per day**, which includes a 50% safety factor on the anticipated rates and the contribution from an incidental precipitation event.

It is understood that the provided site grading plans are currently preliminary and are subject to changes in the future. Should there be any changes to the proposed site grading and/or deviation from any assumptions made above, **DS** should be consulted to confirm if revisions to the construction dewatering/control assessment is deemed to be required.

7.2 Estimation of Flow Rate – Townhouse & Single Detached Units

Based on Block Plan Concept dated May 1st, 2023, provided to DS, blocks consist of townhouses and detached homes are proposed within the Caledon Station Community. For the purpose of assessing groundwater seepage rates during the construction period, the following assumptions were made:

- A maximum excavation for one (1) single residential detached unit within the larger Site development will be approximately 12.8 m x 27 m in area; and,

- The single detached units and townhouse developments will comprise of one (1) level of underground basements extending to approximately 2 m below ground surface. The excavation will extend an additional 0.5 m below the lowest finished floor basement slab for the foundation.

On this basis, the base of excavation for each mid-rise residential block will be advanced to 2.5 m below ground surface.

The excavations for the proposed residential blocks will be dispersed across the Site area and therefore will encounter varying subsurface conditions at different locations of the Site. The highest groundwater level measured in the east portion of the Site is 0.3 mbgs at Elev. 265.8 masl (BH22-32). On this basis, the excavation for the mid-rise residential development will extend approximately 2.5 m below the groundwater table. For this reason, groundwater control and dewatering during the construction period will be required to maintain a dry and safe excavation. There will be a requirement to lower the groundwater table to an elevation of 0.5 m below the base of excavation.

The groundwater seepage volume in the excavation is estimated using the Dupuit-Forcheimer analytical model for flow into a linear trench from a system of wells of an equivalent radius under unconfined groundwater conditions. The anticipated groundwater seepage rate is estimated to be a maximum rate of 118,300 L/day. An incidental 2-year storm event will result in a total of 9,330 L of water to be removed from the excavation. The total **unit** dewatering rate during the construction period for **one (1) unit** (assuming largest unit dimensions) is estimated to be on the order of **186,705 L per day**, which includes a 50% safety factor on the anticipated rates and contribution from an incidental 2-year precipitation event.

It is understood that the provided site grading plans are currently preliminary and are subject to changes in the future. Should there be any changes to the proposed site grading and/or deviation from any assumptions made above, **DS** should be consulted to confirm if revisions to the construction dewatering/control assessment is deemed to be required.

7.3 Estimation of Flow Rate – Site Servicing

It is understood that the site servicing plans for the proposed development at the Site are not finalized at this stage. For the purpose of assessing groundwater seepage rates during the construction period, the following assumptions were made:

- The trenching for the site servicing will be completed in segments of 30 m x 2 m per day; and
- The lowest invert level of the proposed trunk sewer and local servicing infrastructure will be limited to a depth of 4 mbgs.

As previously indicated, the trenching for the proposed site servicing will be dispersed across the Site area and therefore will encounter varying subsurface conditions at different locations of the Site. Generally, it is expected that the excavations for the site servicing will be completed above the groundwater table and construction dewatering/control will typically be minimal for the majority of the Site, and particularly during the summer period. To assess the requirements for groundwater control and dewatering during the construction period, a conceptual site model was prepared assuming the worst-case scenario with respect to the depth of excavation below the ground water table at the Site. Based on the proposed preliminary grading plan, it is anticipated that these conditions will likely be present in the south-central portion of the Site. For the purpose of estimating the requirements for groundwater control and dewatering during the construction period, the groundwater table in the conceptual site model was set to Elev. 269.7 masl (BH20-9, August 6, 2020). The elevation at the base of excavation will be Elev. 266.3 masl. On this basis, the excavation will be advanced to a depth of 3.4 m below the ground surface. There will be a requirement to lower the groundwater table to an elevation of 0.5 m below the base of the trench.

The groundwater seepage volume in the excavation is estimated using the Dupuit-Forcheimer analytical model for flow into a linear trench from a system of wells of an equivalent radius under unconfined groundwater conditions. The anticipated groundwater seepage rates are estimated to be on the order of 9,006 L/day. An incidental 2-year storm event will result in a total of 1,620 L of water to be removed from the trench. The total **unit** dewatering rate during the construction period for **one (1) trench segment** at the Site is estimated to be **15,500 L per day**, which includes a 50% safety factor on the anticipated rates and contributions from an incidental precipitation event.

It is understood that the provided site grading plans are currently preliminary and are subject to changes in the future. Furthermore, the detailed design of the proposed site servicing has not been finalized at this stage. During the detailed design stage, **DS** should be consulted to confirm if revisions to the construction dewatering/control assessment is deemed to be required.

7.4 Estimation of Flow Rate – Storm Water Management Ponds

The proposed plans for development will include three (3) storm water management (SWM) ponds, in addition to an interim SWM Pond. SWM Pond locations are presented in **Figure 4.** Preliminary SWM Pond designs were provided to DS by Urbantech Consulting dated September 2021. The proposed depths of SWM Ponds 1, 2A, 2B and interim SWM ponds are 261 masl, 259 masl, 256 masl, and 268.5 masl, respectively. Target dewatering rates should be lowered 1 m below the proposed depths to maintain dry conditions within the excavations. Pump tests were completed at SWM Pond 1 and SWM Pond 2B locations. Details and estimated dewatering rates are presented in sections 7.7 through 7.9 & 7.11 below. The below dewatering estimates pertain to SWM Pond 2A and the Interim SWM Pond.

Table 17 below indicates the boreholes considered for the estimated flow rates. Based on the highest groundwater level at each proposed SWM Pond, the excavations for the SWM Ponds will extend below the groundwater table. For this reason, groundwater control and dewatering during the construction period will be required to maintain a dry and safe excavation. The depth of the silty clay to clayey silt till (aquitard) was considered to be the transition point between the upper and lower aquifer unit detected in BH23-1 at 15.3 mbgs (Elev. 246.2 masl). The groundwater seepage volume in the excavations is estimated using the Dupuit-Forcheimer analytical model for flow into a linear trench from a system of wells of an equivalent radius under unconfined groundwater conditions.

Table 17 – Estimated Construction Dewatering SWM Pond Flow Rates

Parameter	SWM Pond 2A		Interim SWM Pond
Monitoring Well	BH23-1 (deep)	BH23-1A (shallow)	BH22-13
Seasonal High Groundwater Level (masl)	264.5	262.4	280
H- Initial Elevation of Water Table (m)	7.5	16.2	4.4

h- Final Elevation of Water Table (m)	1	11.8	1
In-Situ K- Hydraulic Conductivity (m/s)	4.0×10^{-6}	5.4×10^{-9}	1.6×10^{-6}
Ro- Radius of Influence (m)	128	91	86
Re- Equivalent Radius (m)	89.7	89.7	72.9
A- Unit Area (m^2)	25,300	25,300	16,700
C- Dimensionless constant	3	3	3
Q- Flow rate (L/d)	154,000	15,000	49,000
Q- Total Flow Rate - 50% safety factor (L/d)	231,000	22,500	73,500
Q- Flow 10 mm storm water (L/day)	214,000	214,000	167,000
Q- Total Flow Rate (L/d)	**445,000**	**236,500**	**240,500**

Based on preliminary findings a pressurized sand aquifer was encountered at around 15 mbgs. A nested pair of wells (BH23-1) was installed near the SWM Pond location to establish groundwater levels in the upper clayey silt to silty clay till zone (aquitard) and lower silty sand to sandy silt (aquifer) zone. On September 11, 2023, the groundwater level within BH23-1 (shallow) was recorded to be at the top of the pipe, suggesting that the two (2) units may be connected. Therefore, a range of construction dewatering values (278,500-500,500 L/day) is presented for SWM Pond 2A. Further investigation is required to determine whether the upper unit and lower unit are hydraulically connected.

It is understood that the provided site grading plans are currently preliminary and are subject to changes in the future. Should there be any changes to the proposed site grading and/or deviation from any assumptions made above, **DS** should be consulted to confirm if revisions to the construction dewatering/control assessment is deemed to be required.

7.5 Permanent Drainage (Long-term Discharge) - Medium Density Residential Blocks, Townhouse & Single Detached Units

It is understood that the residential blocks will include one (1) level of underground basement, which will likely be constructed above the water table and with a water-proofing membrane. A perimeter drainage system will be installed, however all collected percolating stormwater will be discharged to landscaped/vegetated areas of individual residential lots. Further, the institutional and commercial zones will be constructed slab-on-grade. For this reason, all low-rise residential blocks, institutional and commercial zones are not anticipated to require any permanent groundwater drainage control.

Given that the detailed design for the proposed plans for development were not finalized at this stage, various assumptions were made to assess the requirements for groundwater control and dewatering during the post-construction period. During the detailed design stage, if the assumptions made therein Section 6.0 of this report deviate from the finalized developmental designs, then **DS** should be consulted to revise the estimated groundwater seepage rates and permitting requirements.

7.6 Permanent Drainage (Long-term Discharge) – Storm Water Management Ponds (SWMP 2A & Interim SWMP)

The proposed SWM pond designs will require permanent groundwater control. This is required to prevent hydrostatic pressure from up lifting the base of the pond during both normal operation and maintenance events. Due to the high-water level/hydrostatic pressure at the pond location the use of a conventional weeping tile drainage system will not be adequate in controlling the amount groundwater required to protect the base of the ponds. The groundwater can be controlled using relief wells that penetrate the aquifer. Permanent drainage volumes at SWM Pond 2A the Interim SWM Pond are summarised in **Table 18** below inclusive of a 50% safety factor. A range of permanent drainage values are presented to consider the two (2) units for SWM Pond 2A. Permanent drainage for SWM Pond 1 and SWM Pond 2B is discussed as part of the pumping test program in Section 11 below.

Table 18 – Estimated Permanent Drainage SWM Pond Flow Rates

Parameter	SWM Pond 2A		Interim SWM Pond
Monitoring Well	BH23-1 (deep)	BH23-1A (shallow)	BH22-13
Screened Unit	Sandy Silt to Silty Sand	Silty Clay to Clayey Silt Till	Sandy Silt
Seasonal High Groundwater Level (masl)	264.5	262.4	280
In-Situ K- Hydraulic Conductivity (m/s)	4.0×10^{-6}	5.4×10^{-9}	1.6 X 10-6
Q- Flow Rate (L/day)	126,000	7,000	30,000
Q- Flow Rate 50% safety factor (L/day)	189,000	10,500	45,000

It is important to note that the safe excavation depth established near SMW Pond 2A was estimated to be approximately 3 mbgs (Elev. 259 masl). Two (2) pump tests are recommended within the SWM Pond 2A footprint, one (1) in the upper silty clay to clayey silt till (aquitard) zone and one (1) in the lower sandy silt to silty sand (aquifer) zone to determine whether the two (2) units are hydraulically connected. Should construction occur, a pump test is recommended with the Interim SWM Pond location. The pump tests are performed to accurately estimate aquifer parameters (storativity and transmissivity) and to estimate accurate construction dewatering and permanent drainage volumes.

7.7 Pumping Test Program

In August 2023, aquifer pumping tests were conducted on the pumping wells PW1 at the proposed SWM Pond 1 location and PW2 at the proposed SWM Pond 2 location to provide indications of the quantity of water available from each single well and to calculate the aquifer hydraulic coefficients (Transmissivity and Storativity). During each of the drawdown pumping tests, a data logger was installed in the pumped well and in select monitoring wells utilized as observation wells. Water level measurements were also taken by manual means and recorded in a field book. A flow meter was used to confirm that the constant pumping rate was maintained throughout the drawdown period

7.7.1 PW1 Pumping Test Results

7.7.1.1 PW1 Step Test (Mogg Type)

On August 1st, 2023, a 3 step, Mogg Type step-drawdown test was conducted on PW1, at controlled flow rates of 22.4, 38 and 76 l/min (4.9, 8.4 and 16 imperial gpm). The semi-logarithmic plot of drawdown vs. time for the test are shown on **Figures E-1**, in **Appendix E**. The attached **Figures E-2** is an arithmetic plot of drawdown versus pumping rate for the same data set. The specific capacity at each step was also calculated and shown in **Figures E-3**. This figure shows the separation from the "theoretical line of zero well and formation loss" at the pumping rates tested.

7.7.1.2 PW1 Drawdown and Recovery Test

An aquifer test was performed on PW1 located within the proposed SWM Pond 1 area within the Humberking and Argo Humberking lands at a pumping rate of 60.5 L/min (13.3 igpm). A data logger was programmed and installed in the pumping well during the test to record the water level inside the pumped well on a 60 second interval. The flow rate was controlled using a standard ball valve and measured using a digital flow meter. At the conclusion of the 22-hour drawdown time, the pump was shut-down, and a 10-hour recovery period was recorded in the pumping well and observation wells during each test.

The attached **Figures E-3 (in Appendix E)** is a semi-logarithmic plot of the drawdown vs. time response to pumping inside the pumping well, PW1. The attached **Figures E-4 (in Appendix E)** is a semi-logarithmic plot of the drawdown vs. time response to pumping inside the observation well, BH22-33. At BH22-33, minimal drawdown, approximately 0.24m, due to the interference/pumping of PW1 after 22 hours of pumping was observed. Based on the geology and hydrogeology at the Site, the interference due to pumping at PW1 will differ from PW2 (as discussed in Section 7.7.2).

7.7.2 PW2 Pumping Test Results

7.7.2.1 PW2 Drawdown and Recovery Test

An aquifer test was performed on PW2 within the SWM Pond 2B footprint within the Argo King I and Argo King II lands at a pumping rate of 16 L/min (3.5 igpm). The pumping test at PW2 generally followed the same flow recording and flow control setup procedure as testing during PW1, with the exception that PW2 was initially shut-in with a well seal to establish the above ground static water level. At the conclusion of the 1-hour constant rate pumping period, the available drawdown from the well was exhausted. The pump was then shut-down, and a 30-hour recovery period was recorded in the pumping well and observation well.

The attached **Figures F-1 (in Appendix F)** is a semi-logarithmic plot of the drawdown vs. time response to pumping inside the well, PW2. **Figure F-2** shows the response in the observation well (BH22-5) during the pumping at PW2. There was no drawdown at BH22-5 due to the interference/pumping of PW2 after 1 hour. The drawdown response observed at the observation well after 1 hour of drawdown is also displayed graphically in **Figure-F-3** as a function of radial distance from the center of the pumped well.

7.7.3 Pumping Test Interpretation

The aquifer pumping tests were designed to determine the performance characteristics of the pumping wells, PW1 and PW2. The specific aquifer parameters of interest are Transmissivity (T) and Storativity (S). Using the Jacob-Cooper straight line method, the test data was analyzed in order to produce the target parameters.

From the data gathered and analyzed at PW1 and PW2, calculated Transmissivity values were **40.3 m^2/day (2,700 igpd/ft.)** and **2.5 m^2/day (165 igpd/ft.),** respectively**.** The Storativity estimated for PW1 and PW2 was 1.0 X 10^{-4} (dimensionless) based on hydrogeologic conditions encountered at the Site.

7.8 Conceptual Construction Groundwater Control (SWMP 1 & 2B)

7.8.1 Conceptual Groundwater Control Requirements

SWM Pond details prepared by Urbantech Consulting dated September 2021 were provided to DS for review. If the design details change, the groundwater control model will need to be recalculated to ensure they represent the final design. Based on the provided information, bottom elevations for SWM Pond 1 and SWM Pond 2B are proposed to extend to 261.0 masl and 256.0 masl, respectively.

For the purposes of evaluating a dewatering plan, a groundwater model was developed using first principles. The purpose of the model is to produce an optimal layout and to help predict the dewatering rates that will be necessary in order to achieve the target water levels (1 m below the base of the SWM Pond).

The following sections describe the conceptual dewatering requirements for construction. Section 7.11of the report will describe the conceptual permanent groundwater control requirements. If the design proposed SWM Ponds change, the groundwater control model will need to be recalculated to ensure they represent final design.

7.8.2 Conceptual Groundwater Control Model

The aquifer performance data from the testing program, was analyzed to produce a conceptual geological and hydrogeological model. The groundwater control model was constructed using the below noted aquifer coefficients (Transmissivity and Storativity) in **Table 15** calculated through our field data. The dewatering target elevations for this model was selected based on the geology that was encountered during our drilling program. During construction, dewatering will be required to control groundwater from the overburden.

Based on the step test and aquifer pumping test data obtained, the permeability was identified in the overburden. The calculated Transmissivities, **40.3 m^2 day^{-1} (2,700 igpd/ft)** from PW1 and **2.5 m^2 day^{-1} (165 igpd/ft)** from PW2 and the estimated Storativity, 1.0 x 10^{-4} (dimensionless), were used in an iterative process which allowed the number of theoretical wells, the spacing of the wells and the quantities of water pumped to be altered and modified. The results of each outcome were analyzed after each trial until the optimum configuration was determined. **Figure G-1 (Appendix G)** and **Figure H-1 (Appendix H)** shows the proposed layout of the theoretical pumping wells and two (2) theoretical observation wells for SWM Pond 1 and SWM Pond 2B, respectively.

After numerous trial runs, the final run was created using the Transmisivity values of 40.3 m^2 day^{-1} (2,700 igpd/ft) from PW1 and 2.5 m^2 day^{-1} (165 igpd/ft) from PW2. Based on the water levels measured in August 2023, it was determined through the iterative process that the groundwater control system featuring twelve (12) and eight (8) theoretical wells for SWM Pond 1 and SWM Pond 2B, respectively are set to pump at combined pumping rate of 525,600 L/day (80.4 igpm) and 41,760 L/day (6.4 igpm) for SWM Ponds 1 and SWM Pond 2B, respectively which would lower the groundwater to below the target elevations. **Figure G-2 (Appendix G)** and **Figure H-2 (Appendix H)** shows the predicted response to the groundwater levels in the theoretical well systems.

7.8.3 Total Conceptual Construction Dewatering Requirements

The total volumetric pumping rate to control groundwater from the aquifer during construction is estimated to be approximately **365 L/min or 525,600 L/day (525.6 m^3/day) and 29 L/min or 41,760 L/day (41.8 m^3/day)** for SWM Pond 1 and SWMP Pond 2B, respectively. Total volumetric pumping rates for each SWM Pond is presented in **Table 15** below.

The Site will also have to manage storm water collected within the open excavation. Based on the estimated areas of the open excavations, and a 10 mm storm event the estimated daily discharge volume for storm water was estimated to 590,000 L/day and 95,690 L/day (pumped over a 48-hour period) for SWM Pond 1 and SWM Pond 2B, respectively. Storm water volumes, and the total discharge volumes for each pond are presented in **Table 19** below.

Table 19: Construction Dewatering Parameters & Volumes (SWM Pond 1 & 2B)

Groundwater Model Summary	SWM Pond 1	SWM Pond 2B
Bottom SWM Pond Elevation (masl)	261	256
Target Pumping Water Level (masl)	260	255
Number of Theoretical Pumping Wells	12	8
Transmissivity (m^2/day)	40.3	2.5
Combined Pumping Rate (l/day)	525,600	41,760
Total discharge Volume (25% safety factor) (l/day)	657,000	52,200
Storm event (10 mm) (l/day)	590,000	95,690
Total discharge Volume (l/day)	**1,247,000**	**147,890**

7.9 Temporary Conceptual Groundwater Control Model

During construction and excavation, groundwater in the sand aquifer will have to be controlled. The conceptual groundwater modelling results applied twelve (12) and eight (8) theoretical pumping wells for SWM Pond 1 and SWM Pond 2B, respectively to control groundwater within the water bearing zones. The number of theoretical wells assumed for each pond is presented in **Table 19** above. It should be noted that the number of theoretical wells used to simulate the required pumping volume is based the data obtained from the pumping wells PW1 and PW2, therefore the actual number of wells, well points, or eductors will vary based on the subsurface site conditions at the SWM Pond areas. The dewatering contractor should confer on the most suitable method for groundwater control (for example staged well points, eductor system or deep wells).

7.10 Zone of Influence

The radius of influence (Ro) for the construction dewatering was calculated based on the Sichardt equation for the low-rise residential development, townhouse/detached units, site servicing trench and each of the SWM Ponds. Ro is the distance at which the drawdown resulting from pumping is negligible. The equation is empirical and was developed to provide representative flow rates using the steady-state flow dewatering equations as indicated above. Under steady-state conditions, Ro of pumping will extend until boundary flow conditions are reached and sufficient water inputs are equal to the discharge rate due to pumping. Therefore, the Sichardt equation is used to provide a representative flow rate but is not precise in determining the actual radius of influence by pumping. Based on Sichardt equation the ZOIs are summarized in **Table 20** below:

Table 20: Summary of Estimated Zones of Influence

	Medium Density Residential Blocks (Low-Rise Development)	Townhouse & Single Detached Units	Site Servicing (30 m x 2 m)	SWMP 1	SWMP 2A*	SWMP 2B	Interim SWMP
Ro (m)	4	11	2	103	84-121	21	86
Note: * range reported due to 2 hydrostratigraphic units detected. Further investigative work is required							

7.11 Permanent Groundwater Control (SWM Ponds 1 & 2B)

7.11.1 Permanent Drainage Conceptual Groundwater Control Model

The proposed SWM Ponds (SWM Ponds 1 & 2B) will require permanent groundwater control. This is required to prevent hydrostatic pressure from up-lift to the base of the pond. The same theoretical control wells for each SWM Pond were used during construction dewatering will be preserved and adapted to a permanent configuration. The target groundwater elevation to be maintained during permanent operation is 0.5 m below the base of the ponds. Target elevations are presented in **Table 21** below for SWM Ponds 1 and 2B. A groundwater model was used to calculate the permanent discharge volume from each theoretical control well for each SWM Pond 1 & 2B. **Figure G-3 and Figure H-3** shows the spreadsheet model for estimated permanent groundwater discharge for each SWM Pond. **Table 21** below presents discharge volumes for SWM Pond 1 and SWM Pond 2B. As per the Geotechnical Comments and Recommendations letter (DS 2024), SWM Pond 1 will require an under-line drainage system to reduce the uplift hydrostatic pressure at the base of the liner. The dewatering wells may also be preserved for future SWM Pond maintenance for SWM Pond 1. Based on the subsurface investigation at SWM Pond 2B, the cohesive soils consisting of clayey silt to silty clay extended to the maximum extent of the investigation. Therefore, based on the proposed SWM Pond 2B bottom elevation, the material encountered can serve as an appropriate clay liner, and a liner is not considered necessary for SWM Pond 2B.

Table 21: Permanent Drainage Parameters & Volumes (SWM Pond 1 & 2B)

Theoretical Permanent Discharge	SWM Pond 1	SWM Pond 2B
Bottom Pond Elevation (masl)	261	256
Target Pumping Water Level (masl)	260.5	255.5
Theoretical Combined Discharge Rate (l/day)	377,280	27,360
Total discharge Volume (50% safety factor) (l/day)	**565,920**	**41,040**

7.12 Permit Requirements

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

An Environmental Activity Sector Registration (EASR) Posting is required to be submitted to the Ministry of the Environment, Conservation and Parks (MECP) if the taking of groundwater and stormwater for a temporary construction project is between 50,000 L/day and 400,000 L/ day. The EASR application is an online registry and should be submitted to the MECP before commencing any construction dewatering operations. A PTTW is required to be submitted to the MECP if the taking of groundwater and stormwater for a temporary construction project is greater than 400,000 L/ day. A PTTW is required for permanent drainage if the permanent drainage volume exceeds 50,000 L/day.

During the construction period, the requirements to obtain any water taking permitting (EASR/PTTW) will depend on the ownership structure of the Site and the staging for development. The estimates for groundwater control and dewatering provided in Section 7.1 through 7.12 of this report should be made use of each individual land parcel that comprise of the larger subject Site. It is anticipated that an EASR Posting will likely be required, however if the construction dewatering rates exceed 400,000 L/day on any given day, a PTTW Registration with the MECP will be required. Based on the construction dewatering values for SWM Ponds 1 & 2A, a PTTW will be required.

During the post-construction period, the anticipated permanent drainage flows for SWM Ponds 1 & 2A are expected to be greater than 50,000 L/day. Given that the estimated permanent drainage flows are expected to be greater than the MECP threshold of 50,000 L/day, a long-term PTTW will be required in support of permanent groundwater control for the SWM Ponds should design details corroborate the assumptions made in this assessment.

7.12.2 Discharge Permits (Construction Dewatering and Permanent Drainage)

The Site is located within the Humber River watershed, which is located within the regulatory jurisdiction of the Toronto and Region Conservation Authority (TRCA). A discharge permit may be required from the TRCA, Peel Region and/or Town of Caledon if the water is to be discharged to a nearby/on-site surface water feature during the construction period. A discharge and monitoring plan will need to be prepared prior to obtaining a discharge approval from the TRCA, Peel Region and/or Town of Caledon.

If the private water during the post-construction period is anticipated to be discharged into the proposed municipal sewer system, a sewer discharge agreement with the Town of Caledon and/or Regional Municipality of Peel will be required prior to any discharging operations.

8.0 POTENTIAL IMPACTS

The following are the predicted potential impacts as a result of construction dewatering:

8.1 Local Groundwater Use

Based on the MECP WWRs, there are numerous well records listed within the boundary of the Site and the immediately adjacent area. The wells located within the Site boundary are expected to be decommissioned prior to commencing construction works for the proposed development. The majority of water supply wells in the area are noted to be installed at deeper depths. Given that the proposed construction is anticipated to extend less then 10m below existing ground surface, and the resulting radius of influence from the dewatering activities will be kept minimal, short and long-term impacts to private wells in the area during the construction period is not considered to be likely.

It is understood that the detailed design of the proposed plans for development have not been finalized at this stage. These specific details include, among other items, the maximum depth of excavation/trenching required in support of the proposed development, servicing and storm water management ponds. At this stage, the above-defined assumptions were considered in this assessment with regards to the deepest anticipated depth of excavation. It should be noted that if at the detailed design stage, the above assumptions do not hold true, then this assessment will need to be revisited based on the finalized design details.

8.2 Surface Water Features

Based on the proposed plans for development at the Site, the following may have the potential for impacts to natural surface water features:

(i) Groundwater control and dewatering operations during the construction period;
(ii) Reduction of groundwater recharge and possibly groundwater contributions to surface water features as a result of impervious surfaces following construction; and,
(iii) Reduction of runoff available to natural features as a result of changes to Site drainage.

A discussion on the potential for impacts (i to iii above) are provided below.

Groundwater Control and Dewatering:

All dewatering activities for the proposed development adjacent to the existing wetlands have the potential to interfere and lower the groundwater table within the wetland features. During the construction period, monitoring of the wetlands must be continued to ensure the groundwater levels and surface water flows in the headwater drainage features are not being lowered. On the onset of completing the pre-construction monitoring, **DS** will prepare a contingency plan, which will outline pre-defined *"review*" and "*response*" levels for all surface water stations in the wetlands, where impacts to the surface water features will have become apparent and mitigative measures as well as more frequent monitoring will need to be initiated promptly. Further preliminary details on the contingency plan are discussed in Section 8.0.

Pumped water from temporary construction dewatering activities should be managed to avoid direct discharge of potentially impacted water into sensitive features such as the wetland. To manage the potential risks to surface water quality, a discharge plan should be developed for proper discharge of private water during the construction period.

Reduction in Groundwater Recharge:

As discussed in Section 4.3.6, there are eight (8) wetlands within the Caledon Station and three (3) wetlands within the Argo King 1 & II development. A water balance assessment has not been proposed for the Argo Kin I & II lands and the baseline monitoring program is currently underway. Therefore, the below discussion refers to the conclusions made from the monitoring program and water balance assessment within the Caledon Station Community.

Wetlands W7 and W8 are being relocated with existing upgradient (offsite) contributions proposed to be redirected toward the new features. An adaptive management program for the newly constructed features will be required to ensure there is adequate contribution. For wetlands W1 to W6, a long-term pre-construction surface water and groundwater monitoring program is currently underway. Monitoring during the current period indicates that most wetlands are ephemeral surface water features, with minimal to some response to precipitation events. Upward shallow groundwater gradient at wetland W3 is noted, however further monitoring will be required to establish seasonal baseline conditions and to confirm surface water and groundwater interaction dynamics for each of the wetlands.

There is a potential that groundwater levels may rise during the spring period and provide contribution to seasonal baseflow of the wetlands. A reduction in recharge over the Site as a result of the development may result in a lowering of the water table and thus a reduction in groundwater contribution. The water balance completed for the Site shows there is a total Site infiltration deficit of 21,851 m^3/yr following mitigation. The mitigation plan provides a significant improvement to the unmitigated Post-Development condition however, to prevent risk to the wetlands which may rely on contribution from groundwater, the post-development infiltration deficit should be further reduced / eliminated through the designing and implementation of additional Low Impact Development (LID) servicing for storm water management at the Site. LID's which target areas surrounding upgradient portions of wetlands W1 through W6 would help maintain groundwater gradients toward the features without necessarily requiring a complete elimination of the infiltration deficit over the entire Site.

Reduction in Runoff Contribution:

Results of the wetland water balance shows there is reduced runoff within upgradient wetland catchments which is considered contribution for each of the wetlands W1 to W6. It is anticipated that the runoff deficits can be managed by introducing LIDs which collect and convey clean sources of runoff from residential lots. The system can outlet to infiltration trenches constructed around the wetland buffer to maintain groundwater gradients toward each of the wetland units. Runoff contribution can be maintained by sizing the trenches to allow larger precipitation/melt events to overflow to constructed outlets along the natural wetland inlets. It is anticipated that there is enough storm water surplus available and sufficient infiltration potential available in native soils based on in-situ infiltration testing results.

Discharged water from storm sewer outfalls should be designed to avoid direct discharge into the wetland where possible. Results of the wetland risk assessment (TRCA, Nov 2017) indicates that since the impervious cover was calculated to be under 15% of the total wetland catchment, that stormwater generated over the proposed development currently contributing to wetlands presently includes a low risk. should an outfall be considered with a direct discharge to the wetland, the risk to the wetland should be revaluated.

8.3 Point of Discharge and Groundwater Quality

A discharge plan will be required for the discharge of pumped groundwater from construction dewatering activities. The plan must identify the discharge location and ensure the discharge will not result in any adverse impacts by identifying the discharge measures to be installed and control measures to limit the turbidity of the discharge water.

Discharged water from temporary construction dewatering activities should be managed to avoid direct discharge of potentially impacted water into sensitive features such as the wetland. To manage the potential risks to surface water quality, a discharge plan should be developed for the discharge of pumped groundwater from the construction dewatering.

The results of the groundwater analytical testing indicate the quality of groundwater exceeded the Provincial Water Quality Objective (PWQO) for total cobalt. Therefore, pre-treatment of the pumped construction water will be required prior to discharging into any surface water bodies. Exceedances of metals can generally be treated through the use of a primarily filtration. The design and effectiveness of the pre-treatment system will be the responsibility of the pre-treatment system contractor. The quality of the discharge water must meet the guideline limits of the PWQO prior to discharging into any surface water features. If the pumped water is to be discharged into a surface water body, a monitoring plan will need to be prepared and submitted to the Toronto and Region Conservation Authority (TRCA), Peel Region and/or the Town of Caledon to obtain approval for a discharge permit.

8.4 Source Protection Area

The Sites are located within the Toronto Region Source Protection Area (SPA). The Sites were identified to be within an area of significant groundwater recharge; however, a vulnerability score was not specified for the Sites. Significant groundwater recharge areas are characterized by porous soils such as sand and gravel, which allows water to seep easily to the ground. A recharge area is considered significant when it helps maintain water levels in an aquifer that supplies a community with drinking water. Groundwater impacts as a result of construction should be assessed and minimize potential impacts to drinking water.

8.5 Highly Vulnerable Aquifer

The Sites are not located within a Highly Vulnerable Aquifer (HVA). No HVA impacts are anticipated due to the proposed development.

8.6 Wellhead Protection Area

The sites and the study area were not located within a municipal Wellhead Protection Area-Quantity (WHPA-Q). No WHPA-Q impacts are anticipated due to the proposed development.

8.7 Intake Protection Zone

The Sites and the study area are not located within a water intake protection zone (IPZ). No IPZ impacts are anticipated due to the proposed temporary dewatering.

8.8 Well Decommissioning

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

9.0 MONITORING AND MITIGATION

Based on the hydrogeological investigation, **Table 22** below provides a recommended monitoring program, triggers for mitigation and recommended mitigation measures for groundwater levels and the discharge of water during construction.

Table 22: Monitoring and Mitigation Plan

PERIOD	MONITORING LOCATION	MONITORING FREQUENCY	METHOD	TRIGGERS FOR MITIGATION	COMMENTS / RECOMENDATIONS
WATER LEVELS					
Pre-Construction	Groundwater level monitoring (available on-site monitoring wells)	Continuously for one week	Dataloggers within the existing wells	None	Complete hydrographs to document baseline water levels
	Existing surface water stations (including staff gauges and nested piezometers)	Continuously for one week	Dataloggers within the existing staff gauges and manual measurements in nested piezometer	None	Complete hydrograph to document baseline water levels

PERIOD	MONITORING LOCATION	MONITORING FREQUENCY	METHOD	TRIGGERS FOR MITIGATION	COMMENTS / RECOMENDATIONS
During construction	Existing monitoring wells or replacements adjacent to dewatering area	Daily until target water level is reached	Dataloggers with weekly downloads	Target drawdown not reached or exceeded	Increased / reduced pumping; if pumping is approaching 400 m^3/day, a PTTW will be required
	Discharge volume	Daily at discharge location	Manual with totalizing flow meter in-line	Flow exceeds predicted volumes	Reduce to maximum allowed or obtain a PTTW
	Existing surface water stations (including staff gauages and nested piezometers)	Continuously until pre-defined *review* and/or *response* trigger levels are reached	Dataloggers and manual monitoring with weekly downloads	Drawdown of groundwater levels in wetlands to pre-defined *review* and/or *response* levels	The *review* and *response* levels will be finalized upon completion of the 1-year pre-construction monitoring
	Groundwater Contribution to Wetland (if any)	Continuously until pre-defined *review* and/or *response* trigger levels are reached	Dataloggers and manual monitoring with weekly downloads	Drawdown of surface water flows in wetlands below pre-defined *review* and/or *response* levels	The *review* and *response* levels will be finalized upon completion of the 1-year pre-construction monitoring
Post-Construction	Existing monitoring wells or replacements adjacent to dewatering area	Weekly for one month or until water levels reach 90% of original static level	Datalogger water level monitoring with weekly downloads	NA	NA
	Existing surface water stations (including staff gauages and nested piezometers)	Weekly for one month or until water levels reach 90% of original static level	Datalogger water level monitoring with weekly downloads	N/A	N/A

PERIOD	MONITORING LOCATION	MONITORING FREQUENCY	METHOD	TRIGGERS FOR MITIGATION	COMMENTS / RECOMENDATIONS
WATER QUALITY					
During construction (discharge to surface water feature)	Groundwater Discharge from dewatering	Sample for parameters against the PWQO criteria Field monitoring for turbidity and correlation with lab results	Once the start of dewatering at the point of discharge Weekly from the dewatering system for the first month of active dewatering Assuming water quality is compliant, monthly for the remainder of the dewatering period.	Discharge quality exceeds the PWQO criteria Field TSS/Turbidity exceed the PWQO criteria	More frequent monitoring will be considered Enhanced treatment of the discharge water will be considered, if needed
During Construction (surface water quality in wetlands)	Surface water flows at each surface water station	Sample for parameters against the PWQO criteria Field monitoring for turbidity and correlation with lab results	Sampling to be completed during construction monitoring on a monthly basis, until trigger level is reached	Exceedance in background turbidity concentration in water quality by more than 20 NTU or total suspended solids concentration above 25 mg/L	Conduct a site visit with the contractor; revisit the effectiveness of the pre-treatment system with the contractor and property owner to potentially alter construction phasing/methodology plan; revisit surface runoff at the Site and sediment and erosion control measures; and assess the need for clean up of the HDFs to minimize sediment transport

10.0 LIMITATIONS

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

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

DS Consultants Ltd.

Prepared By:

Dorothy Santos, M.Sc.
Project Manager

Reviewed By:

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

Scott Watson, B.A.T.
GeoBase Solution (GBS) Ltd.

11.0 REFERENCES

[1] A Report to Humberking (I) Developments Limited and HumberKing (IV) Developments Limited, A Geotechnical Investigation for Proposed Mixed-Use Development, King Street and Humber Station Road, Town of Caledon", prepared by Soil Engineers Ltd., dated December 2021, File No. 2108-S069

[2] Chapman, L.J., and D.F. Putnam; The Physiography of Southern Ontario, Third Edition, Ontario Geological Survey Special Volume 2; 1984, & 2007.

[3] Draft- A Report to HumberKing (I) Developments Limited and HumberKing (IV) Developments Limited, Hydrogeological Assessment, Proposed Mixed Use Development King Street and Humber Station Road, Town of Caledon", prepared by Soil Engineers Ltd., dated December 2022, File No. 2108-W069

[4] Phase One Environmental Site Assessment, 14275 The Gore Road, Bolton, Ontario, by SPL Consultants Limited, August 13, 2014

[5] Freeze, R.A. and J.A. Cherry. "Groundwater". Prentice-Hall, Inc. Englewood Cliffs, NJ. 1979.

[6] Preliminary Geotechnical Investigation. Proposed Subdivision Development, 14275 The Gore Road, Town of Caledon, Ontario, by SPL Consultants Limited, August 25, 2014

[7] Bolton Residential Expansion Study: Phase 3 Technical Memorandum – Development of a Preliminary Natural Heritage System, by Dougan & Associates et. Al., June 16, 2014

[8] Pat M. Cashman and Martin Preene; Groundwater Lowering in Construction- Second Edition, CRC Press.

[9] Headwater Drainage Feature Assessment: In Support of the Bolton Residential Expansion Study, by Dougan & Associates, June 16, 2013

[10] Preliminary Geotechnical Investigation, Proposed Subdivision Development, Cook Property, Town of Caledon, Ontario, by SPL Consultants Limited, September 17, 2014

[11] Preliminary Geotechnical Investigation, Proposed Residential Subdivision, Bolton Option 3 Lands, Bolton, Ontario", by DS Consultants Ltd., dated September 4, 2020, File No.: 20-169-100

[12] Recommendation Report, Selection of Residential Expansion Area, Meridian Planning, June 19, 2014

[13] Revised Report on Preliminary Geotechnical Investigation Proposed Residential Development 7675 King Street Argo King I & II, Bolton, ON (DS Consultants Limited, 2024).

[14] Revised Report on Preliminary Geotechnical Investigation Proposed Development Caledon Station, Bolton, ON (DS Consultants Limited, 2024).

[15] Powers, J. Patrick, P.E. (1992); Construction Dewatering: New Methods and Applications - Second Edition, New York: John Wiley & Sons.

[16] Updated Preliminary Geotechnical Comments and Recommendations Proposed SWM Ponds, Caledon Station Subdivision, Caledon, ON, by DS Consultants Ltd, May 31,2024

[17] Wetland Water Balance Risk Evaluation, Toronto and Region Conservation Authority, 2017

[18] Toronto and Region Conservation Authority and Credit Valley Conservation, 2010. Low Impact Development Stormwater Management Planning and Design Guide.

[19] www.mndm.gov.on.ca/ogsearth.

[20] http://www.mto.gov.on.ca/IDF_Curves/map_acquisition.shtml

Tables

TABLE 1: Groundwater and Surface Water Levels, Caledon Station, Caledon, ON

Staff Gauges (SG)				08-Sep-20		22-Oct-20		9-Dec-20		18-Feb-21		07-Apr-21		09-Jun-21		03-Sep-21		27-Oct-21		06-Jan-22		09-Mar-22		05-May-22		07-Jul-22		08-Sep-22		08-Nov-22		04-Jan-23		21-Mar-23		13-Jul-23		11-Sep-23		21-Nov-23		13-Feb-24		15-May-24	
SG ID	TOP Elevation (masl)	Depth (top of pipe)	Surface Elev. (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)
SG W3-1	271.937	1.29	270.647	dry		dry		dry		no data			271.937		271.937	0	271.937		271.937	1.28	270.657	1.27	270.667	0	271.937	0	270.647	dry	270.647	dry	270.647	dry	270.647	dry	270.647	dry	270.647	Inaceessible	Inaceessible			Dry	270.647	Dry	270.647
SG-WHT6-E	270.853	1.445	269.408	dry		dry		dry		frozen		dry		dry		0	269.408	1.33	269.523	1.19	269.663	1.24	269.613	1.34	269.513	0	269.408	dry	269.408	dry	269.408	1.22	269.633	1.17	269.683	1.27	269.583	dry	269.408	Dry	269.408	1.31	269.543	Dry	269.408
Culvert	263.61		262.96	1.73	261.88	1.73	261.88	1.79	261.82	No data		No data		No data		No data		No data		No data		No data		No data		No data															263.61				
SG-W7-1	266.437	1.13	265.307	dry		dry		1.03	265.407	0.92	265.517	0.94	265.497	dry		Dry		0.83	265.607	0.78	265.657	0.72	265.717	0.84	265.597	0	265.307	dry	265.307	dry	265.307	0.8	265.637	0.61	265.827	0.77	265.667	Inaccessible	Inaccessible	Dry	265.307	0.53	265.907		
SG-W8-1	264.784	1.47	263.314	1.41	263.374			1.4	263.384	1.32	263.464	1.35	263.434	1.46	263.324	1.47	263.314	1.28	263.504	1.27	263.514	1.16	263.624	1.32	263.464	1.57	263.214	dry	263.314	1.46	263.324	1.27	263.514	1.16	263.624	1.75	263.034	1.25	263.534	1.42	263.364	1.33	263.454	0.36	264.424
SG-HDF-4				dry		dry		dry		frozen		dry													0																				
SG-W5-1	262.383	1.29	261.093	dry		1.29	261.093	1.28	261.103	1.15	261.233	1.3	261.083	0	262.383													dry	260.855		260.895		260.955	0.92	261.463	0.96	261.423	Inaccessible		no data		1.31	261.073	1.44	260.943
SG-W4-1	262.408	1.41	260.998	dry		dry		1.38	261.028	1.27	261.138	1.44	260.998	0	262.408													dry	260.833		260.833		261.033	0.95	261.458	1	261.408	dry		1.07	261.338	0.84	261.568	1.04	261.368
SG-W2-1	262.62	1.35	261.27	1.25	261.37	1.35	261.27	1.17	261.45	1.07	261.55	1.28	261.34		262.62	1.3	261.32	1.22	261.4	1.15	261.47	0.92	261.7	1.2	261.42	1.29	261.33	1.27	261.35	1.24	261.38	1.21	261.41	1.21	261.41	1.23	261.39	1.31	261.31	1.21	261.41	1.27	261.35	1.25	261.37
SG-HDF-3		1.36		dry		1.35		1.42		1.31		1.43		dry																															
																					0		0																						
New W4	261.953	1.12	260.833																									dry	260.833	dry	260.833	0.92	261.033	0.92	261.033	0.96	260.993	dry		1.07	260.883	0.84	261.113	1.04	260.913
New W5	261.895	1.04	260.855																									dry	260.855	1	260.895	0.94	260.955	0.92	260.975	1	260.895	Inaccessible		no data		1.31	260.585	1.44	260.455

Pizometers (PZ)					08-Sep-20		22-Oct-20		9-Dec-20		18-Feb-21		07-Apr-21		09-Jun-21		03-Sep-21		27-Oct-21		06-Jan-22		09-Mar-22		05-May-22		07-Jul-22		08-Sep-22		08-Nov-22		04-Jan-23		21-Mar-23		13-Jul-23		11-Sep-23		21-Nov-23		13-Feb-24		15-May-24	
PZ ID	TOP Elevation (masl)	Depth (top of pipe)	Stick-up (m)	Surface Elev. (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)
W3-PZS	271.68	1.77	0.81	270.87	1.62	270.06	1.31	270.37	1.12	270.56	no data		0.96	270.716	0	271.676	0.00	271.68	1.08	270.60	1.16	270.52	1.12	270.56	1.12	270.56	1.85	269.83	1.83	269.85	1.56	270.12	1.08	270.60	1.05	270.63	1.06	270.62	Inacessible		Inacessible		1.13	270.55	1.08	270.60
W3-PZD	271.77	2.65	0.78	270.99	1.51	270.26	1.32	270.45	1.14	270.63	no data		0.93	270.84	0	271.77	2.27	269.50	1.06	270.71		271.77	0.7	271.07	1.17	270.60	1.9	269.87	1.87	269.90	1.66	270.11	1.08	270.69	1.13	270.64	1.15	270.62	Inacessible		Inacessible		1.23	270.54	1.16	270.61
PZ-WHT6-E(S)	270.21	1.82	0.65	269.56	dry		dry		1.78	268.43	1.17	269.04	1.78	268.432	1.88	268.332	0.00	270.21	0.74	269.47		270.21	0.56	269.65	1.17	269.04		268.39	dry	268.39	dry	268.39	0.82	269.39	0.71	269.50	0.74	269.47	1.9	268.31	Dry	268.39	0.72	269.49	1.5	268.71
PZ-WHT6-E(D)	270.25	3.29	0.75	269.50	2.18	268.07	2.11	268.14	1.71	268.54	1.17	269.08	1.84	268.414	1.95	268.304	3.00	267.25	1.56	268.69	1.16	269.09	1.61	268.64	1.46	268.79	1.95	268.30	dry	266.96	dry	266.96	1.87	268.38	0.87	269.38	1.7	268.55	2.04	268.21	2.17	268.08	0.73	269.52	1.56	268.69
W7-PZS	266.20	1.63	0.53	265.67	dry		dry		0.60	265.60	0.53	265.67	0.62	265.58	1.12	265.08	0.00	266.20	0.83	265.37	0.78	265.42	0.49	265.71	0.53	265.67	1.32	264.88	dry	264.57	dry	264.57	0.45	265.75	0.43	265.77	0.6	265.60	Inacessible		Dry	264.57	0.47	265.73	0.48	265.72
W7-PZD	266.20	2.37	0.56	265.64	dry		2.23	263.97	0.60	265.60	0.52	265.68	0.62	265.58	1.12	265.08	0.00	266.20	0.83	265.37	0.78	265.42	0.5	265.70	0.53	265.67	1.31	264.89	dry	263.83	dry	263.83	0.43	265.77	0.37	265.83	1.71	264.49	Inacessible		1.99	264.21	0.57	265.63	0.55	265.65
W8-PZS	264.39	2.48	0.83	263.56	1.00	263.39	2.21		0.99	263.40	0.95	263.44	1.03	263.356	0	261.91	1.08	263.31	0.83	263.56	0.83	263.56	0.07	264.32	0.92	263.47	1.21	263.18	1.07	263.32	1.05	263.34	0.97	263.42	0.82	263.57	0.94	263.45	1.21	263.18	1.06	263.33	0.92	263.47	0.96	263.43
W8-PZD	264.34	1.59	0.75	263.59	0.98	263.36	dry		0.98	263.36	0.92	263.42	1.01	263.334	0	262.75	1.10	263.24	0.83	263.51	0.94	263.40	0.07	264.27	0.88	263.46	1.19	263.15	1.14	263.20	1.01	263.33	0.82	263.52	0.74	263.60	0.85	263.49	1.16	263.18	0.98	263.36	0.88	263.46	0.89	263.45
W5-PZD	261.89	2.51	0.67	261.22	0.80	261.09	1.97	259.92	0.72	261.17	0.65	261.24	1.07	260.817	0	261.887		261.89				261.89		261.89					1.5	260.86		261.10		261.17		261.18	1.32	260.57	1.53	260.36	1.26	260.63	1.11	260.78	1.22	260.67
W5-PZS	262.17	1.71	0.90	261.27	1.06	261.11	1.09	261.08	0.94	261.23	0.82	261.35	0.73	261.438	0	262.168		262.17				262.17		262.17					1.37	260.86		260.96		261.02		261.03	1.24	260.93	1.42	-0.52	1.18	260.99	1.07	261.10	1.16	261.01
W4-PZD	261.89	2.35	0.74	261.15	1.19	260.70	2.18	259.71	0.90	260.99	0.78	261.11	0.93	260.957	0	261.887		261.89				261.89		261.89					1.18	260.47		260.37		261.08		261.11	0.47	261.42	1.15	260.74	0.67	261.22	0.71	261.18	0.67	261.22
W4-PZS	262.17	1.49	0.86	261.31	1.27	260.90	dry		0.99	261.18	0.85	261.32	0.96	261.208	0	262.168		262.17				262.17		262.17					dry	260.506		260.51		261.03		261.03	0.93	261.24	1.4	260.77	1	261.17	1.03	261.14	0.99	261.18
W2-PZD	262.38	2.92	0.90	261.48	0.95	261.43	1.03	261.35	0.97	261.41	0.93	261.45	0.74	261.637	0.96	261.417	1.02	261.36	0.94	261.44	0.87	261.51	0.9	261.48	0.98	261.40	1.02	261.36	1.03	261.35	1.02	261.36	0.9	261.48	0.93	261.45	0.99	261.39	1.02	261.36	0.98	261.40	0.93	261.45	1.01	261.37
W2-PZS	262.22	1.73	0.68	261.54	0.75	261.47	0.84	261.38	0.78	261.44	0.75	261.47	1.00	261.219	0.9	261.319	0.00	262.22	0.83	261.39		262.22	0.82	261.40	0.89	261.33	0.85	261.37	0.97	261.25	0.9	261.32	0.86	261.36	0.87	261.35	0.88	261.34	0.96	261.26	0.87	261.35	0.75	261.47	Inacessible	
new W5-PZD	262.36	2.72	1.08	261.28																									1.5	260.86	1.26	261.10	1.19	261.17	1.18	261.18	1.32	261.04	1.53	260.83	1.26	261.10	1.11	261.25	1.22	261.14
new W5-PZS	262.23	1.75	0.96	261.27																									1.37	260.86	1.27	260.96	1.21	261.02	1.2	261.03	1.24	260.99	1.42	260.81	1.18	261.05	1.07	261.16	1.16	261.07
new W4-PZD	261.65	2.20	0.55	261.099																									1.18	260.47	1.28	260.37	0.57	261.08	0.54	261.11	0.47	261.18	1.4	260.25	0.67	260.98	0.71	260.94	0.67	260.98
new W4-PZS	261.98	1.47	0.82	261.156																									dry	260.506	dry	260.506	0.95	261.03	0.95	261.03	0.93	261.05	1.14	260.84	1	260.98	1.03	260.95	0.99	260.99

Monitoring Well (MW)				06-Aug-20		08-Sep-20		22-Oct-20		9-Dec-20		18-Feb-21		07-Apr-21		09-Jun-21		03-Sep-21		27-Oct-21		06-Jan-22		09-Mar-22		05-May-22		07-Jul-22		08-Sep-22		08-Nov-22		04-Jan-23		21-Mar-23		13-Jul-23		11-Sep-23		21-Nov-23		13-Feb-24		15-May-24	
MW ID	Surface Elevation (masl)	Depth (mbgs)	Stick-Up (m)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)
BH20-1	279.83	6.92	0.96	5.07	275.72	5.20	275.59	5.47	275.32	5.48	275.31	5.28	275.51	4.8	275.992	5.1	275.692	5.64	275.15	5.48	275.31	4.72	276.07	5.14	275.65	4.63	276.16	4.93	275.86	5.52	275.27	5.75	275.04	5.94	274.85	4.92	275.87	4.87	275.92	5.27	275.52	5.79	275.00	4.79	276.00	4.06	276.73
BH20-2	278.80	7.20	0.94	7.06	272.68	7.30	272.44	7.42	272.32	7.39	272.35	7.36	272.38	7.01	272.726	7.29	272.446	7.77	271.97	7.39	272.35	6.82	272.92	6.95	272.79	6.82	272.92	7.05	272.69	7.57	272.17	7.89	271.85	7.8	271.94	7.02	272.72	6.77	272.97	7.17	272.57	7.56	272.18	6.8	272.94	6.06	273.68
BH20-3	278.55	6.20	0.95	6.94	272.56	dry		dry		7.13	272.37	Dry		7	272.499	7.06	272.439					6.7	272.80	6.97	272.53	6.7	272.80	6.96	272.54	7.01	272.49	7.06	272.44	7.09	272.41	6.88	272.62	6.65	272.85	6.99	272.51	7.02	272.48	6.68	272.82	5.94	273.56
BH20-4	277.07	5.54	0.00	4.62	272.45	4.75	272.32	inaccessible		inaccessible		Frozen		4.56	272.51	4.96	272.961	6.43	270.64	5.13	271.94					4.49	272.58	4.66	272.41	5.21	271.86	5.56	271.51	5.52	271.55	4.75	272.32	4.21	272.86	4.75	272.32	4.87	272.20	4.53	272.54	3.61	273.46
BH20-5	273.07	9.33	0.97	3.75	270.29	4.06	269.98	4.35	269.69	4.25	269.79	4.03	270.01	3.76	270.277	4.01	270.027	4.57	269.47	4.18	269.86	3.48	270.56	3.71	270.33	3.3	270.74	3.83	270.21	4.26	269.78	4.81	269.23	4.73	269.31	6.65	267.39	Inaccessible		Inaccessible		Inaccessible		Inaccessible		2.79	271.25
BH20-6	270.95	7.64	0.86	7.63	264.18	2.01	269.80	1.63	270.18	1.08	270.73	1.17	270.64	1.15	270.655	1.39	270.415	1.75	270.06	1.05	270.76			1.19	270.62	1.1	270.71	1.34	270.47	1.48	270.33	1.4	270.41	1.31	270.50	1.12	270.69	1.2	270.61	Inaccessible		Inaccessible		1.08	270.73	0.96	270.85
BH20-7	261.71	7.65	1.08	dry		7.60	255.19	4.41	258.38	2.18	260.61	1.22	261.57	1.1	261.691	1.34	261.451	1.22	261.57	1.03	261.76					1.31	261.48	1.31	261.48	1.26	261.53	1.06	261.73	1.05	261.74	1.21	261.58	5.7	257.09	2.38	260.41	1.27	261.52	1.12	261.67	1.22	261.57
BH20-9	274.11	7.37	0.88	5.31	269.68	5.60	269.39	5.85	269.14	5.89	269.10	5.71	269.28	5.08	269.911	5.63	269.361	6.15	268.84	5.86	269.13	5.21	269.78	5.41	269.58	4.99	270.00	5.32	269.67	5.85	269.14	6.19	268.80	6.11	268.88	5.38	269.61	5	269.99	5.5	269.49	5.85	269.14	5.17	269.82	4.38	270.61
BH20-11	270.10	9.07	1.00	6.42	264.68	6.37	264.73	6.33	264.77	6.22	264.88	5.98	265.12	3.6	267.495	3.86	267.235	4.56	266.54	2.68	268.42	3.23	267.87	3.77	267.33	3.34	267.76	3.76	267.34	4.62	266.48	5.69	265.41	3.66	267.44	2.63	268.47	3.33	267.77	4.27	266.83	5.06	266.04	2.81	268.29	3.29	267.81
BH20-12	264.94	4.60	0.77	0.97	264.74	0.87	264.84	0.91	264.80	0.79	264.92	0.58	265.13	0.47	265.241	0.53	265.181	0.95	264.76	0.86	264.85					0.26	265.45	0.41	265.30	0.76	264.95	0.85	264.86	0.88	264.83	0.62	265.09	0.22	265.49	Inaccessible		0.75	264.96	0.45	265.26	0.07	265.64
BH20-14	267.65	11.04	0.88	4.20	264.33	4.31	264.22	4.47	264.06	4.13	264.40	4.06	264.47	3.75	264.781	4.11	264.421	4.67	263.86	1.08	267.45	1.34	267.19	3.83	264.70	1.81	266.72	4.03	264.50			4.44	264.09	1.18	267.35	1.07	267.46	3.87	264.66	Inaccessible		4.18	264.35	1.23	267.30	2.83	265.70
BH20-15	264.14	9.38	0.95	3.36	261.73	3.28	261.81	3.36	261.73	2.90	262.19	2.76	262.33	2.72	262.367	3.03	262.057	3.43	261.66	3	262.09	2.46	262.63	2.81	262.28	2.68	262.41	3.05	262.04			3.38	261.71	3.02	262.07	2.6	262.49	2.48	262.61	Inaccessible		Inaccessible		Inaccessible		2.32	262.77
BH20-16	265.54	7.79	0.88	3.00	263.42	3.15	263.27	3.37	263.05	3.16	263.26	3.19	263.23	2.87	263.547	3.14	263.277	3.47	262.95	2.95	263.47	2.57	263.85	2.56	263.86	2.6	263.82	2.96	263.46	3.33	263.09	3.43	262.99	3.16	263.26	2.18	264.24	2.79	263.63	3.11	263.31	3.17	263.25	2.32	264.10	2.37	264.05
BH22-1	279.02	7.40	1.00																											4.42	275.60	5.27	274.75	5.22	274.80	3.62	276.40	Inaccessible		artesian		Inaccessible		Inaccessible		2.86	277.16
BH22-3	274.80	5.67	1.02																											2.39	273.43	3.07	272.75	1.91	273.91	1.34	274.48	Inaccessible		Inaccessible		Inaccessible		Inaccessible		0.96	274.86
BH22-5	279.72	7.64	1.06																											7.56	273.22	8.02	272.76	8.03	272.75	6.65	274.13	Inaccessible		Inaccessible		Inaccessible		Inaccessible		4.86	275.92
BH22-10	269.87	8.19	1.04																											1.9	269.01	2.09	268.82	1.75	269.16	1.26	269.65	0.95	269.96	1.84	269.07	1.77	269.14	1.12	269.79	0.57	270.34
BH22-11	272.88	6.69	0.83																											4.41	269.30	4.75	268.96	4.64	269.07	3.94	269.77	3.51	270.20	4.27	269.44	4.4	269.31	3.69	270.02	2.93	270.78
BH22-13	276.116	9.41	0.97																											6.98	270.11	7.38	269.706	7.17	269.92	6.42	270.67	6.12	270.97	Inaccessible		Inaccessible		6.18	270.91	5.46	271.63
BH22-14	271.389	12.29	0.78																											12.37	259.80	8.66	263.509	2.18	269.99	1.11	271.06	0.88	271.29	Inaccessible		Inaccessible		0.87	271.30	0.52	271.65
BH22-15	270.219	7.25	0.83																											2.75	268.30	3.94	267.109			3.03	268.02	1.96	269.09	Inaccessible		3.14	267.91	2.59	268.46	1.85	269.20
BH22-17	268.984	7.56	0.9																											3.15	266.73	3.79	266.094	1.54	268.34	0.19	269.69	1.41	268.47	1.69	268.19	1.82	268.06	1.36	268.52	1.11	268.77
BH22-20	269.397	7.62	0.78																											3.24	266.94	4.21	265.967	4.68	265.50	2.09	268.09	1.99	268.19	Inacessible		Inacessible		4.51	265.67	4.26	265.92
BH22-22	267.757	7.68	0.83																											2.27	266.32	3.04	265.547	3.22	265.37	1.56	267.03	1.43	267.16	Inacessible		2.54	266.05	1.48	267.11	missed	
BH22-25	270.904	10.78	0.88																											3.91	267.87	4.21	267.574	4.02	267.76	3.15	268.63	2.98	268.80	3.72	268.06	3.83	267.95	2.95	268.83	2.48	269.30
BH22-27	271.161	12	0.92																											5.15	266.93	5.31	266.771	5.01	267.07	3.95	268.13	3.74	268.34	3.92	268.16	4.04	268.04	3.81	268.27	3.55	268.53
BH22-28	270.896	10.68	0.88																											5.68	266.10	5.81	265.966	5.59	266.19	4.56	267.22	4.45	267.33	4.94	266.84	5.08	266.70	4.89	266.89	4.22	267.56
BH22-29	268.866	8.75	0.9																											4.69	265.08	4.85	264.916	4.8	264.97	3.55	266.22	3.94	265.83	4.41	265.36	4.66	265.11	Inacessible		3.42	266.35
BH22-32	265.28	11.6	0.82																											1.16	264.94	1.27	264.83	0.89	265.21	0.34	265.76	0.45	265.65	0.98	265.12	1.07	265.03	0.25	265.85	0.08	266.02
BH22-33	267.947	9.23	1																											5.29	263.66	5.42	263.527	5.25	263.70	4.17	264.78	4.01	264.94	4.81	264.14	4.98	263.97	4.74	264.21	4.37	264.58
BH22-35	266.053	10.81	0.92																											3.15	263.82	3.26	263.713	2.94	264.03	2.15	264.82	2.51	264.46	2.92	264.05	3.03	263.94	2.23	264.74	1.98	264.99
BH22-36	261.706	4.09	1.04																											2.74	260.01	2.83	259.916	1.18	261.57	1.18	261.57	1.42	261.33	Inacessible		Inacessible		1.3	261.45	1.32	261.43
BH22-39	266.544	4.14	0.87																											2.29	265.12	2.28	265.134	1.09	266.32	0.85	266.56	1.14	266.27	1.37	266.04	1.51	265.90	1.11	266.30	1.07	266.34
BH22-40A	265.058	7.73	0.96																											dry	257.33	5.69	260.328	3.48	262.54	2.08	263.94	2.02	264.00	Inacessible		Inacessible		1.9	264.12	1.88	264.14
BH22-40B	265.058	4.02	0.97																											dry	261.04	4.83	261.198	4.56	261.47	2.53	263.50	2.45	263.58	Inacessible		Inacessible		1.48	264.55	1.46	264.57
BH22-42	266.657	7.38	0.98																											6.18	261.46	3.66	263.977	3.31	264.33	1.49	266.15	1.52	266.12	Inacessible		Inacessible		1.31	266.33	1.3	266.34

TABLE 2: Groundwater and Surface Water Levels, Argo King I & II, Caledon, ON

SG				24-Oct-22		21-Nov-22		19-Dec-22		26-Jan-23		24-Feb-23		23-Mar-23		26-Apr-23		25-May-23		25-Jul-23		25-Aug-23		26-Sep-23		23-Oct-23		20-Dec-23		16-May-24	
SG ID	TOP Elevation (masl)	Depth (top of pipe)	Surface Elev. (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)
SG1-1	261.479	1.43	260.049	dry	260.049	dry	260.049	1.29	260.19	1.30	260.18	1.31	260.17	1.23	260.25	1.31	260.17	1.32	260.159	1.31	260.169	1.28	260.199	Dry	260.049	dry	260.049	1.27	260.209	1.24	260.239
SG1-2	261.888	1.36	260.528	dry	260.528	dry	260.528	1.23	260.66	1.21	260.68	1.24	260.65	1.19	260.70	1.23	260.66	1.28	260.608	1.27	260.618	1.24	260.648	Dry	260.528	dry	260.528	1.24	260.648	1.22	260.668
SG1-3	260.755	1.38	259.375	dry	259.375	dry	259.375	1.26	259.50	1.24	259.52	1.26	259.50	1.24	259.52	1.32	259.44	1.34	259.415	1.34	259.415	1.3	259.455	1.34	259.415	dry	259.375	0.86	259.895	1.29	259.465
SG2	262.619	1.37	261.249	dry	261.249	dry	261.249	dry	261.249	1.36	261.26	1.25	261.37	1.23	261.39	1.33	261.29	dry	261.249	dry	261.249	dry	261.249	Dry	261.249	dry	261.249	Dry	261.249	0.9	261.719
SG3	261.818	1.29	260.528	dry	260.528	dry	260.528	1.13	260.69	dry	260.53	1.15	260.67	1.22	260.60	dry	260.53	dry	260.528	dry	260.528	dry	260.528			1.29	260.528	Frozen		Dry	260.528

PZ					24-Oct-22		21-Nov-22		19-Dec-22		26-Jan-23		24-Feb-23		23-Mar-23		26-Apr-23		25-May-23		25-Jul-23		25-Aug-23		26-Sep-23		23-Oct-23		20-Dec-23		16-May-24	
PZ ID	TOP Elevation (masl)	Depth (top of pipe)	Stick-up (m)	Surface Elev. (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)
PZ1-1S	260.01	2.06	1.13	258.88	1.21	258.80	1.24	258.77	1.28	258.73	dry	257.95	1.19	258.82	1.19	258.82	1.20	258.81	1.23	258.78	1.36	258.65	1.27	258.74	1.26	258.75	1.21	258.80	dry	257.95	1.23	258.78
PZ1-1D	260.24	3.22	1.37	258.87	1.06	259.18	1.56	258.68	1.59	258.65	1.44	258.80	1.42	258.82	1.43	258.81	1.47	258.77	1.52	258.72	1.57	258.67	1.56	258.68	1.57	258.67	1.06	259.18	1.50	258.74	1.47	258.77
PZ1-2S	257.56	1.87	0.73	256.83	1.12	256.44	0.87	256.69	0.77	256.79	0.70	256.86	0.73	256.83	0.67	256.89	0.75	256.81	0.77	256.79	0.78	256.78	0.74	256.82	0.81	256.75	1.12	256.44	0.73	256.83		
PZ1-2D	257.64	2.73	0.78	256.86	1.00	256.64	0.94	256.70	0.80	256.84	0.68	256.96	Frozen		0.74	256.90	0.85	256.79	0.82	256.82	0.88	256.76	0.92	256.72	0.84	256.80	1	256.64	0.82	256.82	0.82	256.82
PZ1-3S	259.07	2.13	0.95	258.12	1.25	257.82	1.13	257.94	1.07	258.00	1.05	258.02	0.97	258.10	0.97	258.10	1.06	258.01	1.07	258.00	1.21	257.86	1.08	257.99	1.08	257.99	1.25	257.82	1.03	258.04	1.04	258.03
PZ1-3D	259.22	2.95	1.10	258.12	0.91	258.31	1.29	257.93	1.22	258.00	1.19	258.03	1.14	258.08	1.12	258.10	1.20	258.02	1.21	258.01	1.22	258.00	1.19	258.03	1.22	258.00	0.91	258.31	1.19	258.03	1.27	257.95
PZ2S	260.83	2.08	0.89	259.94	1.68	259.15	1.50	259.33	1.20	259.63	0.98	259.85	0.85	259.98	0.82	260.01	0.92	259.91	1.11	259.72	1.07	259.76	1.05	259.78	1.36	259.47	1.68	259.15	Dry	258.75	0.96	259.87
PZ2D	261.20	3.25	1.23	259.97	2.54	258.66	1.9	259.30	1.62	259.58	1.38	259.82	1.24	259.96	1.20	260.00	1.34	259.86	1.51	259.69	1.43	259.77	1.41	259.79	1.74	259.46	2.54	258.66	1.85	259.35	1.40	259.80
PZ3S	260.11	2.22	0.82	259.29	dry	257.89	2.02	258.09	1.39	258.72	1.04	259.07	0.91	259.20	0.81	259.30	0.96	259.15	1.34	258.77	1.25	258.86	1.03	259.08	No Data		dry	257.89	1.20	258.91	1.16	258.95
PZ3D	259.89	2.70	0.61	259.28	2.29	257.60	1.83	258.06	1.53	258.36	0.92	258.97	0.70	259.19	0.61	259.28	0.74	259.15	1.17	258.72	1.08	258.81	0.94	258.95			2.29	257.60	0.85	259.04	0.98	258.91

MW				26-Oct-22		21-Nov-22		19-Dec-22		26-Jan-23		24-Feb-23		23-Mar-23		26-Apr-23		25-May-23		25-Jul-23		25-Aug-23		26-Sep-23		23-Oct-23		20-Dec-23		16-May-24	
MW ID	Surface Elevation (masl)	Depth (mbgs)	Stick-Up (m)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)	Depth to Water (TOP)	Depth to Water (masl)
BH19-1	257.19	5.95	0.74	1.40	256.53	1.50	256.43	1.56	256.37	0.67	257.26	0.45	257.48	0.40	257.53	0.67	257.26	0.71	257.22	0.63	257.30	0.8	257.13	1.1	256.83	1.22	256.71	1.19	256.74	0.56	257.37
BH19-3	259.82	6.06	0.71	1.48	259.05	1.52	259.01	1.45	259.08	0.77	259.76	0.61	259.92	0.59	259.94	0.68	259.85	0.83	259.70	0.77	259.76	1.15	259.38	1.48	259.05	1.57	258.96	0.75	259.78	0.67	259.86
BH19-4	262.68	6.00	0.60	artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian	
BH19-5	260.69	6.10		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian	
BH19-6	259.35	6.05	0.77	1.52	258.60	1.60	258.52	1.41	258.71	1.22	258.90	1.20	258.92	1.04	259.08	1.21	258.91	1.29	258.83	1.22	258.90	1.12	259.00	1.08	259.04	1.05	259.07	Data Missing		1.07	259.05
BH19-7	260.44	7.1	0.88	no data				1.96	259.36	1.03	260.29	1.08	260.24	0.93	260.39	1	260.32	1.14	260.18	1.51	259.81	2.12	259.20	Tall Grass		2.31	259.01	1.81	259.51	1.05	260.27
BH1	260.44	4.59	0.71	3.82	257.33	2.97	258.18	2.74										1.31		1.66		1.67		1.63		2.48		1.87		1.11	
BH22-1	262.14	8.21	0.95	artesian		damaged		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian	
BH22-5	259.12	7.70	0.96	1.65	258.43	1.70	258.38	1.76	258.32			0.45	259.63	0.45	259.63	0.75	259.33	0.82	259.26	0.85	259.23	1.18	258.90	1.35	258.73	1.45	258.63	0.88	259.20	0.7	259.38
BH22-7	257.63	10.33	1.07	2.46	256.24	2.69	256.01	2.62	256.08	1.39	257.31	0.94	257.76	0.99	257.71	1.25	257.45	1.2	257.50	1.33	257.37	1.53	257.17	1.84	256.86	2.01	256.69	2.13	256.57	0.69	258.01
BH22-8	259.44	9.37	1.00	2.38	258.06	2.24	258.20	2.20	258.24	1.27	259.17	1.18	259.26	1.00	259.44	1.11	259.33	1.15	259.29	1.11	259.33	1.24	259.20	1.23	259.21	1.9	258.54	1.58	258.86	1.16	259.28
BH22-9	261.62	7.45	0.67	artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian		artesian	

TABLE 3: Channel Transect Flow, Caledon Station, Caledon, ON

Date	SG W2		SG W3		SG W4		SG W5		SG WHT6-E		SG W7		SG W8	
	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day
2020-09-08	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020-10-23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2020-12-09	0	0	0	0	23.76	23760	258.768	258768	0	0	0	0	0	0
2021-02-18	0	0	0	0	23.76	23760	258.768	258768	0	0	0	0	0	0
2021-04-27	475.2	475200	0	0	0	0	113.4	113400	0	0	59.616	59616	58.32	58320
2021-06-09	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-09-03	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2021-10-29	0	0	0	0	451.656	451656	38.016	38016	2471.904	2471904	0	0	989.712	989712
2022-01-06	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022-03-09	0	0	0	0	649.728	649728	154.44	154440	787.968	787968	0	0	222.912	222912
2022-05-05	660.096	660096	21.168	21168	69.12	69120	235.44	235440	158.112	158112	0	0	10.368	10368
2022-07-07	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022-09-08	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2022-11-08	0	0	0	0	0	0	6.048	6048	0	0	0	0	0	0
2023-01-04	0	0	10.2384	10238.4	565.056	565056	360.72	360720	955.584	955584	0	0	289.44	289440
2023-03-21	77.544	77544	0	0	1487.808	1487808	385.776	385776	1198.368	1198368	250.128	250128	6885.648	6885648
2023-07-13	86	86400	0	0	1675	1674864	397	397440	1017	1016712	192	192240	6487	6487128
2023-09-11	98	97632	0	0	0	0	0	0	0	0	0	0	2654	2653776
2023-11-21	55	55080	0	0	0	0	0	0	0	0	0	0	1853	1853064
2024-02-13	0	0	0	0	308	307584	216	216000	106	105840	0	0	0	0
2024-05-15	285	285120	0	0	178	178416	38	37584	0	0	0	0	0	0

TABLE 4: Channel Transect Flow, Argo King I & II, Caledon, ON

Date	SG1-1		SG 1-2		SG 1-3		SG 2		SG 3	
	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day	M^3/day	L/day
26-Oct-22	0	0	0	0	0	0	0	0	0	0
21-Nov-22	0	0	0	0	0	0	0	0	0	0
19-Dec-22	0	0	0	0	0	0	0	0	0	0
26-Jan-23	0	0	0	0	0	0	0	0	0	0
24-Feb-23	0	0	0	0	0	0	0	0	0	0
23-Mar-23	1054.08	1054080	2790.72	2790720	634.176	634176	0	0	761.4	761400
26-Apr-23	57.024	57024	100.224	100224	0	0	0	0	43.2	43200
25-May-23	1	1296	0	0		0	0	0	0	0
25-Jul-23	54	54432	0	0	0	0	0	0	0	0
25-Aug-23	1860	1860386	0	0	0	0	0	0	0	0
26-Sep-23	0	0	0	0	0	0	0	0	0	0
23-Oct-23	48	48384	0	0	0	0	0	0	0	0
20-Dec-23	0	0	0	0	0	0	0	0	0	0
16-May-24	0	0	0		0	0	0	0	0	0

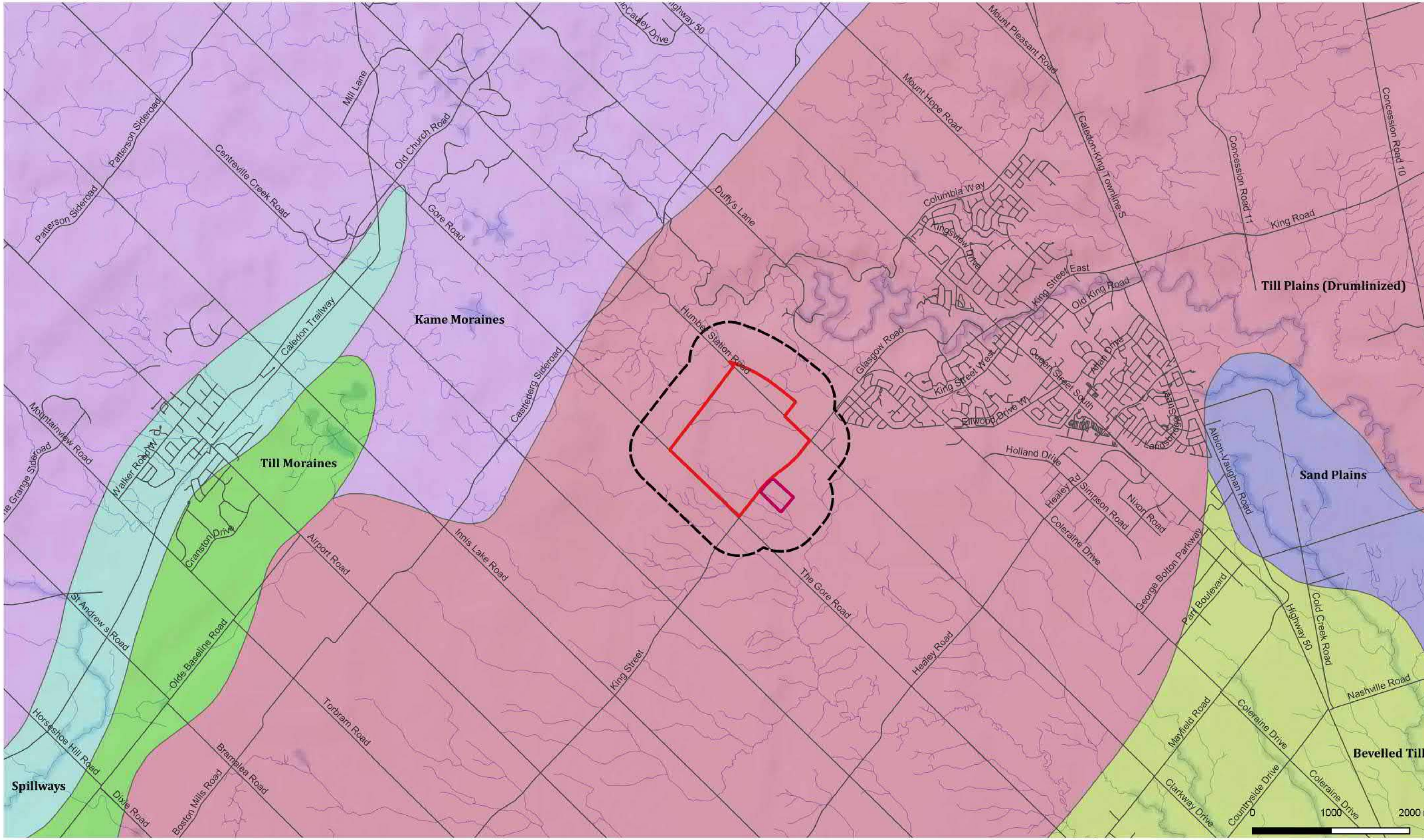
Figures

Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- Parcels
- Wetland

DS CONSULTANTS LTD. 6221 Highway 7, UNIT 16 Vaughan, Ontario L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca	Project: HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON			N
	Title: **SITE LOCATION PLAN**			
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Size: 11x17	Approved By: D.S	Drawn By: S.Y	Date: February 2023
	Rev. 0	Scale: As Shown	Project No.: 20-169-104	Figure No.: 1
		Image/Map Source: Google Satellite Image		

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 1 – Site Location Plan.qgs May-16 11:55



Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- 500m Buffer
- Bevelled Till Plains
- Kame Moraines
- Sand Plains
- Spillways
- Till Moraines
- Till Plains (Drumlinized)

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

Project: HYDROGEOLOGICAL INVESTIGATION
Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON

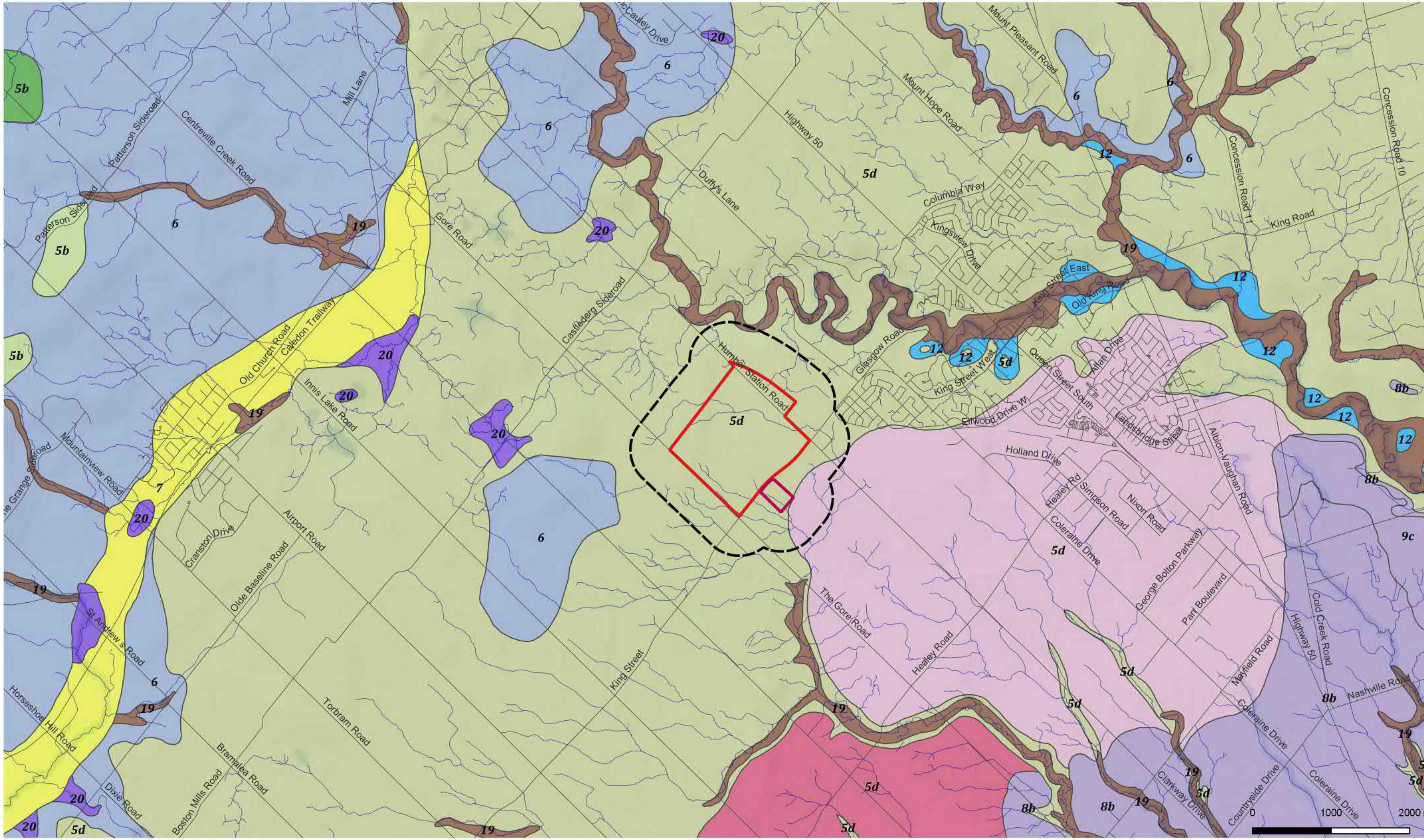
Title: **REGIONAL PHYSIOGRAPHY MAP**

N

Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES

Size: 11x17	Approved By: D.S	Drawn By: S.Y	Date: February 2023
Rev. 0	Scale: As Shown	Project No.: 20-169-104	Figure No.: 2A
	Image/Map Source: *Google Satellite Image*		

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 2A – Regional Physigraphy Map.qgs May-16 09:07



Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- 500m Buffer
- 12 - Older Alluvium
- 19 - Modern Alluvium
- 20 - Bog Deposits
- 5b - Halton Till
- 5b - Northern Lower Till
- 5b - Wentworth Till
- 5d - Wildfield Till
- 6 - Ice-contact stratified drift
- 7 - Sand
- Wildfield Till

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

Project: HYDROGEOLOGICAL INVESTIGATION
Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON

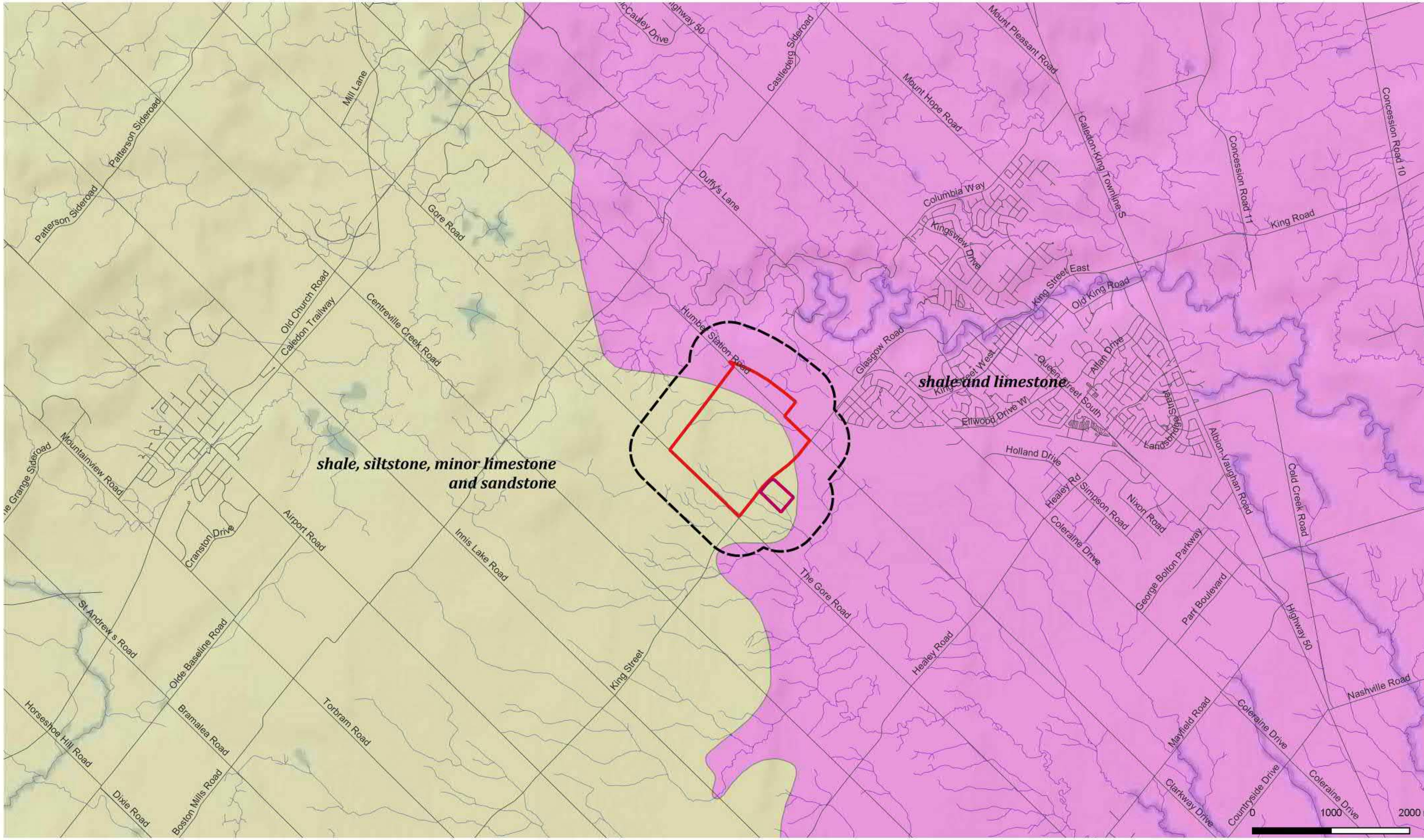
N

Title: **SURFICIAL GEOLOGY MAP**

Client: CALEDON COMMUNITY PARTNERS
c/o GLEN SCHNARR & ASSOCIATES

Size: 11x17	Approved By: D.S	Drawn By: S.Y	Date: February 2023
Rev. 0	Scale: As Shown	Project No.: 20-169-104	Figure No.: **2B**
	Image/Map Source: *Google Satellite Image*		

J:\GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 2B – Surficial Geology Map.qgs May-16 09:09



Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- 500m Buffer
- Georgian Bay Formation
- Queenston Formation

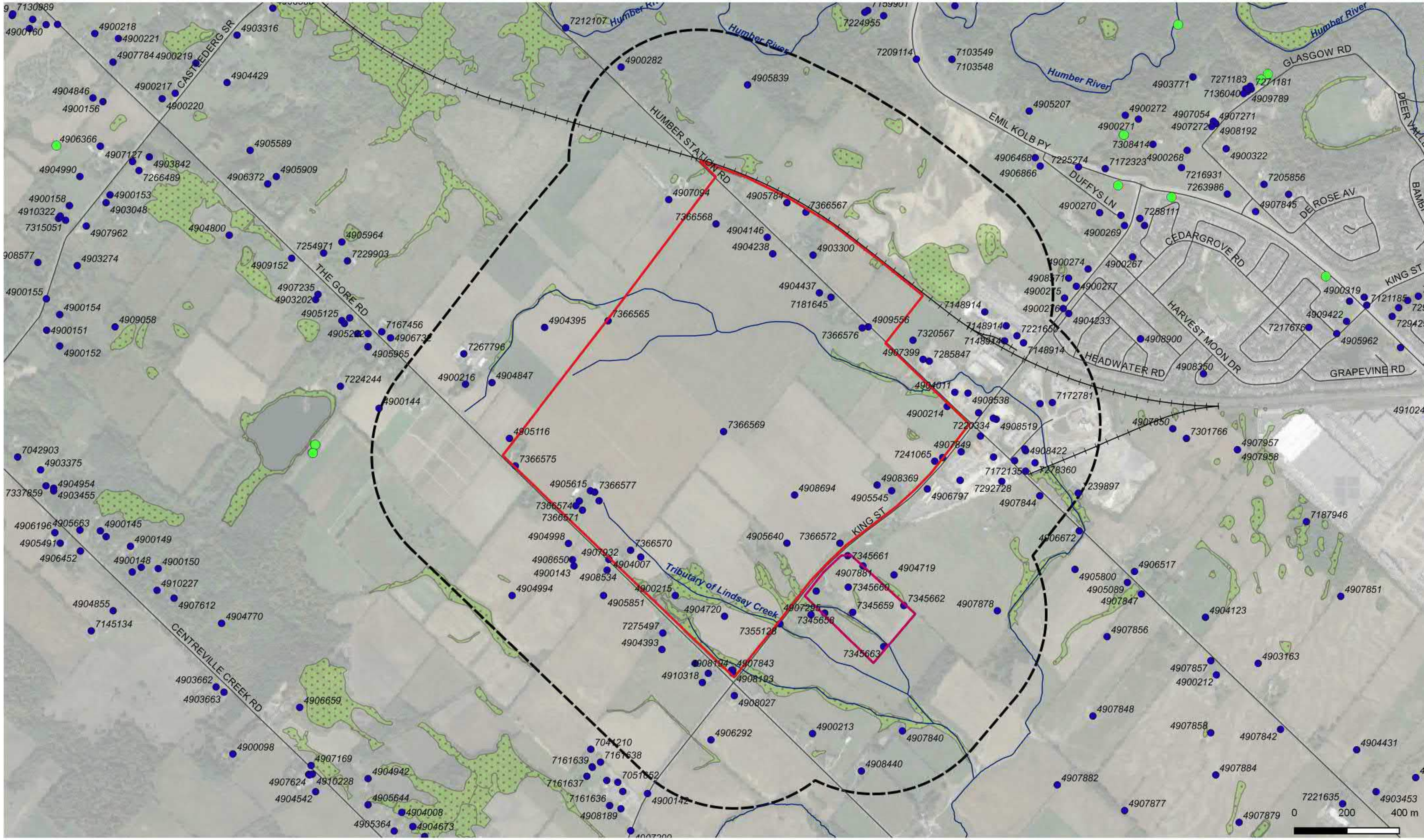
DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON
Title:	**BEDROCK GEOLOGY MAP**

N

Client:	Size:	Approved By: D.S	Drawn By: S.Y	Date: February 2023
CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	11x17	Scale: As Shown	Project No.: 20-169-104	Figure No.: 2C
	Rev. 0	Image/Map Source: Google Satellite Image		

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 2C – Bedrock Geology Map.qgs May-16 09:10

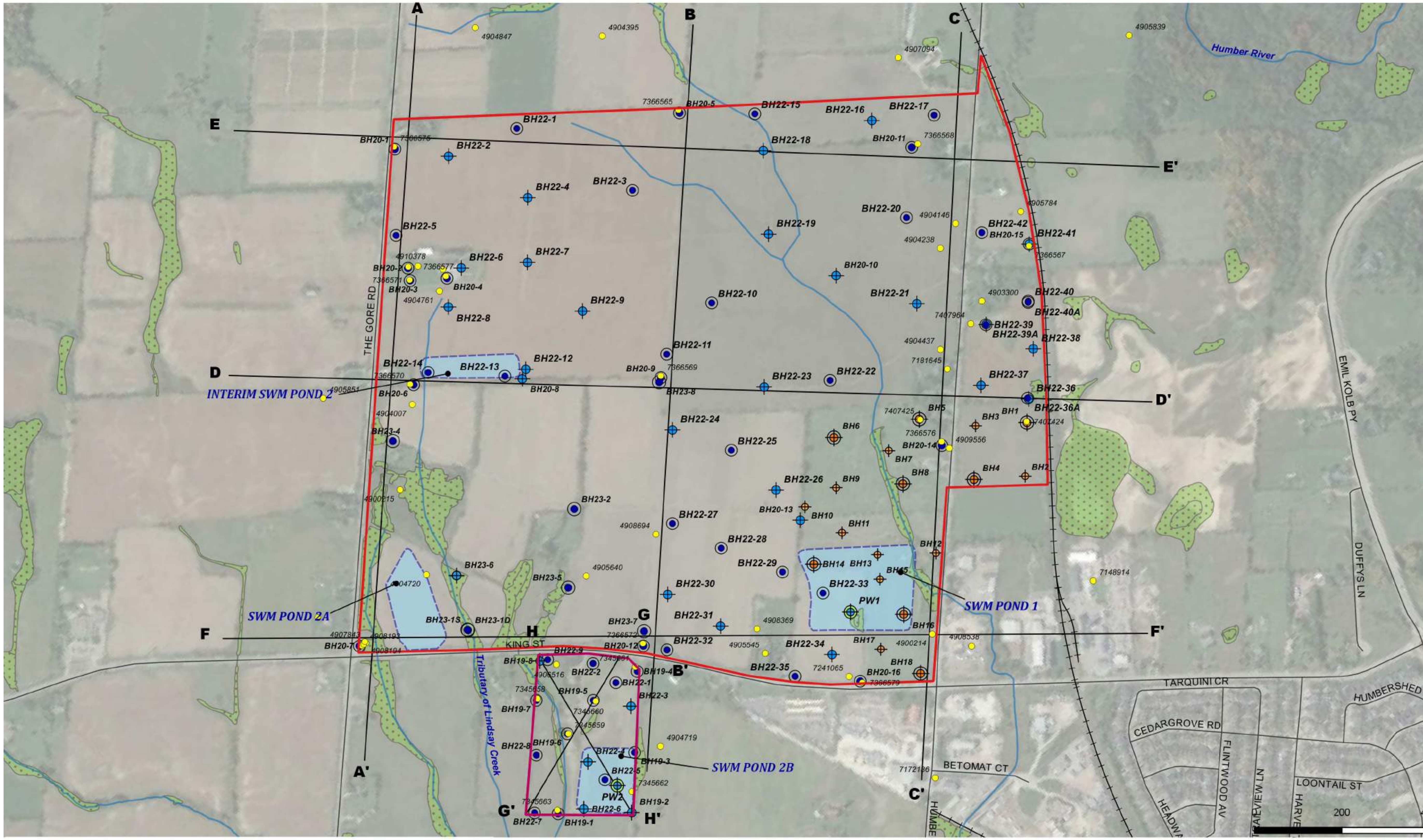


Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- 500m Buffer
- Wetland
- Permit to take water
- Registered Water Well (MECP WWR)

DS CONSULTANTS LTD. 6221 Highway 7, UNIT 16 Vaughan, Ontario L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca	Project: HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON				
	Title: MECP WATER WELL RECORDS & PTTW MAP				
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Size: 11x17	Approved By: D.S	Drawn By: S.Y	Date: February 2023	
	Rev. 0	Scale: As Shown	Project No.: 20-169-104	Figure No.: 3	
		Image/Map Source: Google Satellite Image			

J:\GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 3 – Site Location and MECP Well Records.qgs May-16 09:12



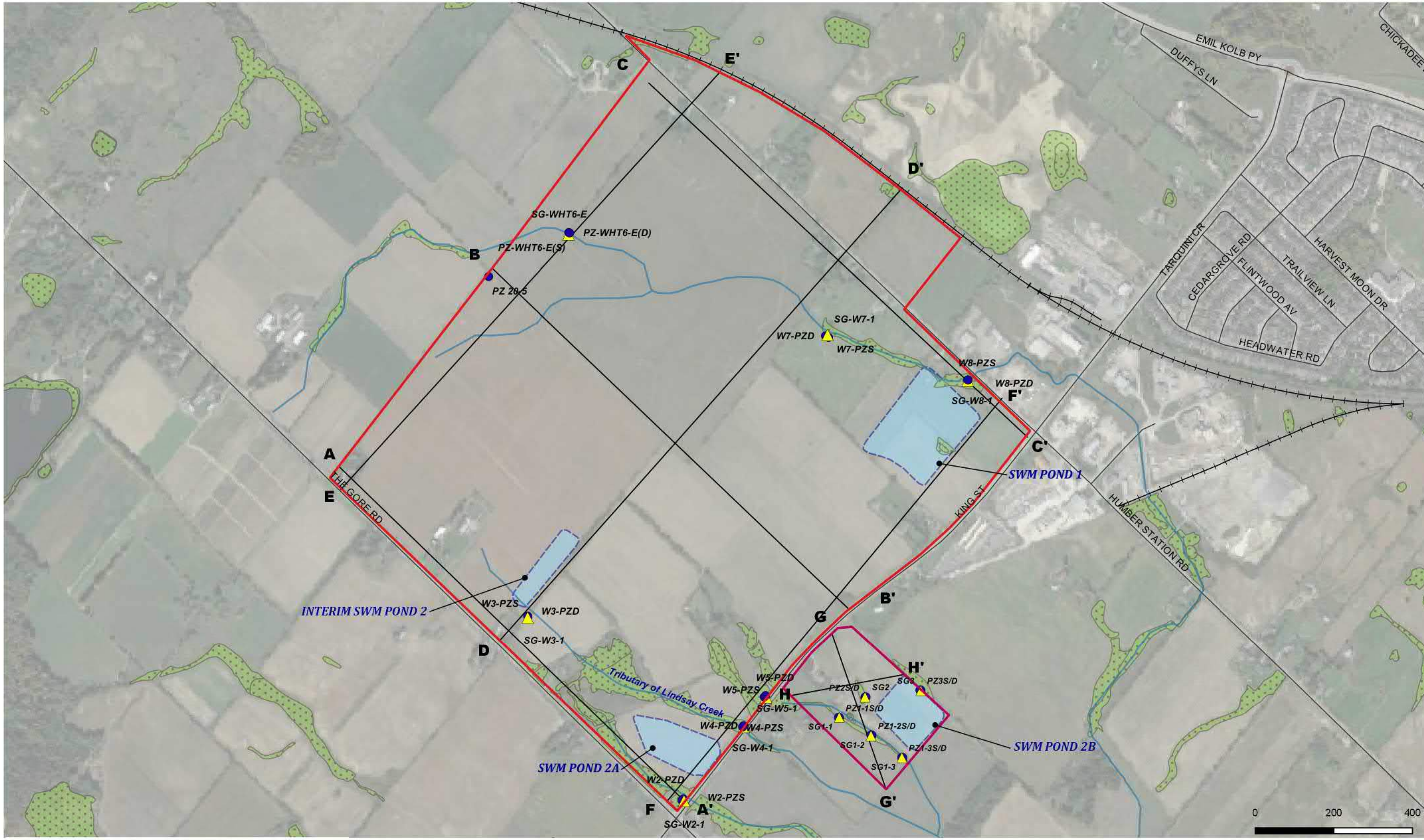
Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- Borehole
- Monitoring Well
- Borehole (Soil Eng)
- Monitoring Well (Soil Eng)
- Pumping Well
- Registered Water Well (MECP WWR)
- Wetland
- SWM Pond
- Cross Section

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

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON				
Title:	**BOREHOLE AND MONITORING WELL LOCATIONS**				
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Size: 11x17	Approved By: D.S	Drawn By: S.Y	Date: May 2024	
	Rev. 0	Scale: As Shown	Project No.: 20-169-104	Figure No.: 4A	
		Image/Map Source: Google Satellite Image			

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 4 - Borehole and Instrumentation Location Map.qgs May-28 23:57



Legend

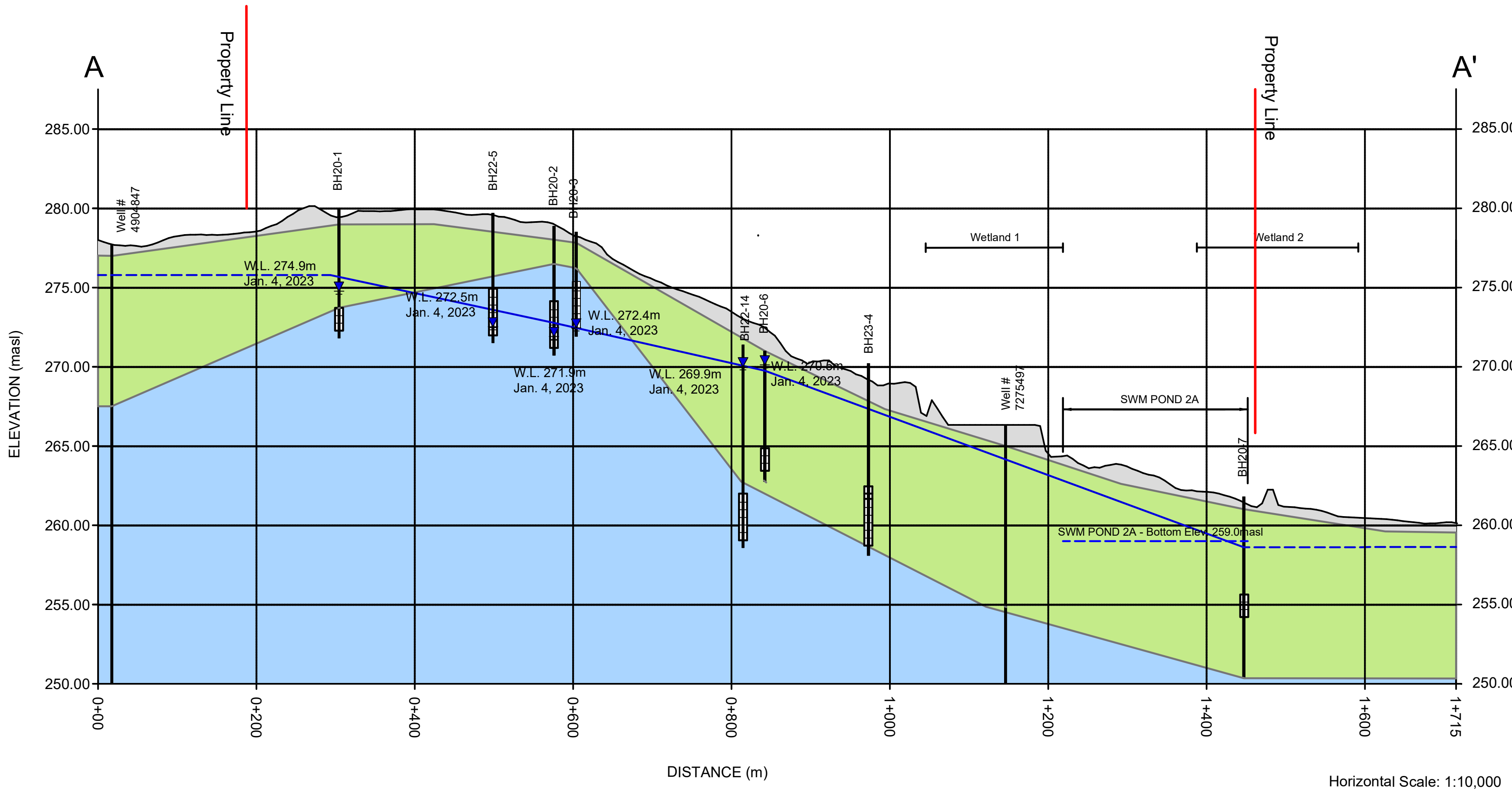
- Argo King I & Argo King II
- Caledon Station Property Boundary
- Piezometer
- Staff Gauge
- Cross Section
- Wetland
- SWM Pond

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

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON				
Title:	INSTRUMENTAL LOCATION MAP				
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Size: 11x17	Approved By: D.S	Drawn By: S.Y	Date: February 2023	
	Rev. 0	Scale: As Shown	Project No.: 20-169-104	Figure No.: 4B	
		Image/Map Source: *Google Satellite Image*			

J:\-GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 4 - Borehole and Instrumentation Location Map.qgs May-16 09:14

Path:j:\-gis\2020 projects\20-169-100 bolton option 3 lands\7-misc\cad\geological cross sections.dwg



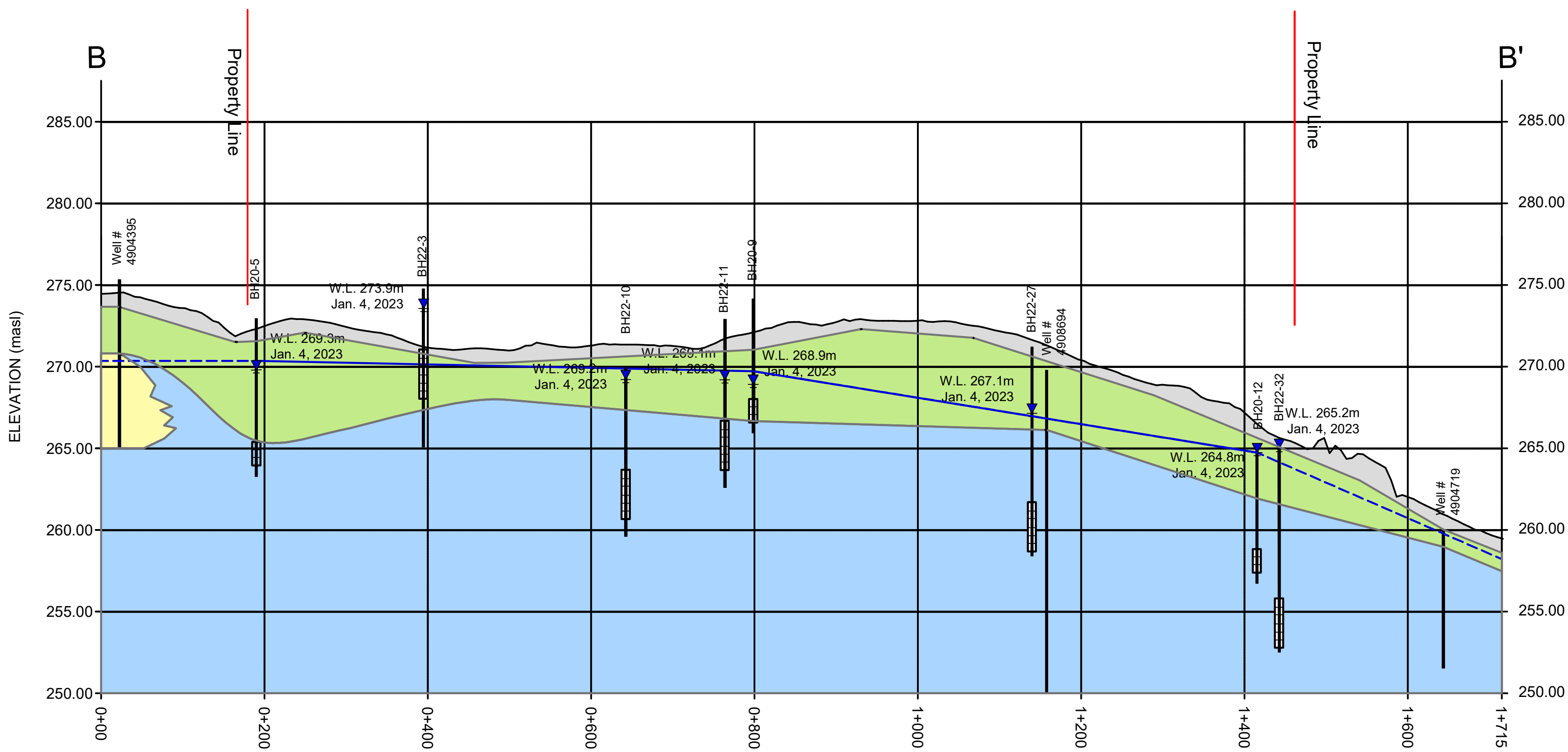
Groundwater Level
Sand
Disturbed/Fill
Clayey Silt Till
Silty Sand Till/Silt
Well
Screen

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

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON
Title:	**GEOLOGICAL CROSS SECTION A-A'**

Client:	Size: 8.5 x 11	Approved By: D.S	Drawn By: M.Z/S.Y	Date: May 2024
CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Rev.	Scale: As Shown	Project No: 20-169-100	Figure No. **5A**

Path:j:\-gis\2020 projects\20-169-100 bolton option 3 lands\7-misc\cad\geological cross sections.dwg



Horizontal Scale: 1:10,000
Vertical Scale: 1:400

Groundwater Level
Sand
Disturbed/Fill
Clayey Silt Till
Silty Sand Till/Silt

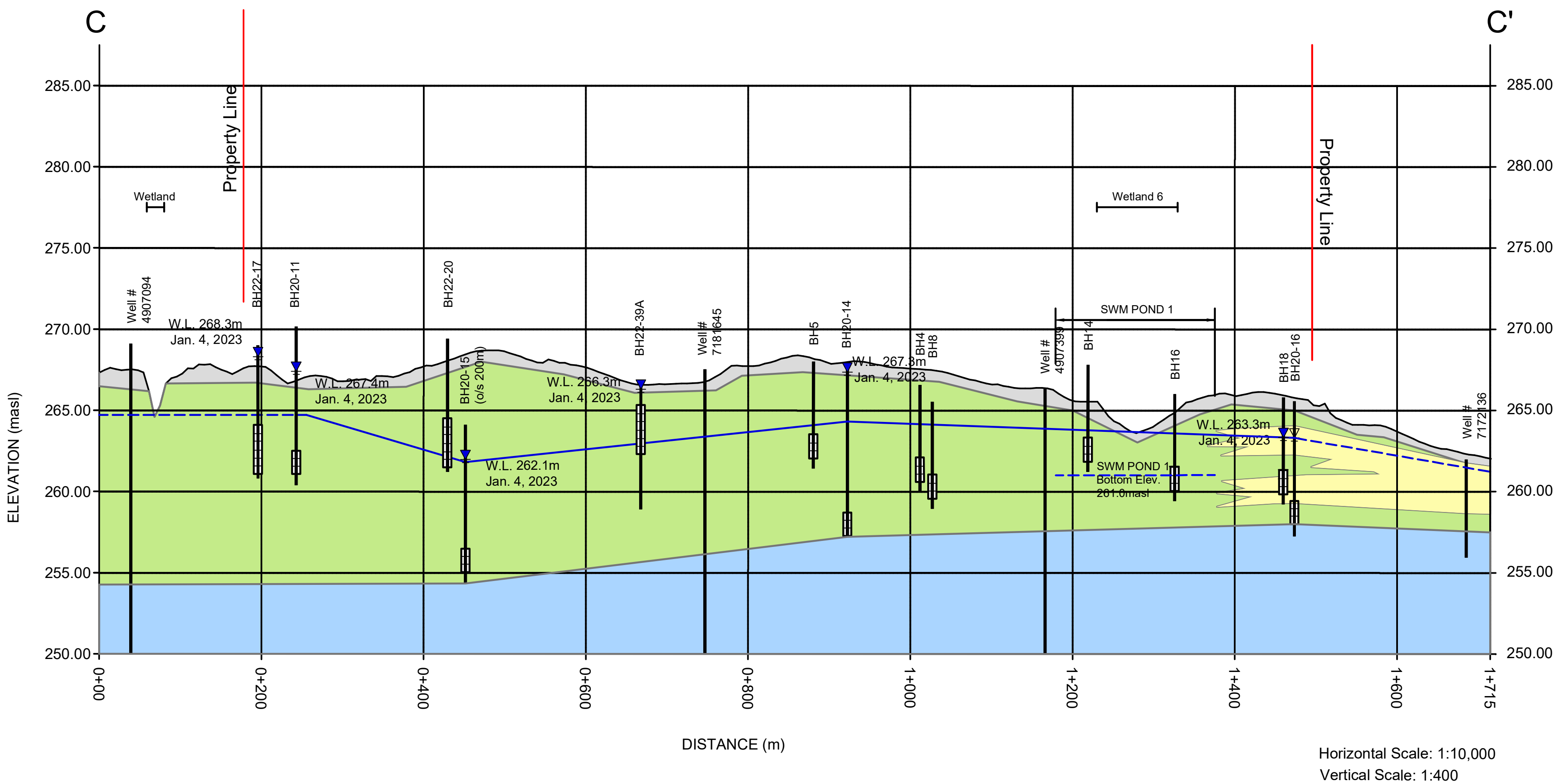
Well
Screen

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

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON
Title:	**GEOLOGICAL CROSS SECTION B-B'**

Client:	Size:	Approved By:	Drawn By:	Date:
CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	8.5 x 11	D.S	M.Z/S.Y	May 2024
	Rev.	Scale: As Shown	Project No: 20-169-100	Figure No. **5B**

Path:j:\-gis\2020 projects\20-169-100 bolton option 3 lands\7-misc\cad\geological cross sections.dwg



Groundwater Level
Sand
Disturbed/Fill
Clayey Silt Till
Silty Sand Till/Silt
Well
Screen

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

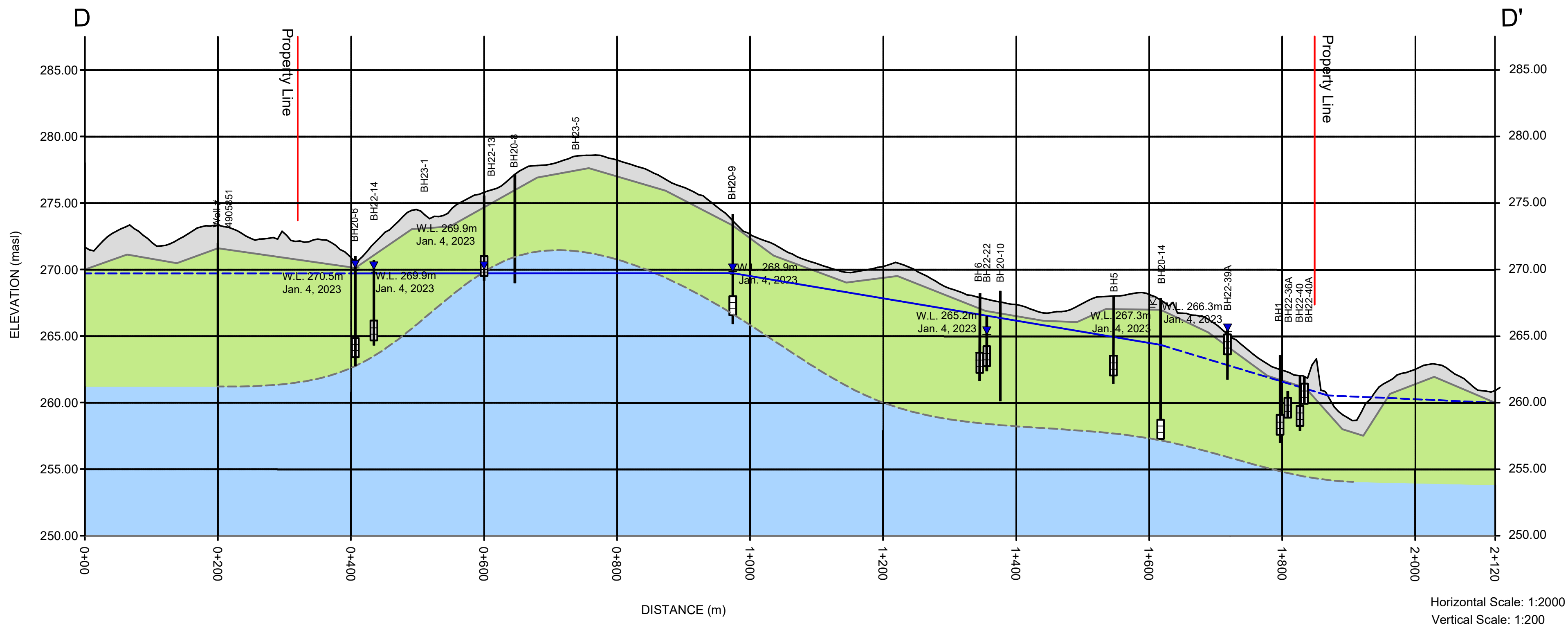
Project: HYDROGEOLOGICAL INVESTIGATION
Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON

Title: **GEOLOGICAL CROSS SECTION C-C’**

Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES

Size: 8.5 x 11	Approved By: D.S	Drawn By: M.Z/S.Y	Date: May 2024
Rev.	Scale: As Shown	Project No: 20-169-100	Figure No. **5C**

Path:j:\-gis\2020 projects\20-169-100 bolton option 3 lands\7-misc\cad\geological cross sections.dwg



Groundwater Level

Sand

Disturbed/Fill

Clayey Silt Till

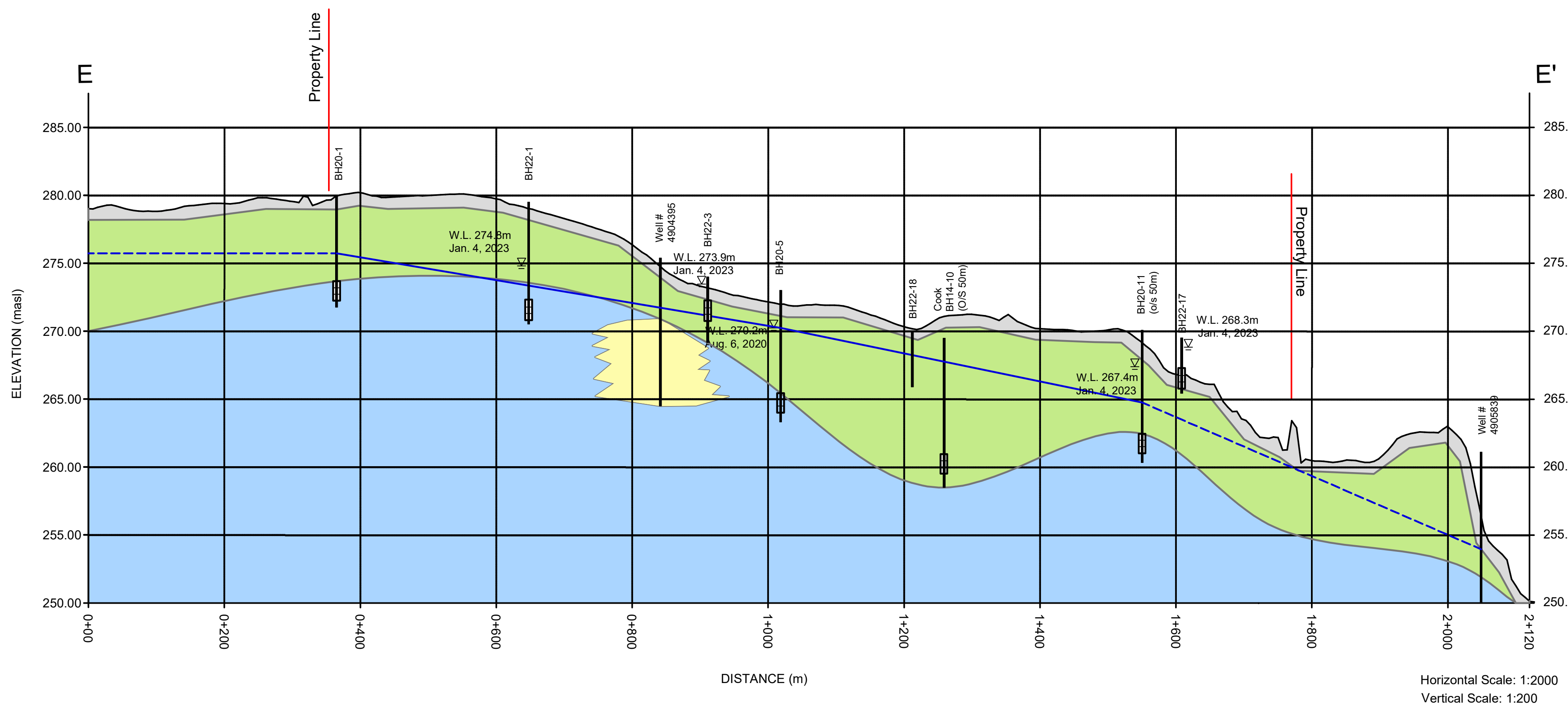
Silty Sand Till/Silt

Well

Screen

DS CONSULTANTS LTD. 6221 Highway 7, UNIT 16, Vaughan, Ontario L4H 0K8, Telephone: (905) 264-9393, www.dsconsultants.ca	Project: HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON			
	Title: **GEOLOGICAL CROSS SECTION D-D'**			
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Size: 8.5 x 11	Approved By: D.S	Drawn By: M.Z/S.Y	Date: May 2024
	Rev.	Scale: As Shown	Project No: 20-169-100	Figure No. **5D**

Path:j:\-gis\2020 projects\20-169-100 bolton option 3 lands\7-misc\cad\geological cross sections.dwg



Groundwater Level

Sand

Disturbed/Fill

Clayey Silt Till

Silty Sand Till/Silt

Well

Screen

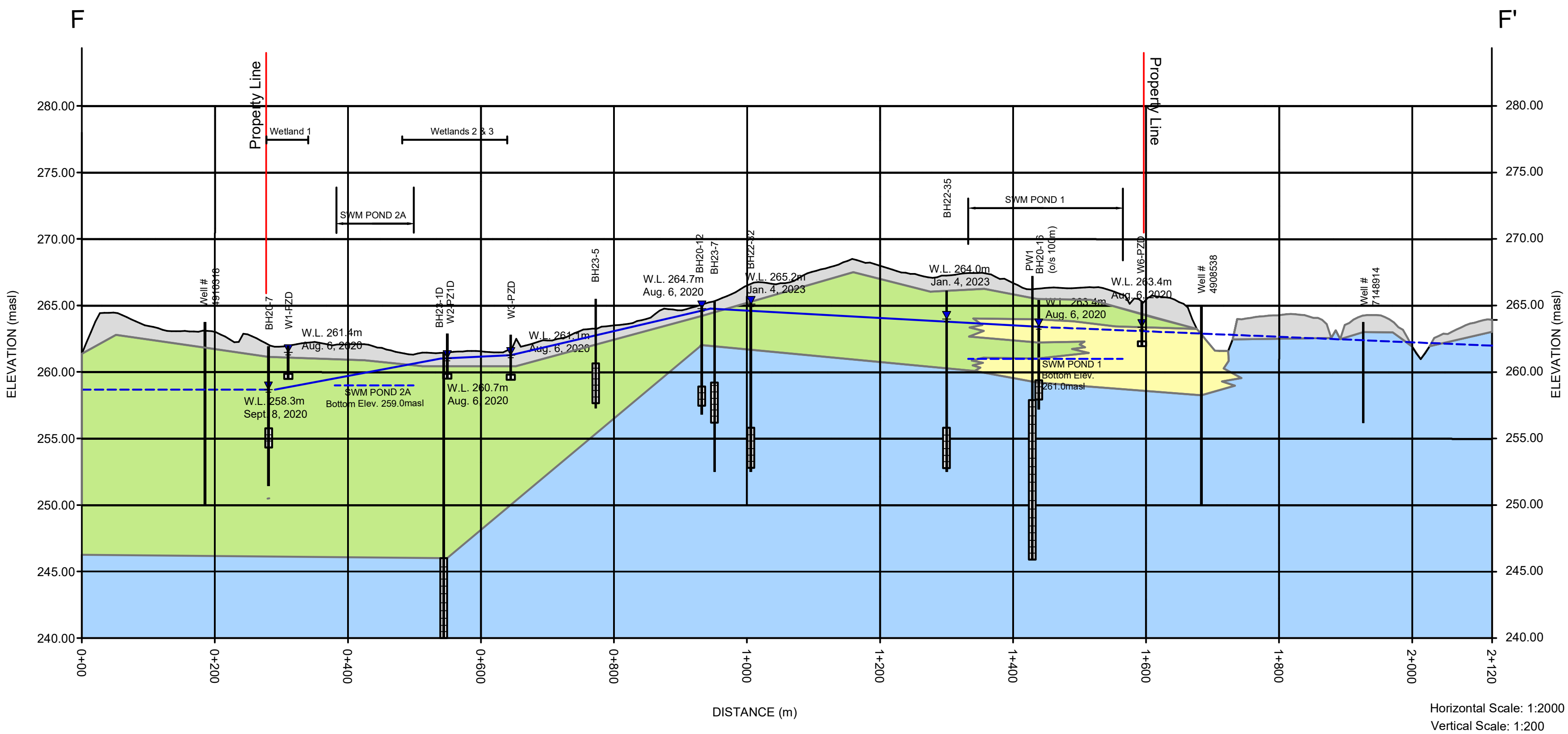
DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON
Title:	**GEOLOGICAL CROSS SECTION E-E'**

Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	D.S	M.Z/S.Y	May 2024
Rev.	Scale: As Shown	Project No: 20-169-100	Figure No. **5E**

Path:j:\-gis\2020 projects\20-169-100 bolton option 3 lands\7-misc\cad\geological cross sections.dwg



Groundwater Level

Sand

Disturbed/Fill

Clayey Silt Till

Silty Sand Till/Silt

Well

Screen

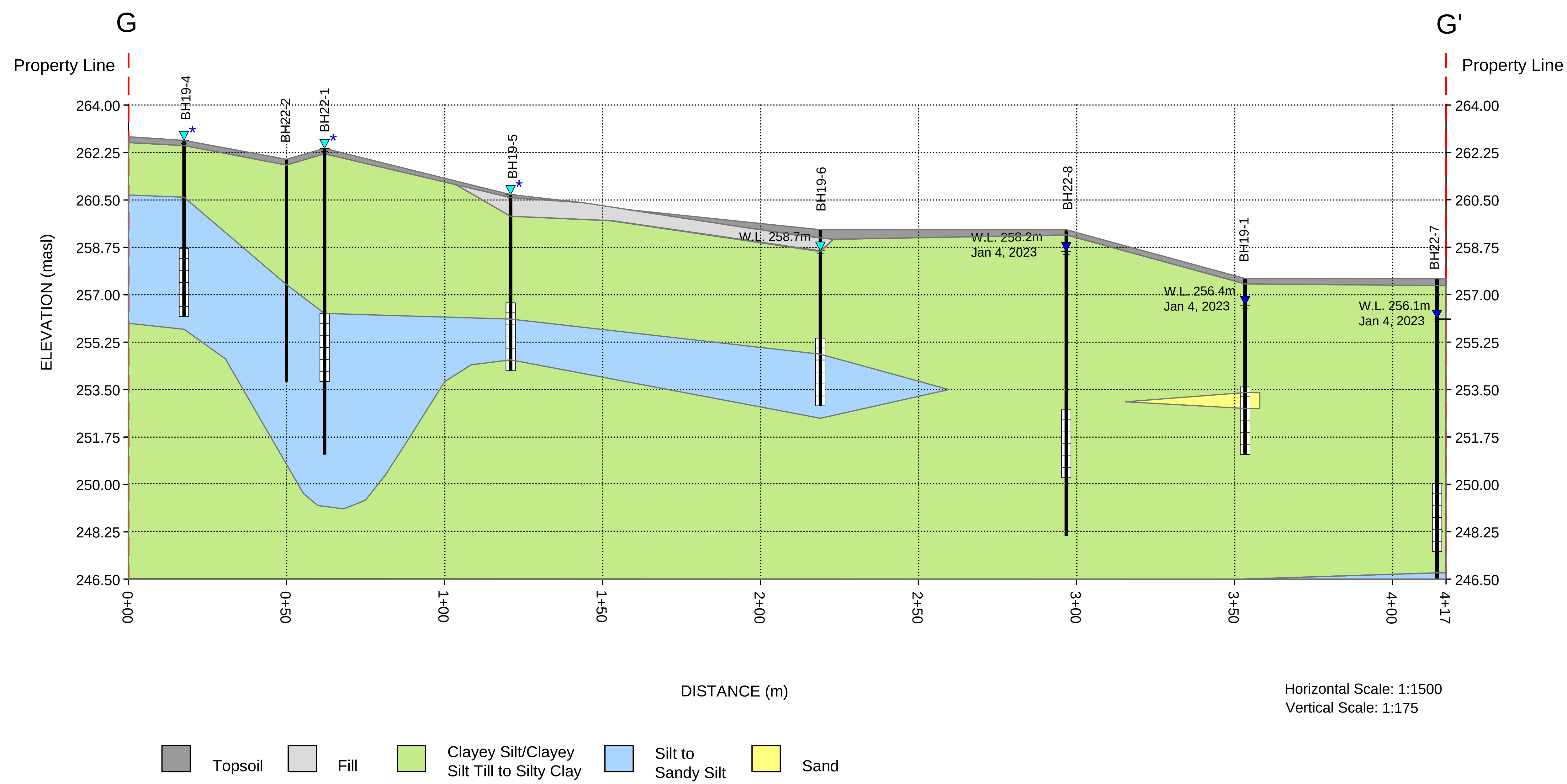
DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project: HYDROGEOLOGICAL INVESTIGATION
Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON

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

Client: CALEDON COMMUNITY PARTNERS
c/o GLEN SCHNARR & ASSOCIATES

Size: 8.5 x 11	Approved By: D.S	Drawn By: M.Z/S.Y	Date: May 2024
Rev.	Scale: As Shown	Project No: 20-169-100	Figure No. 5F



Overburden Groundwater Elevation (04 Jan 2023)

Artesian Monitoring Well

Groundwater Level of Lower Confined Water Unit

Well

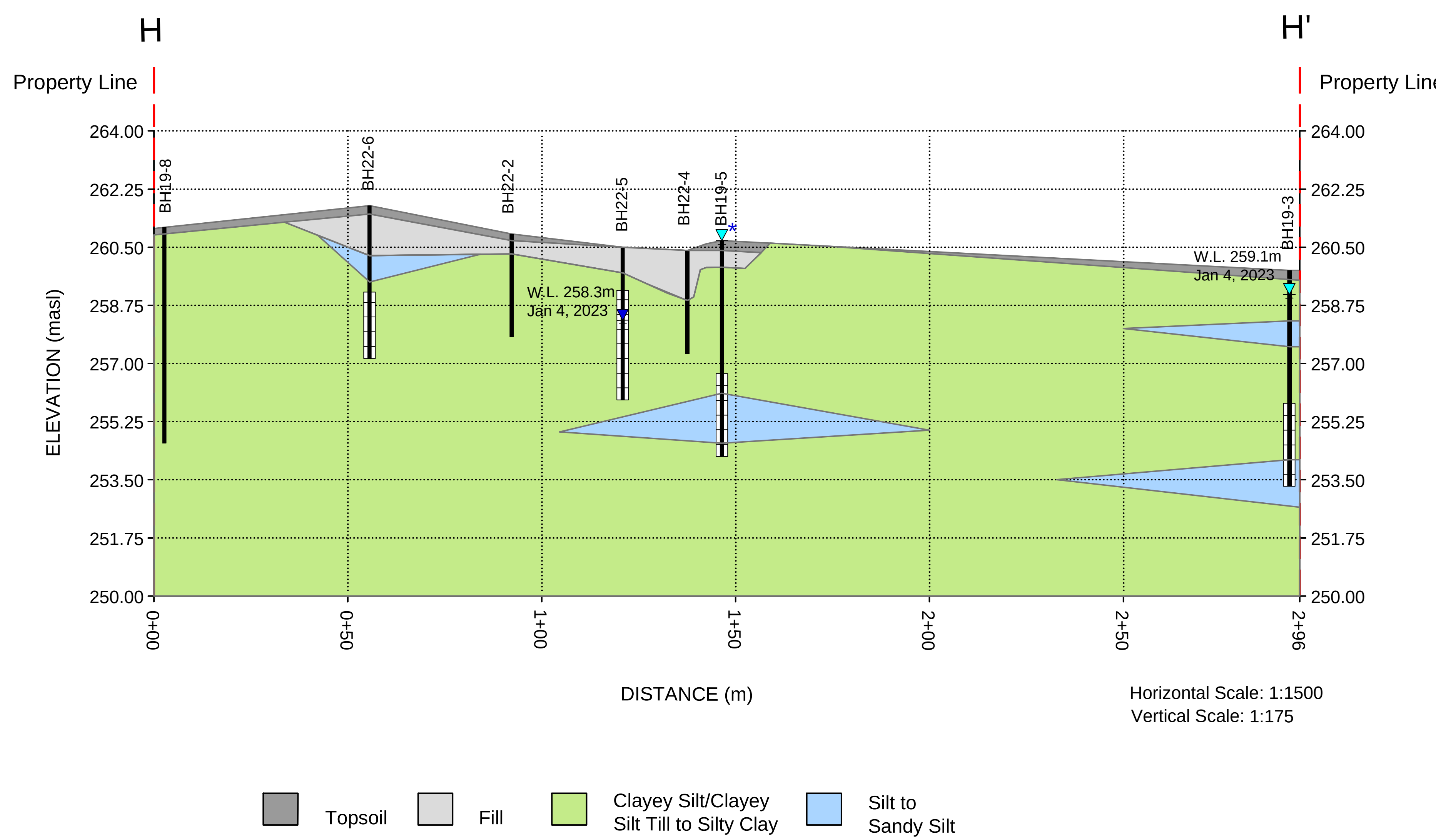
Screen

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

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON
Title:	**GEOLOGICAL CROSS SECTION G-G'**
Client:	CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES

Size: 11 X 17	Approved By: D.S	Drawn By: S.Y	Date: February 2023
Rev.	Scale: A Shown	Project No: 19-093-100	Figure No. 5G

Path:----



Overburden Groundwater Elevation (04 Jan 2023)

Artesian Monitoring Well

Groundwater Level of Lower Confined Water Unit

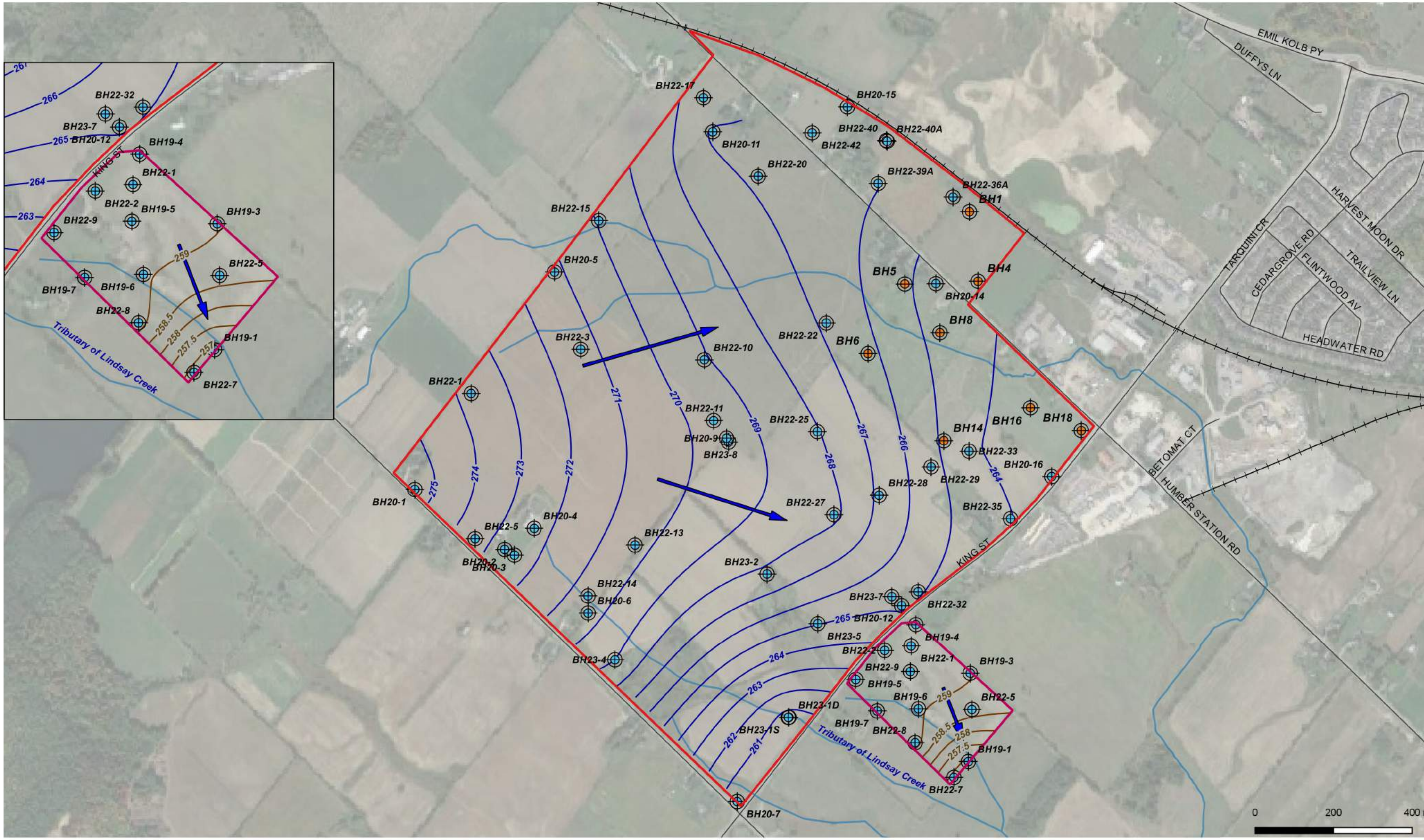
Well

Screen

Path:----

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

Project: HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON			
Title: **GEOLOGICAL CROSS SECTION H-H'**			
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES			
Size: 11 X 17	Approved By: D.S	Drawn By: S.Y	Date: February 2023
Rev.	Scale: A Shown	Project No: 19-093-100	Figure No. 5H



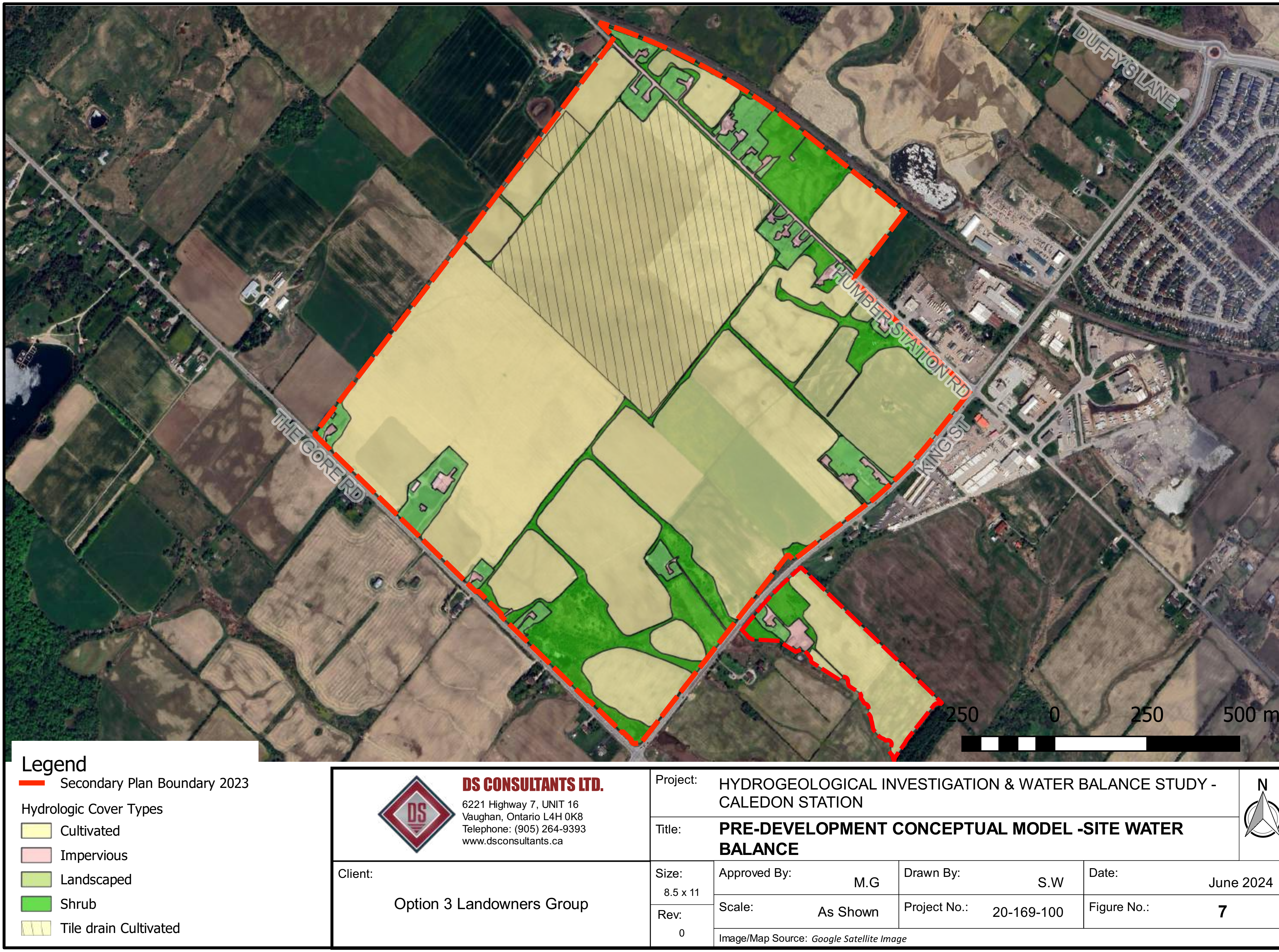
Legend

- Caledon Station Property Boundary
- Argo King I & Argo King II
- Monitoring Well
- Monitoring Well (Soil Eng)
- Inferred Groundwater Flow Direction
- Groundwater Elevation Contours - Sept 11, 2023
- Groundwater Elevation Contours - Sept 26 2023

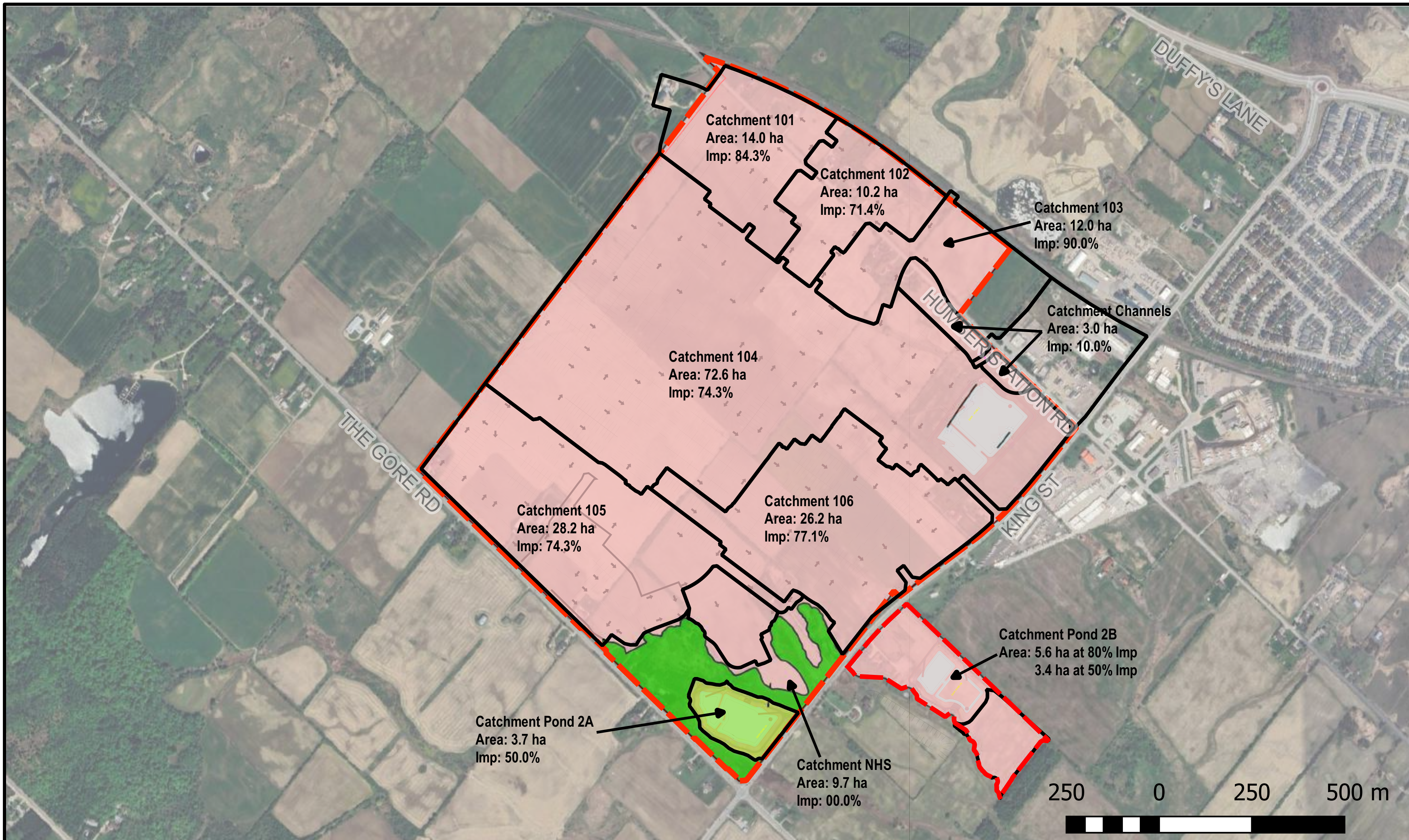
DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Project:	HYDROGEOLOGICAL INVESTIGATION Caledon Station and Argo King I & Argo King II, Caledon (Bolton), ON						N
Title:	**GROUNDWATER FLOW MAP**						
Client: CALEDON COMMUNITY PARTNERS c/o GLEN SCHNARR & ASSOCIATES	Size: 11x17	Approved By:	D.S	Drawn By:	S.Y	Date:	October 2023
	Rev. 0	Scale:	As Shown	Project No.:	20-169-104	Figure No.:	6
		Image/Map Source: *Google Satellite Image*					

J:\GIS\2020 PROJECTS\20-169-100 Bolton Option 3 Lands\1-QGIS\HydroG\104\Figure 6C - Groundwater Flow Map.qgs Oct-26 14:09



DS CONSULTANTS LTD. 6221 Highway 7, UNIT 16 Vaughan, Ontario L4H 0K8 Telephone: (905) 264-9393 www.dsconsultants.ca	Project:	HYDROGEOLOGICAL INVESTIGATION & WATER BALANCE STUDY - CALEDON STATION				
	Title:	**PRE-DEVELOPMENT CONCEPTUAL MODEL -SITE WATER BALANCE**				
Client: Option 3 Landowners Group	Size: 8.5 x 11	Approved By: M.G		Drawn By: S.W		Date: June 2024
	Rev: 0	Scale: As Shown		Project No.: 20-169-100		Figure No.: 7
		Image/Map Source: *Google Satellite Image*				



Legend

Secondary Plan Boundary 2024

Hydrologic Cover Types

Development Area

NHS Area

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

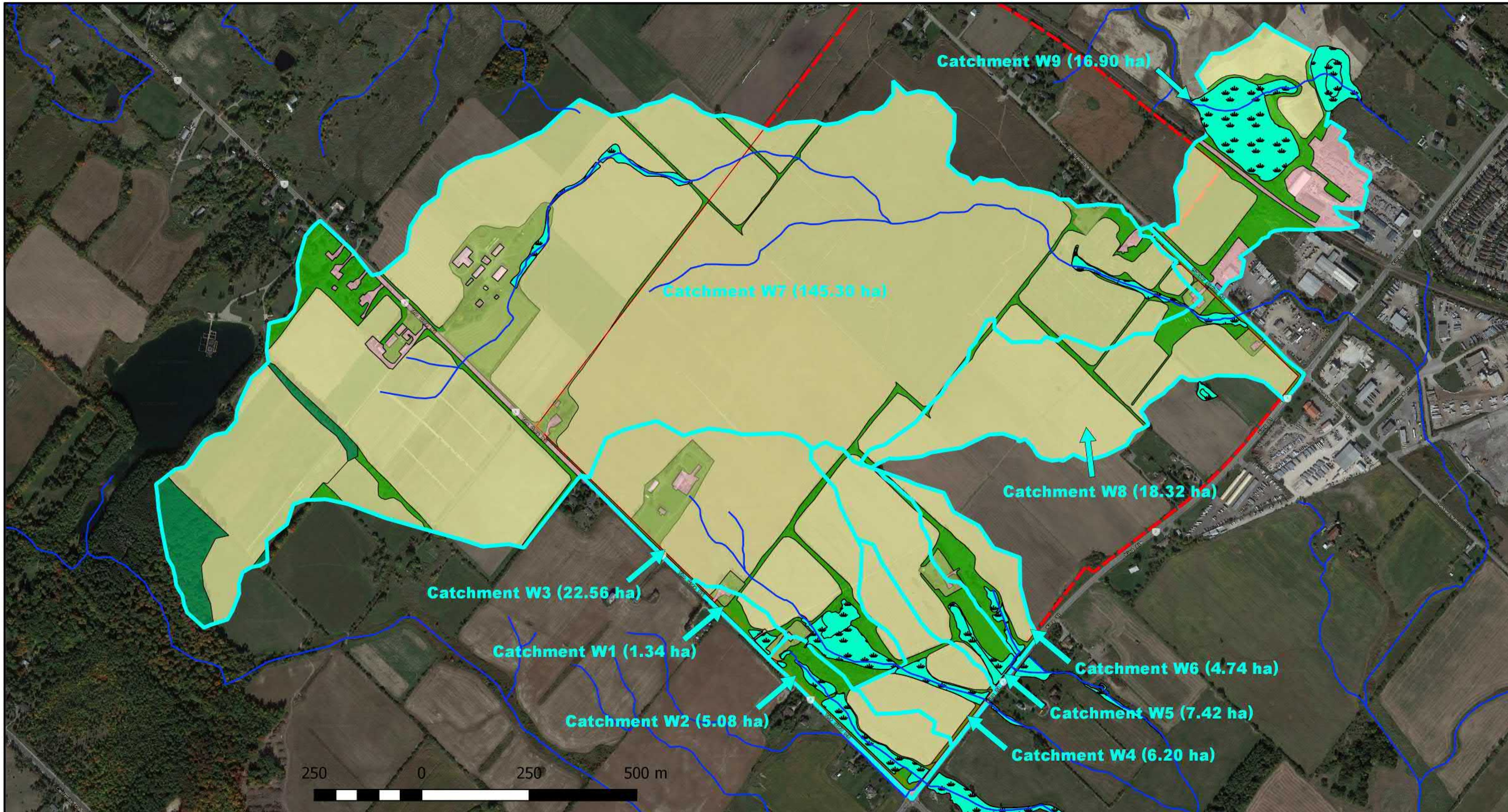
Project: HYDROGEOLOGICAL INVESTIGATION & WATER BALANCE STUDY - CALEDON STATION

Title: **POST-DEVELOPMENT CONCEPTUAL MODEL -SITE WATER BALANCE**

N

Client: Option 3 Landowners Group

Size: 8.5 x 11	Approved By: M.G	Drawn By: S.W	Date: June 2024
Rev: 0	Scale: As Shown	Project No.: 20-169-100	Figure No.: 8
	Image/Map Source: *Google Satellite Image*		



Legend

- Site Boundary
- Wetlands
- Watercourse
- Pre-development Wetland Catchments

Hydrologic Cover Types

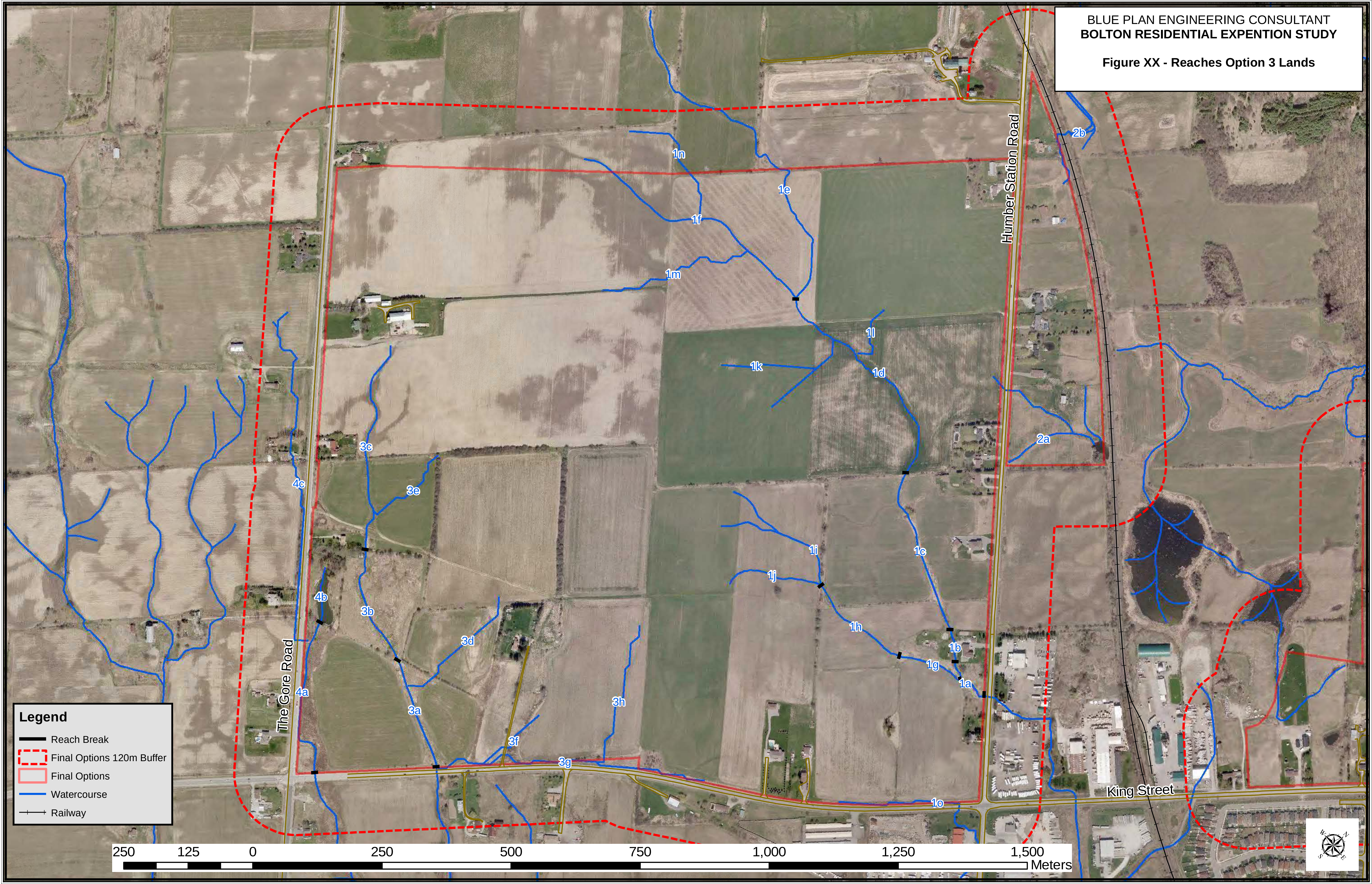
- Cultivated
- Forest
- Impervious
- Landscaped
- Shrub

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

Project:	HYDROGEOLOGICAL INVESTIGATION & WATER BALANCE STUDY - CALEDON STATION		
Title:	PRE-DEVELOPMENT LAND USE & WETLAND CATCHMENT MAP		
Client: Option 3 Landowners Group	Size: 11x17	Approved By: MG	Drawn By: SW
Date: May 2023	Rev. 0	Scale: As Shown	Project No.: 20-169-100
Figure No.: 9	Image/Map Source: Google Satellite Image		

N

Appendix A



BLUE PLAN ENGINEERING CONSULTANT
BOLTON RESIDENTIAL EXPENTION STUDY
Figure XX - Reaches Option 3 Lands
Humber Station Road
The Gore Road
King Street
1a
1b
1c
1d
1e
1f
1g
1h
1i
1j
1k
1l
1m
1n
1o
2a
2b
3a
3b
3c
3d
3e
3f
3g
3h
4a
4b
4c
Legend
Reach Break
Final Options 120m Buffer
Final Options
Watercourse
Railway
250
125
0
250
500
750
1,000
1,250
1,500
Meters

Appendix B-1
Caledon Station

LOG OF BOREHOLE BH20-1

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857815.92 E 597082.44

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 2

SOIL PROFILE

ELEV (m)	DEPTH (m)	DESCRIPTION
279.8	0.0	**TOPSOIL:** 300mm
279.5	0.3	**FILL:** sandy silt, trace gravel, dark brown, moist, loose
279.0	0.8	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, very stiff to hard; trace cobble below 2.3m
275.3	4.5	**SILTY CLAY:** trace sand, grey, very moist, very stiff
273.8	6.0	**SILT:** trace clay, grey, wet, compact
271.6	8.2	**END OF BOREHOLE**

SAMPLES

NUMBER	TYPE	"N" BLOWS/0.3 m
1	SS	6
2	SS	19
3	SS	36
4	SS	55
5	SS	32
6	SS	17
7	SS	12
8	SS	20

GROUND WATER CONDITIONS: Bentonite; Filter Pack; Slotted Pipe
W. L. 275.7 m Aug 06, 2020
W. L. 275.3 m Oct 22, 2020

ELEVATION: 279, 278, 277, 276, 275, 274, 273, 272

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED; + FIELD VANE & Sensitivity; ● QUICK TRIAXIAL; × LAB VANE; 20 40 60 80 100

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
METHANE AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

END OF BOREHOLE:
Notes:
1) Water level at 4.5m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	4.11
Sept 8, 2020	4.24
Oct 22, 2020	4.51

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ 8=3% Strain at Failure

LOG OF BOREHOLE BH20-2

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857663.29 E 597311.06

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 3

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)
278.8						
278.6 / 0.2	**TOPSOIL:** 200mm					
	FILL: sandy silt, trace gravel, brown, moist, loose	1	SS	8		o
278.0 / 0.8	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, very stiff	2	SS	16	278	o
		3	SS	19	277	o
276.5 / 2.3	**SANDY SILT:** trace clay, brown, moist to very moist, very dense	4	SS	58	276	o
		5	SS	58	275	o
		6	SS	66	274	o
	wet below 6m	7	SS	51		o
		8	SS	52	271	
270.6 / 8.2	**END OF BOREHOLE:**					

Ground water conditions: Bentonite; Filter Pack; Slotted Pipe; W. L. 272.7 m Aug 06, 2020; W. L. 272.3 m Oct 22, 2020

Notes:
1) Water level at 6.1m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water Level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	6.12
Sept 8, 2020	6.36
Oct 22, 2020	6.48

Column headings: DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): O UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; O ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-3

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857648.82 E 597335.94

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 4

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS
278.6 / 0.0	**TOPSOIL:** 300mm	1	SS	10	Bentonite
278.3 / 0.3	**FILL:** sandy silt, trace gravel, brown, moist, compact				
277.8 / 0.8	**SILTY CLAY TILL:** sandy, trace gravel, sand seams, brown, moist, stiff	2	SS	13	
		3	SS	10	
276.3 / 2.3	**SILTY SAND:** trace clay, grey, moist, compact to very dense	4	SS	15	Filter Pack
		5	SS	35	Slotted Pipe
	wet below 4.5m	6	SS	65	
		7	SS	49	W. L. 272.6 m Aug 06, 2020
271.9 / 6.7	**END OF BOREHOLE:**				

Notes:
1) Water level at 4.5m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	6.0
Sept 8, 2020	dry
Oct 22, 2020	dry

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
METHANE AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL
ELEVATION: 278, 277, 276, 275, 273, 272

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH20-4

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857717.02 E 597386.34

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/27/2020

REF. NO.: 20-169-100
ENCL NO.: 5

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	WATER CONTENT (%)
277.1 / 0.0 276.8 / 0.3	**CONCRETE:** 300mm					
276.8 / 0.3	**FILL:** clayey silt, trace gravel, grey to brown, moist, stiff	1	SS	8	Bentonite	~7
276.3 / 0.8	**SANDY SILT:** trace clay, brown, moist, compact to very dense	2	SS	21		~8
		3	SS	42		~14
		4	SS	62		~10
		5	SS	56	W. L. 273.3 m Aug 06, 2020; Sep 08, 2020	~11
	wet below 4.5m	6	SS	46	Slotted Pipe	~22
271.1 / 6.0	**SANDY SILT:** trace silt, brown, wet, compact	7	SS	28		~23
270.4 / 6.7	**END OF BOREHOLE:**					

Notes:
1) Water level at 4.5m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	3.77
Sept 8, 2020	3.90
Oct 22, 2020	inaccessible

Other column headings: STRATA PLOT; ELEVATION (276, 275, 274, 272, 271); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): O UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; O ε=3% Strain at Failure

LOG OF BOREHOLE BH20-5

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858369.55 E 597438.77

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/29/2020

REF. NO.: 20-169-100
ENCL NO.: 6

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	GR SA SI CL (%)
273.0 / 272.8 0.0	**TOPSOIL:** 250mm					
0.3	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact	1	SS	15		
272.2 / 0.8	**SILTY CLAY TILL:** sandy, trace gravel, frequent sand seams, brown, moist, hard	2	SS	35		
		3	SS	31		
		4	SS	39		
270.0 / 3.0	**CLAYEY SILT TILL:** sandy, trace gravel, interbed of sandy silt layers, greyish brown, moist to very moist, hard	5	SS	35		
	grey below 4.5m	6	SS	37		
	sand seams below 6m	7	SS	46		
265.5 / 7.5	**SILTY SAND:** trace clay, grey, moist, very dense	8	SS	74/ 280mm		0 51 47 2
	very moist at 9m	9	SS	59		
263.3 / 9.7	**END OF BOREHOLE:**					

Groundwater conditions: W. L. 270.2 m Aug 06, 2020; W. L. 269.9 m Sep 08, 2020; W. L. 269.6 m Oct 22, 2020. Filter Pack; Slotted Pipe.

Notes:
1) Water level at 9.1m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	2.78
Sept 8, 2020	3.09
Oct 22, 2020	3.38

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-6

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857501.44 E 597524.2

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020

REF. NO.: 20-169-100
ENCL NO.: 7

ELEV (m) / DEPTH	SOIL PROFILE DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS
271.0					
270.8 / 0.0	**TOPSOIL:** 250mm				
0.3	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, dark brown, moist, loose	1	SS	8	
270.2 / 0.8	**CLAYEY SILT TILL:** sandy, trace gravel, sand seams, brown, moist, stiff to hard	2	SS	12	W. L. 269.8 m Sep 08, 2020
		3	SS	21	
	hard below 2.3m	4	SS	59	Bentonite
		5	SS	58	
	grey below 4.5m	6	SS	31	
		7	SS	39	Filter Pack; W. L. 264.2 m Aug 06, 2020
262.8		8	SS	25	
8.2	**END OF BOREHOLE:**				

Elevation scale: 270, 269, 268, 267, 266, 265, 263

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

METHANE AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

Notes:
1) Borehole dry during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	6.77
Sept 8, 2020	1.15

DS SOIL LOG 20-169-100 BOLTON OPTION 3 LANDS.GPJ DS.GDT 21/1/8

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857020.81 E 597903.58

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/31/2020

REF. NO.: 20-169-100
ENCL NO.: 8

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT / LIMITS	GR SA SI CL (%)
261.7 / 0.0	**TOPSOIL:** 500mm	1	SS	8		
261.2 / 0.5	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, trace rootlets, dark brown, moist, stiff					
260.9 / 0.8	**CLAYEY SILT TILL:** some sand, trace gravel, brownish grey, very moist, stiff; with silt and sand seams at 1.5m	2	SS	10		
		3	SS	13		
259.4 / 2.3	**SILTY CLAY TILL:** some sand, some gravel, greyish brown, moist, very stiff to hard; grey, very moist to wet below 3m	4	SS	39	Plastic and liquid limits shown	15 18 38 29
		5	SS	28		
		6	SS	21		
		7	SS	19		
		8	SS	25		
		9	SS	16		
		10	SS	24		
250.4 / 11.3	**END OF BOREHOLE:**					

Ground water conditions: Bentonite; W. L. 258.3 m Oct 22, 2020; Filter Pack; W. L. 255.2 m Sep 08, 2020; Bentonite: Bottom of hole

Elevation scale: 261, 260, 257, 256, 254, 253, 252, 251

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): O UNCONFINED; + FIELD VANE & Sensitivity; ● QUICK TRIAXIAL; × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
METHANE AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

Notes:
1) Borehole dry during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	dry
Sept 8, 2020	6.52
Oct 22, 2020	3.40

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; O ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-8

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857701.02 E 597673.81

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020

REF. NO.: 20-169-100
ENCL NO.: 9

ELEV (m) / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%) (approx.)	GR	SA	SI	CL
277.2 / 0.0	**TOPSOIL:** 340mm	1	SS	8	~10				
276.8 / 0.4	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, brown, moist, loose								
276.4 / 0.8	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, compact	2	SS	10	~18				
275.7 / 1.5	**SILT:** some clay, trace sand, trace gravel, brown, very moist, compact to very dense	3	SS	19	~20				
		4	SS	58	~22	2	2	85	11
		5	SS	92/ 255mm	~19				
		6	SS	74	~19				
271.2 / 6.0	**SANDY SILT:** trace clay, brown, wet, very dense	7	SS	62	~18	0	27	67	6
		8	SS	54	~17				
269.0 / 8.2	**END OF BOREHOLE:** Notes: 1) Water at depth of 6.1m during drilling.								

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE
PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L
POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH20-9

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857946.64 E 597876.44

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/28/2020

REF. NO.: 20-169-100
ENCL NO.: 10

(m) ELEV DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	NATURAL MOISTURE CONTENT (approx. %)
274.1 / 0.0	**TOPSOIL:** 550mm	1	SS	5	274	~21
273.6 / 0.6; 273.3 / 0.8	**FILL:** sandy silt, trace topsoil/ organics, trace clay, trace gravel, trace organics, trace rootlets, dark brown, moist, loose	2	SS	16	273	~18
	SILTY CLAY TILL: some sand, trace gravel, brown, moist, very stiff to hard	3	SS	25	272	~17
	sand seams below 2.3m	4	SS	38	Bentonite	~16
		5	SS	72	271	~15
	grey below 4.5m	6	SS	45	270; W. L. 269.7 m Aug 06, 2020; W. L. 269.4 m; W. L. 269.1 m Oct 22, 2020	~13
	trace cobble, very moist below 6m	7	SS	24	268; Filter Pack; Slotted Pipe; 267	~14
266.6 / 7.5	**SANDY SILT:** trace clay, grey, wet, compact	8	SS	29	266	~21
265.9 / 8.2	**END OF BOREHOLE:**					

Notes:
1) Water level at 7.6m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	4.43
Sept 8, 2020	4.72
Oct 22, 2020	4.97

Column headings: DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL; STRATA PLOT; GROUND WATER CONDITIONS

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-10

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858404.6 E 597955.26

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/29/2020

REF. NO.: 20-169-100
ENCL NO.: 11

(m) ELEV / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	GROUND WATER CONDITIONS	ELEVATION	NATURAL MOISTURE CONTENT (approx., %)
268.3							
268.0 / 0.0	**TOPSOIL:** 300mm	1	SS	15		268	~13
0.3	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact						
267.5 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, sand seams, brown, moist to very moist, very stiff	2	SS	21		267	~14
		3	SS	25		266	~14
		4	SS	25			~14
	grey below 3m	5	SS	16		265	~15
						264	
		6	SS	20		263	~13
		7	SS	17		262	~10
						261	
		8	SS	15			~16
260.1 / 8.2	**END OF BOREHOLE:** Notes: 1) Borehole dry and open upon completion.						

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-11

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858726.5 E 597841.19

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/29/2020

REF. NO.: 20-169-100
ENCL NO.: 12

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	NATURAL MOISTURE CONTENT w (%)	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
270.1 / 0.0	**TOPSOIL:** 300mm	1	SS	12		270		
269.8 / 0.3	**FILL:** sandy silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, compact							
269.3 / 0.8	**SILTY CLAY TILL:** sandy, trace gravel, sand seams, brown, moist, very stiff to hard	2	SS	19		269		
		3	SS	22		268		
		4	SS	28		267		
		5	SS	44	Bentonite	266		
	grey below 4.5m	6	SS	24	W. L. 264.8 m; W. L. 264.7 m Aug 06, 2020	265		
		7	SS	21		264 / 263		
262.4 / 7.7	**SILT:** some sand, trace clay, trace gravel, grey, wet, compact	8	SS	28	Filter Pack; Slotted Pipe	262		1 11 80 8
		9	SS	27		261		
260.4 / 9.7	**END OF BOREHOLE:**							

Notes:
1) Water level at 9.1m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	5.42
Sept 8, 2020	5.37
Oct 22, 2020	5.33

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT w, LIQUID LIMIT W_L; WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
METHANE AND GRAIN SIZE DISTRIBUTION (%)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH20-12

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857520.15 E 598321.99

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/31/2020

REF. NO.: 20-169-100
ENCL NO.: 13

SOIL PROFILE

ELEV (m) / DEPTH	DESCRIPTION
264.9	(ground surface)
0.0	**TOPSOIL:** 400mm
264.5 / 0.4	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, sand seams, trace rootlets, dark brown, moist, stiff
264.1 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, sand seams, brown, moist to very moist, stiff; grey below 2.3m
261.9 / 3.0	**SANDY SILT TO SILT:** trace clay, grey, very moist, dense; wet below 4.5m
258.9 / 6.0	**SILT:** trace clay, trace sand, grey, very moist, compact to loose
256.7 / 8.2	**END OF BOREHOLE:**

SAMPLES

NUMBER	TYPE	"N" BLOWS / 0.3 m
1	SS	8
2	SS	8
3	SS	9
4	SS	10
5	SS	32
6	SS	36
7	SS	25
8	SS	7

GRAIN SIZE DISTRIBUTION (%) — Sample 7:

GR	SA	SI	CL
0	1	94	5

GROUND WATER CONDITIONS: W. L. 264.7 m Aug 06, 2020; Bentonite; Filter Pack; Slotted Pipe

ELEVATION: 264, 263, 262, 261, 260, 259, 258, 257

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

METHANE AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

Notes:
1) Water level at 3.1m below grade during drilling
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	0.2
Sept 8, 2020	0.1
Oct 22, 2020	0.14

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-13

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857981.07 E 598332.09

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/30/2020

REF. NO.: 20-169-100
ENCL NO.: 14

(m) ELEV / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	WATER CONTENT (%)
268.1 / 0.0	**TOPSOIL:** 200mm				
0.2	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, trace rootlets, dark brown, moist, stiff	1	SS	12	
267.3 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, sand seams, brownish grey, moist, stiff to very stiff	2	SS	19	
		3	SS	20	
		4	SS	26	
		5	SS	14	
	grey below 4.5m	6	SS	9	
		7	SS	19	
260.6 / 7.5	**SANDY SILT TO SILT:** trace clay, trace gravel, grey, wet, very dense	8	SS	94/ 255mm	
259.9 / 8.2	**END OF BOREHOLE:** Notes: 1) Water at 7.6m below grade during drilling				

Column headings: SOIL PROFILE; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (268, 267, 266, 265, 264, 263, 262, 261, 260); DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH20-14

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858339.89 E 598409.18

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/30/2020

REF. NO.: 20-169-100
ENCL NO.: 15

(m) ELEV DEPTH	SOIL PROFILE DESCRIPTION
267.7	
0.0	**TOPSOIL:** 400mm
267.3 / 0.4	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, trace sand, trace rootlets, brown, moist, firm
266.9 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, frequent sand seams, brown, moist, stiff to hard
	grey below 6m
	interbed of clayey silt and sany silt layers, wet below 10.5m
256.4 / 11.3	**END OF BOREHOLE:**

SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m
1	SS	7
2	SS	14
3	SS	13
4	SS	27
5	SS	28
6	SS	24
7	SS	18
8	SS	29
9	SS	22
10	SS	35

GROUND WATER CONDITIONS: W. L. 264.3 m Aug 06, 2020; W. L. 264.1 m Oct 22, 2020; Bentonite; Filter Pack; Slotted Pipe

ELEVATION: 267, 266, 265, 263, 262, 261, 260, 259, 257

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Notes:
1) 50mm dia. monitoring well installed upon completion.
2) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	3.32
Sept 8, 2020	3.43
Oct 22, 2020	3.59

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.

LOG OF BOREHOLE BH20-15

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858789.95 E 598183.97

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/30/2020

REF. NO.: 20-169-100
ENCL NO.: 16

(m) ELEV DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	Water Content (%)
264.1					
0.0 / 263.8	**TOPSOIL:** 350mm	1	SS	12	
0.4 / 263.3	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, trace sand, trace rootlets, brown, moist, stiff				
0.8	**CLAYEY SILT TILL:** some sand, trace gravel, sand seams, brown, moist, stiff to very stiff	2	SS	18	
		3	SS	22	
		4	SS	27	
		5	SS	27	
	grey below 4.5m	6	SS	17	
		7	SS	14	
		8	SS	16	
	wet below 9m	9	SS	12	
254.4 / 9.7	**END OF BOREHOLE:**				

Ground water conditions: W. L. 261.7 m Aug 06, 2020; Bentonite; Filter Pack; Slotted Pipe

Elevation: 264, 263, 262, 261, 260, 259, 258, 257, 256, 255

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m³) | METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Notes:
1) Water level at 9.1m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	2.41
Sept 8, 2020	2.33
Oct 22, 2020	2.41

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH20-16

PROJECT: Geotechnical Investigation
CLIENT: Bolton Option 3 Landowners Group
PROJECT LOCATION: Bolton Option 3 Lands, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4857848.7 E 598703.75

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jul/31/2020

REF. NO.: 20-169-100
ENCL NO.: 17

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
265.5						
0.0	**TOPSOIL:** 400mm	1	SS	9		
265.1 / 0.4	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, trace rootlets, brown, moist, stiff					
264.7 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, sand seams, brown, moist, stiff to hard	2	SS	33		
264.0 / 1.5	**GRAVELLY SAND:** some silt, trace clay, brown, very moist to wet, compact to dense	3	SS	30		
		4	SS	24		22 64 10 4
262.2 / 3.3	**SANDY SILT:** trace clay, brown, wet, compact	5	SS	20		
261.0 / 4.5	**SAND AND GRAVEI:** some silt, trace clay, brownish grey, wet, very dense	6	SS	66		42 37 15 6
259.3 / 6.2	**SILTY SAND:** some clay, trace gravel, greyish brown, wet, dense	7	SS	38		3 61 26 10
258.0 / 7.5	**SANDY SILT:** trace clay, grey, wet, dense	8	SS	41		
257.3 / 8.2	**END OF BOREHOLE:**					

Ground water conditions: W. L. 263.4 m Aug 06, 2020; W. L. 263.1 m Oct 22, 2020; Filter Pack; Slotted Pipe

Notes:
1) Water level at 2.3m below grade during drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
Aug 6, 2020	2.12
Sept 8, 2020	2.27
Oct 22, 2020	2.49

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (265, 264, 263, 262, 261, 260, 259, 258); DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ❖ Environmental ❖ Materials ❖ Hydrogeology

LOG OF BOREHOLE BH22-1

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858060.2 E 597225.82

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-31-2022

REF. NO.: 20-169-104
ENCL NO.: 2

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
279.0						
278.7 / 0.0	**TOPSOIL:** 300mm	1	SS	9	~17	
0.3 / 278.2 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff	2	SS	24	~14	
	SILTY CLAY TO CLAYEY SILT TILL: trace to some sand, trace gravel, brown, moist, very stiff to hard; sandy silt till layer @2.3m	3	SS	28	~14 (Wp ~17, WL ~30)	2 18 47 33
		4	SS	32	~10	
		5	SS	31	~10	
	grey below 4.6m	6	SS	34	~10	
272.7 / 6.3	**SANDY SILT TILL:** trace clay, trace gravel, grey, very moist, very dense	7	SS	65	~12	
271.4 / 7.6	**SANDY SILT TO SILTY SAND:** trace clay, trace gravel, grey, wet, very dense	8	SS	78	~15	
270.8 / 8.2	**END OF BOREHOLE:**					

W. L. 275.6 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 8, 2022 3.4

DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100
SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

LOG OF BOREHOLE BH21-1

PROJECT: Geotechnical Investigation
CLIENT: ARGO Development Corp
PROJECT LOCATION: Bolton Option 3 Lands, Block 10, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858817.153 E 598138.646

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Apr/22/2021
REF. NO.: 20-169-100
ENCL NO.: 2

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	WATER CONTENT (%)
264.1 / 0.0	**TOPSOIL:** 300mm	1	SS	8	W. L. 263.6 m May 03, 2021	264	~33
263.8 / 0.3	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, trace sand, trace rootlets, brown, moist, stiff						
263.3 / 0.8	**CLAYEY SILT TILL:** some sand, trace gravel, brown, moist, stiff to very stiff	2	SS	10		263	
		3	SS	11		262	~21
		4	SS	15	Filter Pack		~20
		5	SS	19	Slotted Pipe	261	~15
	grey below 4.5m	6	SS	26		260, 259	~16
		7	SS	23	Bentonite	258	~17
257.4 / 6.7	**END OF BOREHOLE:**						

Notes:
1) Borhole dry and open at completion of drilling
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date:	Water Level (mbgl):
May 3, 2021	0.5m

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
METHANE AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH21-2

PROJECT: Geotechnical Investigation
CLIENT: ARGO Development Corp
PROJECT LOCATION: Bolton Option 3 Lands, Block 10, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858839.839 E 598092.887

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Apr/22/2021

REF. NO.: 20-169-100
ENCL NO.: 3

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)
263.8 / 0.0	**TOPSOIL:** 200mm				
263.6 / 0.2	**FILL:** clayey silt, trace topsoil/ organics, trace sand, trace rootlets, brown, moist, firm	1	SS	7	
262.9 / 0.9	**SILT:** trace clay, brown, saturated, loose	2	SS	9	
262.8 / 1.0	**CLAYEY SILT TILL:** trace gravel, trace sand, brown, moist to wet, stiff to hard	3	SS	29	
		4	SS	27	
		5	SS	34	
	grey below 4.5m	6	SS	24	
257.1 / 6.7		7	SS	22	
	END OF BOREHOLE:				

Ground water conditions: Bentonite; W. L. 263.1 m May 03, 2021; Filter Pack; Slotted Pipe; Bentonite

Elevation: 262, 261, 260, 259, 258

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Notes:
1) Dry and open upon completion of drilling.
2) 50mm dia. monitoring well installed upon completion.
3) Water level Reading:

Date: Water Level (mbgl):
May 3, 2021 0.7m

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH21-3

PROJECT: Geotechnical Investigation
CLIENT: ARGO Development Corp
PROJECT LOCATION: Bolton Option 3 Lands, Block 10, Caledon, Ontario
DATUM: Geodetic
BOREHOLE LOCATION: See Drawing 1 N 4858727.446 E 598063.05

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Apr/22/2021

REF. NO.: 20-169-100
ENCL NO.: 4

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)
266.9					
266.7 / 0.2	**TOPSOIL:** 200mm				
266.1 / 0.8	**FILL:** clayey silt, trace topsoil/organics, trace sand, trace gravel, brown, moist, firm	1	SS	8	
	CLAYEY SILT TILL: trace gravel, trace sand, brown, moist to wet, stiff to hard	2	SS	21	
		3	SS	30	
		4	SS	38	
		5	SS	44	
	grey, stiff below 4.5m	6	SS	17	
260.2 / 6.7		7	SS	12	
	END OF BOREHOLE: Notes: 1) Borehole was open and wet at the bottom upon completion of drilling.				

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (266, 265, 264, 263, 262, 261); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20, 40, 60, 80, 100); SHEAR STRENGTH (kPa) — O UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20, 40, 60, 80, 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10, 20, 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); METHANE AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; O ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-2

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857899.68 E 597174.15

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-31-2022

REF. NO.: 20-169-104
ENCL NO.: 3

ELEV (m) / DEPTH	DESCRIPTION
280.2	
279.9 / 0.3	**TOPSOIL:** 300mm
279.4 / 0.8	**WEATHERED/DISTURBED NATIVE:** sandy silt, clayey, trace rootlets, trace gravel, brown, moist, loose
278.7 / 1.5	**SILTY CLAY TO CLAYEY SILT TILL:** some sand to sandy, trace rootlets, trace gravel, brown, moist, stiff
	SILTY SAND TO SANDY SILT: trace clay, brown, moist, compact to dense
	wet, trace gravel below 4.6m
	grey below 7.8m
	compact below 9.1m
269.5 / 10.7	**SAND:** some silt to silty, trace clay, grey, wet, compact
268.0 / 12.2	**SANDY SILT TILL:** some clay, trace gravel, grey, wet, very dense
267.4 / 12.8	**END OF BOREHOLE:**

Notes:
1) Water at depth of 4.5m during drilling.

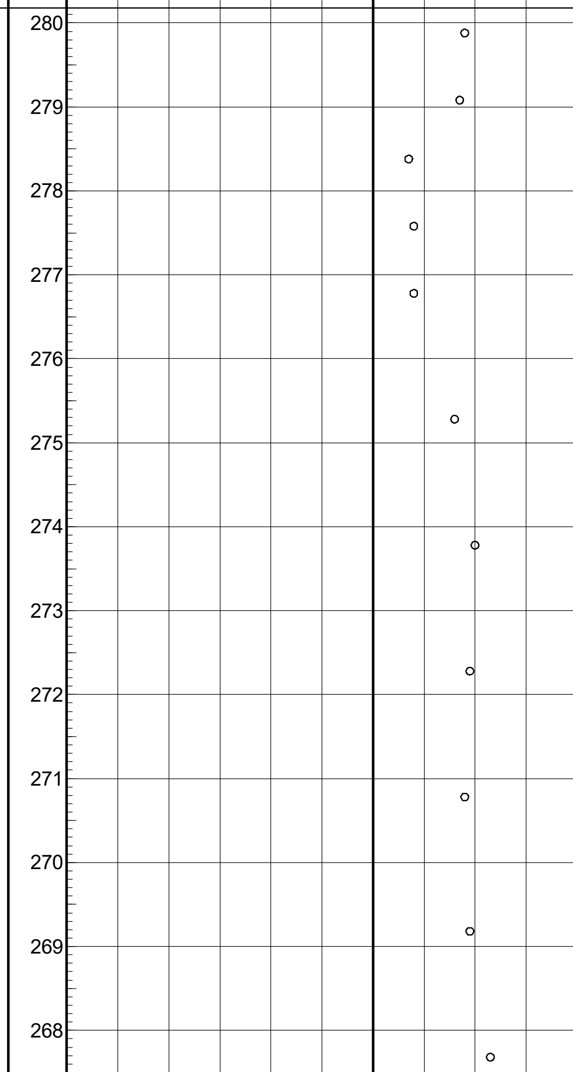
SAMPLES NUMBER	TYPE	"N" BLOWS / 0.3 m
1	SS	8
2	SS	13
3	SS	15
4	SS	36
5	SS	34
6	SS	45
7	SS	44
8	SS	35
9	SS	19
10	SS	16
11	SS	53

STRATA PLOT | GROUND WATER CONDITIONS | ELEVATION

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE: 20 40 60 80 100

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL



GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-3

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858172.91 E 597505.29

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-30-2022

REF. NO.: 20-169-104
ENCL NO.: 4

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	NATURAL MOISTURE CONTENT (%) approx.
274.8						
274.6 / 0.3	**TOPSOIL:** 250mm	1	SS	9		
274.2 / 0.6	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff				274	
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff	2	SS	20		
		3	SS	23		
		4	SS	28	272	
271.6 / 3.2	**SANDY SILT TILL:** some clay to clayey, trace gravel, grey, moist, compact to dense	5	SS	30	271	
		6	SS	21	270	
					269	
		7	SS	28	268	
267.2 / 7.6	**SANDY SILT:** trace clay, trace gravel, grey, wet, dense to very dense	8	SS	42	267	
					266	
265.1 / 9.7		9	SS	59		

W. L. 273.4 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 1.42

Column headings: DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL; STRATA PLOT; GROUND WATER CONDITIONS.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
$+^3, \times^3$: Numbers refer to Sensitivity
○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ❖ Environmental ❖ Materials ❖ Hydrogeology

LOG OF BOREHOLE BH22-4

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857977.59 E 597363.66

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-30-2022

REF. NO.: 20-169-104
ENCL NO.: 5

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)
279.8					
279.6 / 0.2	**TOPSOIL:** 200mm	1	SS	9	
	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff				
278.8 / 1.0	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, very stiff to hard sand pocket@1.5m	2	SS	26	
		3	SS	50/ 130mm	
277.5 / 2.3	**SAND:** trace to some silt, trace gravel, brown, moist, dense	4	SS	36	
		5	SS	41	
275.2 / 4.6	**SANDY SILT TO SILT:** trace clay, brown, wet, compact to dense	6	SS	25	
		7	SS	39	
		8	SS	19	
		9	SS	41	
268.5	grey below 10.7m	10	SS	45	
11.3	**END OF BOREHOLE:** Notes: 1) Water at depth of 4.6m during drilling.				

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (279, 278, 277, 276, 275, 274, 273, 272, 271, 270, 269); DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH22-5

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857690.79 E 597235.89

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-31-2022

REF. NO.: 20-169-104
ENCL NO.: 6

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	NATURAL MOISTURE CONTENT
279.7 / 0.0	**TOPSOIL:** 320mm	1	SS	10		~16%
279.4 / 0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt, some sand to sandy, trace rootlets, trace gravel, brown, moist, stiff				279	
278.9 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, hard	2	SS	45		~14%
		3	SS	30	278	~10%
		4	SS	37	277	~11%
276.6 / 3.1	**SANDY SILT:** trace clay, brown, moist, dense to very dense	5	SS	82	276	~12%
	wet below 4.6m	6	SS	46	275	~25%
					274	
273.6 / 6.1	**SILT:** some clay, trace sand, silty clay pockets, trace gravel, brown, wet, dense	7	SS	40		~25%
					273	
	some sand to sandy@7.6m	8	SS	48	272	~25%
271.5 / 8.2	**END OF BOREHOLE:**					

W. L. 273.2 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 6.53

Column headings: DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT w_P, NATURAL MOISTURE CONTENT w, LIQUID LIMIT w_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL; STRATA PLOT; GROUND WATER CONDITIONS.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH22-6

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857757.24 E 597389.06

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-31-2022

REF. NO.: 20-169-104
ENCL NO.: 7

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
278.0 / 0.0	**TOPSOIL:** 380mm	1	SS	9		
277.6 / 0.4	**WEATHERED/DISTURBED NATIVE:** sandy silt, trace clay, trace gravel, trace rootlets, brown, moist, loose	2	SS	10		
277.2 / 0.8	**SILTY SAND TO SANDY SILT:** trace clay, brown, moist, compact to dense	3	SS	25		
		4	SS	38		
		5	SS	45		
	wet below 4.6m	6	SS	33		
		7	SS	23		
		8	SS	19		0 51 46 3
		9	SS	18		
		10	SS	26		
	greyish brown below 12.2m	11	SS	31		
265.2 / 12.8	**END OF BOREHOLE:** Notes: 1) Water at depth of 4.6m during drilling.					

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (277–266); DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

LOG OF BOREHOLE BH22-7

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857881.68 E 597477

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-30-2022

REF. NO.: 20-169-104
ENCL NO.: 8

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%) (approx.)	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
279.8 / 0.0 (279.5)	**TOPSOIL:** 300mm					
0.3 / 279.0	**WEATHERED/DISTURBED NATIVE:** silty clay, trace sand, trace rootlets, trace gravel, brown, moist, firm	1	SS	7	~17	
0.8 / 278.3	**SANDY SILT:** some clay, brown, moist, compact	2	SS	10	~19	
1.5	**SILT:** some sand to sandy, trace clay, trace gravel, brown, very moist, compact to dense occasional silty clay pockets, wet below 2.3m; silty clay layer@3.1m	3	SS	24	~23	
		4	SS	31	~22	
		5	SS	31	~20	0 0 75 25
	grey below 4.6m	6	SS	39	~26	
		7	SS	26	~23	
		8	SS	43	~23	
		9	SS	31	~23	
		10	SS	32	~24	
267.0		11	SS	30	~21	
12.8	**END OF BOREHOLE:** Notes: 1) Water at depth of 2.3m during drilling.					

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (279 to 268); DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m³); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH22-8

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857677.07 E 597438.67

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-01-2022

REF. NO.: 20-169-104
ENCL NO.: 9

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT (WATER CONTENT %)
277.0					
276.8 / 0.2	TOPSOIL: 200mm	1	SS	11	~16
276.2 / 0.8	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff	2	SS	17	~17
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff	3	SS	26	~17
274.7 / 2.3	SILT: some sand to sandy, trace clay, trace gravel, brown, moist, dense to very dense	4	SS	65	~18
		5	SS	60	~18
	grey, wet below 4.6m	6	SS	51	~20
		7	SS	38	~21
		8	SS	34	~24
267.9 / 9.1	SILTY SAND TO SANDY SILT: trace clay, grey to brown, wet, compact to dense	9	SS	24	~23
	brown, clayey silt pocket@10.7m	10	SS	48	~24
		11	SS	44	~22
264.2 / 12.8	END OF BOREHOLE: Notes: 1) Water at depth of 4.6m during drilling.				

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Elevation scale: 276, 275, 274, 273, 272, 271, 270, 269, 268, 267, 266, 265

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

LOG OF BOREHOLE BH22-9

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857907.13 E 597643.95

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-02-2022

REF. NO.: 20-169-104
ENCL NO.: 10

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION
278.2					
277.9 / 0.0	**TOPSOIL:** 250mm	1	SS	7	278
0.3	**FILL:** clayey silt to silty clay, some sand to sandy, trace gravel, trace rootlets, organic staining, dark brown to brown, moist, firm to stiff (possible weathered/disturbed native)	2	SS	11	277
		3	SS	9	
275.9 / 2.3	**SILT:** some sand to sandy, trace clay, brown, moist, dense to very dense	4	SS	31	276
		5	SS	53	275
	wet below 4.6m	6	SS	53	274, 273
272.1 / 6.1	**SANDY SILT TO SILTY SAND:** trace clay, brown, wet, dense	7	SS	42	272
		8	SS	38	271, 270
		9	SS	38	269
268.1 / 10.1	**END OF BOREHOLE:** Notes: 1) Water at depth of 4.6m during drilling.	10	SS	43	

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT w_P, NATURAL MOISTURE CONTENT w, LIQUID LIMIT w_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH22-10

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858145.98 E 597819.82

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-06-2022

REF. NO.: 20-169-104
ENCL NO.: 11

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	NATURAL MOISTURE CONTENT	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
269.9							
269.6 / 0.0	**TOPSOIL:** 280mm	1	SS	8			
0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace to some sand, trace gravel, trace rootlets, brown, moist, stiff						
269.1 / 0.8		2	SS	15	W. L. 268.6 m Sep 08, 2022		
268.4 / 1.5	**SILTY CLAY TILL:** trace to some sand, trace gravel, brown, moist, very stiff	3	SS	29			
	SANDY SILT TILL: trace to some clay, trace gravel, brown, moist, compact to very dense	4	SS	71			
		5	SS	61			1 24 64 11
	grey, wet below 4.6m	6	SS	56			
263.8 / 6.1	**SANDY SILT TO SILTY SAND:** trace clay, trace gravel, grey, wet, compact to dense	7	SS	38			
		8	SS	37			
		9	SS	23			
259.6 / 10.3		10	SS	31			

ELEVATION: 269, 268, 267, 266, 265, 264, 263, 262, 261, 260

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

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

Date: Water Level(mbgl):
Sept. 08, 2022 1.27

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-11

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857991.3 E 597843.47

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-06-2022

REF. NO.: 20-169-104
ENCL NO.: 12

SOIL PROFILE

(m) ELEV DEPTH	DESCRIPTION
272.9	
272.6 0.3	**TOPSOIL:** 250mm **WEATHERED/DISTURBED NATIVE:** silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff
272.1 0.8	**SILTY CLAY TILL:** trace sand, trace gravel, brown, moist, very stiff to hard
270.2 2.7	**SANDY SILT TILL:** clayey, trace gravel, brown, moist, dense to very dense
268.3 4.6	**SANDY SILT TO SILTY SAND:** trace clay, trace gravel, brown, wet, compact to very dense
262.6 10.3	**END OF BOREHOLE:**

SAMPLES

NUMBER	TYPE	"N" BLOWS/0.3 m
1	SS	8
2	SS	21
3	SS	32
4	SS	40
5	SS	50/50mm
6	SS	54
7	SS	44
8	SS	14
9	SS	37
10	SS	53

GROUND WATER CONDITIONS: W. L. 269.3 m Sep 08, 2022

ELEVATION: 272, 271, 270, 268, 267, 266, 265, 264, 263

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

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

Notes:
1) Monitoring well installed 1 m away from borehole.
2) 50mm dia. monitoring well installed upon completion.
3) Water Level Readings:

Date: Water Level(mbgl):
Sept. 08, 2022 3.6

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-12

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857721.12 E 597662.19

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-02-2022

REF. NO.: 20-169-104
ENCL NO.: 13

SOIL PROFILE

ELEV (m) / DEPTH	DESCRIPTION
277.7 / 0.0	**TOPSOIL:** 300mm
277.4 / 0.3	**WEATHERED/DISTURBED NATIVE:** sandy silt to silt, trace clay, trace gravel, trace rootlets, dark brown to brown, moist, compact
276.7 / 1.0	**SILT:** some sand to sandy, trace clay, trace gravel, brown, moist, compact to very dense clayey@2.3m wet below 3.1m
270.1 / 7.6	**SANDY SILT TO SILTY SAND:** trace clay, brown, wet, compact to dense grey below 10.7m
264.9 / 12.8	**END OF BOREHOLE:** Notes: 1) Water at depth of 3.1m during drilling.

SAMPLES

NUMBER	TYPE	"N" BLOWS / 0.3 m
1	SS	10
2	SS	18
3	SS	33
4	SS	59
5	SS	75
6	SS	66
7	SS	40
8	SS	38
9	SS	33
10	SS	45
11	SS	14

STRATA PLOT | GROUND WATER CONDITIONS | ELEVATION: 277, 276, 275, 274, 273, 272, 271, 270, 269, 268, 267, 266, 265

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m³) | REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-13

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857674.46 E 597643.49

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-01-2022

REF. NO.: 20-169-104
ENCL NO.: 14

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
276.1						
275.9 / 0.3	**TOPSOIL:** 250mm	1	SS	9	~16	
275.2 / 0.9	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, stiff	2	SS	15	~18	
	SILT: trace sand, trace clay, trace gravel, brown, moist, compact to very dense	3	SS	19	~19	
		4	SS	70	~18	
		5	SS	72	~20	
	wet below 4.6m	6	SS	52	~20	0 3 93 4
		7	SS	34	~23	
268.5 / 7.6	**SANDY SILT:** trace clay, brown, wet, compact to dense	8	SS	35	~23	
	grey below 9.1m	9	SS	21	~22	0 31 64 5
		10	SS	46	~24	
263.3 / 12.8		11	SS	37	~23	

W. L. 270.1 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 6.03

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ 8=3% Strain at Failure

LOG OF BOREHOLE BH22-14

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857544.96 E 597523.95

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Sep-01-2022

REF. NO.: 20-169-104
ENCL NO.: 15

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
271.4 / 0.0	**TOPSOIL:** 300mm	1	SS	7	271	
271.1 / 0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt, trace rootlets, trace sand, trace gravel, brown, moist, firm	2	SS	9	270	
270.4 / 1.0	**SILTY CLAY TO CLAYEY SILT TILL:** some sand to sandy, trace gravel, brown, moist, stiff to hard	3	SS	34	269	
	sandy below 2.3m	4	SS	42	268	
	grey below 3.4m	5	SS	48	267	
		6	SS	22	266	
		7	SS	26	265	4 31 45 20
		8	SS	28	264, 263	
		9	SS	19	262, 261	
		10	SS	16	260	
	moist to very moist @12.2m	11	SS	12	259	
258.6 / 12.8	**END OF BOREHOLE:**					

W. L. 259.5 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 11.9

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-15

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858500.39 E 597551.22

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-29-2022

REF. NO.: 20-169-104
ENCL NO.: 16

ELEV (m) / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS / 0.3 m	ELEVATION	WATER CONTENT (%)
270.2						
269.9 / 0.0	**TOPSOIL:** 300mm	1	SS	10	270	o
0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace gravel, trace sand, brown, moist, stiff to firm	2	SS	6	269	o
268.7 / 1.5	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, very stiff to hard	3	SS	25	W. L. 268.3 m Sep 08, 2022	o
		4	SS	38		o
		5	SS	24	267	o
					266	
	grey below 4.6m	6	SS	22	265	o
					264	
		7	SS	21	263	o
262.6 / 7.6	**SANDY SILT TILL:** trace to some clay, trace gravel, grey, moist, very dense	8	SS	57		o
262.0 / 8.2	**END OF BOREHOLE:**					

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

Date: Water Level(mbgl):
Sept. 08, 2022 1.93

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

LOG OF BOREHOLE BH22-16

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858695.96 E 597735.36

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-29-2022

REF. NO.: 20-169-104
ENCL NO.: 17

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)
268.8						
268.6 / 0.3	**TOPSOIL:** 250mm	1	SS	9		○
268.0 / 0.8	**WEATHERD/DISTURBED NATIVE:** clayey silt, some sand, trace gravel, brown, moist, stiff				268	
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff to hard	2	SS	17		○
		3	SS	20	267	○
		4	SS	36	266	○
	grey below 3.5m	5	SS	27	265	○
		6	SS	27	264	○
					263	
		7	SS	21	262	○
	silty sand pockets @ 7.6m	8	SS	25	261	○
260.6 / 8.2	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.					

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-17

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858813.11 E 597817.61

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-29-2022

REF. NO.: 20-169-104
ENCL NO.: 18

ELEV (m) / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION
269.0 / 0.0	**TOPSOIL:** 300mm	1	SS	8		
268.7 / 0.3	**WEATHERED/DISTURBED NATIVE:** sandy silt, trace to some clay, trace rootlets, trace gravel, brown, moist, loose					268
268.2 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, very stiff to hard	2	SS	23		
		3	SS	27		267
		4	SS	33	W. L. 266.7 m Sep 08, 2022	266
		5	SS	31		265
	grey below 4.9m	6	SS	26		264
	possible boulder@6.1m	7	SS	50/75mm		263
						262
260.8 / 8.2		8	SS	24		261

Water content (%) plotted: Sample 1 approx. 12 and 19; Sample 2 approx. 14; Sample 3 approx. 13; Sample 4 approx. 14; Sample 5 approx. 16; Sample 6 approx. 16; Sample 7 approx. 12; Sample 8 approx. 12.

Column headings: DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

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

Date: Water Level(mbgl):
Sept. 08, 2022 2.26

DS SOIL LOG-2021-FINAL 20-169-104 GEO COPY.GPJ DS.GDT 22-10-21

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858460.95 E 597628.58

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-29-2022

REF. NO.: 20-169-104
ENCL NO.: 19

(m) ELEV / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	ELEVATION	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
270.0							
269.8 / 0.3	**TOPSOIL:** 250mm	1	SS	3		o	
269.2 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt, some sand, trace rootlets, trace gravel, brown, moist, soft	2	SS	21	269	o	
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, very stiff to hard	3	SS	21	268	o	
		4	SS	34	267	o	
		5	SS	31	266	o	
	grey below 4.6m	6	SS	18	265	o	
263.9 / 6.1	**CLAYEY SILT:** trace sand, grey, moist, very stiff	7	SS	29	264, 263	o	
262.4 / 7.6	**SAND AND SILT TILL:** some clay, some gravel, grey, moist, dense	8	SS	31	262	o	11 38 40 11
261.8 / 8.2	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.						

Column headings: SOIL PROFILE; SAMPLES; GROUND WATER CONDITIONS; STRATA PLOT; DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-19

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858347.09 E 597782.77

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-30-2022

REF. NO.: 20-169-104
ENCL NO.: 20

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)
269.0 / 0.0	**TOPSOIL:** 280mm					
268.7 / 0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt, trace sand, trace rootlets, trace gravel, brown, moist, firm	1	SS	6		~23
268.2 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, stiff to hard; trace fine rootlets above 0.9m	2	SS	9	268	~14
		3	SS	23	267	~14
		4	SS	31	266	~14
		5	SS	32		~11
	sandy, grey below 4.6m	6	SS	24	265 / 264	~9
		7	SS	24	263 / 262	~10
260.8 / 8.2		8	SS	20	261	~13

END OF BOREHOLE:
Notes:
1) Water at depth of 7.3 during drilling.

Column headings: SOIL PROFILE; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL; STRATA PLOT.

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-20

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858613.57 E 597956.89

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Aug-29-2022

REF. NO.: 20-169-104
ENCL NO.: 21

SOIL PROFILE

(m) ELEV DEPTH	DESCRIPTION
269.4	
269.2 / 0.3	**TOPSOIL:** 250mm
268.6 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt, some sand to sandy, trace rootlets, trace gravel, brown, moist, firm
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, gravelly sand pocket@1.0m, brown, moist, very stiff to hard
	grey below 4.6m
261.2 / 8.2	**END OF BOREHOLE:**

SAMPLES

NUMBER	TYPE	"N" BLOWS / 0.3 m
1	SS	7
2	SS	24
3	SS	30
4	SS	45
5	SS	39
6	SS	19
7	SS	21
8	SS	18

GROUND WATER CONDITIONS: W. L. 266.9 m Sep 08, 2022

ELEVATION: 269, 268, 267, 266, 265, 264, 263, 262

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

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

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

Date: Water Level(mbgl):
Sept. 08, 2022 2.51

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-21

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858504.78 E 598123.48

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-26-2022

REF. NO.: 20-169-104
ENCL NO.: 22

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	NATURAL MOISTURE CONTENT	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
267.4							
267.1 / 0.0	**TOPSOIL:** 250mm	1	SS	6	267		
0.3	**WEATHERED/DISTURBED NATIVE:** sandy silt, trace rootlets, trace clay, trace gravel, brown, moist, loose						
266.6 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, brown, moist, very stiff to hard	2	SS	20	266		
		3	SS	18	265		
		4	SS	30			
		5	SS	33	264	W	4 17 47 32
	grey below 4.6m	6	SS	16	263, 262		
		7	SS	16	261, 260		
259.2		8	SS	19			
8.2	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.						

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-22

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858239.64 E 598130.15

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-26-2022

REF. NO.: 20-169-104
ENCL NO.: 23

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
267.8							
267.6 / 0.3	**TOPSOIL:** 250mm	1	SS	7		~19	
267.0 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, some sand, trace gravel, dark brown, moist, firm	2	SS	16	267	~15	
	CLAYEY SILT TO SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff to hard	3	SS	26	W. L. 266.3 m Sep 08, 2022	~12	
		4	SS	33	265	~14	
		5	SS	39	264	~14	
	grey below 4.6m	6	SS	15	263	~18	
		7	SS	22	262 / 261	~11	
260.2 / 7.6	**SANDY SILT TILL:** some clay to clayey, trace gravel, silty sand pockets, grey, moist, very dense	8	SS	68	260	~9	
259.6 / 8.2	**END OF BOREHOLE:**						

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

Date: Water Level(mbgl):
Sept. 08, 2022 1.43

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-23

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858114.18 E 598044.93

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-26-2022

REF. NO.: 20-169-104
ENCL NO.: 24

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
270.6										
270.3 / 0.3	**TOPSOIL:** 250mm	1	SS	5		270	~17			
269.8 / 0.8	**WEATHERED/DISTURBED NATIVE:** silty clay, trace rootlets, trace sand, trace gravel, brown, moist, firm	2	SS	23			~13			
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff to hard	3	SS	24		269	~15			
		4	SS	29		268	~15			
		5	SS	30		267	~15			
	grey below 4.6m	6	SS	21		266 / 265	~13			
264.5 / 6.1	**SANDY SILT TILL:** clayey, trace gravel, grey, moist, compact to very dense	7	SS	27		264	~9			
262.5 / 8.1		8	SS	50/100mm		263	~8			
	END OF BOREHOLE: Notes: 1) Borehole wet at the bottom upon completion.									

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE — 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30

DS SOIL LOG-2021-FINAL 20-169-104 GEO COPY.GPJ DS.GDT 22-10-21

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-24

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857889.88 E 597985.22

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-25-2022

REF. NO.: 20-169-104
ENCL NO.: 25

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT
273.1					
272.9 / 0.2	**TOPSOIL:** 200mm	1	SS	12	○
272.7 / 0.4	**WEATHERED/DISTURBED NATIVE:** silty clay, trace sand, trace rootlets, brown, moist, stiff				
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to hard	2	SS	32	○
		3	SS	36	○
		4	SS	35	○
		5	SS	38	○
268.5 / 4.6	**SILT:** some clay, some sand, trace gravel, grey, moist, dense	6	SS	30	○
267.0 / 6.1	**CLAYEY SILT TO SILTY CLAY TILL:** trace sand, trace gravel, grey, moist, very stiff	7	SS	20	○
		8	SS	17	○
	sandy @9.1m	9	SS	17	○
		10	SS	16	○
262.7 / 10.4	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.				

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (273–263); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m³); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-25

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857963.09 E 598107.54

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-25-2022

REF. NO.: 20-169-104
ENCL NO.: 26

Ground surface elevation: 270.9

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
270.6 / 0.3	**TOPSOIL:** 300mm	1	SS	10		
270.1 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, stiff	2	SS	28		
	SILTY CLAY TILL: some sand, trace gravel, brown, moist, very stiff to hard	3	SS	29		1 14 49 36
		4	SS	31		
		5	SS	30		
	grey below 4.6m	6	SS	18		
		7	SS	34		
263.3 / 7.6	**SILTY SAND:** trace clay, silt seams, grey, wet, compact to very dense	8	SS	57		
		9	SS	22		0 70 27 3
259.6 / 11.3		10	SS	37		

W. L. 267.8 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 3.1

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DYNAMIC CONE PENETRATION RESISTANCE PLOT; SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m³)

LOG OF BOREHOLE BH22-26

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857983.06 E 598243.39

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-24-2022

REF. NO.: 20-169-104
ENCL NO.: 27

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)
269.0						
268.8 / 0.2	**TOPSOIL:** 200mm	1	SS	9		
268.2 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace sand, brown, moist, stiff	2	SS	28	268	
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, stiff to hard	3	SS	22	267	
		4	SS	39	266	
		5	SS	34	265	
	grey below 4.6m	6	SS	14	264	
	silty sand pockets below 6.1m	7	SS	31	263 / 262	
		8	SS	53	261	
259.9 / 9.1	**SILT:** trace to some sand, trace clay, grey, moist to wet, very dense	9	SS	50/ 30mm	260	
259.6 / 9.4	**END OF BOREHOLE:**					

Notes:
1) Borehole wet at the bottom upon completion.

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857751.7 E 598149.64

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-19-2022

REF. NO.: 20-169-104
ENCL NO.: 28

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	WATER CONTENT (%) (approx.)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
271.2								
270.9 / 0.2	**TOPSOIL:** 230mm	1	SS	12		271	10	
270.4 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, some sand to sandy, trace rootlets, trace gravel, brown, moist, stiff	2	SS	23		270	12	
269.5 / 1.7	**SILTY CLAY TILL:** trace sand, trace gravel, brown, moist, very stiff	3	SS	35			13	
	SANDY SILT: trace clay, trace gravel, brown, moist, dense	4	SS	46		269	18	
	clayey seams @3.1m	5	SS	44		268	17	
266.6 / 4.6	grey @4.5m				W. L. 266.9 m Sep 08, 2022	267		
	SILT: some clay to clayey, some sand, grey, very moist, compact	6	SS	29		266	20	
	wet below 6.1m	7	SS	26		265	23	
263.6 / 7.6	**SANDY SILT:** trace clay, grey, wet, compact	8	SS	20		264 / 263	22	
		9	SS	19		262	24	
		10	SS	17		261 / 260	26	
259.0 / 12.2	**SILTY SAND:** trace clay, grey, wet, (disturbed)	11	SS	disturbed.		259	22	disturbed sample
258.4 / 12.8	**END OF BOREHOLE:**							

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

Date: Water Level(mbgl):
Sept. 08, 2022 4.25

DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100
SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-28

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857801.25 E 598264.59

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-19-2022

REF. NO.: 20-169-104
ENCL NO.: 29

ELEV (m) / DEPTH	DESCRIPTION (SOIL PROFILE)	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
270.9 / 0.0	**TOPSOIL:** 200mm	1	SS	13	
270.7 / 0.2	**WEATHERED/ DISTURBED NATIVE:** clayey silt, some sand to sandy, trace gravel, trace rootlets, brown, moist, stiff	2	SS	30	
270.1 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, hard sandy@1.5m	3	SS	55	
268.6 / 2.3	**SANDY SILT TILL:** trace clay, trace to some gravel, brown, moist, dense	4	SS	44	
267.8 / 3.1	**SANDY SILT:** trace clay, brown, very moist to wet, very dense	5	SS	72	
		6	SS	56	
265.9 / 5.0	**SILT:** some clay to clayey, trace sand, trace to some gravel, grey, very moist to wet, dense to very dense	7	SS	32	1 10 71 18
263.3 / 7.6	**SANDY SILT:** trace clay, grey, wet, compact to dense	8	SS	37	
		9	SS	29	
		10	SS	14	
259.6 / 11.3	**END OF BOREHOLE:**				

GROUND WATER CONDITIONS: W. L. 266.1 m Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 4.81

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
$+^3$, $\times^3$: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-29

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857873.47 E 598396.84

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-23-2022

REF. NO.: 20-169-104
ENCL NO.: 30

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m
268.9				
268.6 / 0.0	**TOPSOIL:** 250mm	1	SS	10
0.3	**WEATHERED/DISRURBED NATIVE:** silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff			
268.1 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** trace sand, trace gravel, brown, moist, very stiff to hard sandy silt till lenses below 2.3m	2 3 4	SS SS SS	26 26 34
265.7 / 3.2	**SAND:** trace silt, trace gravel, orange brown, moist to wet, compact to dense clayey silt pockets, grey, wet@4.6m	5 6 7 8	SS SS SS SS	36 39 29 32
259.8 / 9.1	**SILTY SAND:** silt pockets, trace clay, grey, wet, dense	9	SS	43
259.2 / 9.7	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 08, 2022 3.8			

GROUND WATER CONDITIONS: W. L. 265.1 m Sep 08, 2022

ELEVATION: 268, 267, 266, 264, 263, 262, 261, 260

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity; ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

DS SOIL LOG-2021-FINAL 20-169-104 GEO COPY.GPJ DS.GDT 22-10-21

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-30

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857638.89 E 598267.27

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-23-2022

REF. NO.: 20-169-104
ENCL NO.: 31

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
268.3 / 268.0 / 0.0	**TOPSOIL:** 250mm					
0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace sand, trace rootlets, brown, moist, stiff	1	SS	10		
267.5 / 0.8	**SILTY CLAY TILL:** trace sand, trace gravel, occasional cobble, brown, moist, very stiff to hard	2	SS	35		
		3	SS	28		
266.0 / 2.3	**SANDY SILT:** trace clay, brown to grey, wet, dense; grey below 2.6m	4	SS	35		
		5	SS	32		
263.7 / 4.6	**SILT TO SANDY SILT:** some sand, trace to some clay, grey, wet, compact	6	SS	23		
		7	SS	25		
		8	SS	21		
259.2 / 9.1	**SAND:** some silt to silty, grey, wet, compact	9	SS	11		
		10	SS	29		
		11	SS disturbed			(disturbed sample)
255.5 / 12.8	**END OF BOREHOLE:** Notes: 1) Water at depth of 2.3m during drilling.					

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH22-31

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857685.22 E 598400.58

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-23-2022

REF. NO.: 20-169-104
ENCL NO.: 32

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT (%) (approx.)
268.8					
268.6 / 0.2	**TOPSOIL:** 200mm	1	SS	9	~24
268.0 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace sand, trace gravel, trace organics/rootlets, brown, moist, stiff				
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff	2	SS	24	~16
		3	SS	24	~16
266.5 / 2.3	**SILT:** some sand to sandy, trace to some clay, brown, wet, compact to dense	4	SS	37	~20
		5	SS	38	~18
	grey below 4.6m	6	SS	28	~22
		7	SS	33	~21
		8	SS	37	~23
		9	SS	35	~24
258.1 / 10.7	**SAND:** some silt to silty, trace clay, brown to greyish brown, wet, dense	10	SS	30	~23
257.5 / 11.3	**END OF BOREHOLE:**				

Notes:
1) Water at depth of 2.3m during drilling.

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (268 – 258); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20, 40, 60, 80, 100); SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE (20, 40, 60, 80, 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10, 20, 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ $^{\varepsilon}$=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-32

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857555.59 E 598363.99

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-23-2022

REF. NO.: 20-169-104
ENCL NO.: 33

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
265.3						
265.0 / 0.2	**TOPSOIL:** 200mm	1	SS	9	○	
264.5 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown mottled, moist, stiff	2	SS	19	○	
263.3 / 2.0	**SILTY CLAY TILL:** trace sand, trace gravel, brown mottled, moist, stiff to very stiff	3	SS	14	○	
	SANDY SILT: trace clay, trace to some gravel, grey, very moist, compact to dense; wet below 2.3m	4	SS	21	○	
		5	SS	27	○	
		6	SS	38	○	
		7	SS	27	○	
	with silty sand lenses below 7.6m	8	SS	33	○	
		9	SS	23	○	
254.6 / 10.7	**SAND:** some silt, trace clay, grey, wet, compact	10	SS	24	○	0 82 15 3
253.1 / 12.2	**SANDY SILT:** with clayey silt pockets, grey, wet, compact	11	SS	15	○	
252.5 / 12.8	**END OF BOREHOLE:**					

W. L. 265.0 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 0.32

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (265, 264, 263, 262, 261, 260, 259, 258, 257, 256, 255, 254, 253); DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ 8=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-33

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857913.51 E 598493.46

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-25-2022

REF. NO.: 20-169-104
ENCL NO.: 34

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
268.0					
267.8 / 0.0	**TOPSOIL:** 250mm	1	SS	10	
267.7 / 0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, stiff				
267.2 / 0.8	**SILTY CLAY TILL:** trace sand, trace gravel, brown, moist, stiff to very stiff	2	SS	12	
		3	SS	29	
265.7 / 2.3	**SANDY SILT TILL:** trace clay, trace gravel, occasional cobble, brown, moist, compact to very dense; occasional wet sand seams@3.1m	4	SS	41	
		5	SS	25	
		6	SS	50/100mm	
261.9 / 6.1	**SANDY GRAVEL:** some silt, brown, wet, compact to dense	7	SS	25	
		8	SS	43	52 34 11 3
258.9 / 9.1	**SILTY SAND TO SANDY SILT:** trace clay, grey, wet, compact to dense	9	SS	27	
		10	SS	35	
256.7 / 11.3	**END OF BOREHOLE:**				

W. L. 263.7 m
Sep 08, 2022

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

Date: Water Level(mbgl):
Sept. 08, 2022 4.29

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG-2021-FINAL 20-169-104 GEO COPY.GPJ DS.GDT 22-10-21

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-34

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857838.45 E 598615.09

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-24-2022

REF. NO.: 20-169-104
ENCL NO.: 35

ELEV (m)	DEPTH (m)	DESCRIPTION (SOIL PROFILE)	NUMBER	TYPE	"N" BLOWS/0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
267.0						
266.8	0.0	**TOPSOIL:** 250mm	1	SS	8	
266.8	0.3	**WEATHERED/DISTURBED NATIVE:** silty clay to clayey silt, trace sand, trace gravel, trace rootlets, brown, moist, stiff	2	SS	13	
266.2	0.8	**CLAYEY SILT TO SILTY CLAY TILL:** trace to some sand, trace gravel, brown, moist, stiff to very stiff	3	SS	28	
265.2	1.8	**GRAVELLY SAND:** some silt, trace clay, brown, wet, compact to very dense	4	SS	44	
		moist, some cobbles at 3.1m	5	SS	51	
			6	SS	25	32 54 11 3
			7	SS	24	
			8	SS	56	
			9	SS	43	
256.3	10.7	**CLAYEY SILT TILL:** sandy, trace gravel, sand pockets, grey, moist, hard	10	SS	49	
255.7	11.3	**END OF BOREHOLE:** Notes: 1) Water at depth of 1.8m during drilling.				

Column headings: SOIL PROFILE; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; STRATA PLOT

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

Elevation scale: 266, 265, 264, 263, 262, 261, 260, 259, 258, 257, 256

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

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-35

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857741.56 E 598599.11

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Aug-24-2022

REF. NO.: 20-169-104
ENCL NO.: 36

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	NATURAL MOISTURE CONTENT w (%)
266.1							
265.9 / 0.3	TOPSOIL: 250mm	1	SS	5			~22
265.3 / 0.8	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, firm	2	SS	21		265	~12
264.6 / 1.5	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff	3	SS	18		264	~17
	SANDY SILT TO SILTY SAND: trace clay, brown, wet, compact to dense	4	SS	30	W. L. 263.8 m Sep 08, 2022		~21
		5	SS	32		263	~23
		6	SS	23		262, 261	~22
260.0 / 6.1	SAND: some silt, trace silt seams, brown, wet, compact	7	SS	17		260	~24
258.5 / 7.6	SANDY SILT TO SILTY SAND: trace clay, grey, wet, compact to very dense	8	SS	37		259, 258	~19
		9	SS	52		257	~19
		10	SS	37		256, 255	~19
		11	SS	47		254	~19
252.5 / 13.6		12	SS	23		253	~21

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

Date: Water Level(mbgl):
Sept. 08, 2022 2.23

Column headings: DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-36

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858560.88 E 598455.25

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 37

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
261.7						
261.5 / 0.3	**TOPSOIL:** 250mm	1	SS	7		
260.9 / 0.8	**WEATHERED/DISTURBED NATIVE:** silty sand, trace rootlets, trace gravel, brown, moist, loose					
260.2 / 1.5	**SANDY SILT:** some clay, trace gravel, brown, very moist, compact	2	SS	12		
	SILTY CLAY TILL: some sand to sandy, trace gravel, brown, moist, stiff to very stiff; grey below 2.3m	3	SS	10		4 25 48 23
		4	SS	16		
		5	SS	16		
		6	SS	18		
		7	SS	19		
		8	SS	19		6 19 45 30
		9	SS	27		
		10	SS	26		
251.2 / 10.5	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.					

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (261, 260, 259, 258, 257, 256, 255, 254, 253, 252); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT w, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-36A

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858560.27 E 598452.63

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 38

(m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m^3)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
261.8 0.0	Straight drilled to 4m to installed well					W. L. 259.1 m Sep 19, 2022	261 260 258					
257.8 4.0	**END OF BOREHOLE:** Notes: 1) Straight drilled to 4m to install 50mm dia. monitoring well. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 19, 2022 2.7											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH22-37

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858497.3 E 598361.23

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 39

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m
265.1				
264.9 / 0.2	**TOPSOIL:** 230mm	1	SS	5
264.3 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown, moist, firm	2	SS	22
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to very stiff	3	SS	27
		4	SS	29
	grey below 3.1m	5	SS	22
		6	SS	14
		7	SS	14
256.9 / 8.2	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.	8	SS	16

Elevation scale: 264, 263, 262, 261, 260, 259, 258, 257

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH22-38

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858642.88 E 598374.23

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 40

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)
262.7						
262.5 / 0.3	**TOPSOIL:** 250mm	1	SS	6		~19, ~20
261.9 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace sand, trace gravel, brown to reddish brown, moist, firm	2	SS	13	262	~19
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, stiff to very stiff	3	SS	22	261	~18
		4	SS	42	260	~18
	grey below 3.1m	5	SS	24	259	~18
		6	SS	21	258	~17
		7	SS	25	257, 256	~18
254.5 / 8.2		8	SS	23	255	~18

END OF BOREHOLE:
Notes:
1) Borehole wet at the bottom upon completion.

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-39

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858595.53 E 598262.19

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 41

(m) ELEV DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	Water content (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
266.5 / 266.0 / 0.2	**TOPSOIL:** 200mm						
	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace rootlets, brown, moist, firm silty sand lens below 0.5m	1	SS	5		~13, ~10	
265.7 / 0.8	**SILTY CLAY TILL:** trace sand, trace gravel, trace rootlets, brown, moist, stiff (disturbed)	2	SS	9		~18	
265.0 / 1.5	**SILTY CLAY TILL:** trace sand, trace gravel, trace rootlets, brown, moist, very stiff to hard	3	SS	23		~16	
		4	SS	35		~16	
		5	SS	41		~16	
	grey below 4.6m	6	SS	34		~19	
		7	SS	19		~18	
		8	SS	26		~13	
258.3 / 8.2	**END OF BOREHOLE:** Notes: 1) Borehole wet at the bottom upon completion.						

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3)
ELEVATION: 266, 265, 264, 263, 262, 261, 260, 259

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-39A

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858595.12 E 598262.27

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 42

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS / 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT W_P / NATURAL MOISTURE CONTENT W / LIQUID LIMIT W_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m^3)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
266.6												
0.0	Straight drilled to 7.6m to install well.					W. L. 264.7 m Sep 19, 2022	266, 265, 264, 263, 262, 261, 260					
259.0 / 7.6	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 19, 2022 1.92						259					

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-40

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858703.05 E 598283.24

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 43

SOIL PROFILE

ELEV (m) / DEPTH	DESCRIPTION
264.0 / 0.0	
263.8 / 0.2	**TOPSOIL:** 230mm
263.2 / 0.8	**WEATHERED/DISTURBED NATIVE:** silty clay, trace sand, trace rootlets, trace gravel, brown, moist, stiff
	SILTY CLAY TILL: trace sand, trace gravel, brown, moist, very stiff to hard trace rootlets above 1.0m grey below 3.1m
255.8 / 8.2	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Oct 18, 2022 3.03

SAMPLES

NUMBER	TYPE	"N" BLOWS/0.3 m
1	SS	8
2	SS	27
3	SS	27
4	SS	37
5	SS	29
6	SS	15
7	SS	20
8	SS	17

GROUND WATER CONDITIONS: W. L. 260.9 m Oct 18, 2022

ELEVATION: 263, 262, 261, 260, 259, 258, 257, 256

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

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

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-40A

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858702.2 E 598285.12

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-07-2022

REF. NO.: 20-169-104
ENCL NO.: 44

SOIL PROFILE (m) ELEV DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS / 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100	PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L / WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m^3)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
263.9 / 0.0	Straight drilled to 4.0m to install well.					W. L. 262.0 m Sep 19, 2022	263 / 262 / 261 / 260					
259.9 / 4.0	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): Sept. 19, 2022 1.92											

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

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-41

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858790.18 E 598184.07

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-06-2022

REF. NO.: 20-169-104
ENCL NO.: 45

ELEV (m) / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
264.0 / 0.0; 263.7 / 0.4	**TOPSOIL:** 350mm	1	SS	9				
263.2 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace gravel, trace sand, organic staining, trace rootlets, brown, moist, stiff	2	SS	12		263		
	SANDY SILT TO SILTY SAND: trace to some clay, trace gravel, brown, very moist, compact	3	SS	12		262		
261.7 / 2.3	**SILTY CLAY TILL:** trace to some sand, trace gravel, brown, moist, stiff to very stiff grey below 3.1m	4	SS	24		261		
		5	SS	21		260		
		6	SS	16		259		1 11 51 37
		7	SS	13		258, 257		
255.8 / 8.2		8	SS	20		256		

END OF BOREHOLE:
Notes:
1) Borehole wet at the bottom upon completion.

Column headings: SOIL PROFILE; SAMPLES; STRATA PLOT; DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100; SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100; PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity
○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-42

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: The Gore Rd. & King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4858723.71 E 598094.14

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Sep-06-2022

REF. NO.: 20-169-104
ENCL NO.: 46

ELEV (m) / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	NATURAL MOISTURE CONTENT (%) (approx.)
266.7							
266.4 / 0.0	**TOPSOIL:** 250mm	1	SS	13		266	~11–14
0.3	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace sand, trace gravel, trace rootlets, brown, moist, stiff						
265.9 / 0.8	**SILTY CLAY TILL:** trace sand, trace gravel, brown, moist, very stiff	2	SS	21		265	~12
		3	SS	21	W. L. 264.6 m Oct 18, 2022		~14
		4	SS	26		264	~11
		5	SS	27		263	~11
	grey below 4.6m	6	SS	17		262 / 261	~12
260.6 / 6.1	**SAND:** silt pockets, grey, wet, compact	7	SS	18		260	~15
259.1 / 7.6	**SANDY SILT TILL:** trace clay, trace gravel, grey, very moist, dense	8	SS	32		259	~10
258.5 / 8.2	**END OF BOREHOLE:**						

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

Date: Water Level(mbgl):
Oct. 18, 2022 2.05

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-1

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857235.34 E 598035.14

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jun-26-2023

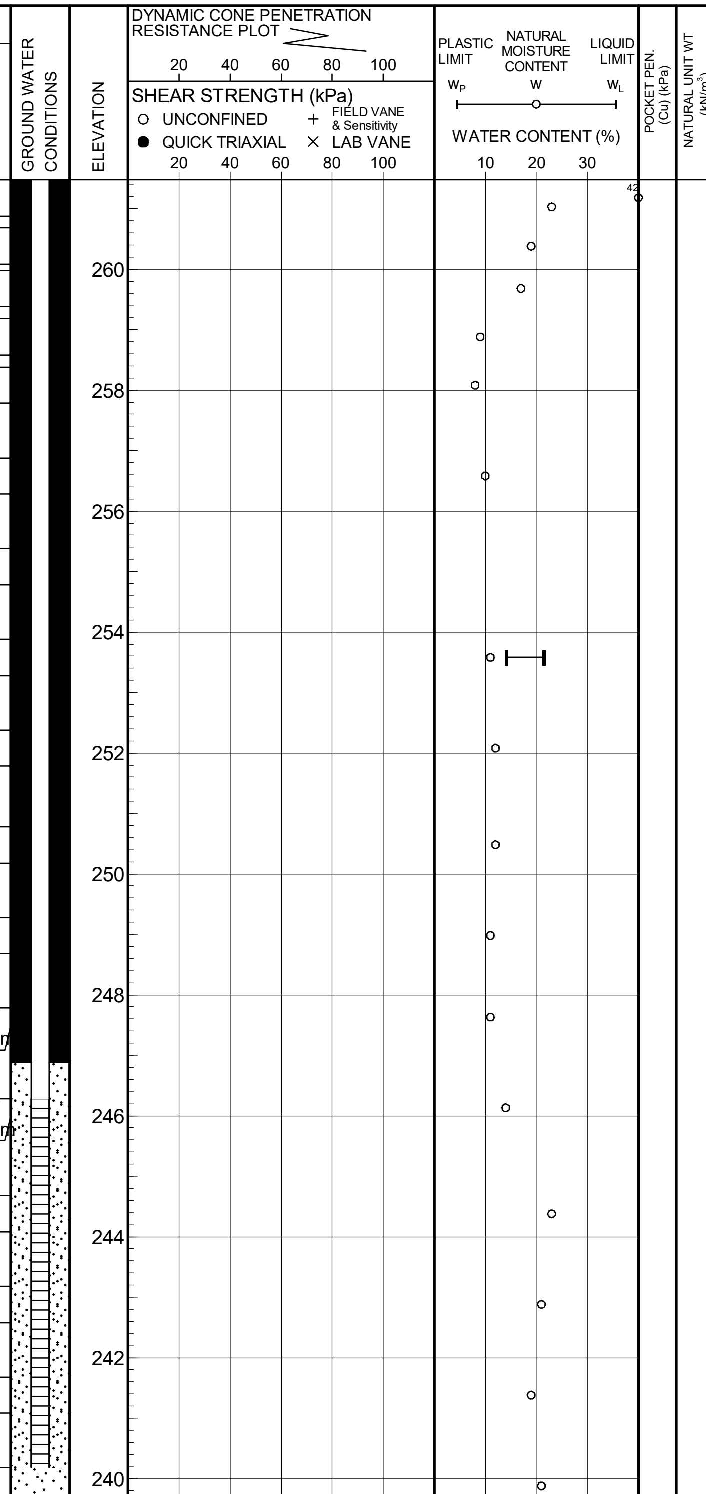
REF. NO.: 20-169-105
ENCL NO.: 2

SOIL PROFILE

ELEV (m) / DEPTH	DESCRIPTION
261.5	
261.0 / 0.3 (top)	**TOPSOIL:** 250mm
260.7 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace gravel, brown, moist, firm
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, firm to very stiff hard below 2.3m some sand to sandy, grey below 3.1m wet sand seams below 4.5m
246.2 / 15.3	**SANDY SILT TO SILTY SAND:** trace clay, grey, wet, very dense
239.6 / 21.9	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): July 7, 2023 -(above ground surface)

SAMPLES

NUMBER	TYPE	"N" BLOWS / 0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
1	SS	5	
2	SS	5	
3	SS	16	
4	SS	50	
5	SS	51	
6	SS	40	
7	SS	40	
8	SS	27	6 25 45 24
9	SS	42	
10	SS	44	
11	SS	44	
12	SS	50/ 130mm	
13	SS	50/ 130mm	
14	SS	77	
15	SS	72	0 22 74 4
16	SS	84	
17	SS	75	



GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ 8=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-1A

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857235.11 E 598033.65

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jul-04-2023

REF. NO.: 20-169-105
ENCL NO.: 3

SOIL PROFILE (m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS / 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m^3)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
261.5 / 0.0	Straight drilled to install well					W. L. 253.1 m Jul 07, 2023	261, 260, 259, 258, 257, 256, 255, 254					
252.4 / 9.1	**END OF BOREHOLE:** Notes: 1) 50mm dia. monitoring well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): July 7, 2023 8.4											

DS SOIL LOG-2021-DRAFT 20-169-105.GPJ DS.GDT 23-9-20

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

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH23-2

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857600.68 E 597979.52

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jun-23-2023

REF. NO.: 20-169-105
ENCL NO.: 4

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
271.7							
271.5 / 0.2	**TOPSOIL:** 200mm	1	SS	9			
270.9 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace gravel, brown, moist, stiff	2	SS	17			
269.4 / 2.3	**CLAYEY SILT TO SILTY CLAY TILL:** trace sand, trace gravel, brown, moist, very stiff	3	SS	28	270		
	SILT: trace clay, brown, moist to very moist, dense	4	SS	31			
		5	SS	45			0 0 94 6
	grey below 4.6m	6	SS	38			
		7	SS	35	266		
264.1 / 7.6	**SANDY SILT TO SILTY SAND:** trace clay, brown to grey, wet, compact to dense	8	SS	41	264		
		9	SS	37	262		
	grey below 10.7m	10	SS	33	260		
258.9 / 12.8		11	SS	21			

W. L. 268.3 m
Jul 07, 2023

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

Date: Water Level(mbgl):
July 7, 2023 3.4

DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100
SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
POCKET PEN. (Cu) (kPa) NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

LOG OF BOREHOLE BH23-4

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857381.92 E 597592.36

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jun-23-2023
REF. NO.: 20-169-105
ENCL NO.: 5

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
270.2						
269.9 / 0.3	**TOPSOIL:** 250mm **WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace gravel, brown, moist, stiff	1	SS	12		
269.4 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** some sand to sandy, trace gravel, brown, moist, very stiff to hard	2	SS	24		
		3	SS	23		
		4	SS	37		
		5	SS	35		
	grey below 4.6m	6	SS	17		
		7	SS	15		5 28 47 20
		8	SS	16		
260.5 / 9.7		9	SS	16		

W. L. 263.1 m
Jul 07, 2023

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

Date: Water Level(mbgl):
July 7, 2023 7.1

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-5

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857474.3 E 598108.68

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jul-04-2023

REF. NO.: 20-169-105
ENCL NO.: 6

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	Natural Moisture Content (approx. %)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
265.5	Ground surface					
265.3 / 0.3	**TOPSOIL:** 250mm	1	SS	7		
264.9 / 0.6	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace gravel, brown, moist, firm					
	CLAYEY SILT TO SILTY CLAY TILL: trace sand, trace gravel, brown to grey, moist, stiff to very stiff	2	SS	14		
		3	SS	18		
	grey below 2.3m	4	SS	11		
262.6 / 2.9	**SANDY SILT TO SILT:** trace clay, grey, wet, compact	5	SS	18		0 48 49 3
260.9 / 4.6	**SANDY SILT TO SILTY SAND:** with clayey silt pockets, trace gravel, grey, wet, dense	6	SS	40		
		7	SS	38		
		8	SS	38		
257.3 / 8.2	**END OF BOREHOLE:**					

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

Date: Water Level(mbgl):
July 7, 2023 flowing artesian conditions

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

Elevation: 265, 264, 263, 262, 261, 260, 259, 258

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-6

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857295.68 E 597922.46

DRILLING DATA
Method: Solid Stem Auger/Hollow Stem Auger
Diameter: 150mm/200mm
Date: Jun-23-2023
REF. NO.: 20-169-105
ENCL NO.: 7

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
263.3						
263.0 / 0.2	**TOPSOIL:** 200mm	1	SS	5	~20	
262.5 / 0.8	**WEATHERED/DISTURBED NATIVE:** clayey silt to silty clay, trace rootlets, trace gravel, brown, moist, firm	2	SS	20		
	CLAYEY SILT TO SILTY CLAY TILL: trace sand, trace gravel, brown to grey, moist, stiff to hard	3	SS	26		
		4	SS	41		
	sandy, grey below 3.1m	5	SS	28		
		6	SS	26		
	sandy silt pockets at 6.0m	7	SS	13		
		8	SS	50/ 75 mm		
254.2 / 9.1	**SANDY SILT TO SILTY SAND:** trace clay, grey, wet, loose(disturbed) to very dense	9	SS disturbed			
		10	SS	47		Borehole drilled 1m beside original position/switched to Hollow Stem
		11	SS	39		
		12	SS	24		
	silt pockets at 15.2m	13	SS	26		
		14	SS	27		
244.4		15	SS	53		
18.9	**END OF BOREHOLE:** Notes: 1) Water at the depth of 9.1m during drilling.					

Column headings: SOIL PROFILE; SAMPLES; GROUND WATER CONDITIONS; ELEVATION; DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

Elevation scale: 262, 260, 258, 256, 254, 252, 250, 248, 246. Depth scale: 2, 4, 6, 8, 10, 12, 14, 16, 18.

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

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH23-7

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857543.28 E 598296.92

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jul-05-2023

REF. NO.: 20-169-105
ENCL NO.: 8

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT (%) approx.	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
265.3 / 0.0	TOPSOIL: 250mm	1	SS	5		
0.3	WEATHERED/DISTURBED NATIVE: clayey silt to silty clay, trace sand, trace rootlets, brown, moist, firm					
264.3 / 1.0	CLAYEY SILT TO SILTY CLAY TILL: trace sand, trace gravel, brown, moist, firm; grey below 1.5m	2	SS	7		
		3	SS	6		
263.0 / 2.3	SANDY SILT TO SILTY SAND: trace clay, grey, wet, compact to dense	4	SS	23		
		5	SS	15		
		6	SS	30		
259.2 / 6.1	SILT: trace clay, trace sand, grey, wet, compact	7	SS	21		0 3 93 4
257.7 / 7.6	SANDY SILT TO SILTY SAND: trace clay, grey, wet, compact to dense	8	SS	13		
		9	SS	37		
		10	SS	20		
253.1 / 12.2	SAND: some silt, trace gravel, grey, wet, compact	11	SS	16		
252.5 / 12.8	END OF BOREHOLE: Notes: 1) 50mm dia. monitorng well installed upon completion. 2) Water Level Readings: Date: Water Level(mbgl): July 7, 2023 -0.3					

W. L. 265.6 m
Jul 07, 2023

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Secondary Plan and Argo King, Caledon, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857936.73 E 597881.64

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Jul-04-2023

REF. NO.: 20-169-105
ENCL NO.: 9

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	Water Content (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
274.2 / 0.0	**TOPSOIL:** 230mm					
274.0 / 0.2	**WEATHERED/DISTURBED NATIVE:** sandy silt, trace clay, trace rootlets, trace organics, brown, moist, compact	1	SS	12		
273.2 / 1.0	**CLAYEY SILT TO SILTY CLAY TILL:** some sand to sandy, trace gravel, brown, moist, stiff to hard trace cobble fragments at 1.5m	2	SS	14		
		3	SS	19		
		4	SS	32		
		5	SS	50/130mm		
	grey below 4.6m	6	SS	30		5 23 48 24
267.7 / 6.5	**GRAVELLY SAND:** trace cobble, grey, wet, dense	7	SS	33		
266.6 / 7.6	**SANDY SILT TO SILTY SAND:** trace clay, grey, wet, dense	8	SS	37		
		9	SS	35		
263.5 / 10.7	**SAND:** some silt, trace clay, grey, wet, dense	10	SS	33		0 80 17 3
		11	SS	40		
261.4 / 12.8	**END OF BOREHOLE:**					

W. L. 266.0 m
Jul 07, 2023

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

Date: Water Level(mbgl):
July 7, 2023 8.2

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE PW1

PROJECT: Hydrogeological Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Community
DATUM: Geodetic
BH LOCATION: N 4857933.965 E 598567.363

DRILLING DATA
Method: Air Rotary
Diameter: 152mm
Date: Jul-10-2023

REF. NO.: 20-169-105
ENCL NO.: 2

(m) ELEV / DEPTH	SOIL PROFILE – DESCRIPTION	GROUND WATER CONDITIONS
267.2 / 0.0	**SILTY SAND TO SANDY SILT:** trace sand, clay and fill	Bentonite
265.7 / 1.5	**SILTY CLAY:** brown to grey moist	
264.1 / 3.1	**SILTY CLAY TO SANDY SILT:** brown to grey moist	W. L. 263.8 masl Aug 11, 2023
261.1 / 6.1	**SAND:** fine, wet, dense, traces of silt	Sand; 20 Slot PVC Screen
245.9 / 21.3	**END OF BOREHOLE**	

Column headings: SOIL PROFILE (ELEV DEPTH, DESCRIPTION, STRATA PLOT); SAMPLES (NUMBER, TYPE, "N" BLOWS/0.3 m); GROUND WATER CONDITIONS; ELEVATION (266, 264, 262, 260, 258, 256, 254, 252, 250, 248, 246); Soil Head Space Vapors – PID (ppm) 10 20 30 40, CGD (ppm) 10 20 30 40; PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L, WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

Depth scale: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

NOTES:
1. 152 mm pumping well.
2 .20 ft of 20 slot-PVS screen (30-70 ft) .
3. Soil description based on drillers' field observations.
4. Water level: 3.4 mbgs - August 11, 2023

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE NO.: 1

JOB NO.: 2108-S069 | FIGURE NO.: 1

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

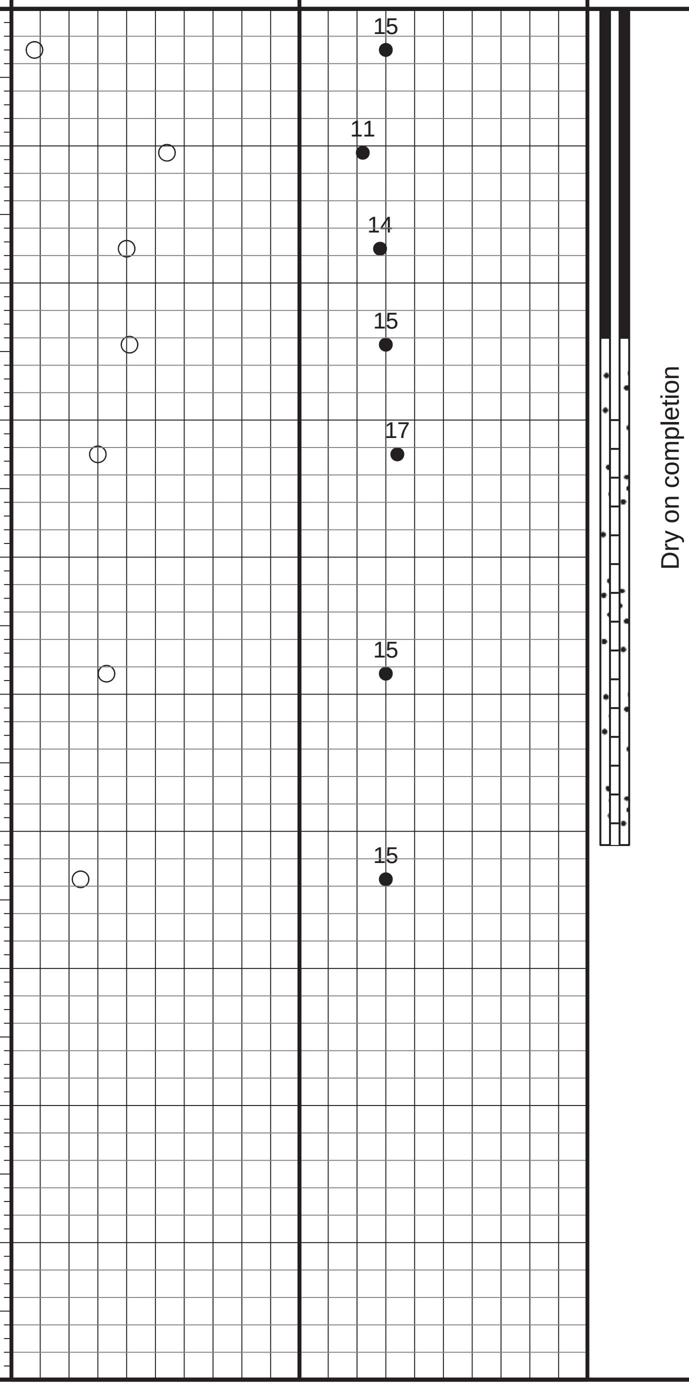
DRILLING DATE: September 29, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Number	Type	N-Value	Depth Scale (m)	Moisture Content (%)
263.9	Ground Surface					
0.0	40 cm TOPSOIL				0	
	Stiff to hard SILTY CLAY TILL, some sand, a trace of gravel, occasional cobbles and boulders; weathered; brown / grey	1	DO	8		15
		2	DO	54	1	11
		3	DO	40	2	14
		4	DO	41		15
		5	DO	30	3	17
		6	DO	33	5	15
		7	DO	24	6	15
257.3 / 6.6	END OF BOREHOLE					

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

• Dynamic Cone (blows/30 cm) 10 30 50 70 90
× Shear Strength (kN/m²) 50 100 150 200
○ Penetration Resistance (blows/30 cm) 10 30 50 70 90
Atterberg Limits PL LL
● Moisture Content (%) 10 20 30 40

WATER LEVEL: Dry on completion



Soil Engineers Ltd.

LOG OF BOREHOLE NO.: 2

JOB NO.: 2108-S069

FIGURE NO.: 2

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 28, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth Scale (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	WATER LEVEL
264.1 / 0.0	Ground Surface				0			
	30 cm TOPSOIL							
	SILTY CLAY TILL, Stiff to hard, some sand, a trace of gravel, occasional cobbles and boulders; weathered; brown / grey	1	DO	9		○	19	Dry on completion
		2	DO	36	1	○	12	
		3	DO	45		○	14	
		4	DO	26	2	○	14	
		5	DO	44	3	○	16	
		6	DO	25	4	○	12	
		7	DO	26	6	○	16	
257.5 / 6.6	END OF BOREHOLE							

Dynamic Cone (blows/30 cm): 10 30 50 70 90

Shear Strength (kN/m²): 50 100 150 200

Penetration Resistance (blows/30 cm): 10 30 50 70 90

Atterberg Limits: PL LL

Moisture Content (%): 10 20 30 40

Depth Scale (m): 0 1 2 3 4 5 6 7 8 9 10

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 3

FIGURE NO.: 3

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 28, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Penetration Resistance (blows/30 cm)	Moisture Content (%)	Atterberg Limits (PL–LL)	WATER LEVEL
266.3 / 0.0	Ground Surface; 30 cm TOPSOIL							Dry on completion
	SILTY CLAY TILL: Firm to hard, some sand, a trace of gravel, occasional cobbles and boulders; weathered; brown / grey	1	DO	6	6	14		
		2	DO	46	46	12		
		3	DO	51	51	14		
		4	DO	44	44	12	plotted	
		5	DO	56	56	14		
		6	DO	28	28	12		
		7	DO	28	28	15		
259.7 / 6.6	END OF BOREHOLE							

Legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; ● Moisture Content (%) 10 20 30 40

Depth Scale (m): 0–10

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 4

FIGURE NO.: 4

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Moisture Content (%)	Water Level
266.6 / 0.0	Ground Surface					
	60 cm TOPSOIL	1	DO	8	20	Dry on completion
	SILTY CLAY TILL Very stiff to hard weathered brown / grey some sand, a trace of gravel occasional cobbles and boulders	2	DO	33	13	
		3	DO	48	12	
		4	DO	32	13	
		5	DO	41	15	
		6	DO	21	16	
		7	DO	20	16	
260.0 / 6.6	END OF BOREHOLE					

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

Chart legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; ● Moisture Content (%) 10 20 30 40; Depth Scale (m) 0–10

Soil Engineers Ltd.

LOG OF BOREHOLE NO.: 5

JOB NO.: 2108-S069

FIGURE NO.: 5

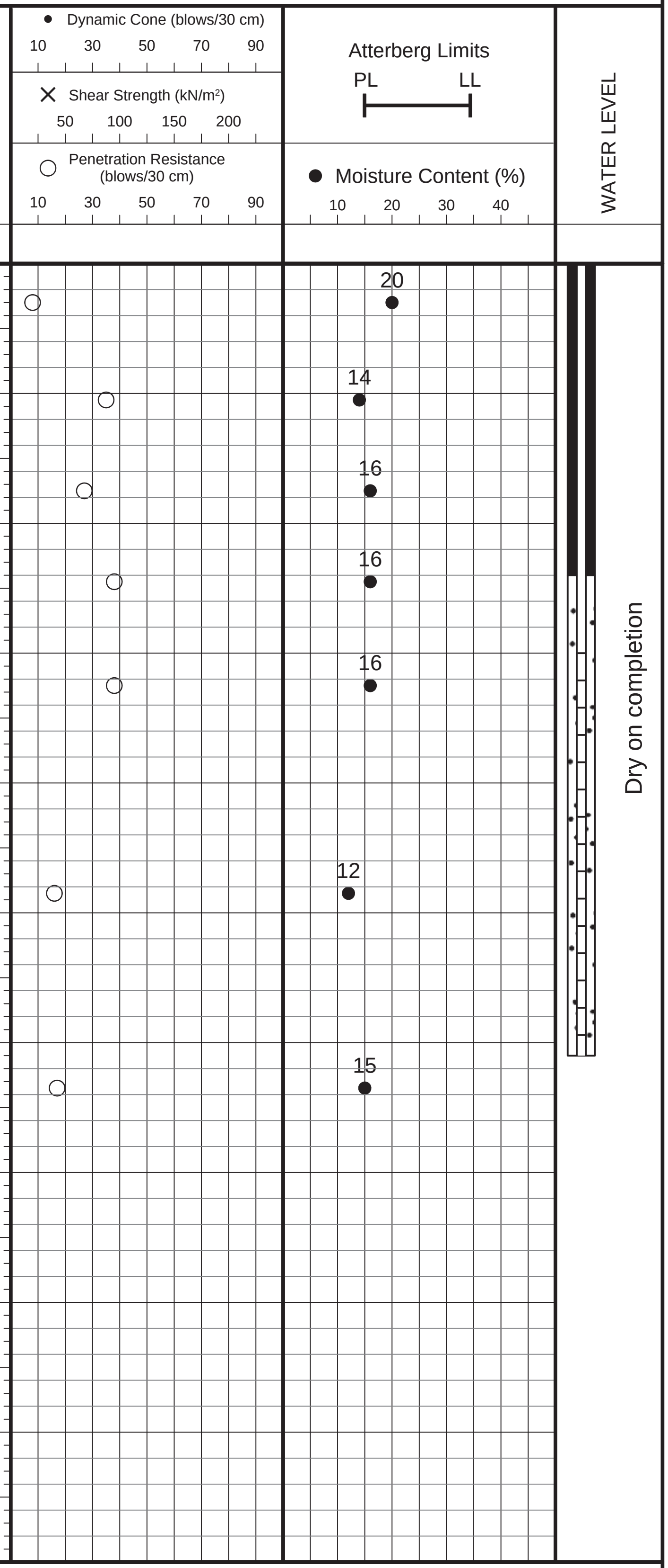
PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 4, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth Scale (m)	Moisture Content (%)
267.9 / 0.0	Ground Surface				0	
	20 cm TOPSOIL					
	SILTY CLAY TILL, Stiff to hard, weathered; some sand, a trace of gravel, occasional cobbles and boulders; brown / grey	1	DO	8		20
		2	DO	35	1	14
		3	DO	27	2	16
		4	DO	38		16
		5	DO	38	3	16
		6	DO	16	4–5	12
		7	DO	17	6	15
261.3 / 6.6	END OF BOREHOLE					



Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 6

FIGURE NO.: 6

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth Scale (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	WATER LEVEL
268.1 / 0.0	Ground Surface 30 cm TOPSOIL				0			Dry on completion
	Firm to hard weathered	1	DO	7		7	24	
	SILTY CLAY TILL	2	DO	33	1	33	15	
		3	DO	26		26	16	
		4	DO	29	2	29	16	
		5	DO	34	3	34	14	
	some sand, a trace of gravel occasional cobbles and boulders brown / grey				4			
		6	DO	14	5	14	17	
		7	DO	15	6	15	11	
261.5 / 6.6	END OF BOREHOLE							

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

Chart legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; ● Moisture Content (%) 10 20 30 40

LOG OF BOREHOLE NO.: 7

JOB NO.: 2108-S069

FIGURE NO.: 7

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth Scale (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	Atterberg Limits (PL–LL)	WATER LEVEL
266.6	Ground Surface								
0.0	20 cm TOPSOIL				0				Dry on completion
	Stiff to hard, weathered	1	DO	8			21		
		2	DO	21	1		17	PL–LL	
	SILTY CLAY TILL	3	DO	31	2		14		
	some sand, a trace of gravel	4	DO	46			13		
	occasional cobbles and boulders	5	DO	40	3		14		
	brown / grey	6	DO	27	4–5		16		
		7	DO	26	6		12		
260.0 / 6.6	END OF BOREHOLE								

Legend: • Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; ● Moisture Content (%) 10 20 30 40

Depth Scale (m): 0 1 2 3 4 5 6 7 8 9 10

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 8

FIGURE NO.: 8

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Number	Type	N-Value	Moisture Content (%)
265.6	Ground Surface				
0.0	25 cm TOPSOIL				
	SILTY CLAY TILL Stiff to hard some sand, a trace of gravel occasional cobbles and boulders weathered brown / grey	1	DO	9	27
		2	DO	30	15
		3	DO	34	14
		4	DO	54	15
		5	DO	40	15
		6	DO	24	16
		7	DO	12	15
259.0 6.6	END OF BOREHOLE				

Chart scales: Dynamic Cone (blows/30 cm) 10 30 50 70 90; Shear Strength (kN/m²) 50 100 150 200; Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; Moisture Content (%) 10 20 30 40; Depth Scale (m) 0–10; WATER LEVEL.

Dry on completion

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 9

FIGURE NO.: 9

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: September 29, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	WATER LEVEL
267.7 / 0.0	Ground Surface							
	50 cm TOPSOIL	1	DO	8	~0.3	8	24	Dry on completion
	Stiff to hard SILTY CLAY TILL, some sand, a trace of gravel, occasional cobbles and boulders; weathered (upper); brown / grey (changing at ~4.0 m)	2	DO	29	~1.0	29	17	
		3	DO	36	~1.7	36	16	
		4	DO	63	~2.4	63	12	
		5	DO	44	~3.2	44	15	
		6	DO	23	~4.8	23	17	
		7	DO	18	~6.3	18	12	
261.1 / 6.6	END OF BOREHOLE							

Legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; ● Moisture Content (%) 10 20 30 40

Depth Scale (m): 0 1 2 3 4 5 6 7 8 9 10

LOG OF BOREHOLE NO.: 10

JOB NO.: 2108-S069

FIGURE NO.: 10

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 5, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Moisture Content (%)	WATER LEVEL
267.6	Ground Surface					
0.0	20 cm TOPSOIL					Dry on completion
	SILTY CLAY TILL Stiff to hard some sand, a trace of gravel occasional cobbles and boulders weathered brown / grey	1	DO	12	21	
		2	DO	15	16	
		3	DO	46	14	
		4	DO	42	14	
		5	DO	34	18	
		6	DO	19	13	
		7	DO	26	14	
261.0 6.6	END OF BOREHOLE					

Depth Scale (m): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

● Dynamic Cone (blows/30 cm): 10, 30, 50, 70, 90

× Shear Strength (kN/m²): 50, 100, 150, 200

○ Penetration Resistance (blows/30 cm): 10, 30, 50, 70, 90

Atterberg Limits: PL, LL

● Moisture Content (%): 10, 20, 30, 40

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 11

FIGURE NO.: 11

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 5, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth Scale (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	WATER LEVEL
267.2	Ground Surface							
0.0	20 cm TOPSOIL				0			Dry on completion
	SILTY CLAY TILL Stiff to hard some sand, a trace of gravel occasional cobbles and boulders weathered brown / grey	1	DO	10			24	
		2	DO	27	1		17	
		3	DO	50/15			13	
		4	DO	33	2		15	
		5	DO	35	3		16	
		6	DO	16	4		18	
		7	DO	22	6		13	
260.6 6.6	END OF BOREHOLE							

Legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; ● Moisture Content (%) 10 20 30 40

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 12

FIGURE NO.: 12

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 4, 2021

Legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL — LL; ● Moisture Content (%) 10 20 30 40

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Moisture Content (%)	WATER LEVEL
266.4	Ground Surface					
0.0	100 mm ASPHALTIC CONCRETE 200 mm GRANULAR FILL	1	DO	7	22	Dry on completion
	Firm to hard — weathered	2	DO	22	15	
		3	DO	43	15	
		4	DO	36	15	
	SILTY CLAY TILL	5	DO	69	16	
	— brown / grey some sand, a trace of gravel occasional cobbles and boulders	6	DO	25	17	
259.8 6.6		7	DO	16	21	
	END OF BOREHOLE					

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 13

FIGURE NO.: 13

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Samples: Number	Type	N-Value	Depth Scale (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	WATER LEVEL
265.8	Ground Surface							
0.0	60 cm TOPSOIL	1	DO	13	0	13	32	Dry on completion
	Very stiff to hard SILTY CLAY TILL, some sand, a trace of gravel, occasional cobbles and boulders; weathered; brown / grey	2	DO	18	1	18	14	
		3	DO	35	2	35	15	
		4	DO	38		38	15	
		5	DO	40	3	40	15	
		6	DO	16	4–5	16	18	
		7	DO	18	6	18	13	
259.2 / 6.6	END OF BOREHOLE				7–10			

Legend: ● Dynamic Cone (blows/30 cm) 10 30 50 70 90; × Shear Strength (kN/m²) 50 100 150 200; ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL — LL; ● Moisture Content (%) 10 20 30 40

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 14

FIGURE NO.: 14

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 4, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Depth Scale (m)	Penetration Resistance (blows/30 cm)	Moisture Content (%)	WATER LEVEL
267.8	Ground Surface							
0.0	60 cm TOPSOIL	1	DO	8	0	8	23	
	Very stiff to hard; weathered	2	DO	26	1	26	15	
		3	DO	29		29	15	
		4	DO	38	2	38	18	
	SILTY CLAY TILL	5	DO	34	3	34	11	Dry on completion
	brown / grey; some sand, a trace of gravel; occasional cobbles and boulders	6	DO	36	4–5	36	10	
261.2 / 6.6		7	DO	87/23	6	87/23	18	
	END OF BOREHOLE				7–10			

Chart scales: Dynamic Cone (blows/30 cm) 10 30 50 70 90; Shear Strength (kN/m²) 50 100 150 200; Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; Moisture Content (%) 10 20 30 40

END OF BOREHOLE

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 15

FIGURE NO.: 15

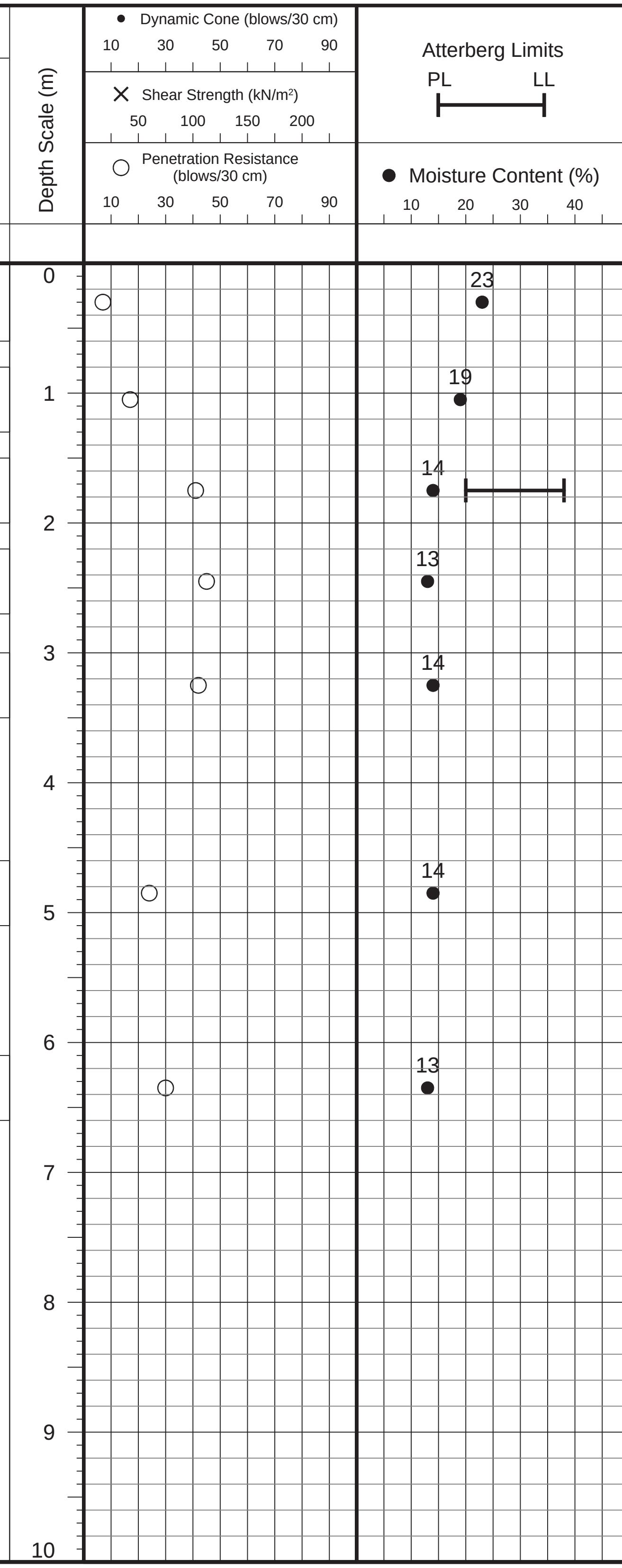
PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Moisture Content (%)	WATER LEVEL
266.2 / 0.0	Ground Surface					Dry on completion
	60 cm TOPSOIL	1	DO	7	23	
	SILTY CLAY TILL Very stiff to hard some sand, a trace of gravel occasional cobbles and boulders weathered (to about 0.8 m) brown / grey (at about 4.0 m)	2	DO	17	19	
		3	DO	41	14	
		4	DO	45	13	
		5	DO	42	14	
		6	DO	24	14	
		7	DO	30	13	
259.6 / 6.6	END OF BOREHOLE					



JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 16

FIGURE NO.: 16

PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Moisture Content (%)
266.0	Ground Surface				
0.0	60 cm TOPSOIL	1	DO	7	22
	Very stiff to hard SILTY CLAY TILL, some sand, a trace of gravel, occasional cobbles and boulders (weathered; brown / grey)	2	DO	20	17
		3	DO	30	16
		4	DO	47	14
		5	DO	40	13
		6	DO	27	12
		7	DO	29	11
259.4 / 6.6	END OF BOREHOLE				

Chart legend: Dynamic Cone (blows/30 cm) 10 30 50 70 90; Shear Strength (kN/m²) 50 100 150 200; Penetration Resistance (blows/30 cm) 10 30 50 70 90; Atterberg Limits PL LL; Moisture Content (%) 10 20 30 40; Depth Scale (m) 0–10; WATER LEVEL

WATER LEVEL: Dry on completion

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 17

FIGURE NO.: 17

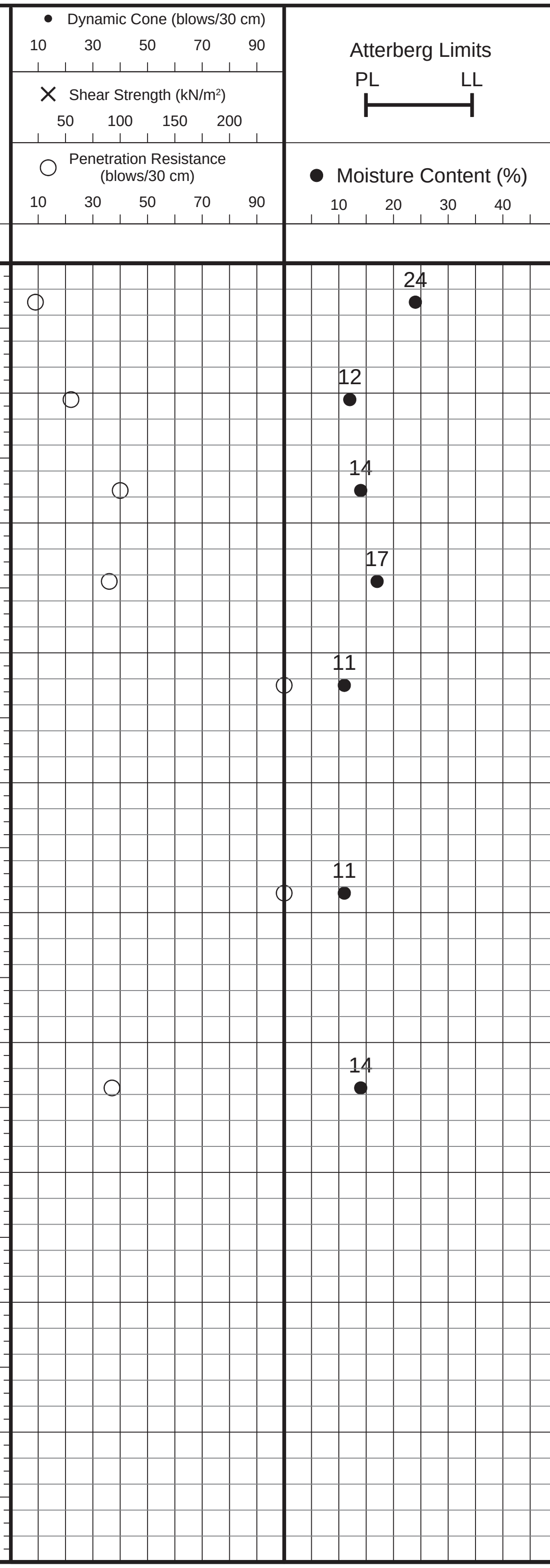
PROJECT DESCRIPTION: Proposed Mixed-Use Development

METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Number	Type	N-Value	Depth (m)	Moisture Content (%)
266.2	Ground Surface					
0.0	60 cm TOPSOIL	1	DO	9	0–1	24
	Brown, stiff to hard (weathered) SILTY CLAY TILL, some sand, a trace of gravel, occasional cobbles and boulders	2	DO	22	1	12
		3	DO	40	1–2	14
		4	DO	36	2–3	17
263.3 2.9	Dense to very dense, brown / grey, SANDY SILT TILL, traces of clay and gravel, occasional cobbles and boulders	5	DO	50/13	3–4	11
		6	DO	93/28	4–5	11
		7	DO	37	6–7	14
259.6 6.6	END OF BOREHOLE					



WATER LEVEL: W.L. @ El. 260.1 m on completion

Soil Engineers Ltd.

JOB NO.: 2108-S069

LOG OF BOREHOLE NO.: 18

FIGURE NO.: 18

PROJECT DESCRIPTION: Proposed Mixed-Use Development

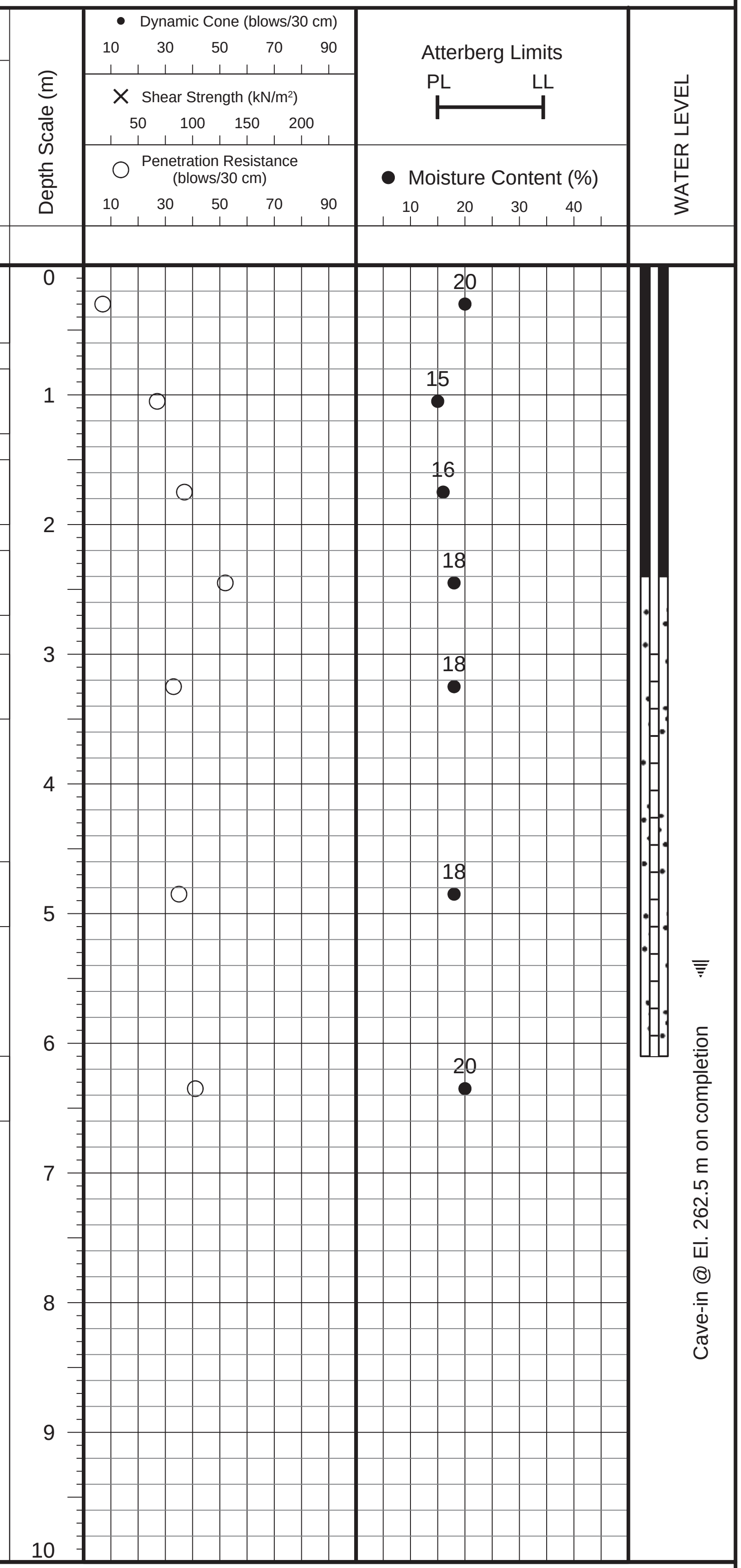
METHOD OF BORING: Flight-Auger

PROJECT LOCATION: King Street and Humber Station Road, Town of Caledon

DRILLING DATE: October 1, 2021

El. (m) / Depth (m)	SOIL DESCRIPTION	Sample Number	Type	N-Value	Moisture Content (%)
265.8	Ground Surface				
0.0	20 cm TOPSOIL				
	Firm to hard; weathered; SILTY CLAY TILL; some sand, a trace of gravel; occasional cobbles and boulders	1	DO	7	20
		2	DO	27	15
		3	DO	37	16
		4	DO	52	18
262.9 / 2.9	Dense; SANDY SILT; brown / grey; a trace of clay; wet	5	DO	33	18
		6	DO	35	18
260.2 / 5.6	Grey, dense; SAND; fine-grained, silty; wet	7	DO	41	20
259.2 / 6.6	END OF BOREHOLE				

Installed 50 mm Ø monitoring well to 6.1 m
completed with 3.1 m screen
Sand backfill from 2.4 to 6.1 m
Bentonite seal from 0.0 m to 2.4 m
Provided with a monument steel casing



Soil Engineers Ltd.

Appendix B-2
Argo King I & II

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH19-1

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857122.74 E 598491.68

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-21-2019

REF. NO.: 19-093-100
ENCL NO.: 2

SOIL PROFILE

ELEV (m) / DEPTH	DESCRIPTION
257.2	
257.0 / 0.2	**TOPSOIL:** 225 mm
	FILL: clayey silt, trace topsoil/rootlets, greyish brown, very moist, firm; possibly weathered/ disturbed native below 0.8m
255.7 / 1.5	**SILTY CLAY TILL:** some sand to sandy, trace gravel, brown, moist, very stiff to hard; silty clay at 2.3m
252.4 / 4.8	200mm sand below 4.6m; **CLAYEY SILT TILL:** sandy, trace gravel, occasional seams/ layers of sand, grey, moist, very stiff
250.7 / 6.5	**END OF BOREHOLE:**

SAMPLES

NUMBER	TYPE	"N" BLOWS / 0.3 m	POCKET PEN. (Cu) (kPa)	GR	SA	SI	CL
1	SS	5					
2	SS	6					
3	SS	30	225				
4	SS	31	225	0	4	57	39
5	SS	28	225				
6	SS	16					
7	SS	23					

GROUND WATER CONDITIONS: W. L. 256.4 m Nov 21, 2022

ELEVATION: 257, 255, 254, 253, 252, 251

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30

NATURAL UNIT WT (kN/m^3)

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

Notes:
1) 50 mm diameter monitoring well installed in borehole.
2) Water Level Readings:

Date:	Water Level (mbgl)
Oct. 7, 2019	0.8
Sep. 22, 2022	0.6
Oct. 26, 2022	0.6
Nov. 21, 2022	0.8

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ❖ Environmental ❖ Materials ❖ Hydrogeology

LOG OF BOREHOLE BH19-2

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857253.89 E 598597.79

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-21-2019

REF. NO.: 19-093-100
ENCL NO.: 3

ELEV (m) / DEPTH	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	WATER CONTENT (%)
259.0						
258.8 / 0.2	**TOPSOIL:** 200mm	1	SS	6		~25
	FILL: clayey silt, some sand, trace gravel, trace cobble, brown, very moist, firm to stiff	2	SS	8	258	~14
257.5 / 1.5	**SILTY CLAY TILL:** some sand to sandy, trace gravel, occasional sand seams, brown, moist, stiff to very stiff; trace cobble below 2.3 m	3	SS	14	257	~13
		4	SS	23	256	~15
		5	SS	26	255	~13
	grey below 4.6 m.	6	SS	17	254	~11
252.5		7	SS	16	253	~13
6.5	**END OF BOREHOLE:** Notes: 1) Borehole was wet at bottom upon completion.					

Chart headings: SOIL PROFILE; SAMPLES; STRATA PLOT; GROUND WATER CONDITIONS; DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30; POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH19-3

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857347.52 E 598496.42

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-21-2019

REF. NO.: 19-093-100
ENCL NO.: 4

(m) ELEV DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	GROUND WATER CONDITIONS	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
259.8						
259.6 / 0.2	**TOPSOIL:** 200 mm	1	SS	4		
259.0 / 0.8	**FILL:** clayey silt, some sand, trace topsoil, brown, very moist, firm				W. L. 259.0 m Nov 21, 2022	
258.3 / 1.5	**CLAYEY SILT TILL:** sandy, trace gravel, brown, moist, stiff	2	SS	10		
257.5 / 2.3	**SANDY SILT:** trace to some clay, occasional sand seams, brown, moist, loose	3	SS	9		
255.5 / 4.3	**SILTY CLAY TILL:** sandy, trace gravel, brown, moist, very stiff to hard; grey below 3.1 m	4	SS	31		
		5	SS	25		
254.1 / 5.7	**CLAYEY SILT TILL:** sandy, trace gravel/ cobble, occasional wet sand seams, grey, moist, hard	6	SS	36		14 24 45 17
253.3 / 6.5	**SANDY SILT TILL:** some clay, trace gravel, grey, very moist, dense	7	SS	36		

Elevation scale: 259, 258, 257, 256, 255, 254

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

6.5 **END OF BOREHOLE:**
Notes:
1) 50 mm diameter monitoring well installed in borehole.
2) Water Level Readings:

Date:	Water Level (mbgl)
Oct. 7, 2019	1.6
Sep. 22, 2022	0.3
Oct. 26, 2022	0.7
Nov. 21, 2022	0.8

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

GRAPH NOTES
$+^3, \times^3$: Numbers refer to Sensitivity
○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH19-4

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857475.29 E 598360.25

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-21-2019

REF. NO.: 19-093-100
ENCL NO.: 5

ELEV (m)	DEPTH (m)	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	NATURAL MOISTURE CONTENT w (%)	GR	SA	SI	CL
262.7	0.0	**TOPSOIL:** 200 mm	1	SS	4					
262.5	0.2	**FILL:** clayey silt, trace topsoil/ organics, trace gravel, brown, wet, firm								
261.9	0.8	**SILTY CLAY TILL:** some sand to sandy, trace gravel, brown, moist, firm to very stiff grey below 1.5 m.	2	SS	13					
			3	SS	17					
260.6	2.1	**SANDY SILT TILL:** some clay, some gravel, grey, very moist, loose to compact	4	SS	7		12	30	45	13
259.4	3.3	**SILTY SAND:** trace clay, occasional gravel, grey, wet, compact	5	SS	12					
			6	SS	14		0	64	34	2
256.2	6.5		7	SS	17					

W. L. 263.3 m
Nov 21, 2022

END OF BOREHOLE:
Notes:
1) 50 mm diameter monitoring well installed in borehole.
2) Water Level Readings:

Date:	Water Level (mbgl)
Oct. 7, 2019	Artesian (above ground surface)
Sep. 22, 2022	Artesian (above ground surface)
Oct. 26, 2022	Artesian (above ground surface)
Nov. 21, 2022	Artesian (-0.6m plus)

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT w_P, NATURAL MOISTURE CONTENT w, LIQUID LIMIT w_L; WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3) | REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH19-5

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857351.88 E 598344.17

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-24-2019

REF. NO.: 19-093-100
ENCL NO.: 6

W. L. 261.7 m
Nov 21, 2022

(m) ELEV DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS / 0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
260.7 / 0.0	**FILL:** clayey silt, sandy, trace topsoil, trace gravel & brick fragments, brown, moist, stiff	1	SS	8	o	
259.9 / 0.8	**SILTY CLAY TILL:** some sand to sandy, trace gravel, brown, moist, stiff to very stiff	2	SS	15	o	
		3	SS	14	o	
		4	SS	25	o	
	brown to grey below 3.1 m	5	SS	25	o	
256.1 / 4.6	**SANDY SILT TILL:** some clay, trace gravel, grey, moist, dense	6	SS	34	o	
254.6 / 6.1	**CLAYEY SILT TILL:** sandy, trace gravel, occasional sand seams, grey, moist, very stiff	7	SS	23	o	
254.2 / 6.5	**END OF BOREHOLE:**					

Notes:
1) 50 mm diameter monitoring well installed in borehole.
2) Water Level Readings:

Date:	Water Level (mbgl):
Oct. 7, 2019	Artesian (above ground surface)
Sep. 22, 2022	Artesian (above ground surface)
Oct. 26, 2022	Artesian (above ground surface)
Nov. 21, 2022	Artesian (-1.0m)

DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100
SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
ELEVATION 260 259 258 257 256 255

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH19-6

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857257.05 E 598364.77

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-24-2019

REF. NO.: 19-093-100
ENCL NO.: 7

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m
259.4				
259.0 / 0.2	**TOPSOIL:** 200 mm	1	SS	5
258.6 / 0.8	**FILL:** clayey silt, some topsoil, trace rootlets, brown, very moist, firm	2	SS	7
257.9 / 1.5	**CLAYEY SILT TILL:** trace sand, brown, moist, firm (weathered/ disturbed)	3	SS	17
	CLAYEY SILT TILL: sandy, trace gravel, brown, moist, very stiff to hard; sand seams, brown to grey below 2.3 m; grey below 3.1 m	4	SS	31
		5	SS	23
254.8 / 4.6	**SANDY SILT TILL:** some clay, trace gravel/ cobble, grey, moist, compact	6	SS	24
252.9 / 6.5	seams of sand below 6.1 m	7	SS	17

GROUND WATER CONDITIONS: W. L. 258.6 m Nov 21, 2022

ELEVATION: 259, 258, 257, 256, 255, 254, 253

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100

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

PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m^3)

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

END OF BOREHOLE:
Notes:
1) 50 mm diameter monitoring well installed upon completion.
2) Water Level Readings:

Date:	Water Level(mbgl):
Oct. 7, 2019	1.2
Sep. 22, 2022	0.9
Oct. 26, 2022	0.6
Nov. 21, 2022	0.8

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH19-7

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857251.56 E 598259.87

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-24-2019

REF. NO.: 19-093-100
ENCL NO.: 8

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	NATURAL MOISTURE CONTENT (%)	POCKET PEN. (Cu) (kPa)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
260.4								
260.2 / 0.2	**TOPSOIL:** 230 mm	1	SS	5		~25		
259.6 / 0.8	**FILL:** clayey silt, trace topsoil, trace rootlets, trace sand, brown, very moist, firm							
	CLAYEY SILT TILL: sandy, trace gravel, occasional sand seams, brown, moist, stiff to very stiff	2	SS	17		~16		
		3	SS	18		~15	225	
	wet sand seams/ layers below 2.3 m	4	SS	23	W. L. 258.2 m Nov 21, 2022	~17	225	
256.4 / 4.0	sandy, wet sand seams/ layers below 3.1 m	5	SS	11		~10	75	
255.7 / 4.7	**SANDY SILT TO SILTY SAND:** trace clay, grey, wet, loose							
254.1 / 6.3	**SANDY SILT TILL:** trace to some, trace gravel/ cobble, grey, very moist to wet, loose to compact	6	SS	7		~10		
252.8 / 7.6	**SILTY SAND:** trace clay, trace gravel, grey, wet, compact	7	SS	17		~11		
252.4 / 8.0	**SANDY SILT TILL:** some clay to clayey, trace gravel/ cobble, grey, moist, compact	8	SS	27		~9		

Elevation scale: 260, 259, 257, 256, 255, 254, 253

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT w_P, NATURAL MOISTURE CONTENT w, LIQUID LIMIT w_L
WATER CONTENT (%): 10 20 30
NATURAL UNIT WT (kN/m^3)

END OF BOREHOLE:
Notes:
1) 50 mm diameter monitoring well installed in borehole.
2) Water Level Readings:

Date:	Water Level (mbgl):
Oct. 7, 2019	1.7
Sep. 22, 2022	1.3
Oct. 26, 2022	3.1
Nov. 21, 2022	2.2

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH19-8

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857316.01 E 598196.12

DRILLING DATA
Method: Solid Stem Auger
Diameter: 150mm
Date: Jun-24-2019

REF. NO.: 19-093-100
ENCL NO.: 9

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
261.1						261				
260.9 / 0.2	**TOPSOIL:** 230 mm	1	SS	5			~31			
260.3 / 0.8	**FILL:** clayey silt, trace topsoil, trace rootlets, trace sand, brown, very moist, firm	2	SS	16		260	~18			
	CLAYEY SILT TILL: sandy, trace gravel, occasional sand seams, brown, moist, very stiff to hard trace cobble below 1.5 m	3	SS	28			~18	225		
		4	SS	29		259	~16	225		
	brown to grey below 3.1 m	5	SS	33		258	~11	225		
		6	SS	24		257 / 256	~10	225		
254.6 / 6.5		7	SS	51		255	~10	225		

END OF BOREHOLE:
Notes:
1) Borehole was wet at bottom upon completion.

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-1

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857417.44 E 598346.16

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-14-2022

REF. NO.: 19-093-100
ENCL NO.: 10

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
262.1					
261.7 / 0.0–0.4	**TOPSOIL:** 350mm	1	SS	11	
261.3 / 0.8	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)	2	SS	30	
	SILTY CLAY TILL: some sand, trace gravel, brown, moist, very stiff to hard	3	SS	26	5 13 48 34
		4	SS	33	
	grey below 3.0m	5	SS	14	
		6	SS	8	
256.0 / 6.1	**SANDY SILT:** trace clay, grey, wet, compact to dense	7	SS	13	Water @6.1m
		8	SS	26	0 42 55 3
		9	SS	19	
		10	SS	41	
250.8 / 11.3	**END OF BOREHOLE:**				

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

Date: Water Level(mbgl):
Oct. 26, 2022 Artesian (above ground surface)
Nov. 21, 2022 Well damaged

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity; ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)
ELEVATION: 261 260 259 258 257 256 255 254 253 252 251

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

LOG OF BOREHOLE BH22-2

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857405.77 E 598278.83

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-13-2022

REF. NO.: 19-093-100
ENCL NO.: 11

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)
262.0					
261.7 / 0.0	**TOPSOIL:** 300mm	1	SS	8	
0.3	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff to very stiff(Weathered/Disturbed)				
261.1 / 0.9	**SILTY CLAY TILL:** some sand to sandy, trace gravel, brown, moist, very stiff; grey below 2.3m	2	SS	15	
		3	SS	22	
		4	SS	22	
		5	SS	19	
257.4 / 4.6	**SILTY FINE SAND:** trace clay, grey, wet, compact to dense	6	SS	42	
		7	SS	33	
		8	SS	10	
253.8 / 8.2	**END OF BOREHOLE:** Notes: 1) Water at depth of 4.8m during drilling.				

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES (NUMBER, TYPE, "N" BLOWS/0.3 m); GROUND WATER CONDITIONS; ELEVATION (261, 260, 259, 258, 257, 256, 255, 254); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-3

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857409.48 E 598409.77

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-13-2022

REF. NO.: 19-093-100
ENCL NO.: 12

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
260.8						
260.5 / 0.3	**TOPSOIL:** 300mm	1	SS	8		
260.0 / 0.8	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)	2	SS	22	260	
	SILTY CLAY TILL: some sand to sandy, trace gravel, brown, moist, very stiff to hard	3	SS	29	259	
		4	SS	33	258	
	grey below 3.1m	5	SS	23	257	
		6	SS	30	256	
					255	
		7	SS	59	254	4 24 48 24
253.5 / 7.3	**SILTY SAND:** trace clay, grey, wet, dense to very dense	8	SS	34	253	
252.6 / 8.2	**END OF BOREHOLE:** Notes: 1) Water at the depth of 6.4m during drilling.					

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ❖ Environmental ❖ Materials ❖ Hydrogeology

LOG OF BOREHOLE BH22-4

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857251.72 E 598444.3

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-13-2022

REF. NO.: 19-093-100
ENCL NO.: 13

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
259.3 / 0.0	**TOPSOIL:** 300mm	1	SS	9		
259.0 / 0.3	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)	2	SS	21		3 12 49 36
258.5 / 0.8	**SILTY CLAY TILL:** some sand to sandy, trace gravel, brown, moist, very stiff to hard	3	SS	21		
		4	SS	41		
		5	SS	35		
	grey below 4.6m	6	SS	26		
		7	SS	19		
251.1 / 8.2		8	SS	28		
	END OF BOREHOLE: Notes: 1) Borehole dry at the bottom upon completion.					

Column headings: SOIL PROFILE; STRATA PLOT; SAMPLES; GROUND WATER CONDITIONS; ELEVATION (259–252); DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100); SHEAR STRENGTH (kPa): ○ UNCONFINED, + FIELD VANE & Sensitivity, ● QUICK TRIAXIAL, × LAB VANE (20 40 60 80 100); PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) (10 20 30); POCKET PEN. (Cu) (kPa); NATURAL UNIT WT (kN/m³); REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3, \times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-5

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857255.24 E 598500.76

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-14-2022

REF. NO.: 19-093-100
ENCL NO.: 14

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER CONDITIONS	ELEVATION	Natural moisture content (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
259.1 / 0.0	**TOPSOIL:** 350mm	1	SS	7		259		
258.8 / 0.4	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, firm (Weathered/Disturbed)				W. L. 258.4 m Nov 15, 2022			
258.2 / 0.9	**CLAYEY SILT TO SILTY CLAY TILL:** sandy, trace gravel, brown, moist, stiff to hard	2	SS	11				
		3	SS	12		257		
	interbedded wet silty sand at 2.3m	4	SS	14				1 33 46 20
	sand seams @3.1m	5	SS	29		256		
	grey below 4.6m	6	SS	29		255, 254		
		7	SS	46		253, 252		
251.5 / 7.6	**CLAYEY SILT TILL:** sandy, trace gravel, trace cobbles, grey, moist, hard	8	SS	30		251		
	sand seams at 9.1m	9	SS	40		250, 249		
247.9 / 11.2		10	SS	50/130mm		248		

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

Date: Water Level(mbgl):
Oct. 26, 2022 0.7
Nov. 15, 2022 0.7

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ○ ^{8}=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-6

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857175.06 E 598520.87

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-13-2022

REF. NO.: 19-093-100
ENCL NO.: 15

SOIL PROFILE (m) ELEV DEPTH	DESCRIPTION
258.3 / 0.0	**TOPSOIL:** 350mm
258.0 / 0.4	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)
257.5 / 0.8	**SILTY CLAY TILL:** some sand, trace gravel, brown, moist, stiff to hard
253.7 / 4.6	**CLAYEY SILT:** trace sand, wet silt seams, grey, moist, hard
252.0 / 6.3	**CLAYEY SILT TILL:** some sand, trace gravel, grey, moist, very stiff
250.1 / 8.2	**END OF BOREHOLE:** Notes: 1) Water at the depth of 6.3m during drilling.

SAMPLES NUMBER	TYPE	"N" BLOWS/0.3 m	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
1	SS	10	
2	SS	10	
3	SS	19	
4	SS	30	
5	SS	31	3 18 47 32
6	SS	45	
7	SS	22	
8	SS	25	

STRATA PLOT | GROUND WATER CONDITIONS | ELEVATION: 258, 257, 256, 255, 254, 253, 252, 251

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH22-7

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857082.33 E 598454.89

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-17-2022

REF. NO.: 19-093-100
ENCL NO.: 16

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	NATURAL MOISTURE CONTENT	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
257.6							
257.3 / 0.0	**TOPSOIL:** 350mm	1	SS	10	257	o	
0.4 / 256.7	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)	2	SS	14		o	
0.9	**SILTY CLAY TILL:** some sand, trace gravel, brown, moist, stiff to hard	3	SS	16	W. L. 256.1 m Nov 15, 2022	o	
		4	SS	31	255	o	
	sand seams, grey below 3.1m	5	SS	32	254	o	
253.0 / 4.6	**CLAYEY SILT TILL:** sandy, trace gravel, grey, moist, very stiff to hard	6	SS	22	253	o	
		7	SS	62	251	o	
		8	SS	33	250	o	
		9	SS	32	248	o	7 26 45 22
246.7 / 246.4 / 10.9	**SILTY FINE SAND:** trace clay, grey, wet, very dense	10	SS	50/130mm	247	o	
11.2	**END OF BOREHOLE:**						

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

Date: Water Level(mbgl):
Oct. 26, 2022 1.4
Nov.15, 2022 1.5

DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100
SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE
PLASTIC LIMIT W_P, NATURAL MOISTURE CONTENT W, LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857170.81 E 598356.18

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-17-2022

REF. NO.: 19-093-100
ENCL NO.: 17

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	WATER CONTENT (%)	GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
259.4 / 0.0	**TOPSOIL:** 280mm	1	SS	9		
259.1 / 0.3	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)					
258.6 / 0.8	**SILTY CLAY TO CLAYEY SILT TILL:** some sand to sandy, trace gravel, brown, moist, very stiff to hard	2	SS	27		
		3	SS	27		
		4	SS	27		
		5	SS	33		
	grey below 4.0m	6	SS	35		
		7	SS	13		5 32 45 18
		8	SS	22		
		9	SS	31		
		10	SS	68		
248.1 / 11.3	**END OF BOREHOLE:**					

W. L. 258.2 m
Nov 15, 2022

Elevation scale: 259, 257, 256, 255, 254, 253, 252, 251, 250, 249

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE; 20 40 60 80 100
PLASTIC LIMIT W_P NATURAL MOISTURE CONTENT W LIQUID LIMIT W_L
WATER CONTENT (%): 10 20 30
POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m^3)
REMARKS AND GRAIN SIZE DISTRIBUTION (%)

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

Date: Water Level(mbgl):
Oct. 26, 2022 1.35
Nov.15, 2022 1.2

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3 : Numbers refer to Sensitivity ○ 8=3% Strain at Failure

DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE BH22-9

PROJECT: Geotechnical Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: 7675 King St., Bolton, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4857331.76 E 598205.26

DRILLING DATA
Method: Hollow Stem Auger
Diameter: 200mm
Date: Oct-17-2022

REF. NO.: 19-093-100
ENCL NO.: 18

ELEV (m) / DEPTH	DESCRIPTION	SAMPLE NUMBER	TYPE	"N" BLOWS/0.3 m	ELEVATION	Water content (%)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
261.6							
261.3 / 0.3	**TOPSOIL:** 280mm	1	SS	11	261		
260.8 / 0.8	**REWORKED CLAYEY SILT TO SILTY CLAY:** trace sand, trace rootlets, trace organics, brown, moist, stiff (Weathered/Disturbed)	2	SS	23	260		
	SILTY CLAY TO CLAYEY SILT TILL: trace sand, trace gravel, brown, moist, stiff to hard; trace cobble/boulder at 2.3m	3	SS	28			
		4	SS	27	259		
	grey below 3.1m	5	SS	22	258		
		6	SS	10	257		
		7	SS	18	255		
		8	SS	33	254		
252.5 / 9.1	**SANDY SILT:** trace clay, trace gravel, grey, wet, compact	9	SS	21	252		1 33 64 2
		10	SS	24	251		
250.3 / 11.3	**END OF BOREHOLE:**						

W. L. 262.3 m
Nov 21, 2022

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

Date: Water Level(mbgl):
Oct. 26, 2022 Artesian (above ground surface)
Nov. 21, 2022 Artesian (-0.71m above ground surface)

DYNAMIC CONE PENETRATION RESISTANCE PLOT: 20 40 60 80 100
SHEAR STRENGTH (kPa): ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE: 20 40 60 80 100
PLASTIC LIMIT W_P — NATURAL MOISTURE CONTENT W — LIQUID LIMIT W_L; WATER CONTENT (%) 10 20 30
POCKET PEN. (Cu) (kPa) | NATURAL UNIT WT (kN/m^3)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ 8=3% Strain at Failure

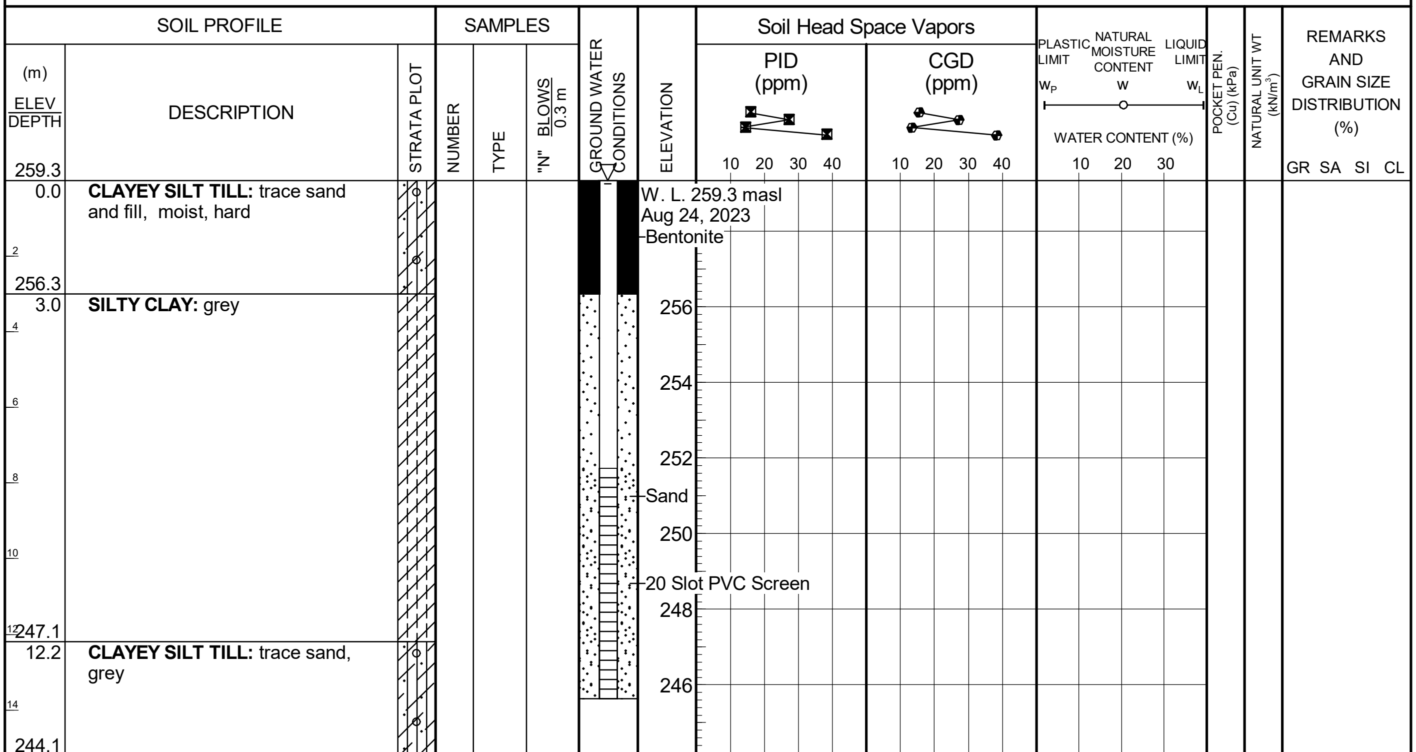
DS CONSULTANTS LTD.
Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

LOG OF BOREHOLE PW2

PROJECT: Hydrogeological Investigation
CLIENT: Caledon Community Partners
PROJECT LOCATION: Macville Community
DATUM: Geodetic
BH LOCATION: N 4857268.375 E 598529.114

DRILLING DATA
Method: Air Rotary
Diameter: 152mm
Date: Jul-06-2023

REF. NO.: 20-169-105
ENCL NO.: 1



END OF BOREHOLE

NOTES:
1. 152 mm pumping well.
2 .20 ft of 20 slot PVC screen (25-45 ft) .
3. Soil description based on drillers' field observations.
4. Water level: above ground surface - August 24, 2023

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

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

Appendix C

Table: MECP Water Wells Records (500 m Radius)

Project: 20-169-104

Location: Caledon Station and Argo I & Argo II, Bolton, ON

MECP WWR ID	Easting UTM N17	Northing UTM N17	Depth (ft)	Depth (m)	Thickness (ft)	Thickness (m)	Stratigraphy Color	Stratigraphy Primary	Stratigraphy Secondary	Stratigraphy Tertiary	Water Found (ft)	Water Found (m)	Static Level (ft)	Static Level (m)	Water Kind	Date Completed	Status	Water Use
4908650	597296	4857460	2	0.6	2	0.6	Brown	Loam	-	-	74	22.6	19	5.8	Fresh	6-Oct-00	Water Supply	Domestic
			12	3.7	10	3.0	Brown	Sand	Clay	-								
			68	20.7	56	17.1	Grey	Clay	Silt	-								
			74	22.6	6	1.8	Grey	Medium Sand	-	-								
4904998	597281	4857522	1	0.3	1	0.3	Brown	Loam	-	-	34	10.4	25	7.6	not stated	4-Dec-75	Water Supply	Domestic
			10	3.0	9	2.7	Brown	Clay	-	-								
			34	10.4	24	7.3	Grey	Sand	-	-								
			40	12.2	6	1.8	Grey	Sand	-	-								
4900215	597688	4857323	15	4.6	15	4.6	Brown	Loam	-	-	65	19.8	15	4.6	Fresh	9-Sep-67	Water Supply	Domestic
			63	19.2	48	14.6	Grey	Clay	-	-								
			65	19.8	2	0.6	-	Medium Sand	-	-								
4903995	597764	4857063	22	6.7	22	6.7	Brown	Clay	-	-	120	36.6	Flowing		Fresh	24-Nov-72	Water Supply	Domestic
			35	10.7	13	4.0	Blue	Clay	-	-								
			78	23.8	78	23.8	-	Hard Pan	-	-								
			120	36.6	42	12.8	Blue	Clay	-	-								
			140	42.7	140	42.7	-	Sand	Silt	-								
			146	44.5	6	1.8	-	Sand	-	-								
			150	45.7	4	1.2	-	Fine Sand	-	-								
4904238	598060	4858628	20	6.1	20	6.1	Brown	Clay	Stones	-	177	54.0	23	7.0	Fresh	30-Nov-73	Water Supply	Domestic
			67	20.4	47	14.3	Blue	Clay	Gravel	-								
			78	23.8	11	3.4	Blue	Clay	Gravel	Sand								
			120	36.6	42	12.8	Blue	Clay	-	-								
			177	54.0	57	17.4	Blue	Clay	-	-								
			190	57.9	13	4.0	-	Fine Sand	Medium Sand	Clay								
4904994	597064	4857323	1	0.3	1	0.3	Brown	Loam	Hard	-	30	9.1	25	7.6	not stated	30-Oct-76	Water Supply	Domestic
			20	6.1	19	5.8	Brown	Clay	Hard	-								
			45	13.7	25	7.6	Grey	Clay	Sand	Loose								
7285847	598658	4858218	-	-	-	-	-	-	-	-	-	-	-	-	-	25-Jan-17	-	-
4907399	598634	4858225	19	5.8	19	5.8	Brown	Clay	Stones	Gravel	88	26.8	22	6.7	Fresh	28-Oct-90	Water Supply	Commerical
			39	11.9	20	6.1	Blue	Clay	Soft	-								
			55	16.8	16	4.9	Blue	Clay	Soft	Hard								
			62	18.9	7	2.1	-	Hard Pan	-	-								
			82	25.0	20	6.1	Blue	Clay	Hard	-								
			88	26.8	6	1.8	Blue	Clay	Stones	Gravel								
			93	28.4	5	1.5	Blue	Coarse Sand	Gravel	-								
			118	36.0	25	7.6	Blue	Shale	-	-								
4900143	597301	4857436	12	3.7	12	3.7	Brown	Clay	Medium Sand	-	64	19.5	31	9.5	Fresh	20-Aug-65	Water Supply	Domestic/Livestock
			40	12.2	28	8.5	White	Clay	-	-								
			64	19.5	24	7.3	-	Clay	Medium Sand	Hard Pan								
			66	20.1	2	0.6	-	Fine Sand	-	-								
4905615	597364	4857723	48	14.6	48	14.6	-	Topsoil	-	-	100	30.5	26	7.9	Fresh	27-Apr-79	Water Supply	Livestock
			76	23.2	28	8.5	Brown	Sand	Clay	Silt								
			92	28.0	16	4.9	Blue	Clay	Silt	Gravel								
			100	30.5	8	2.4	Blue	Hard Pan	-	-								

			103	31.4	3	0.9	Blue	Gravel	Sand	Clay								
			106	32.3	3	0.9	Blue	Shale	-	-								
4908534	597428	4857420	25	7.6	25	7.6	Brown	Sand	Medium Sand	-	34	10.4	34	10.4	Fresh	27-Jan-00	Water Supply	Domestic
			66	20.1	41	12.5	Grey	Sand	Medium Sand	-								
4904393	597637	4857116	1	0.3	1	0.3	Brown	Loam	-	-	38	11.6	20	6.1	Not stated	01-Aug-74	Water Supply	Domestic
			10	3.0	9	2.7	Brown	Clay	-	-								
			38	11.6	28	8.5	Grey	Clay	-	-								
			42	12.8	4	1.2	Grey	Sand	-	-								
7275497	597641	4857180	16	4.9	16	4.9	Brown	Clay	-	-	-	-	-	-	-	6-May-16	Water Supply	Domestic
			38	11.6	22	6.7	Grey	Clay	Stones	-								
			98	29.9	60	18.3	Grey	Silt	Sand	-								
			110	33.5	12	3.7	Grey	Silt	-	-								
			113	34.5	3	0.9	Grey	Clay	Silt	-								
			125	38.1	12	3.7	Grey	Sand	Clay	-								
			133	40.5	8	2.4	Grey	Sand	Gravel	-								
			143	43.6	10	3.0	Grey	Shale	-	-								
4908694	598144	4857707	1	0.3	1	0.3	Brown	Loam	-	-	75	22.9	7	2.1	Fresh	18-May-00	Water Supply	Domestic
			10	3.0	9	2.7	Brown	Clay	-	-								
			12	3.7	2	0.6	Blue	Clay	-	-								
			75	22.9	63	19.2	Grey	Fine Sand	-	-								
			84	25.6	9	2.7	Grey	Medium Sand	-	-								
			91	27.7	7	2.1	Grey	Fine Sand	-	-								
			93	28.4	2	0.6	Grey	Sand	Silt	Clay								
4905640	598114	4857523	2	0.6	2	0.6	Black	Topsoil	-	-	14	4.3	8	2.4	not tested	30-Apr-80	Water Supply	Domestic
			14	4.3	12	3.7	Blue	Clay	-	Hard								
			25	7.6	11	3.4	Brown	Sand	Pebbles	Coarse								
4910378	597322	4857684	-	-	-	-	-	-	-	-	-	-	-	-	-	30-Sep-06	Abandoned	-
4905851	597414	4857323	1	0.3	1	0.3	Brown	Loam	Hard	-	30	9.1	15	4.6	not stated	15-Dec-81	Water Supply	Domestic
			20	6.1	19	5.8	Brown	Clay	Hard	-								
			30	9.1	10	3.0	Grey	Clay	Hard	-								
			35	10.7	5	1.5	Grey	Sand	Loose	-								
4905839	597964	4859273	1	0.3	1	0.3	Brown	Loam	-	-	22	6.7	17.0	5.2	Fresh	20-May-81	Water Supply	Domestic
			10	3.0	9	2.7	Brown	Clay	Stones	-								
			29	8.8	19	5.8	Grey	Clay	Stones	Sand								
			35	10.7	6	1.8	Grey	Stones	Clay	-								
			36	11.0	1	0.3	Grey	Clay	Shale	-								
			38	11.6	2	0.6	Grey	Shale	Very Hard	-								
4905116	597054	4857923	12	3.7	12	3.7	Brown	Loam	-	-	42	13	35	10.7	Fresh	10-May-77	Water supply	Domestic
			42	12.8	30	9.1	Grey	Clay	-	-								
			48	14.6	6	1.8	-	Sand	Gravel	Water Bearing								
7267796	596880	4858246	2	0.6	2	0.6	Brown	Loam	-	Soft	8	2.4	13	4.0	Fresh	13-Jun-16	Water Supply	Livestock / Domestic
			13	4.0	11	3.4	Brown	Clay	-	Hard								
			27	8.2	14	4.3	Grey	Clay	Stones	Hard								
			29	8.8	2	0.6	Brown	Sand	-	Loose								
			65	19.8	36	11.0	Grey	Clay	-	Hard								
			75	22.9	10	3.0	Brown	Sand	Gravel	Layered								
			85	25.9	10	3.0	Grey	Gravel	Sand	Loose								
			98	29.9	13	4.0	Gray	Sand	Silt	Dirty								
			98	29.9	0	0.0	Grey	Shale	-	Hard								
4908369	598459	4857745	25	7.6	25	7.6	Brown	Clay	Stones	Dense	99	30.2	36	11.0	Fresh	25-Aug-97	Water Supply	Domestic
			28	8.5	3	0.9	Blue	Coarse Sand	Loose	-								
			33	10.1	5	1.5	Blue	Fine Sand	Silt	Soft								
			48	14.6	15	4.6	Blue	Clay	Soft	-								
			53	16.2	5	1.5	Blue	Fine Sand	Loose	-								

			86	26.2	33	10.1	Blue	Fine Sand	Silt	Loose								
			97	29.6	11	3.4	Blue	Clay	Stones	Packed								
			107	32.6	10	3.0	Blue	Coarse Sand	Water Bearing	Loose								
7181645	598283	4858462	1	0.3	1	0.3	Black	Loam	-	Soft	117	35.7	25	7.6	Fresh	20-Feb-12	Water Supply	Domestic
			17	5.2	16	4.9	Brown	Clay	-	Hard								
			92	28.0	75	22.9	Grey	Clay	Silt	Layered								
			98	29.9	6	1.8	Grey	Gravel	-	Loose								
			113	34.5	15	4.6	Grey	Clay	-	Hard								
			117	35.7	4	1.2	Grey	Sand	-	Loose								
4904720	597876	4857244	7	2.1	7	2.1	-	Clay	-	-	28	8.5	4	1.2	Fresh	26-Aug-74	Water Supply	Domestic
			10	3.0	3	0.9	-	Clay	Stones	-								
			12	3.7	2	0.6	-	Sand	-	-								
			16	4.9	4	1.2	-	Stones	-	-								
			18	5.5	2	0.6	-	Clay	-	-								
			30	9.1	12	3.7	-	Sand	Stones	-								
4904007	597556	4857470	2	0.6	2	0.6	Brown	Loam	-	-	23	7.0	Flowing		Fresh	15-Jun-72	Water Supply	Domestic
			9	2.7	7	2.1	Brown	Clay	-	-								
			23	7.0	14	4.3	Blue	Clay	Stones	-								
			25	7.6	2	0.6	Blue	Gravel	-	-								
4904847	596987	4858136	32	9.8	32	9.8	-	Topsoil	-	-	90	27.4	22	6.7	Fresh	4-Feb-76	Water Supply	Livestock / Domestic
			35	10.7	3	0.9	Blue	Clay	-	-								
			90	27.4	55	16.8	-	Fine Sand	-	-								
			95	29.0	5	1.5	-	Gravel	-	-								
4907932	597435	4857461	1	0.3	1	0.3	Brown	Loam	Hard	-	60	18.3	5	1.5	not stated	10-Sep-94	Water Supply	Domestic
			30	9.1	29	8.8	Brown	Clay	Hard	-								
			60	18.3	30	9.1	Grey	Clay	Hard	-								
			72	22.0	12	3.7	Grey	Sand	Loose	-								
4904395	597189	4858347	1	0.3	1	0.3	Brown	Loam	-	-	20	6.1	15	4.6	not stated	1-Aug-74	Water Supply	Domestic
			15	4.6	14	4.3	Brown	Clay	-	-								
			34	10.4	19	5.8	Brown	Sand	Gravel	-								
4900216	596886	4858130	2	0.6	2	0.6	-	Loam	-	-	132	40.2	25	7.6	Fresh	13-Nov-64	Water Supply	Domestic
			15	4.6	13	4.0	-	Clay	-	-								
			45	13.7	30	9.1	-	Hard Pan	-	-								
			110	33.5	65	19.8	-	Clay	Medium Sand	-								
			130	39.6	20	6.1	-	QSND	-	-								
			132	40.2	2	0.6	-	GRVL	-	-								
4904146	598039	4858691	2	0.6	2	0.6	Black	Loam	-	-	33	10.1	57	17.4	Fresh	6-Jul-73	Water Supply	Domestic
			35	10.7	33	10.1	Brown	Clay	Stones	-								
			57	17.4	22	6.7	Blue	Clay	Stones	-								
			67	20.4	10	3.0	Grey	Sand	-	-								
			75	22.9	8	2.4	Blue	Clay	-	-								
4904437	598238	4858479	23	7.0	23	7.0	Brown	Clay	-	-	100	30.5	23	7.0	Fresh	30-Jul-73	Water Supply	Domestic
			100	30.5	77	23.5	Blue	Clay	Stones	-								
			112	34.1	12	3.7	Blue	Sand	Gravel	Clay								

			127	38.7	15	4.6	Blue	Shale	Clay	-							Supply	
			180	54.9	53	16.2	Blue	Shale	-	-								
4903300	598214	4858623	12	3.7	12	3.7	Brown	Clay	-	-	175	53.4	35	10.7	Fresh	11-Aug-69	Water Supply	Domestic
			122	37.2	110	33.5	Blue	Clay	-	-								
			175	53.4	53	16.2	Grey	Silt	-	-								
4907094	597663	4858835	22	6.7	22	6.7	Brown	Clay	Stones	-	199	60.7	26	7.9	Fresh	20-Jan-89	Water Supply	Livestock / Domestic
			65	19.8	43	13.1	Blue	Clay	Stones	-								
			72	22.0	7	2.1	Blue	Clay	Soft	-								
			85	25.9	13	4.0	Blue	Clay	Gravel	Sand								
			190	57.9	105	32.0	Blue	Clay	Silt	-								
			199	60.7	9	2.7	Blue	Clay	Silt	Sand								
			214	65.2	15	4.6	-	Fine Sand	-	-								
4909556	598425	4858349	15	4.6	15	4.6	Brown	Clay	-	Hard	75	22.9	17	5.2	Fresh	24-Oct-04	Water Supply	Domestic
			25	7.6	10	3.0	Grey	Clay	-	Hard								
			64	19.5	39	11.9	Grey	Clay	Stones	Hard								
			70	21.3	6	1.8	Grey	Clay	-	Loose								
			77	23.5	7	2.2	Grey	Gravel	-	Loose								
4904761	597397	4857685	2	0.6	2	0.6	Brown	Loam	-	-	24	7.3	23	7.0	not stated	23-Sep-75	Water Supply	Domestic
			24	7.3	22	6.7	Brown	Sand	Clay	-								
			38	11.6	14	4.3	Grey	Sand	-	-								
			43	13.1	5	1.5	Brown	Sand	-	-								
4905784	598114	4858823	100	30.5	100	30.5	-	Previously Dug	-	-	208	63.4	22	6.7	Fresh	12-Dec-80	Water Supply	Domestic
			160	48.8	60	18.3	Blue	Clay	-	-								
			208	63.4	48	14.6	Blue	Clay	Silt	Fine Sand								
			212	64.6	4	1.2	-	Gravel	Coarse Sand	Clay								
7320567	598596	4858298	--	--	--	--	--	--	--	--	--	--	--	--	not stated	23-Jul-18	not stated	not stated
			--	--	--	--	--	--	--	--	--	--	--	--				
			--	--	--	--	--	--	--	--	--	--	--	--				
			--	--	--	--	--	--	--	--	--	--	--	--				
7366579	598709	4857850	--	--	--	--	--	--	--	--	--	--	--	--	not stated	27-Jun-20	not stated	not stated
			--	--	--	--	--	--	--	--	--	--	--	--				
			--	--	--	--	--	--	--	--	--	--	--	--				
			--	--	--	--	--	--	--	--	--	--	--	--				
7345658	598259	4857256	1	0.3	1	0.3	Brown	Loam	loose	--	--	--	--	--	not stated	27-Jun-20	Water supply	Monitoring
			20	6.1	20	6.1	Brown	Silt Till	dry	--	--	--	--	--				
4909415	599081	4858056	20	6.1	20	6.1	Brown	Fill	-	-	--	--	--	--	not stated	27-Jun-20	Water supply	Monitoring
			38	11.6	38	11.6	Grey	Clay	-	-	-	-	-	-				
			41	12.5	41	12.5	Brown	Sand	-	-	-	-	-	-				
			50	15.2	50	15.2	Grey	Sand	Soft	-	-	-	-	-				
			60	18.3	60	18.3	Grey	Clay	Hard	-	-	-	-	-				
7172137	599023	4857883	0	0.0	0	0.0	Black	-	-	-	-	-	-	-	not stated	24-Nov-11	Water supply	Monitoring
			1	0.3	1	0.3	Brown	Sand	Gravel	Loose	-	-	-	-				
			12	3.7	12	3.7	Brown	Silt	Sand	Loose	-	-	-	-				
			20	6.1	20	6.1	Grey	Silt	Clay	Dense	-	-	-	-				
7172136	598984	4857838	0	0.0	0	0.0	Brown	Loam	-	Loose	-	-	-	-	not stated	24-Nov-11	Water supply	Monitoring
			12	3.7	12	3.7	Brown	Sand	Silt	Loose	-	-	-	-				
			20	6.1	20	6.1	Grey	Sand	Silt	Dense	-	-	-	-				
7172135	599026	4857798	0	0.0	0	0.0	Brown	Loam	-	Loose	-	-	-	-	not stated	24-Nov-11	Water supply	Monitoring
			12	3.7	12	3.7	Brown	Sand	Silt	Loose	-	-	-	-				
			20	6.1	20	6.1	Grey	Sand	Silt	Dense	-	-	-	-				
7239897	599227	4857714	-	-	-	-	-	-	-	-	-	-	-	-	-	9-Mar-15	Abandoned	-
7366569	597873	4857949	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366577	597381	4857718	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-

7366576	598402	4858345	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366575	597077	4857818	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7633574	597309	4857666	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366573	597907	4857026	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366572	598317	4857523	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366571	597334	4857649	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366570	597518	4857496	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7345660	598349	4857355	1	0.3	1	0.3	Brown	Loam	-	Loose	not stated	not stated	not stated	not stated	not stated	7-Jun-19	Water supply	Monitoring
			10	3.0	10	3.0	Brown	Silt	Till	Dry								
			20	6.1	20	6.1	Grey	Sand	Silt	Water Bearing								
7366568	597844	4858742	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7366567	598817	4858787	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
7345661	598347	4857475	1	0.3	1	0.3	Brown	Loam	-	Loose	not stated	not stated	not stated	not stated	not stated	7-Jun-19	Water supply	Monitoring
			10	3.0	10	3.0	Brown	Silt	Till	Dry								
			20	6.1	20	6.1	Grey	Sand	Silt	Water Bearing								
7345662	598561	4857285	1	0.3	1	0.3	Brown	Loam	-	Loose	not stated	not stated	not stated	not stated	not stated	7-Jun-19	Water supply	Monitoring
			20	6.1	20	6.1	Brown	Silt	Till	Dry								
7345663	598561	4857285	1	0.3	1	0.3	Brown	Loam	-	Loose	not stated	not stated	not stated	not stated	not stated	7-Jun-19	Water supply	Monitoring
			20	6.1	20	6.1	Brown	Silt	Till	Dry								
7355128	598088	4857215	-	-	-	-	-	-	-	-	-	-	-	-	-	23-Oct-18	-	-
7366565	597432	4858372	-	-	-	-	-	-	-	-	-	-	-	-	-	24-Jul-20	-	-
4906292	597825	4856771	1	0.3	1	0.3	Brown	Loam	-	Hard	60	18.3	20	6.1	not stated	19-Aug-84	Water supply	Domestic
			20	6.1	20	6.1	Brown	Clay	-	Hard								
			60	18.3	60	18.3	Grey	Clay	-	Hard								
			80	24.4	80	24.4	Grey	Sand	-	Loose								
4908027	597914	4856940	2	0.6	2	0.6	-	Loam	-	-	124	37.8	1	0.3	Fresh	31-Aug-95	Water supply	Domestic
			12	3.7	12	3.7	Brown	Clay	-	-								
			27	8.2	27	8.2	Blue	Clay	-	-								
			78	23.8	78	23.8	Blue	Clay	Gravel	-								
			124	37.8	124	37.8	Blue	Clay	-	Soft								
			130	39.6	130	39.6	Brown	Sand	-	-								
4910318	597792	4856990	12	3.7	12	3.7	Brown	Clay	-	-	170	51.8	Flowing		Fresh	15-Aug-06	Water supply	Domestic
			93	28.3	93	28.3	Grey	Clay	-	-								
			123	37.5	123	37.5	Grey	Silt	Clay	-								
			167	50.9	167	50.9	Grey	Clay	Stones	-								
			180	54.9	180	54.9	Grey	Fine Sand	-	-								
4903854	597815	4857025	12	3.7	12	3.7	Brown	Clay	-	-	85	25.9	90	27.4	Fresh	26-Jun-72	Water supply	Domestic
			81	24.7	81	24.7	Grey	Clay	-	-								
			120	36.6	120	36.6	Grey	Shale	-	-								
4908534	597428	4857420	25	7.6	25	7.6	Brown	Sand	Medium Sand	-	34	10.4	34	10.4	Fresh	13-Jan-00	Water supply	Domestic
			66	20.1	66	20.1	Grey	Sand	Medium Sand	-								
4907840	598556	4856805	-	-	-	-	-	-	-	-	-	-	-	-	-	11-Mar-93	-	-
4907844	599080	4857704	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4907295	598207	4857250	2	0.6	2	0.6	-	Loam	-	-	134	40.9	135	41.1	Fresh	1990-04-31	Water supply	Domestic
			37	11.3	37	11.3	-	Clay	-	-								
			39	11.9	39	11.9	-	Sand	Gravel	-								
			95	29.0	95	29.0	Blue	Clay	Gravel	-								
			98	29.9	98	29.9	-	Sand	Gravel	-								
			134	40.8	134	40.8	Blue	Clay	Gravel	-								
			140	42.7	140	42.7	Blue	Sand	-	-								
4906516	598227	4857340	18	5.5	18	5.5	Brown	Clay	-	-	23	7.0	22	6.1	Fresh	18-Oct-86	Water supply	Domestic
			23	7.0	23	7.0	Blue	Clay	-	-								
			35	10.7	35	10.7	Brown	Medium Sand	-	-								

			45	13.7	45	13.7	Blue	Clay	-	-								
4904719	598524	4857402	9	2.7	9	2.7	-	Clay	-	-	10	3.0	6	6.1	Fresh	25-Aug-74	Water supply	Domestic
			12	3.7	12	3.7	-	Sand	-	-								
			18	5.5	18	5.5	-	Sand	-	-								
			28	8.5	28	8.5	-	Clay	-	-								
4900213	598213	4856795	20	6.1	2	0.6	Brown	Clay	-	-	45	13.7	Flowing		Fresh	12-Jun-66	Water supply	Domestic
			45	13.7	37	11.3	Blue	Clay	-	-								
			55	16.8	39	11.9	-	Medium Sand	Clay	-								
			115	35.1	95	29.0	Blue	Clay	-	-								
			136	41.5	98	29.9	-	Fine Sand	-	-								
			138	42.1	134	40.8	Blue	Clay	-	-								
4906470	598854	4857932	1	0.3	1	0.3	Black	Loam	-	-	80	24.4	4	1.2	Fresh	16-Nov-85	Water supply	Domestic
			6	1.8	6	1.8	Brown	Clay	Gravel	-								
			11	3.4	11	3.4	Blue	Clay	-	-								
			83	25.3	83	25.3	Brown	Medium Sand	-	-								
			92	28.0	92	28.0	Grey	Medium Sand	-	-								
			107	32.6	107	32.6	Blue	Clay	Gravel	-								
			135	41.1	135	41.1	Grey	Shale	Clay	-								
4907878	598918	4857265	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7345659	598366	4857259	1	0.3	1	0.3	Brown	Loam	loose	--	not stated	not stated	not stated	not stated	not stated	24-Jun-19	Water supply	Monitoring
			20	6.1	20	6.1	Brown	Silt Till	dry	--								
7292795	598776	4857763	-	-	-	-	-	-	-	-	-	-	-	-	-	23-Aug-17	Warer supply	Monitoring
4907881	598405	4857436	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7292729	598776	4857763	-	-	-	-	-	-	-	-	-	-	-	-	-	7-Aug-17	-	Monitoring
7292728	598935	4857759	-	-	-	-	-	-	-	-	-	-	-	-	-	7-Aug-17	-	Monitoring
4908440	598399	4856652	9	2.7	9	2.7	Brown	Fill	-	-	133	40.5	3	0.9	Fresh	7-Apr-94	Water supply	Domestic
			28	8.5	28	8.5	Blue	Clay	Silt	-								
			41	12.5	41	12.5	Blue	Clay	Silt	Gravel								
			54	16.5	54	16.5	Grey	Clay	-	-								
			57	17.4	57	17.4	Grey	Silt	Gravel	-								
			69	21.0	69	21.0	Grey	Silt	Gravel	-								
			81	24.7	81	24.7	Grey	Silt	-	-								
			121	36.9	121	36.9	Grey	Clay	Silt	-								
			133	40.5	133	40.5	Grey	Silt	Fine Sand	-								
			139	42.4	139	42.4	Grey	Fine Sand	-	-								
			145	44.2	145	44.2	Grey	Silt	-	-								
4907849	598780	4857872	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4908193	597907	4857031	2	0.6	2	0.6	Brown	Peat	-	Loose	Not stated		Not stated		Not stated	9-Jan-97	Water supply	Monitoring
			40	12.2	40	12.2	Grey	Silt	Clay	Till								
			108	32.9	108	32.9	Grey	Silt	Stones	Layered								
			130	39.6	130	39.6	Grey	Clay	Sand	Layered								
			164	50.0	164	50.0	Grey	Clay	Sand	Silt								
			184	56.1	184	56.1	Grey	Sand	Silt	Stones								
			201	61.3	201	61.3	Grey	Fine Sand	Silt	Dense								
			218	66.4	218	66.4	Grey	Sand	Gravel	Layered								
			246	75.0	246	75.0	Grey	Sand	Silt	Layered								
			250	76.2	250	76.2	Grey	Shale	Layered	Weathered								
			1	0.3	1	0.3	Brown	Loam	-	-								
			9	2.7	9	2.7	Brown	Clay	-	-								

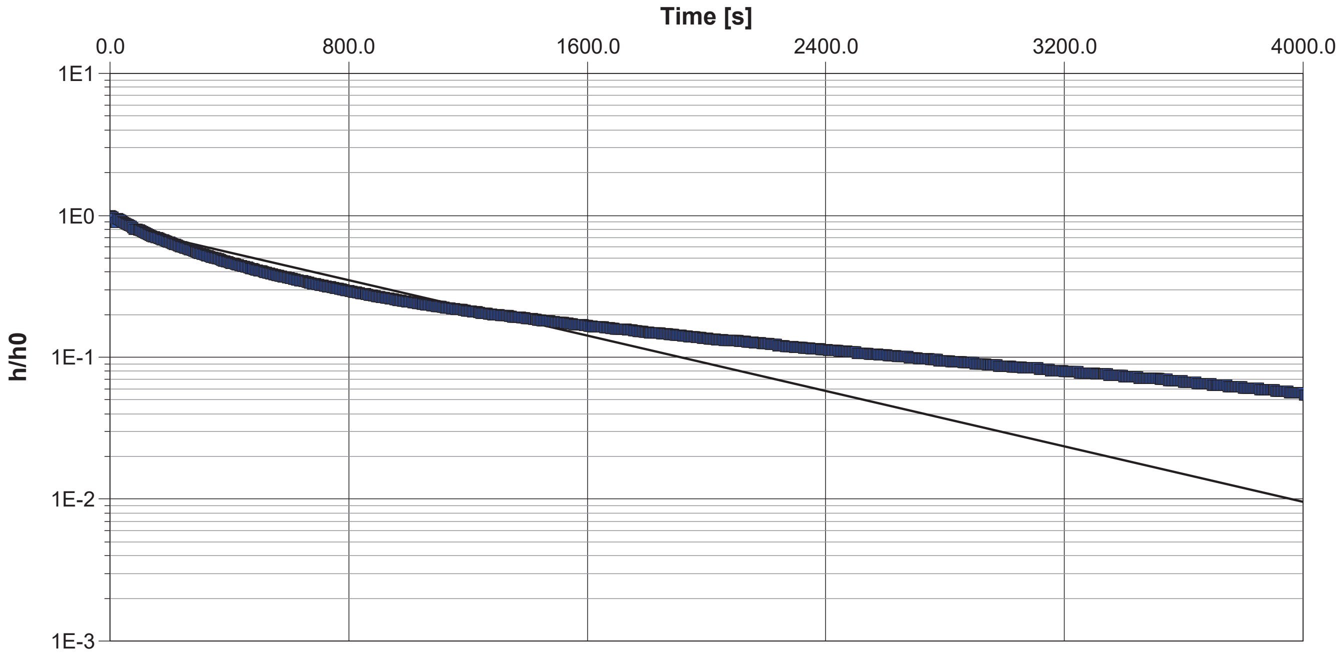
4905545	598515	4857723	16	4.9	16	4.9	Brown	Clay	Sand	-	16	4.9	15	4.6	Fresh	6-Jul-79	Water supply	Domestic
			24	7.3	24	7.3	Brown	Sand	-	-								
			32	9.8	32	9.8	Brown	Clay	Sand	-								
			35	10.7	35	10.7	Grey	Sand	-	-								
4908194	597904	4857037	2	0.6	2	0.6	Brown	Peat	-	Loose	Not stated		Not stated		Not stated	3-Jan-97	Water supply	Monitoring
			40	12.2	40	12.2	Grey	Silt	Clay	Till								
			108	32.9	108	32.9	Grey	Silt	Stones	Layered								
			130	39.6	130	39.6	Grey	Clay	Sand	Layered								
			164	50.0	164	50.0	Grey	Clay	Sand	Silt								
			184	56.1	184	56.1	Grey	Sand	Silt	Stones								
			201	61.3	201	61.3	Grey	Fine Sand	Silt	Dense								
			218	66.4	218	66.4	Grey	Sand	Gravel	Layered								
			246	75.0	246	75.0	Grey	Sand	Silt	Layered								
			250	76.2	250	76.2	Grey	Shale	Layered	Weathered								
4900214	598727	4858045	2	0.6	2	0.6	-	Loam	-	-	21	6.4	5	1.5	Fresh	3-Apr-66	Water supply	Domestic
			5	1.5	5	1.5	Brown	Clay	-	-								
			20	6.1	20	6.1	Brown	Clay	Boulders	-								
			21	6.4	21	6.4	Blue	Clay	-	-								
			21	6.4	21	6.4	-	Coarse Sand	-	-								
4907843	597908	4857037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7241065	598679	4857836	2	0.6	2	0.6	Brown	Loam	-	Loose	7	2.1	Not stated		Not stated	27-Mar-15	Water supply	Monitoring
			7	2.1	7	2.1	Brown	Silt	Clay	-								
			16	4.9	16	4.9	Brown	Sand	Clay	-								
			20	6.1	20	6.1	Grey	Silt	Clay	Soft								
			35	10.7	35	10.7	Grey	Silt	-	Loose								
4908422	599026	4857876	4	1.2	4	1.2	Brown	Clay	Stones	Fill	71	21.6	0	0.0	Fresh	16-Oct-98	Water supply	Commerci al
			12	3.7	12	3.7	Brown	Clay	Sand	-								
			34	10.4	34	10.4	Brown	Clay	Gravel	-								
			71	21.6	71	21.6	Grey	Fine Sand	-	-								
			114	34.7	114	34.7	Grey	Fine Sand	-	-								
			118	36.0	118	36.0	Blue	Clay	Gravel	Sand								
7278360	599062	4857830	-	-	-	-	-	-	-	-	-	-	-	-	-	7-Jun-16	-	-
7220334	598903	4858000	3	0.9	3	0.9	Brown	Sand	Fill	Loose	-	-	-	-	-	7-May-14	-	Monitoring
			14	4.3	14	4.3	Bown	Silt	Clay	Hard								
			18	5.5	18	5.5	Grey	Silt	Clay	Hard								
			26	7.9	26	7.9	Grey	Sand	Silt	Dense								
7172781	599128	4858060	4	1.2	4	1.2	Black	-	-	-	73	22.3	0	0	Not stated	11-Jul-11	Water supply	commerici al
			17	5.2	17	5.2	Brown	Clay	Stones	-								
			50	15.2	50	15.2	Grey	Clay	Stones	-								
			70	21.3	70	21.3	Grey	Clay	Stones	-								
			80	24.4	80	24.4	Grey	Clay	Medium-Grave	-								
4908519	598914	4857996	4	1.2	4	1.2	Brown	Clay			Not stated		Not stated		Fresh	5-Oct-99	Water supply	Commerci al
			16	4.9	16	4.9	Brown	Clay	Gravel	-								
			34	10.4	34	10.4	Brown	Sand	-	Fine Sand								
			42	12.8	42	12.8	Blue	Clay	-	-								
			68	20.7	68	20.7	-	Sand	-	-								
			71	21.6	71	21.6	Blue	Clay	-	-								
7148914	598946	4858295	7	2.1	7	2.1	Brown	Silt	Clay	Soft	-	-	-	-	Fresh	7-Jun-19	-	Test Hole
			16	4.9	16	4.9	Brown	Silt	Clay									
			25	7.6	25	7.6	Grey	Clay	Silt	-								
4904011	598756	4858099	34	10.4	34	10.4	-	Previously Dug	-	-	110	106.7	Flowing		Fresh	5-Aug-72	-	Domestic
			65	19.8	65	19.8	Blue	Clay	Sand	-								
			110	33.5	110	33.5	Blue	Fine Sand	Clay	-								
			114	34.7	114	34.7	Grey	Fine Sand	-	-								
4900273	598847	4858021	5	1.5	5	1.5	Brown	Clay	-	-	6	1.7	-	-	Fresh	13-Nov-60	Water supply	Domestic
			8	2.4	8	2.4	-	Clay	-	-								
			18	5.5	18	5.5	-	Medium Sand	-	-								
4908538	598806	4858096	1	0.3	1	0.3	-	Loam	-		40	12.2	12	3.7	Fresh	6-Oct-99	Water	Commerci
			8	2.4	8	2.4	Brown	Clay	-	-								
			22	6.7	22	6.7	Brown	Sand	-	-								

4908538	598806	4858090	61	18.6	61	18.6	Brown	Clay	-	-	40	12.2	12	3.7	Fresh	6-Oct-99	supply	al
			80	24.4	80	24.4	Blue	Clay	-	-								
			93	28.3	93	28.3	Blue	Fine Sand	-	-								
4900282	597482	4859341	12	3.7	5	1.5	Brown	Clay	-	-	59	18.4	-	-	Fresh	13-Jan-57	Water supply	Domestic
			59	18.0	8	2.4	Grey	Clay	Medium Sand	Stones								
			60	18.3	18	5.5	-	Medium Sand	-	-								
4906797	598651	4857730	-	-	-	-	-	-	-	-	Not stated		Not stated		Not stated	4-Nov-87	Water supply	Domestic

Appendix D-1
Caledon Station

	Slug Test Analysis Report C
	Project: Hydrogeological Investigation
	Number: 20-169-100
	Client: Argos Development Corp.

Location: Bolton Option 3 Lands	Slug Test: BH20-1	Test Well: BH20-1
Test Conducted by:		Test Date: 7/6/2020
Analysis Performed by: AS	BH2-01	Analysis Date: 12/7/2020
Aquifer Thickness: 3.80 m		

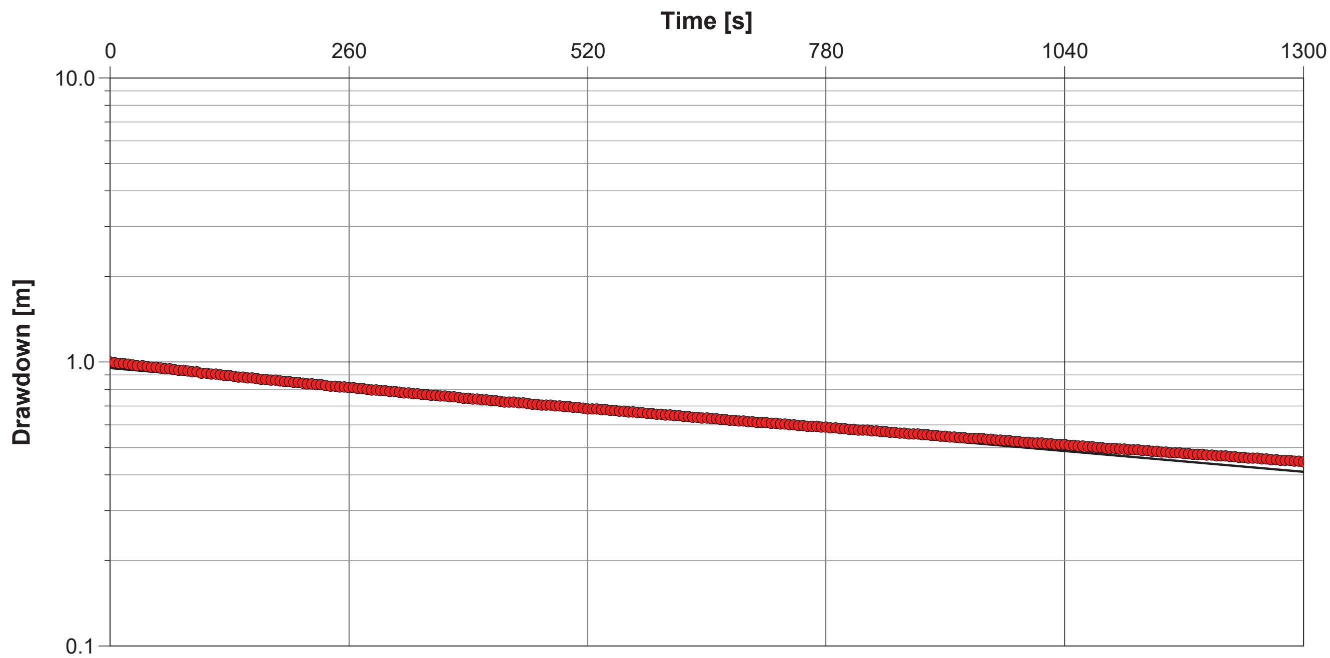


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH20-1	7.34×10^{-7}	

	Slug Test Analysis Report C
	Project: Hydrogeological Investigation
	Number: 20-169-100
	Client: Argos Development Corp.

Location: Bolton Option 3 Lands	Slug Test: BH20-5	Test Well: BH20-5
Test Conducted by:		Test Date: 12/7/2020
Analysis Performed by: AS	BH20-5	Analysis Date: 12/7/2020
Aquifer Thickness: 7.00 m		

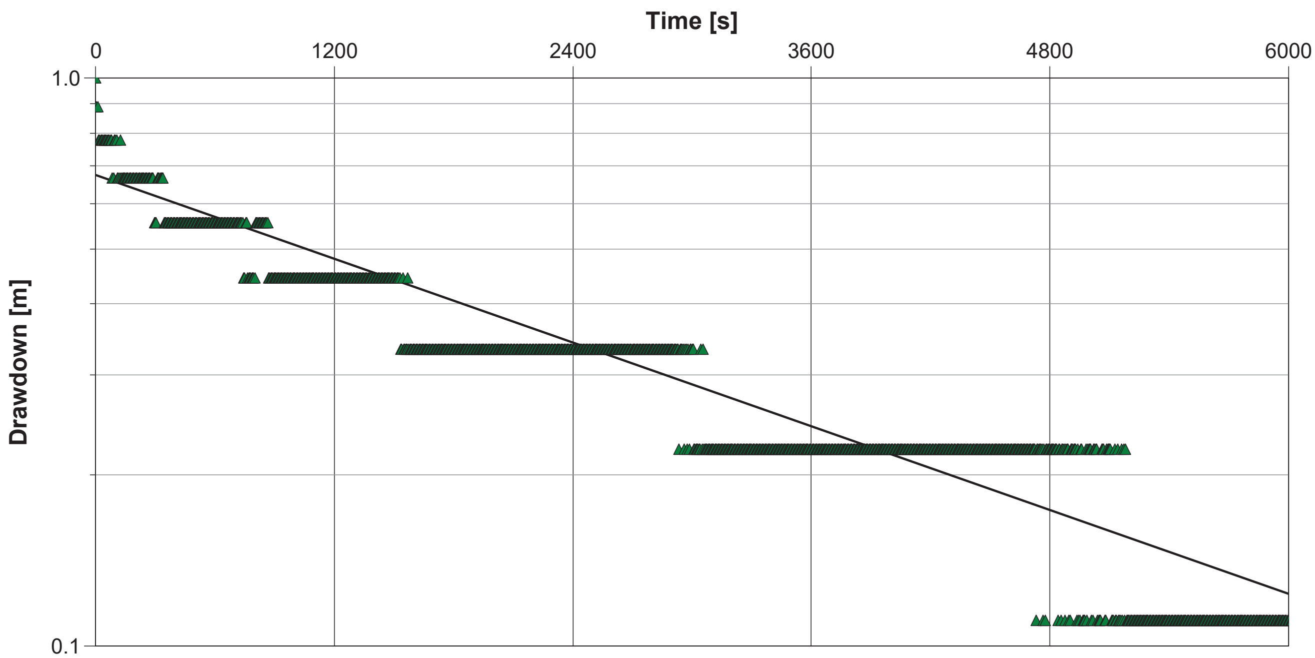


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH20-5	5.34×10^{-7}	

Slug Test Analysis Report	C
Project: Hydrogeological Investigation	
Number: 20-169-100	
Client: Argos Development Corp.	

Location: Bolton Option 3 Lands	Slug Test: BH20-6	Test Well: BH20-6
Test Conducted by:		Test Date: 12/7/2020
Analysis Performed by: AS	BH20-6	Analysis Date: 12/7/2020
Aquifer Thickness: 1.08 m		

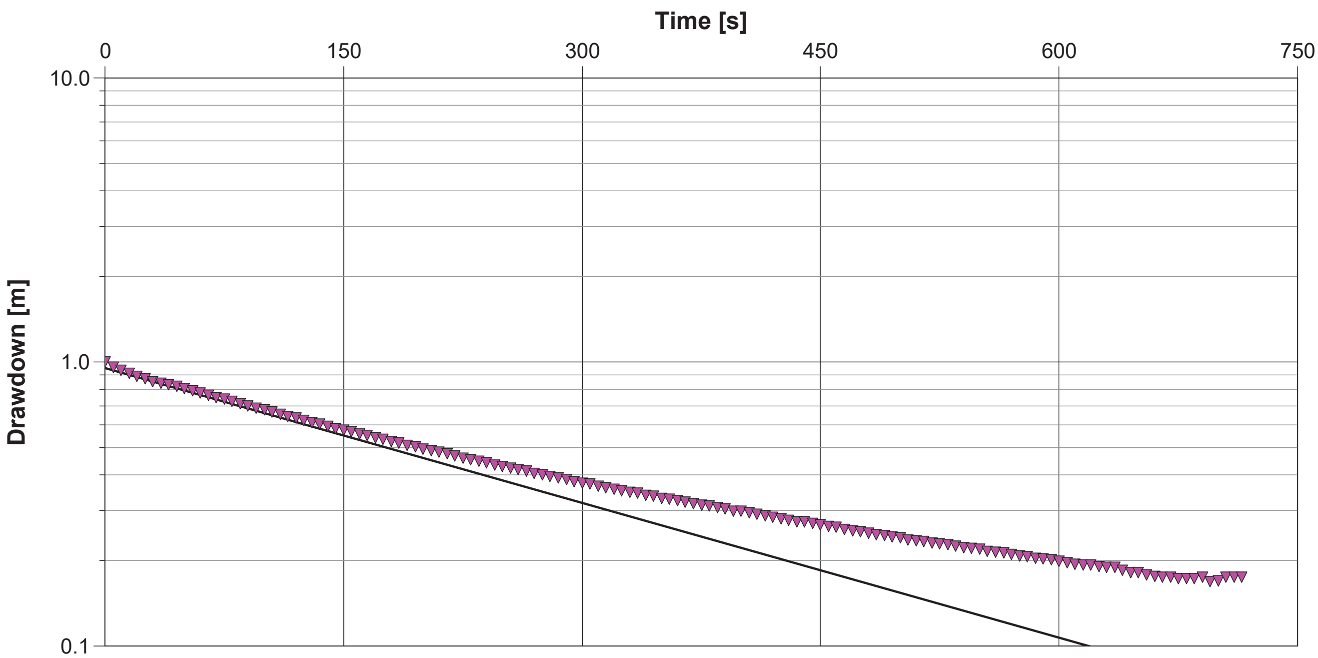


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH20-6	1.42×10^{-7}	

	Slug Test Analysis Report	C
	Project: Hydrogeological Investigation	
	Number: 20-169-100	
	Client: Argos Development Corp.	

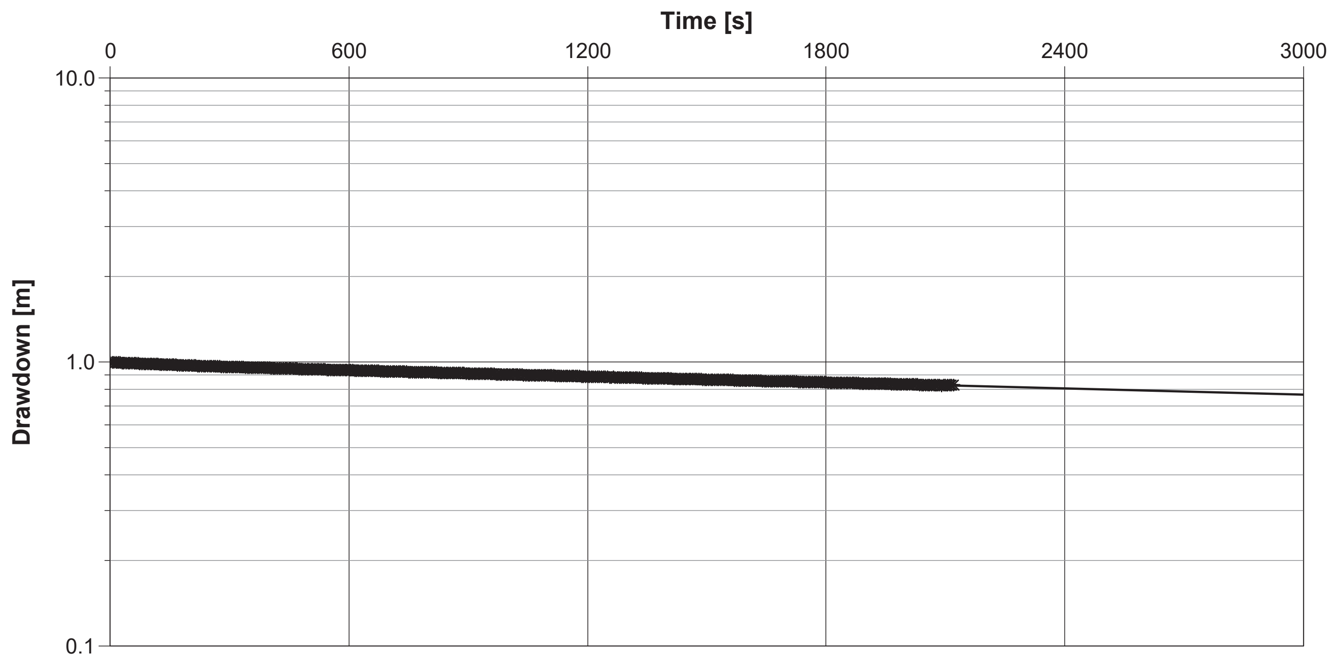
Location: Bolton Option 3 Lands	Slug Test: BH20-9	Test Well: BH20-9
Test Conducted by:		Test Date: 12/8/2020
Analysis Performed by: AS	BH20-9	Analysis Date: 12/8/2020
Aquifer Thickness: 3.08 m		



Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
BH20-9	3.21×10^{-6}	

		Slug Test Analysis Report C
		Project: Hydrogeological Investigation
		Number: 20-169-100
		Client: Argos Development Corp.
Location: Bolton Option 3 Lands	Slug Test: BH20-11	Test Well: BH20-11
Test Conducted by:		Test Date: 12/8/2020
Analysis Performed by: AS	BH20-11	Analysis Date: 12/8/2020
Aquifer Thickness: 2.00 m		

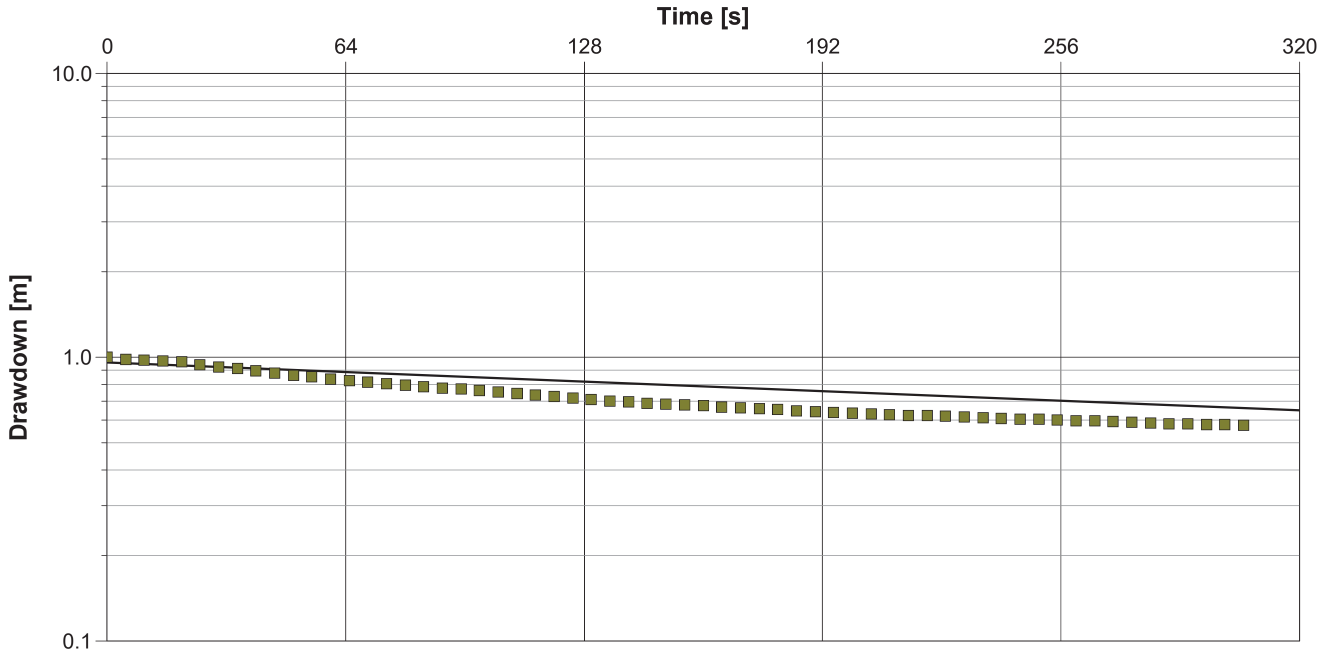


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH20-11	5.22×10^{-8}	

Slug Test Analysis Report	C
Project: Hydrogeological Investigation	
Number: 20-169-100	
Client: Argos Development Corp.	

Location: Bolton Option 3 Lands	Slug Test: BH20-12	Test Well: BH20-12
Test Conducted by:		Test Date: 12/8/2020
Analysis Performed by: AS	BH20-12	Analysis Date: 12/8/2020
Aquifer Thickness: 2.20 m		

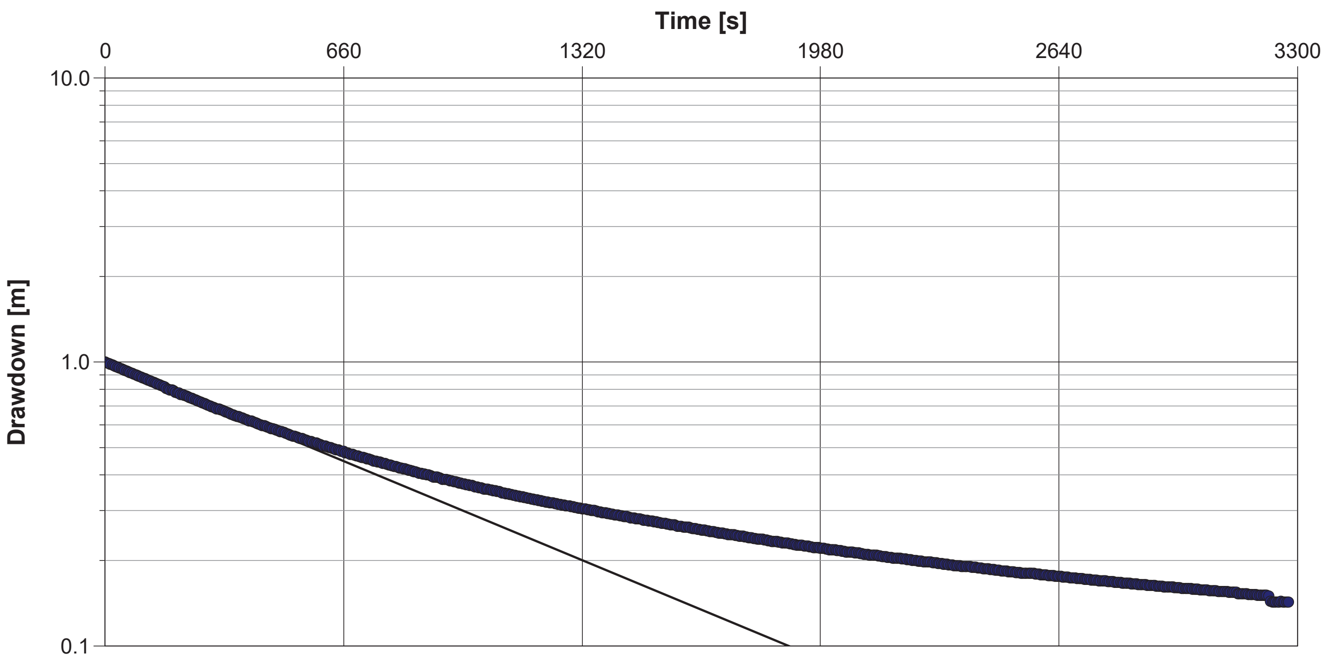


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH20-12	7.33×10^{-7}

	Slug Test Analysis Report C
	Project: Hydrogeological Investigation
	Number: 20-169-100
	Client: Argos Development Corp.

Location: Bolton Option 3 Lands	Slug Test: BH20-14	Test Well: BH20-14
Test Conducted by:		Test Date: 12/8/2020
Analysis Performed by: AS	BH20-14	Analysis Date: 12/8/2020
Aquifer Thickness: 0.80 m		

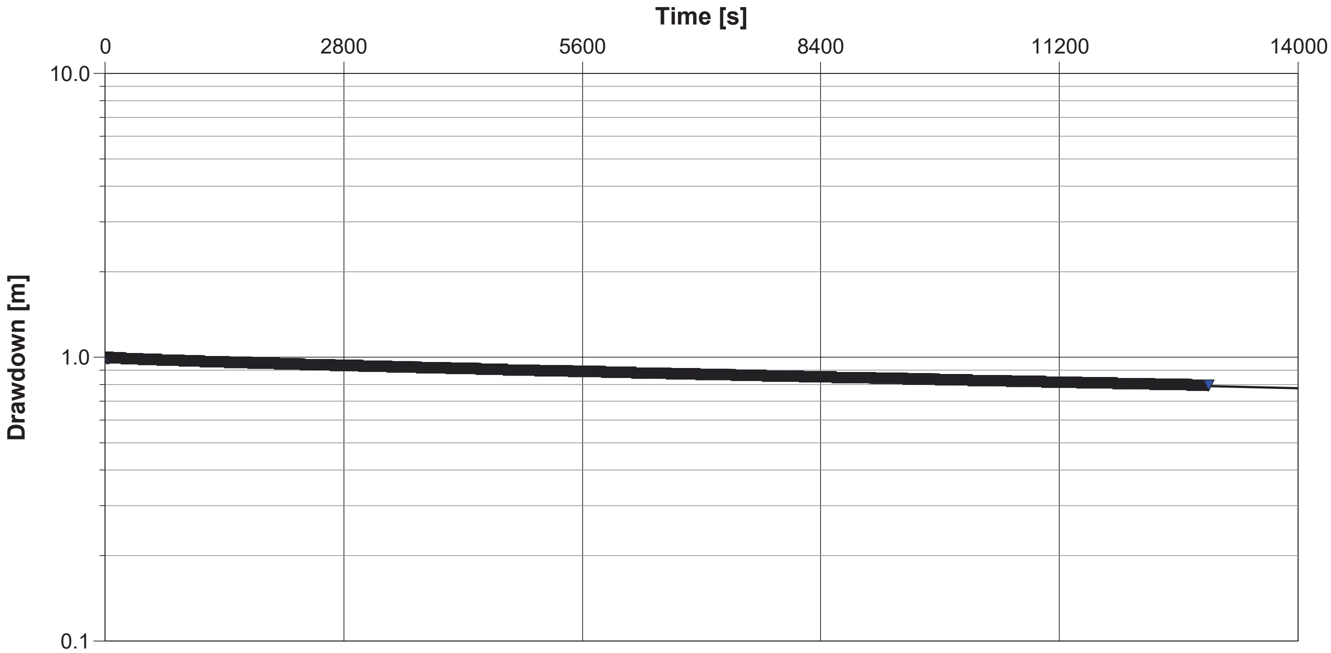


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH20-14	6.01×10^{-7}	

	Slug Test Analysis Report	C
	Project: Hydrogeological Investigation	
	Number: 20-169-100	
	Client: Argos Development Corp.	

Location: Bolton Option 3 Lands	Slug Test: BH20-15	Test Well: Well 9
Test Conducted by:		Test Date: 12/8/2020
Analysis Performed by: AS	BH20-15	Analysis Date: 12/8/2020
Aquifer Thickness: 0.70 m		

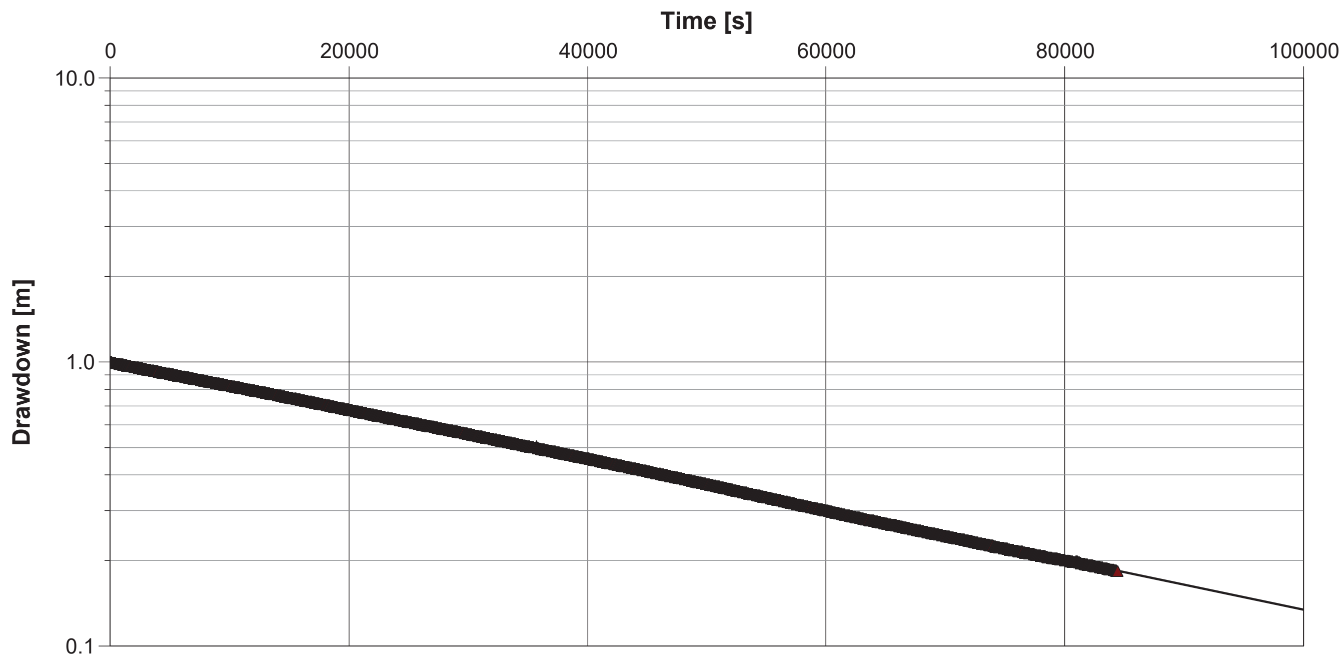


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
Well 9	7.38×10^{-9}	

	Slug Test Analysis Report C
	Project: Hydrogeological Investigation
	Number: 20-169-100
	Client: Argos Development Corp.

Location: Bolton Option 3 Lands	Slug Test: BH20-16	Test Well: BH20-16
Test Conducted by:		Test Date: 12/8/2020
Analysis Performed by: AS	BH20-16	Analysis Date: 12/8/2020
Aquifer Thickness: 6.12 m		

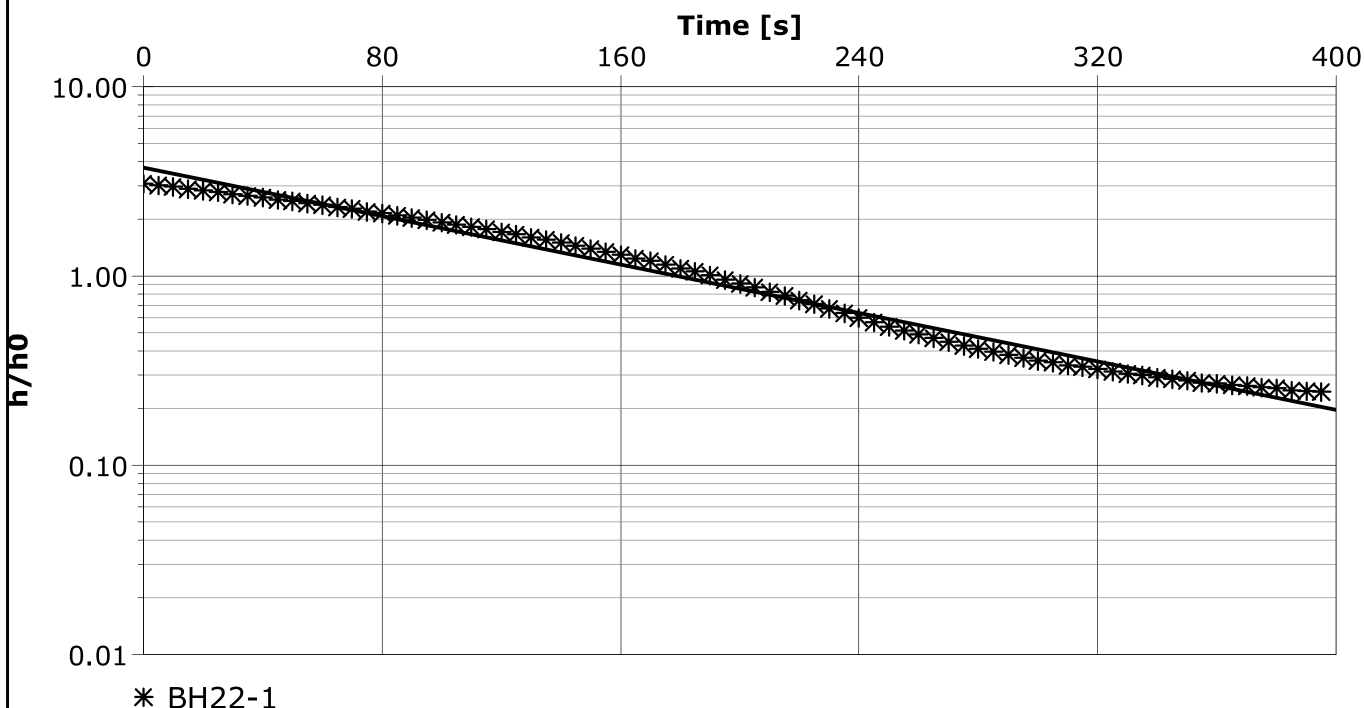


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH20-16	1.50×10^{-8}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-1	Test Well: BH22-1
Test Conducted by: HS		Test Date: 11/1/2022
Analysis Performed by: DS	BH22-1	Analysis Date: 11/17/2022
Aquifer Thickness: 12.00 m		

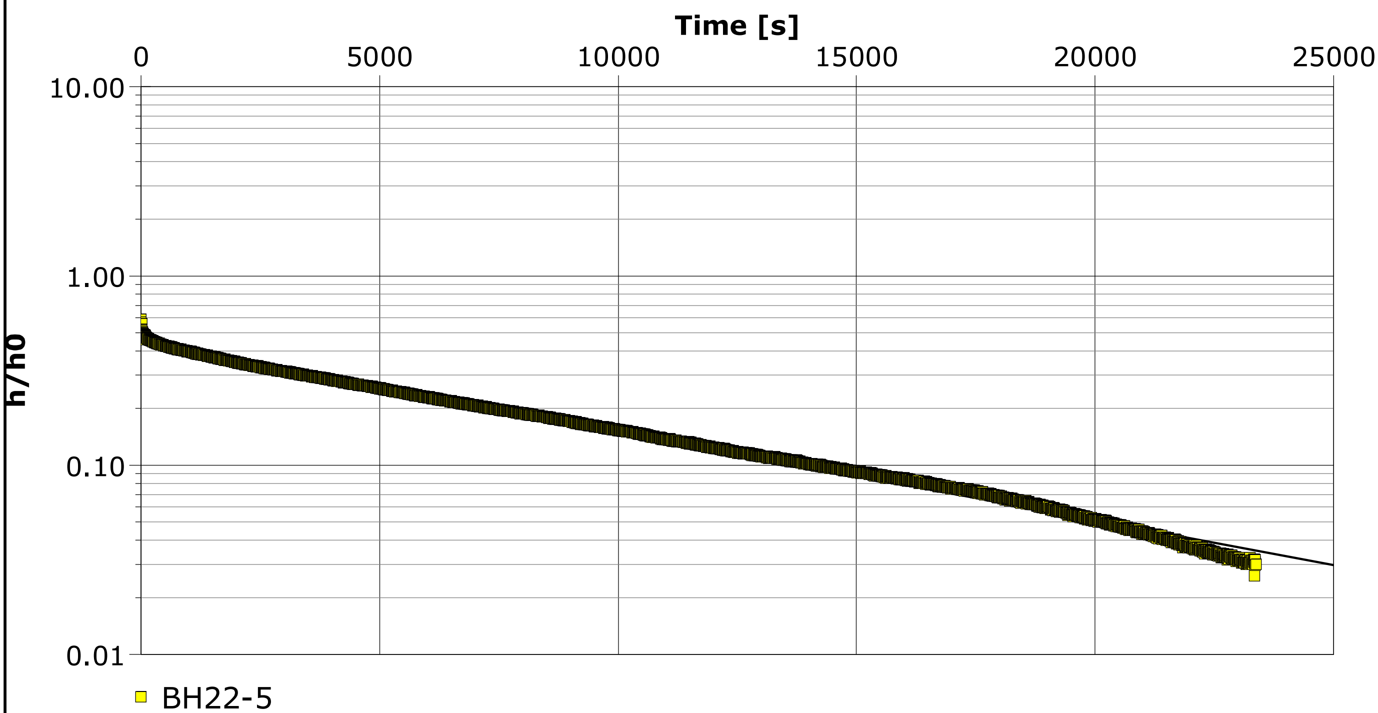


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-1	2.95×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location:Caledon Station	Slug Test: BH22-5	Test Well: BH22-5
Test Conducted by: HS		Test Date: 11/1/2022
Analysis Performed by: DS	BH22-5	Analysis Date: 11/17/2022
Aquifer Thickness: 30.00 m		

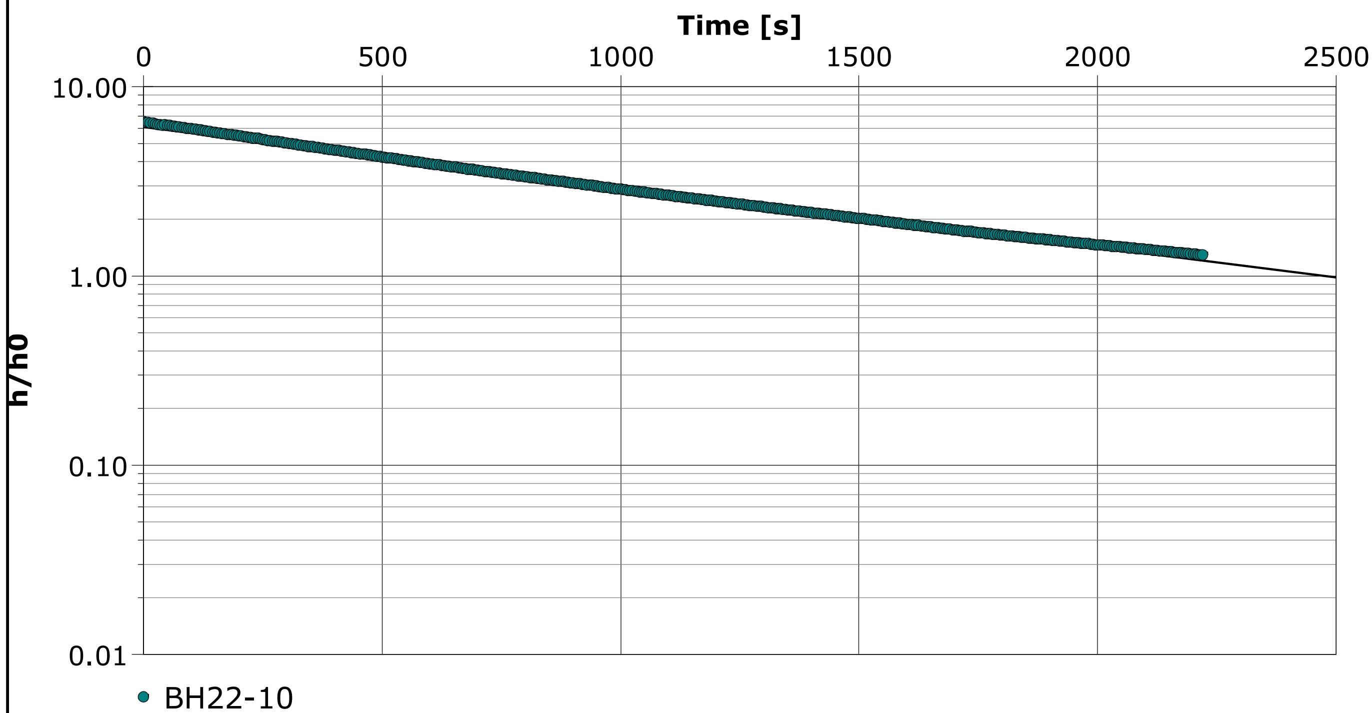


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-5	4.34×10^{-8}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-10	Test Well: BH22-10
Test Conducted by: HS		Test Date: 11/1/2022
Analysis Performed by:	BH22-10	Analysis Date: 11/17/2022
Aquifer Thickness: 30.00 m		

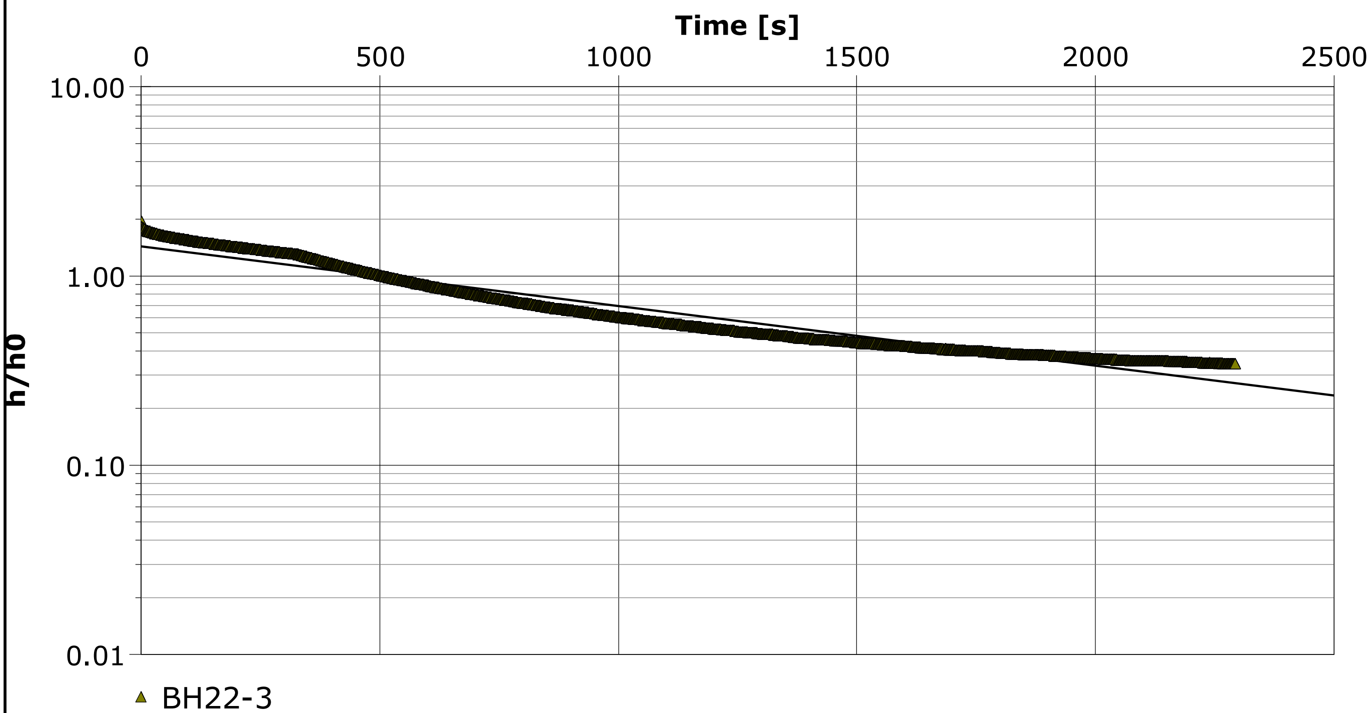


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-10	2.95×10^{-7}	

Slug Test Analysis Report	
Project: Hydrogeological Investigation	
Number: 20-169-104	
Client: Caledon Community Partners	

Location: Caledon Station	Slug Test: BH22-3	Test Well: BH22-3
Test Conducted by: HS		Test Date: 11/1/2022
Analysis Performed by: DS	BH22-3	Analysis Date: 11/17/2022
Aquifer Thickness: 30.00 m		

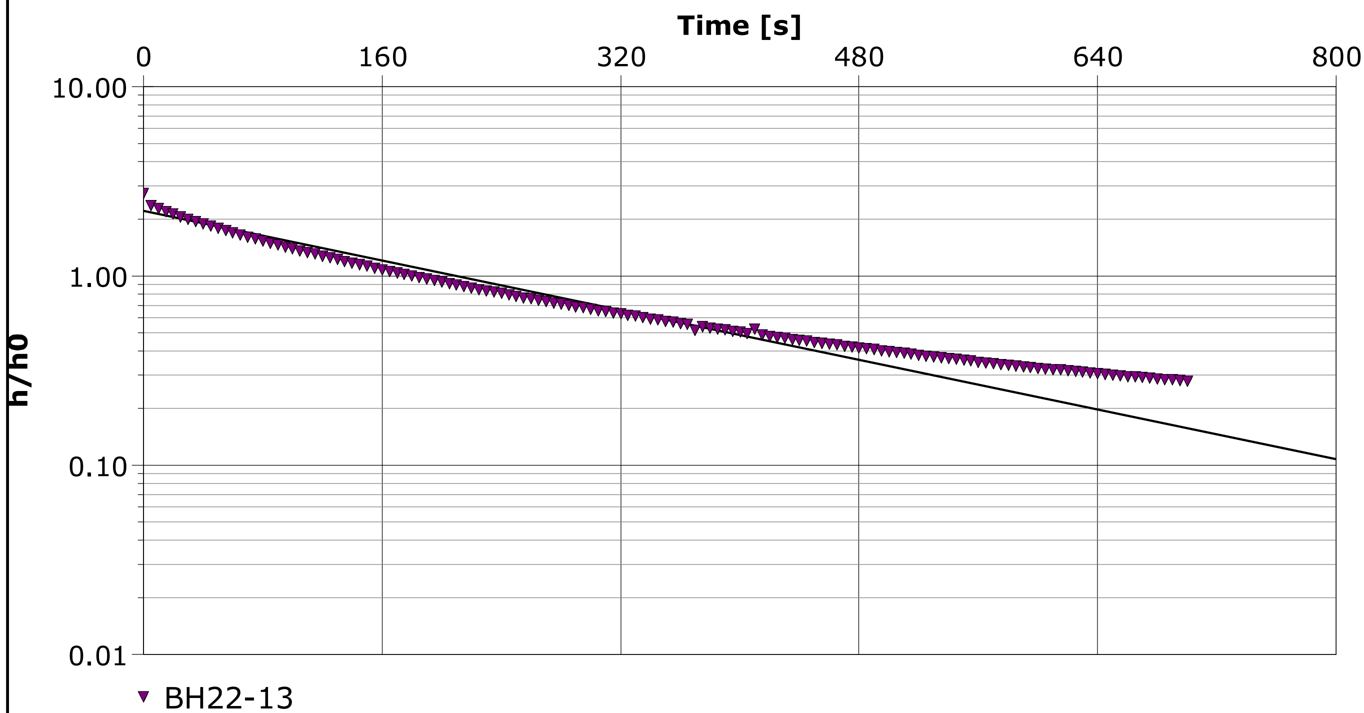


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH22-3	2.76×10^{-7}

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-13	Test Well: BH22-13
Test Conducted by: HS		Test Date: 11/1/2022
Analysis Performed by: DS	BH22-13	Analysis Date: 11/17/2022
Aquifer Thickness: 30.00 m		

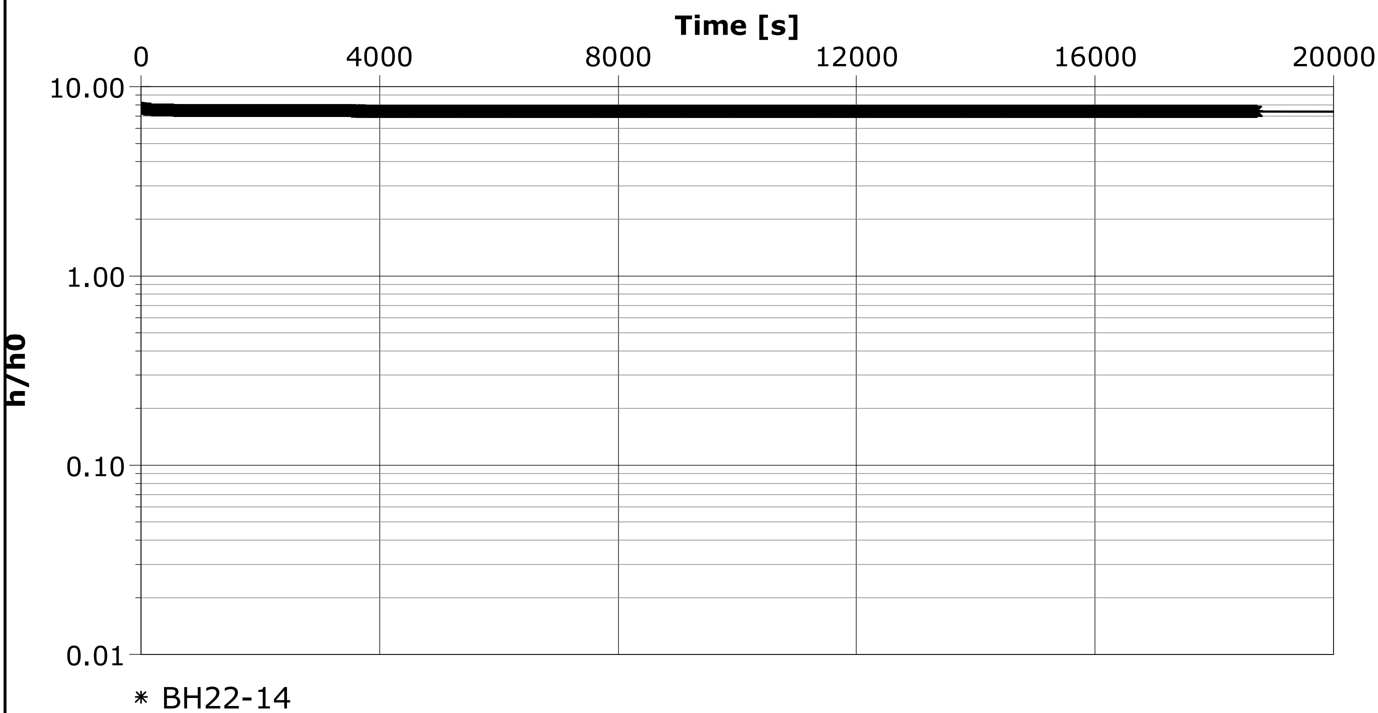


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-13	1.55×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-14	Test Well: BH22-14
Test Conducted by:		Test Date: 11/1/2022
Analysis Performed by: DS	BH22-14	Analysis Date: 11/17/2022
Aquifer Thickness: 30.00 m		

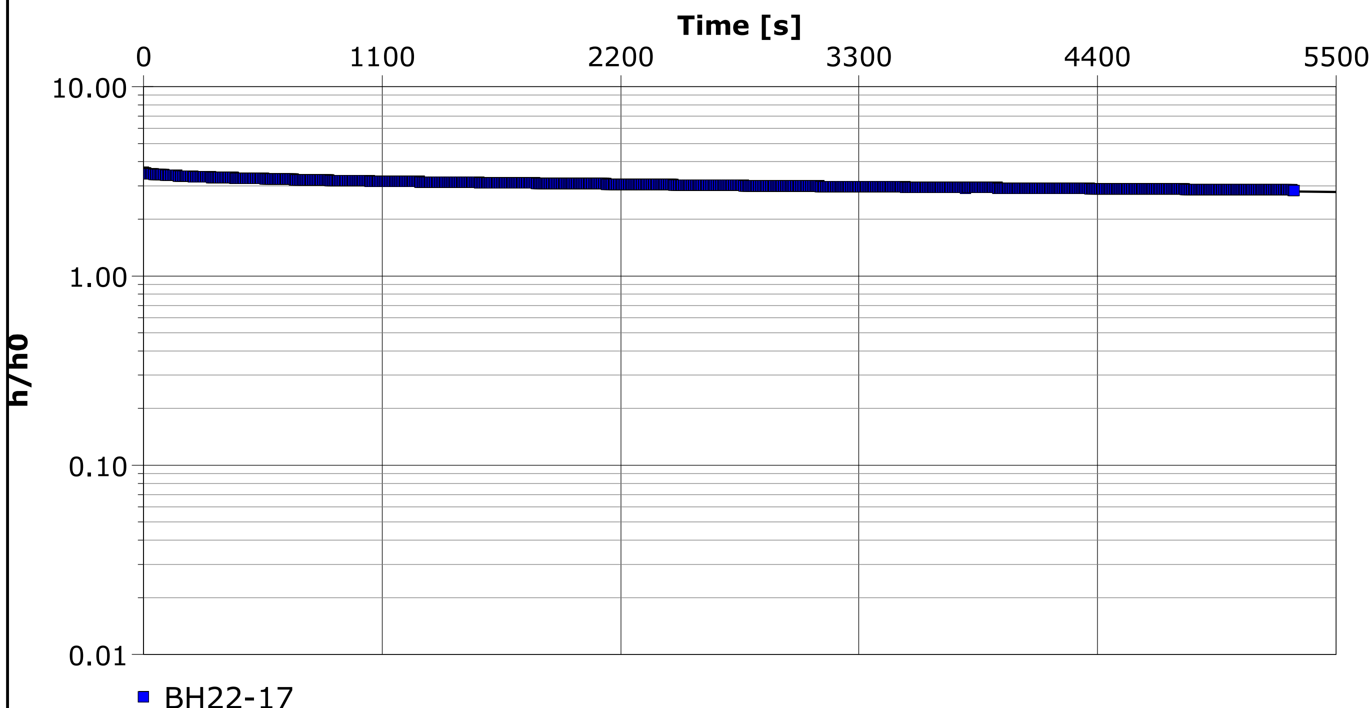


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-14	2.94×10^{-10}	

Slug Test Analysis Report	
Project:	Hydrogeological Investigation
Number:	20-169-104
Client:	Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-17	Test Well: BH22-17
Test Conducted by: HS		Test Date: 11/3/2022
Analysis Performed by: DS	BH22-17	Analysis Date: 11/17/2022
Aquifer Thickness: 30.00 m		

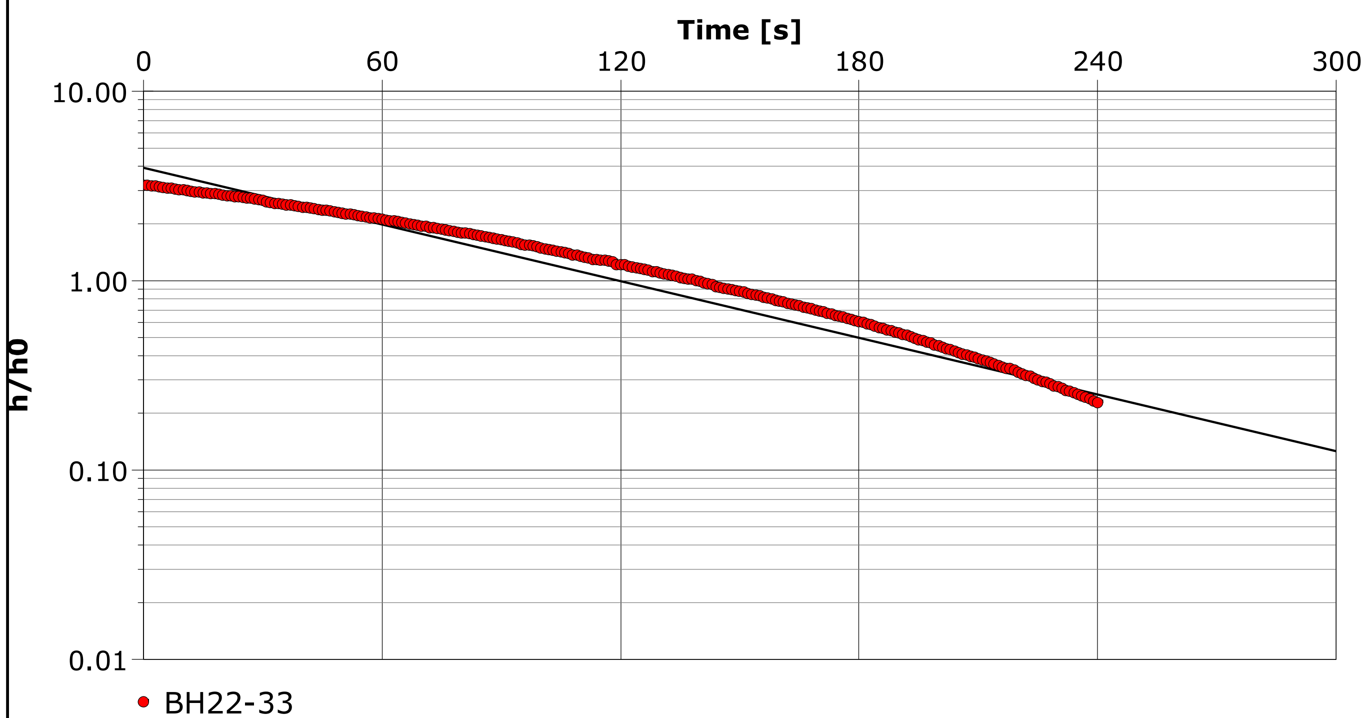


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH22-17	1.21×10^{-8}

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-33	Test Well: BH22-33
Test Conducted by: HS		Test Date: 11/3/2022
Analysis Performed by: DS	BH22-33	Analysis Date: 11/23/2022
Aquifer Thickness: 30.00 m		

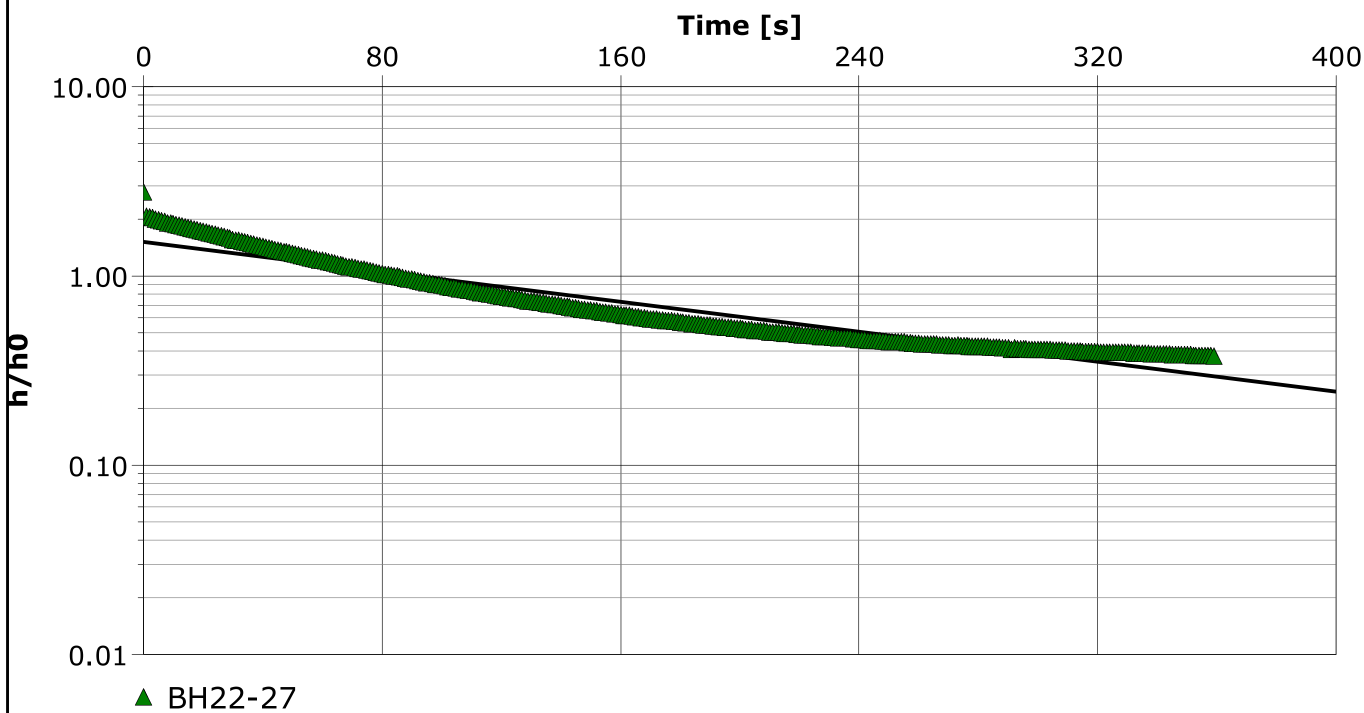


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH22-33	4.63×10^{-6}

Slug Test Analysis Report	
Project:	Hydrogeological Investigation
Number:	20-169-104
Client:	Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-27	Test Well: BH22-27
Test Conducted by:		Test Date: 11/1/2022
Analysis Performed by: DS	BH22-27	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

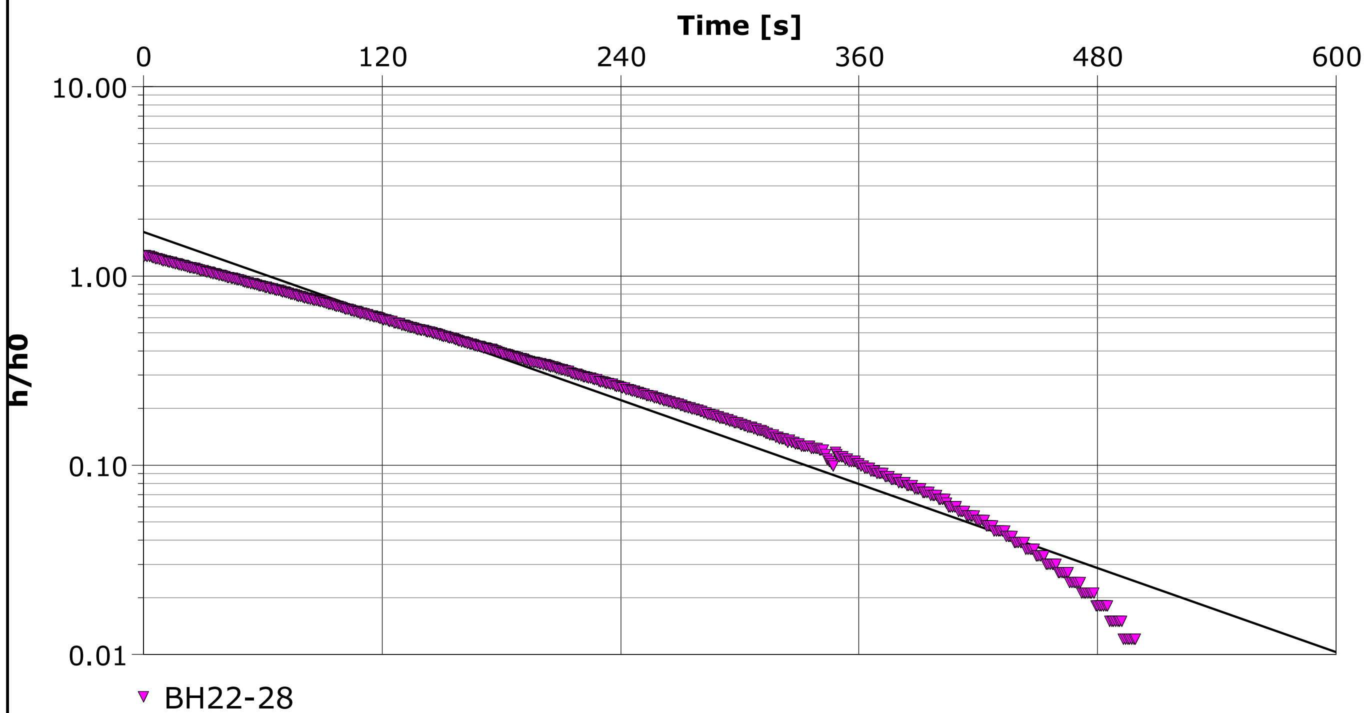


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-27	1.87×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-28	Test Well: BH22-28
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-28	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

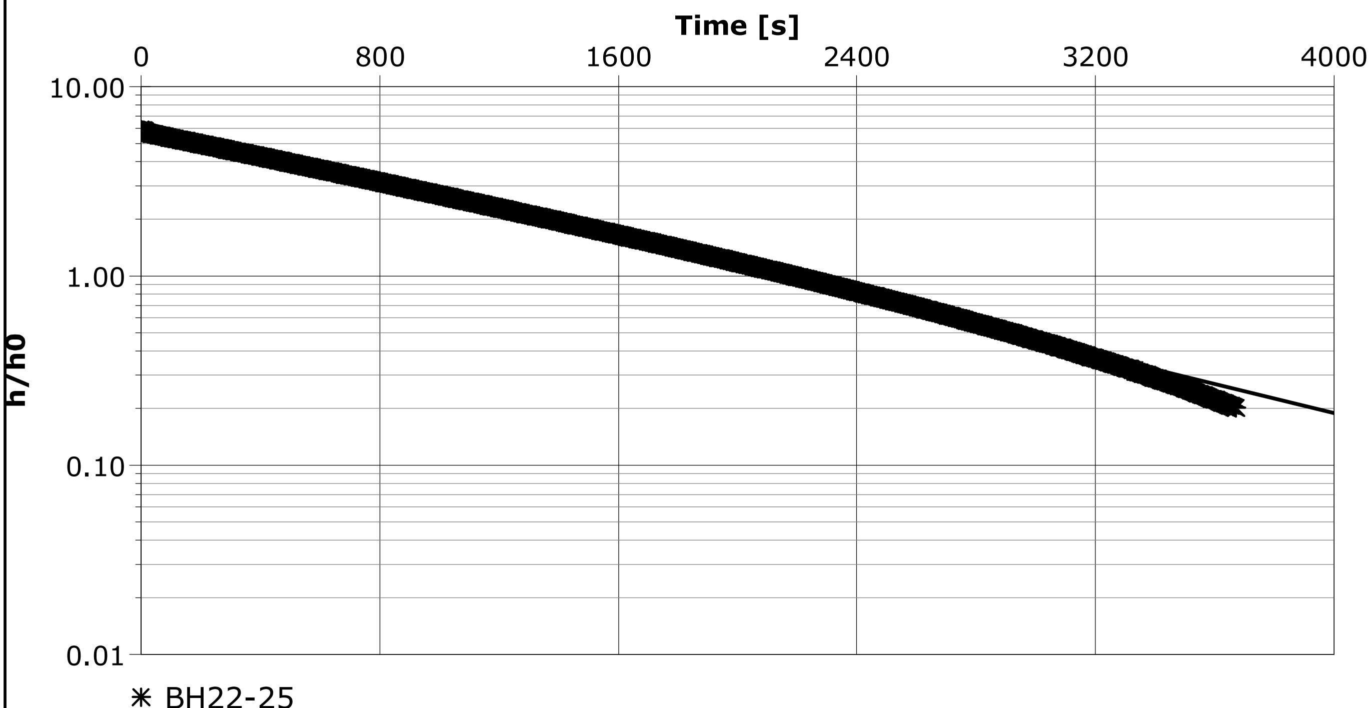


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-28	3.44×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-25	Test Well: BH22-25
Test Conducted by: HS		Test Date: 2/10/2023
Analysis Performed by: DS	BH22-25	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

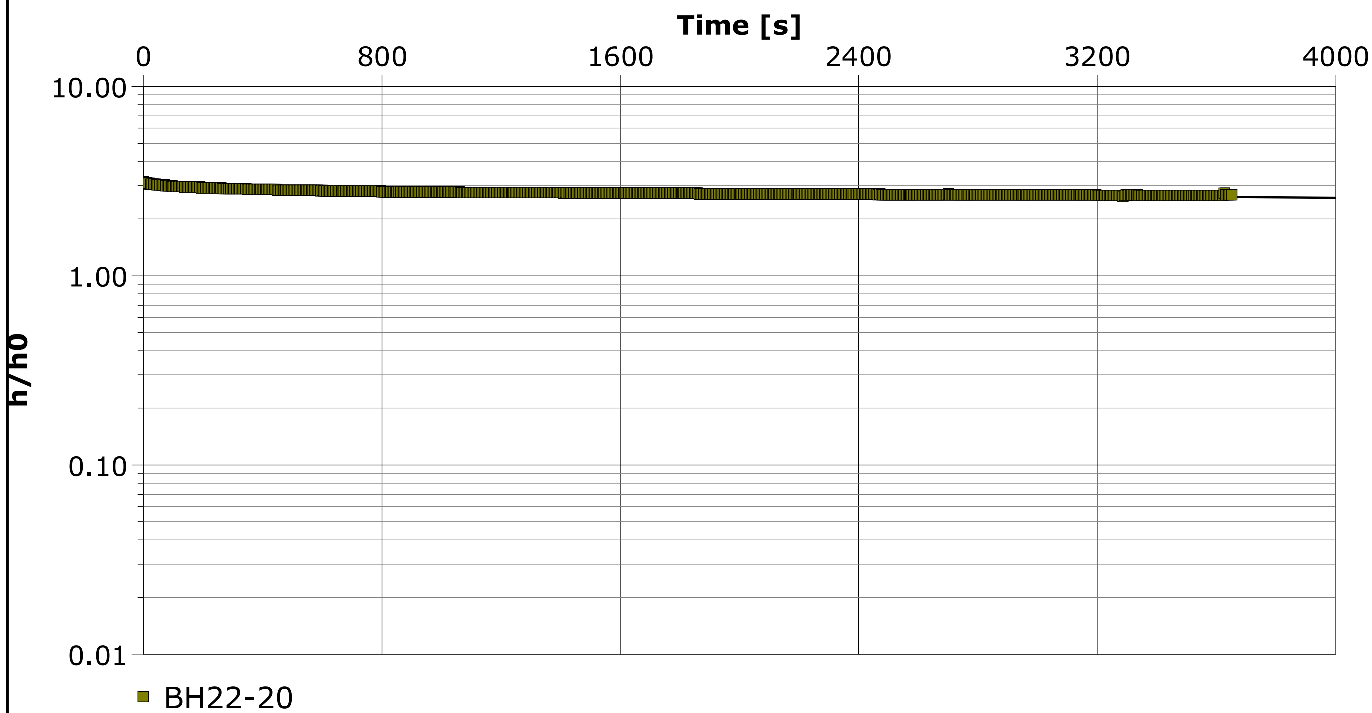


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-25	3.56×10^{-7}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-20	Test Well: BH22-20
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-20	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

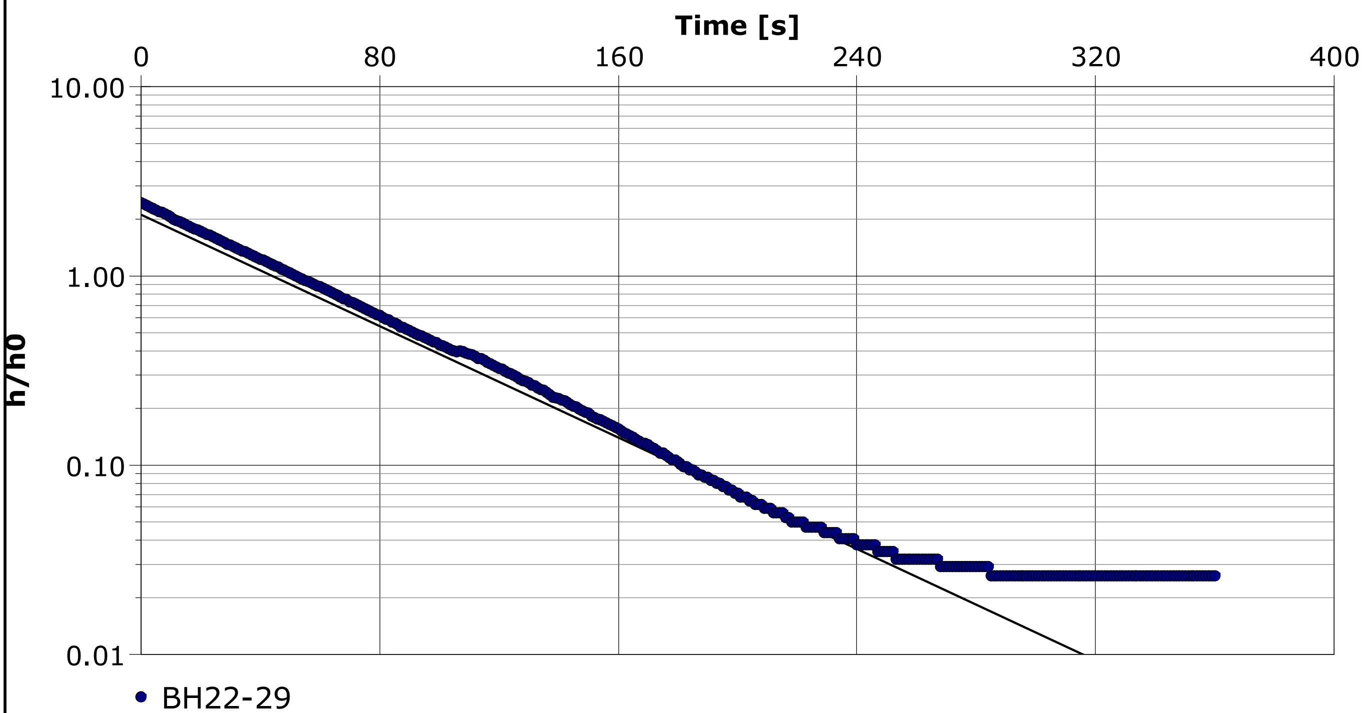


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-20	1.00×10^{-8}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-29	Test Well: BH22-29
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-29	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

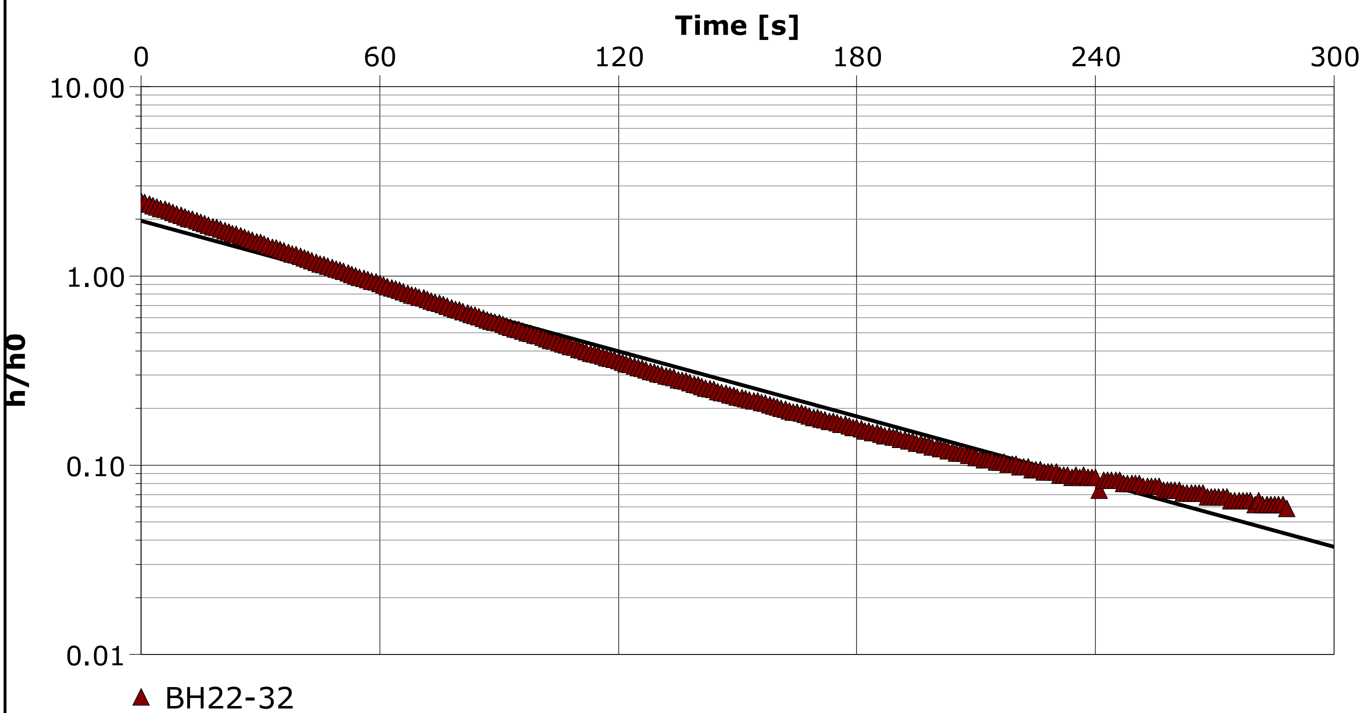


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-29	6.71×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-32	Test Well: BH22-32
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-32	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

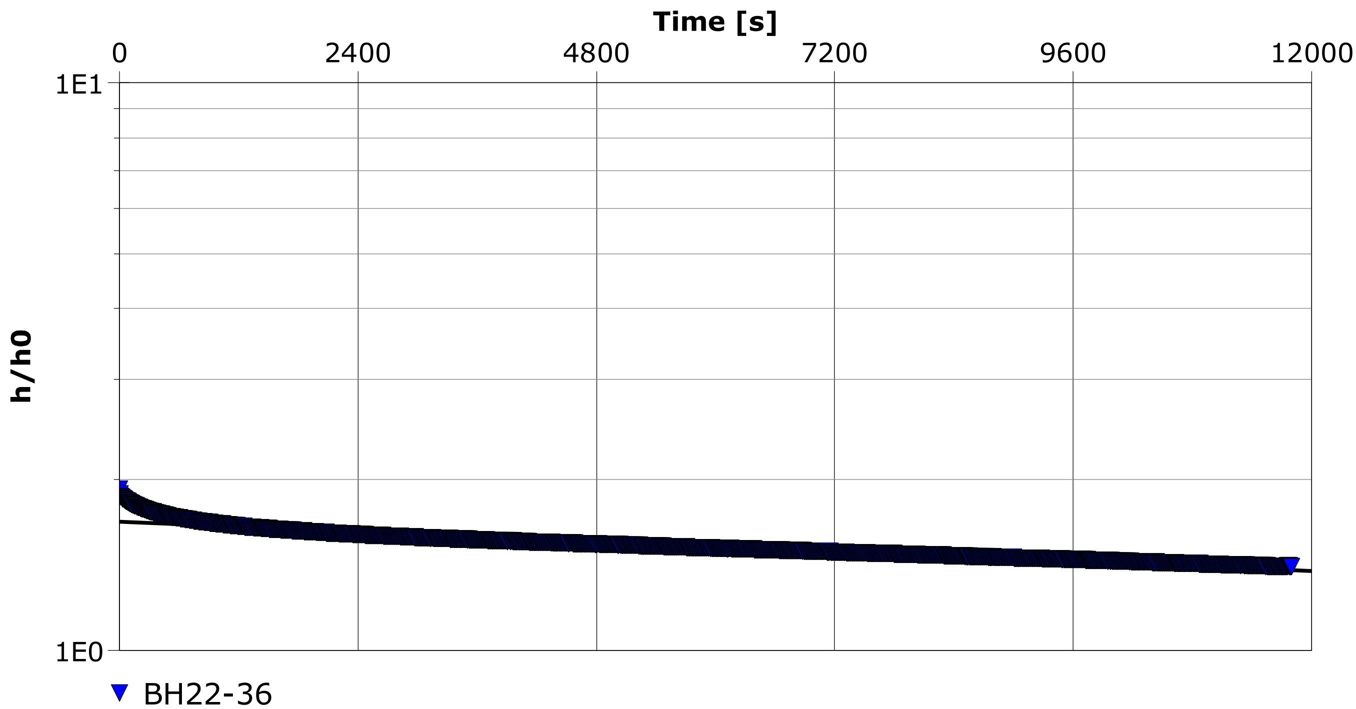


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-32	5.42×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location:Caledon Station	Slug Test: BH22-36	Test Well: BH22-36
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-36	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

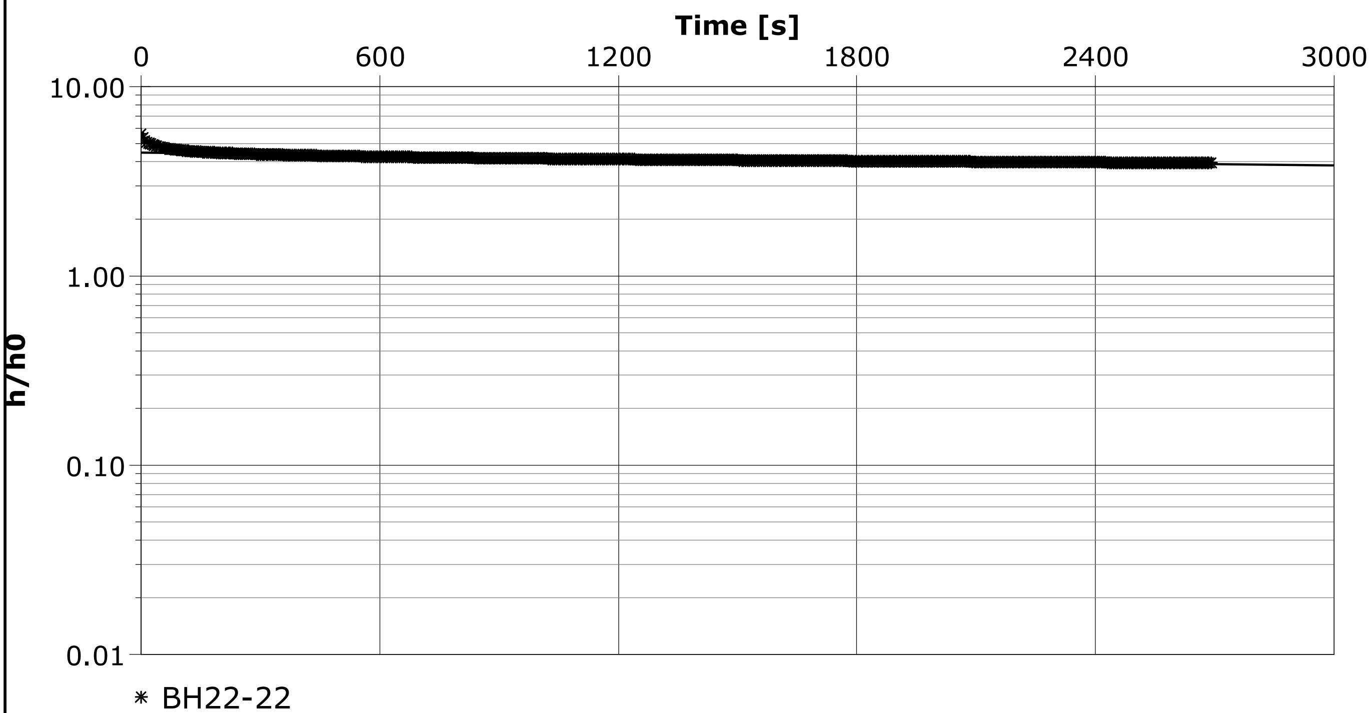


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-36	5.28×10^{-9}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 20-169-104
	Client: Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-22	Test Well: BH22-22
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-22	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		

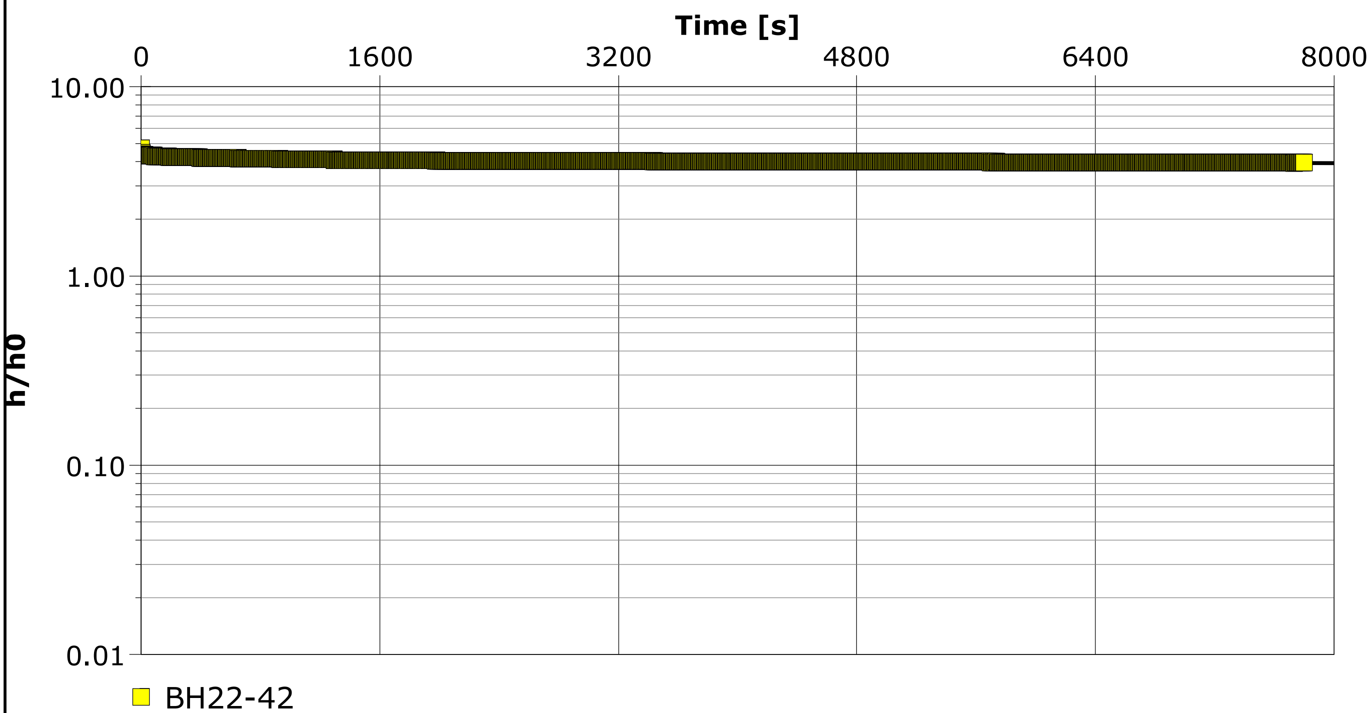


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-22	1.84×10^{-8}	

Slug Test Analysis Report	
Project:	Hydrogeological Investigation
Number:	20-169-104
Client:	Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-42	Test Well: BH22-42
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-42	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		



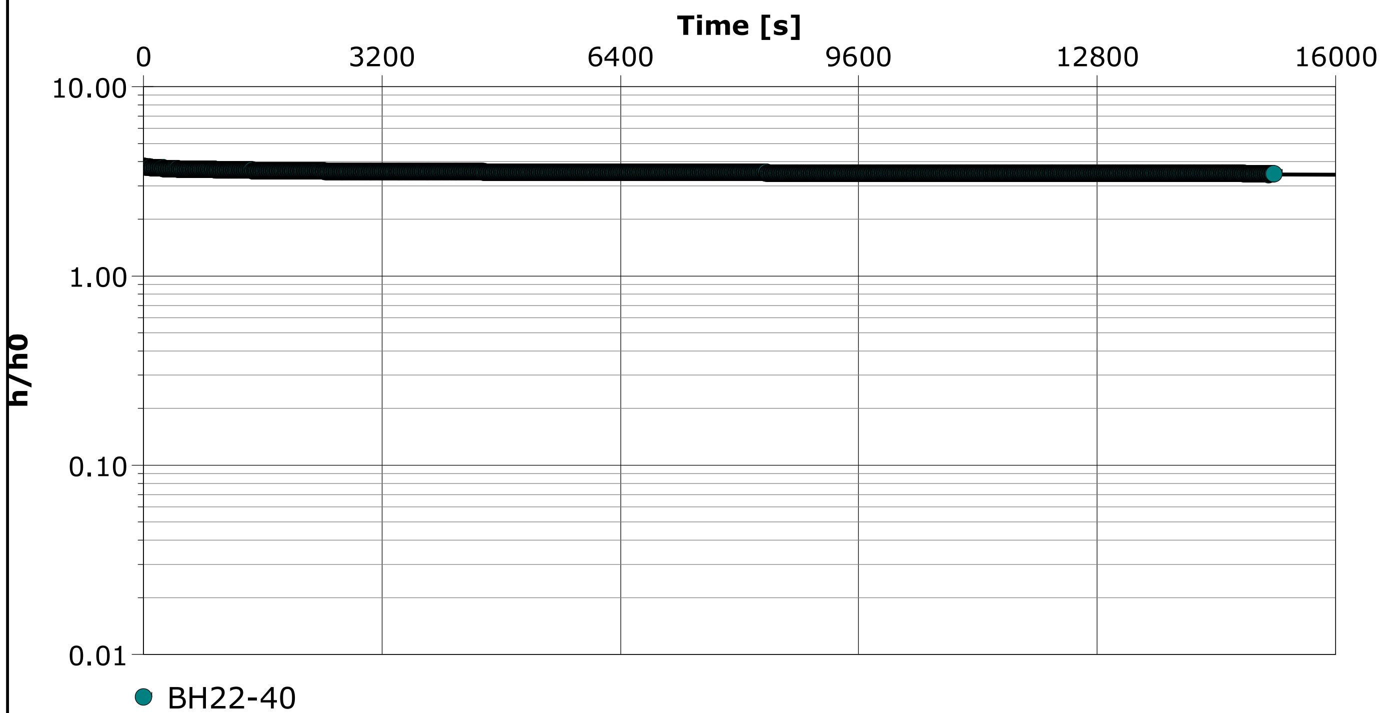
Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH22-42	2.54×10^{-9}

Slug Test Analysis Report

Project:	Hydrogeological Investigation
Number:	20-169-104
Client:	Caledon Community Partners

Location: Caledon Station	Slug Test: BH22-40	Test Well: BH22-40
Test Conducted by: HS		Test Date: 11/2/2022
Analysis Performed by: DS	BH22-40	Analysis Date: 2/10/2023
Aquifer Thickness: 30.00 m		



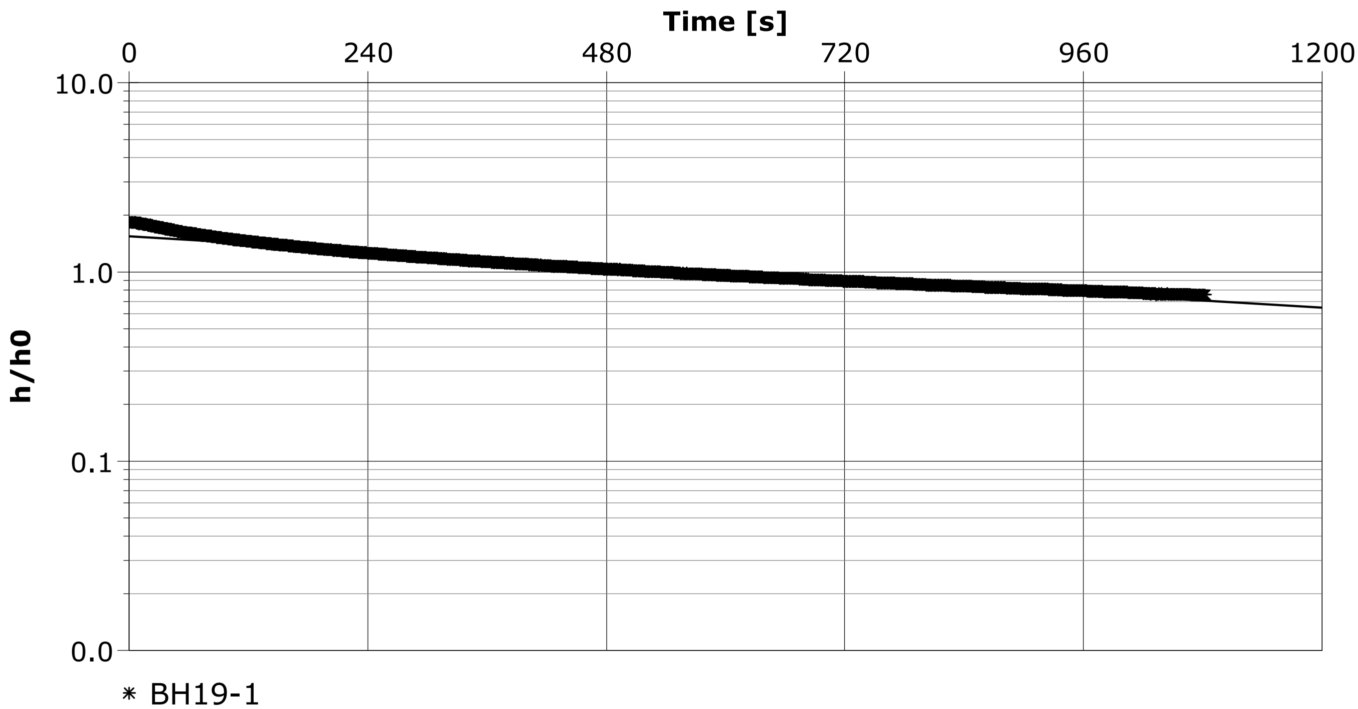
Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-40	1.06×10^{-9}	

Appendix D-2
Argo King I & II

	Slug Test Analysis Report
	Project: 7675 King St
	Number: 19-093-100
	Client: Argo Development Corp.

Location: Bolton, ON	Slug Test: BH19-1	Test Well: BH19-1
Test Conducted by: DG		Test Date: 6/27/2019
Analysis Performed by: DG	BH19-1	Analysis Date: 6/28/2019
Aquifer Thickness: 36.00 m		

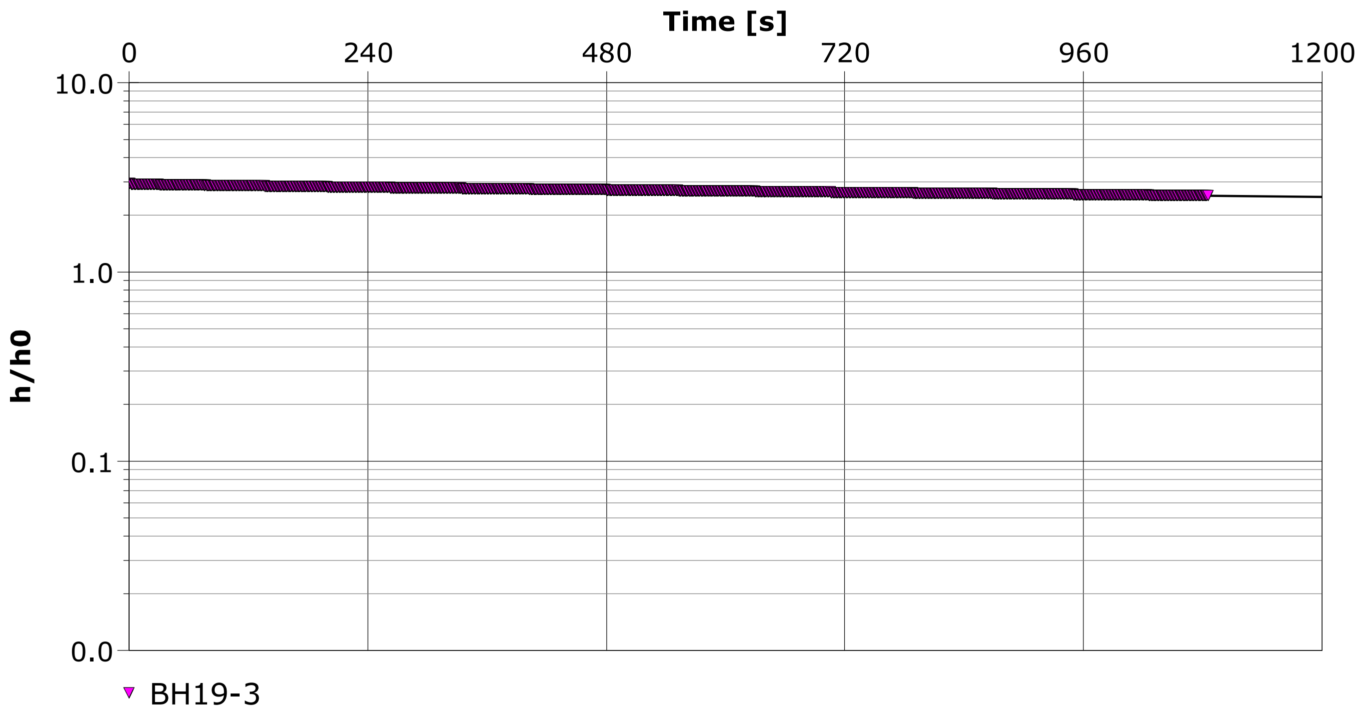


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH19-1	4.94×10^{-7}	

Slug Test Analysis Report	
Project:	7675 King St
Number:	19-093-100
Client:	Argo Development Corp.

Location: Bolton, ON	Slug Test: BH19-3	Test Well: BH19-3
Test Conducted by: DG		Test Date: 6/27/2019
Analysis Performed by: DG	BH19-3	Analysis Date: 6/28/2019
Aquifer Thickness: 36.00 m		

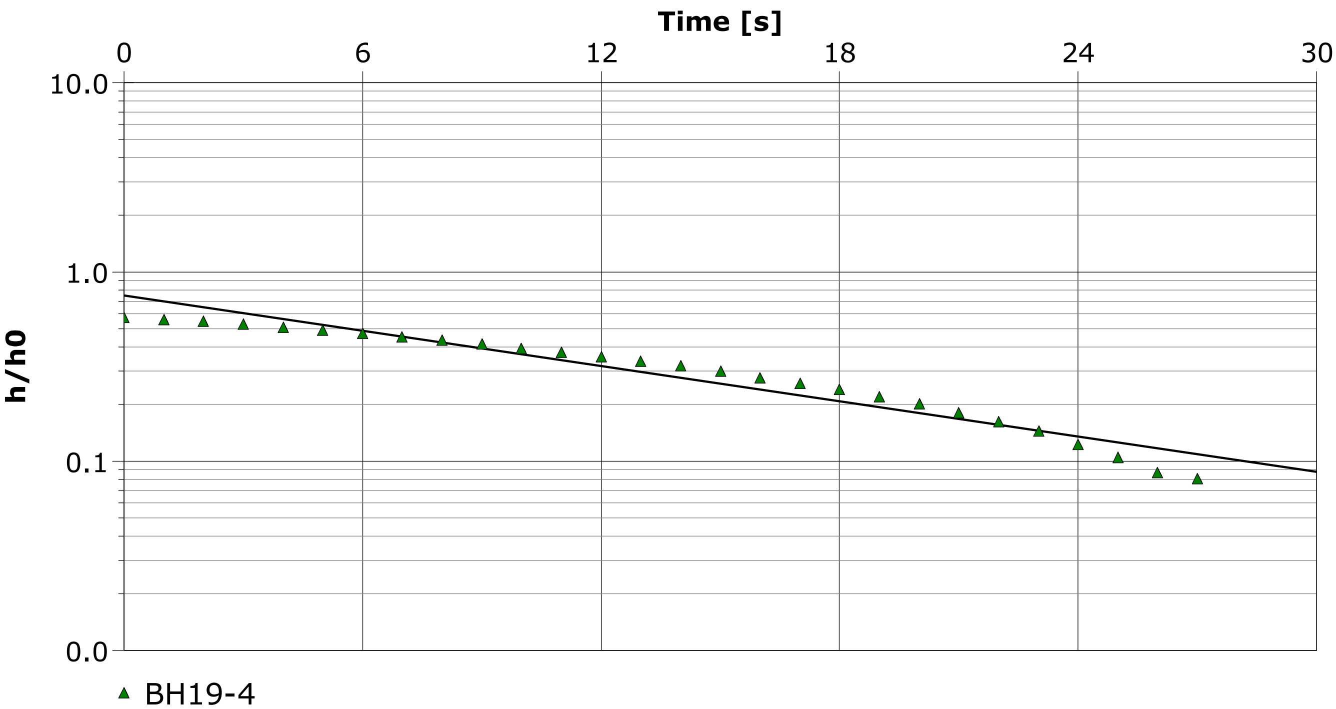


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH19-3	8.51×10^{-8}	

	Slug Test Analysis Report
	Project: 7675 King St
	Number: 19-093-100
	Client: Argo Development Corp.

Location: Bolton, ON	Slug Test: BH19-4	Test Well: BH19-4
Test Conducted by: DG		Test Date: 6/27/2019
Analysis Performed by: DG	BH19-4	Analysis Date: 6/28/2019
Aquifer Thickness: 36.00 m		



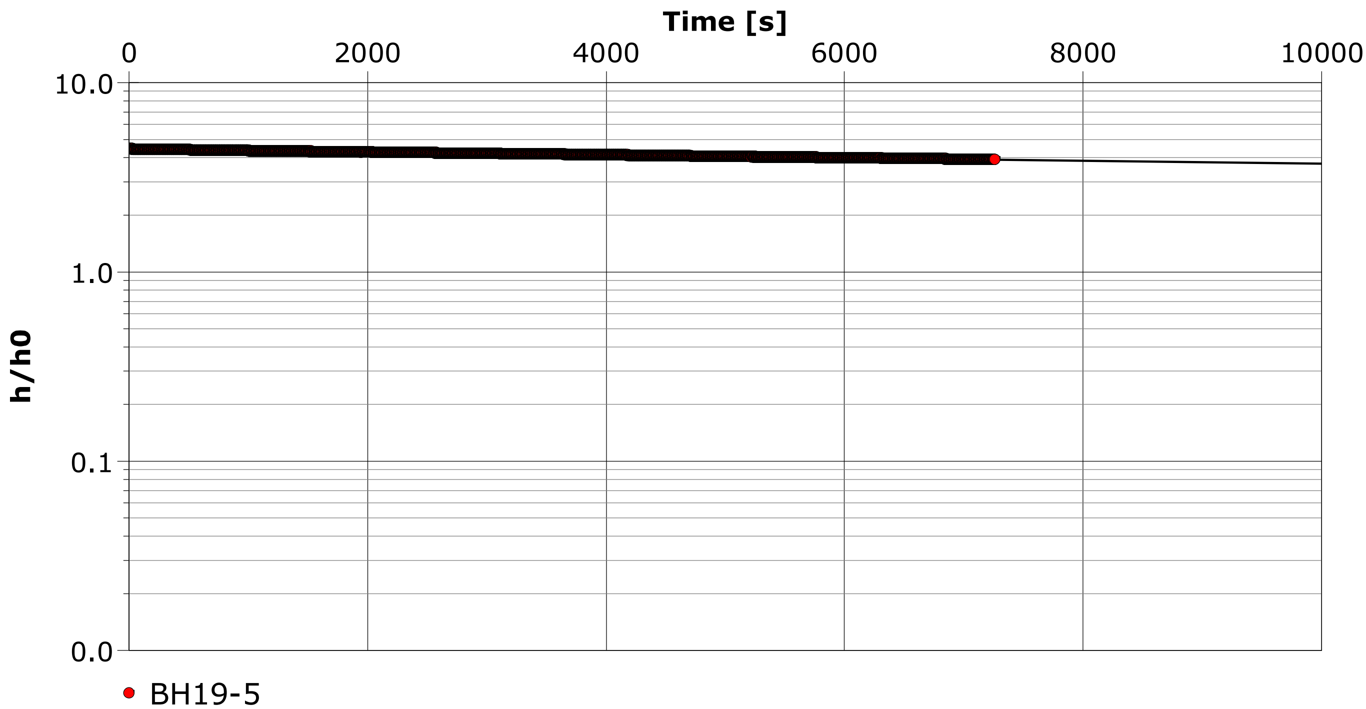
Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH19-4	4.84×10^{-5}

Slug Test Analysis Report

Project:	7675 King St
Number:	19-093-100
Client:	Argo Development Corp.

Location: Bolton, ON	Slug Test: BH19-5	Test Well: BH19-5
Test Conducted by: DG		Test Date: 6/27/2019
Analysis Performed by: DG	BH19-5	Analysis Date: 6/28/2019
Aquifer Thickness: 36.00 m		

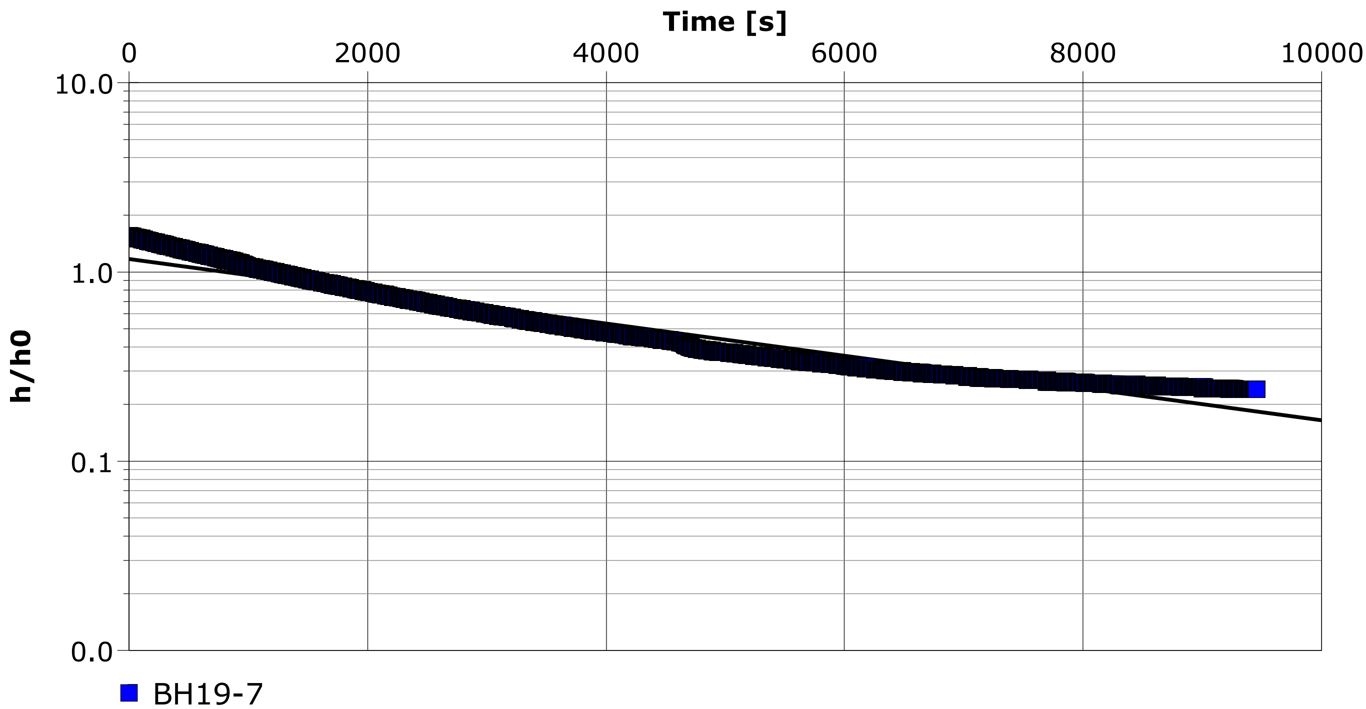


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH19-5	1.18×10^{-8}	

	Slug Test Analysis Report
	Project: 7675 King St
	Number: 19-093-100
	Client: Argo Development Corp.

Location: Bolton, ON	Slug Test: BH19-7	Test Well: BH19-7
Test Conducted by: DG		Test Date: 6/27/2019
Analysis Performed by: DG	BH19-7	Analysis Date: 6/28/2019
Aquifer Thickness: 36.00 m		

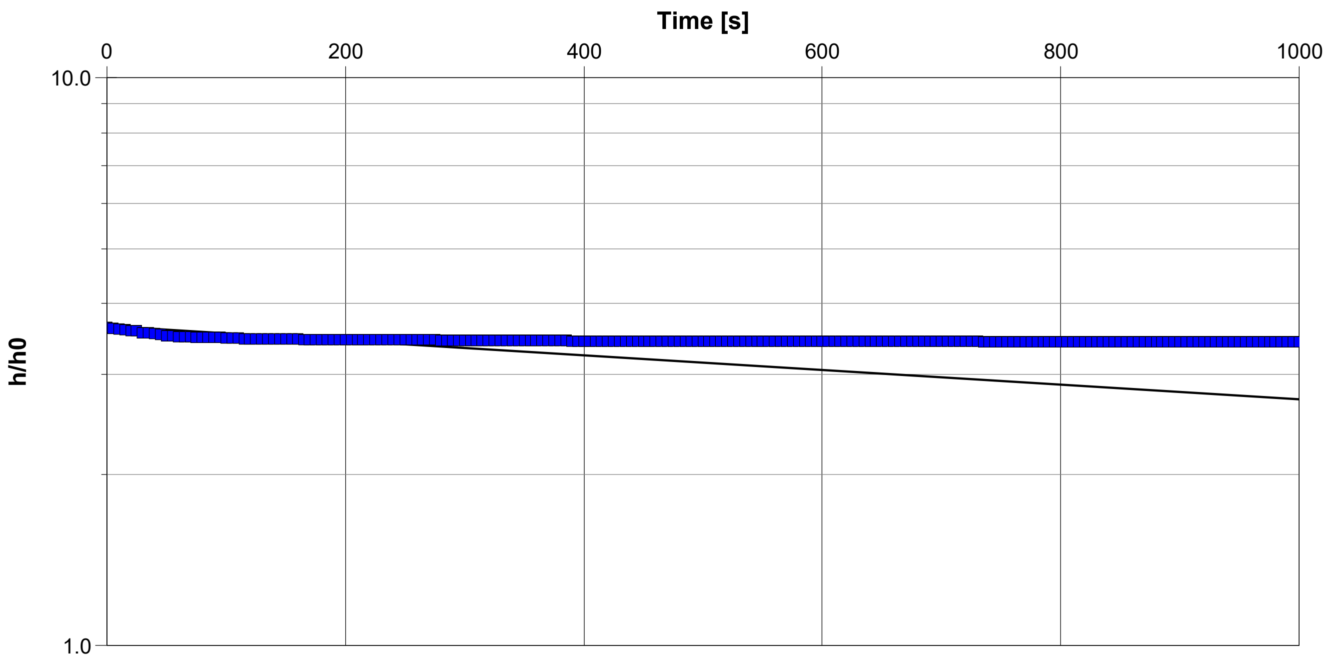


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]
BH19-7	1.33×10^{-7}

	Slug Test Analysis Report
	Project: Argo King
	Number: 19-093-100
	Client: Caledon Community Partners

Location: Caledon, ON	Slug Test: BH19-6	Test Well: BH19-6
Test Conducted by: DS		Test Date: 10/26/2022
Analysis Performed by: DS	BH19-6	Analysis Date: 10/31/2022
Aquifer Thickness: 7.00 m		

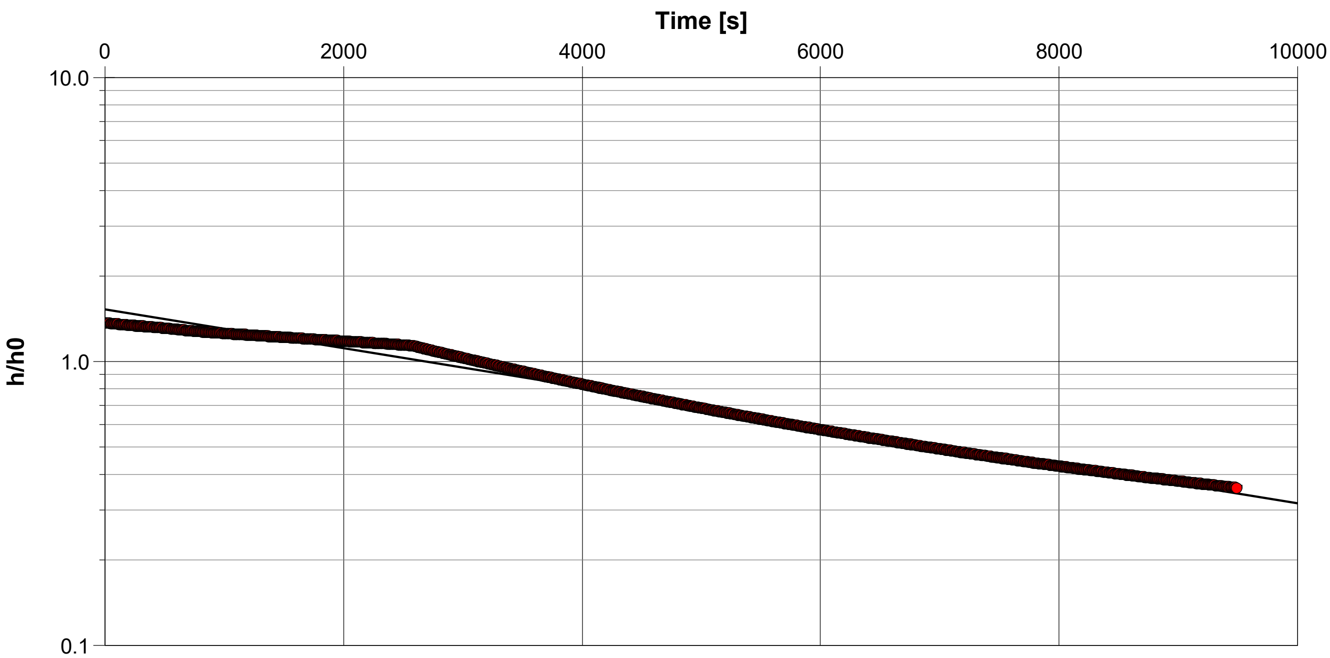


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH19-6	1.04×10^{-7}	

	Slug Test Analysis Report
	Project: Argo King
	Number: 19-093-100
	Client: Caledon Community Partners

Location: Caledon, ON	Slug Test: BH22-5	Test Well: BH22-5
Test Conducted by: DS		Test Date: 10/26/2022
Analysis Performed by: DS	BH22-5	Analysis Date: 10/31/2022
Aquifer Thickness: 11.20 m		

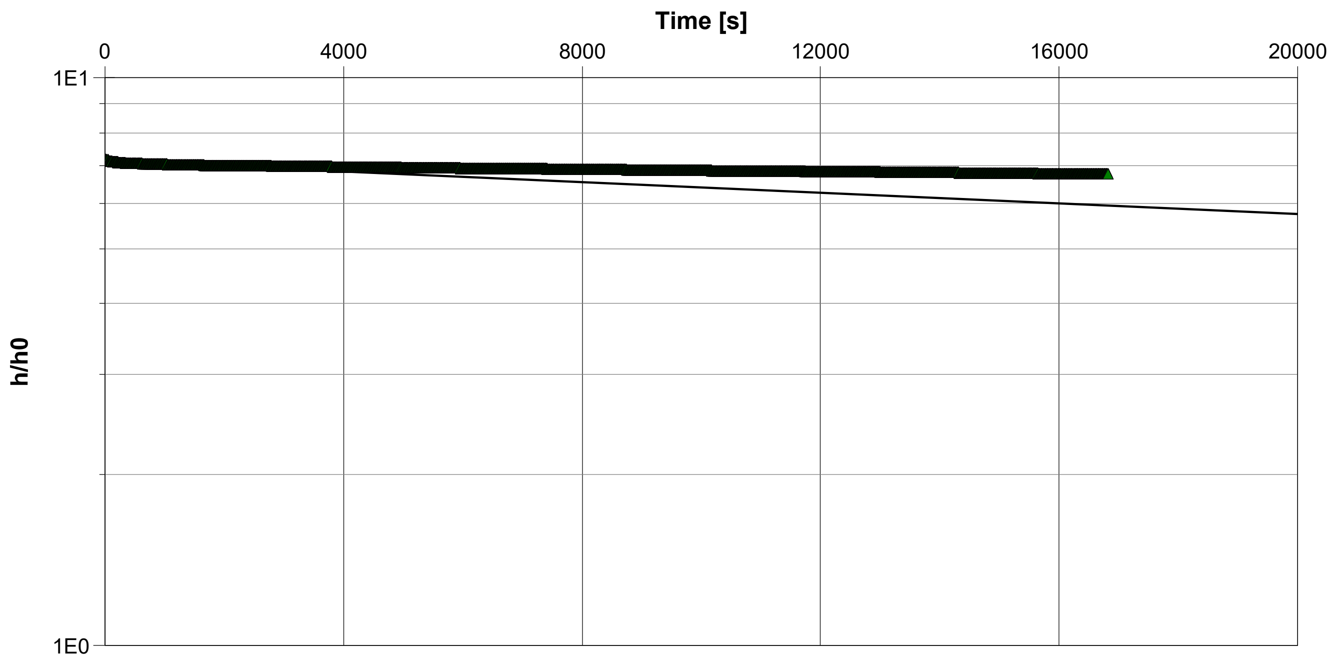


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-5	5.54×10^{-8}	

Slug Test Analysis Report	
Project:	Argo King
Number:	19-093-100
Client:	Caledon Community Partners

Location: Caledon, ON	Slug Test: BH22-7	Test Well: BH22-7
Test Conducted by: DS		Test Date: 10/26/2022
Analysis Performed by: DS	BH22-7	Analysis Date: 10/31/2022
Aquifer Thickness: 11.20 m		

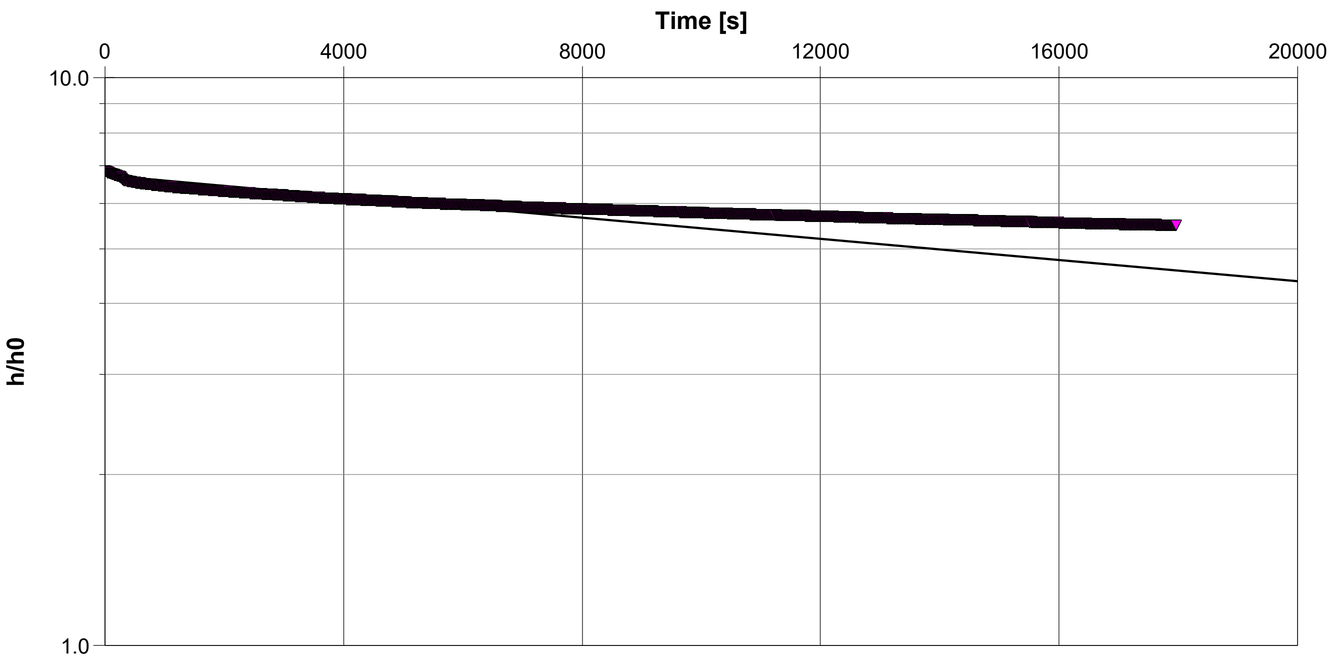


Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-7	3.79×10^{-9}	

	Slug Test Analysis Report
	Project: Argo King
	Number: 19-093-100
	Client: Caledon Community Partners

Location: Caledon, ON	Slug Test: BH22-8	Test Well: BH22-8
Test Conducted by: DS		Test Date: 10/26/2022
Analysis Performed by: DS	BH22-8	Analysis Date: 10/31/2022
Aquifer Thickness: 11.30 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH22-8	8.00×10^{-9}	

Appendix E

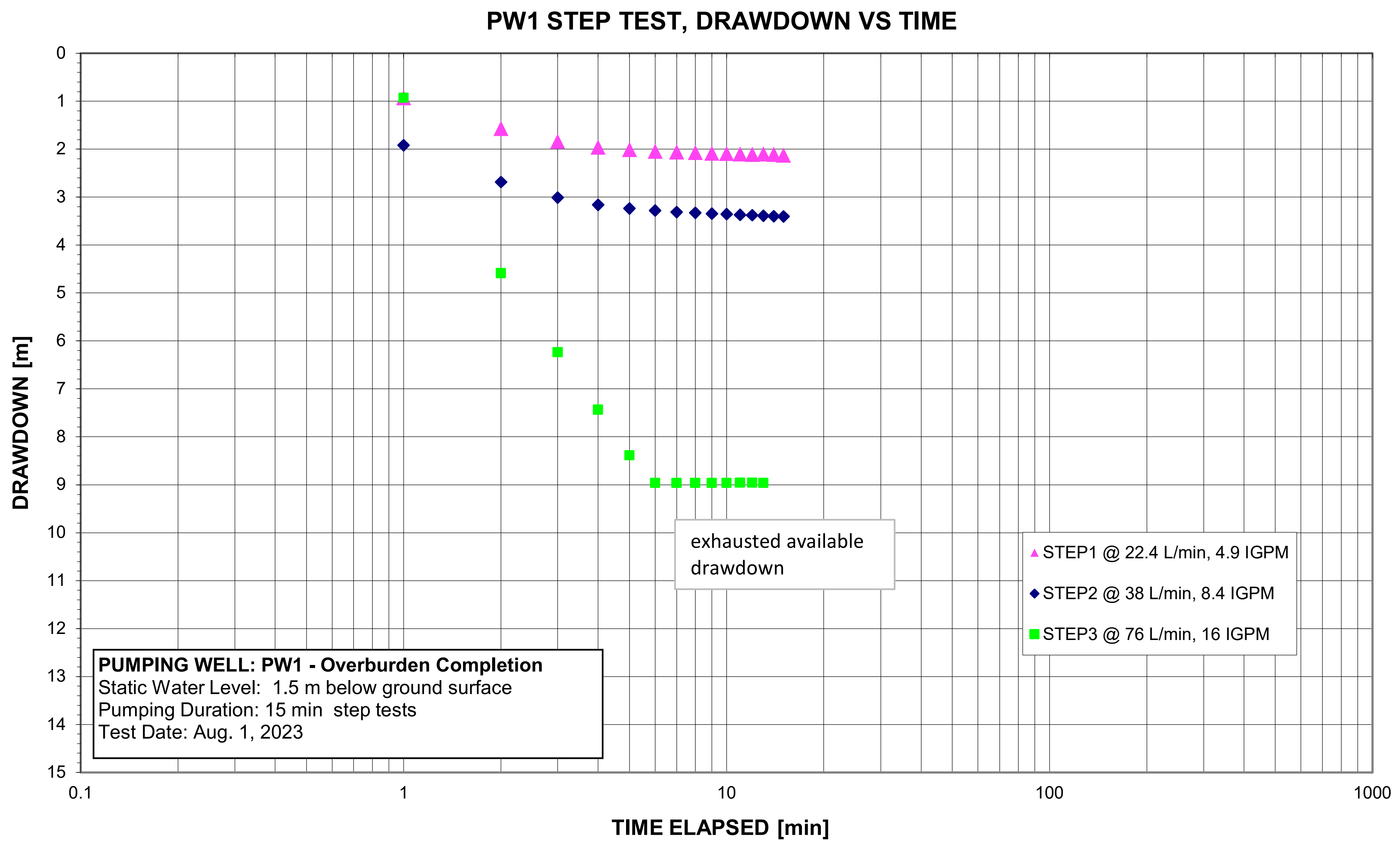


FIGURE E-1

PW1 STEP DRAWDOWN TEST Macville Community Drawdown vs. Time Caledon, Ontario	**Project No.:** 20-169-105 **Date:** Aug. 11, 2023	DS CONSULTANTS LTD. Geotechnical ◇ Environmental ◇ Materials ◇ Hydrogeology

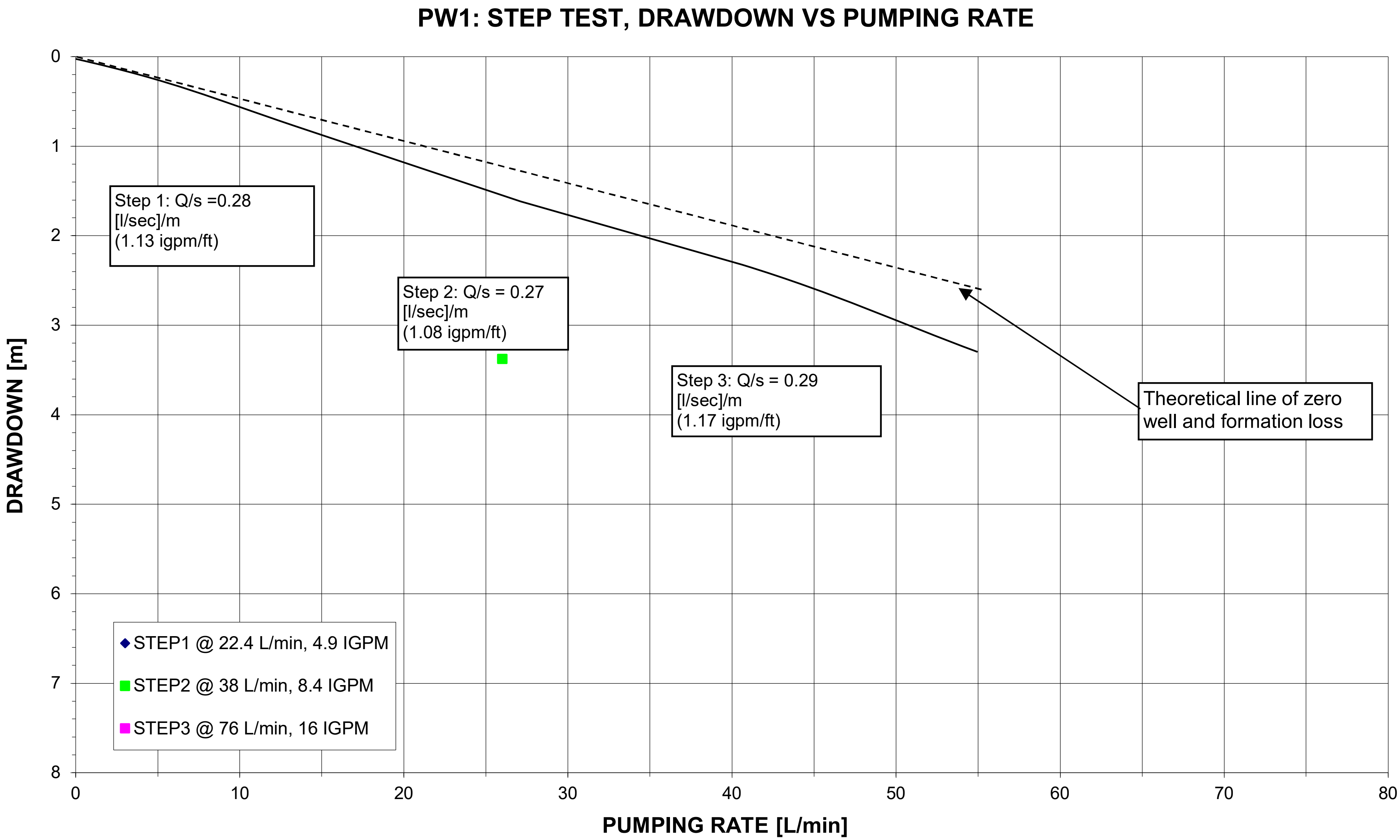


FIGURE E-2

PW1 STEP DRAWDOWN TEST Macville Community Drawdown vs. Time Caledon, Ontario	**Project No.:** 20-169-105 **Date:** Aug. 11, 2023	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

PW1: AQUIFER TEST, DRAWDOWN/RECOVERY VS TIME

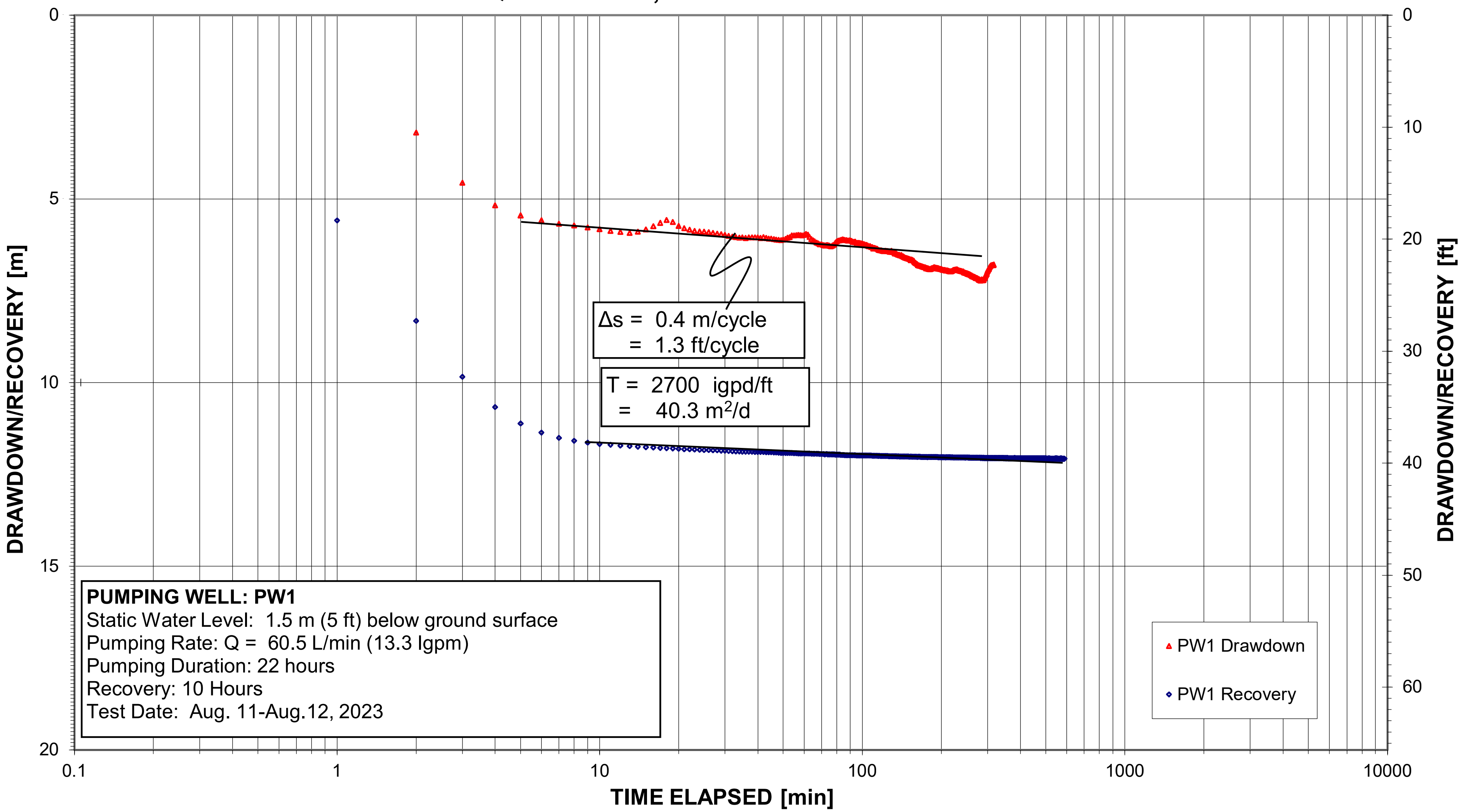


FIGURE E-3

PW1 PUMPING TEST Macville Community Drawdown vs. Time Caledon, Ontario	**Project No.:** 20-169-105 **Date:** 11-Aug-23	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

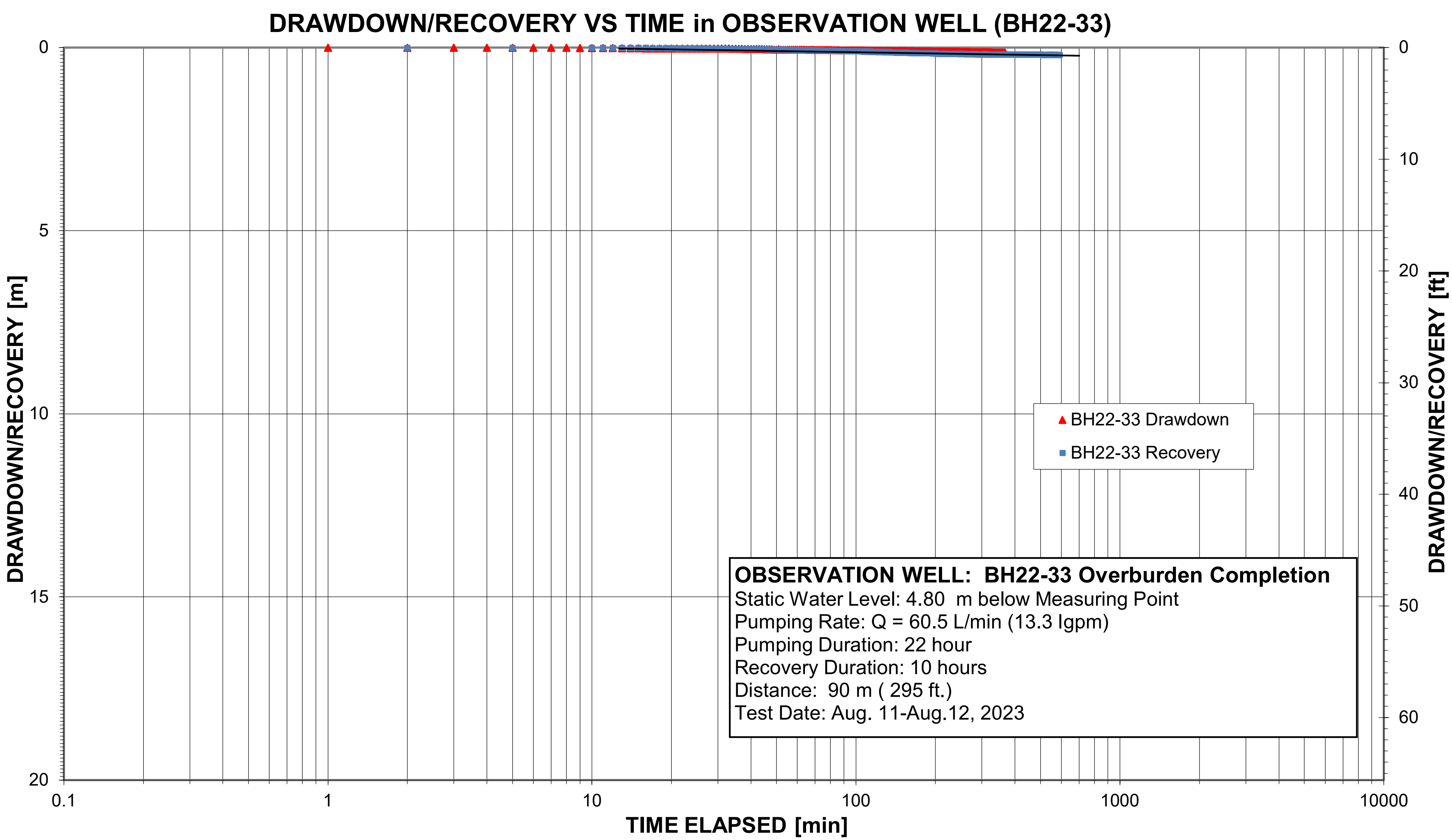


FIGURE E-4

PW1 PUMPING TEST - (Obs. Well BH22-33) Macville Community Drawdown/Recovery vs. Time (Obs.Well) Caledon, ON	**Project No.:** 20-169-105 **Date:** 11-Aug-23	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

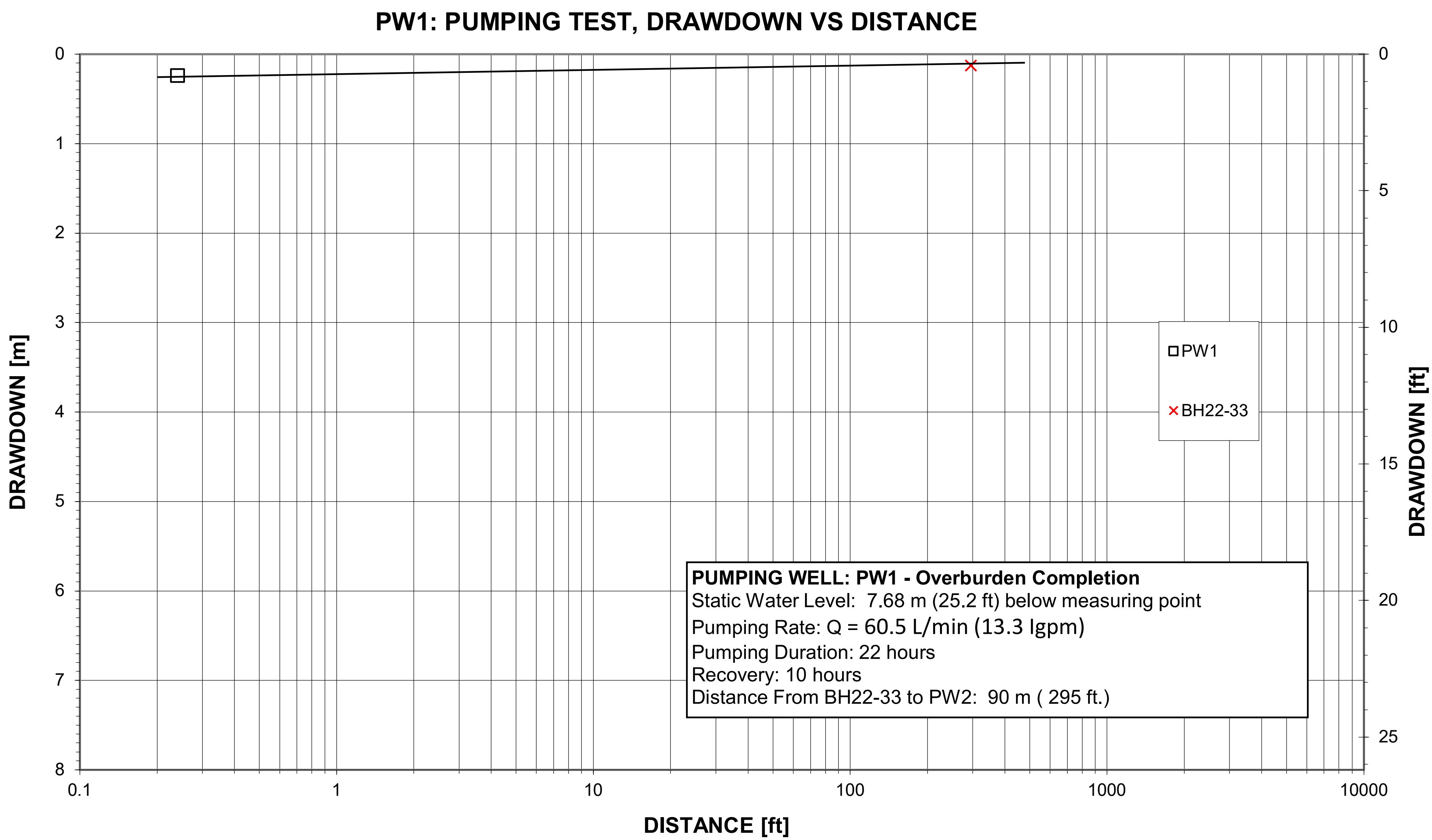


FIGURE E-5

PW1 PUMPING TEST Macville Community Drawdown/Recovery vs. Time (Obs.Well) Caledon, ON	**Project No.:** 20-169-105 **Date:** 11-Aug-23	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Appendix F

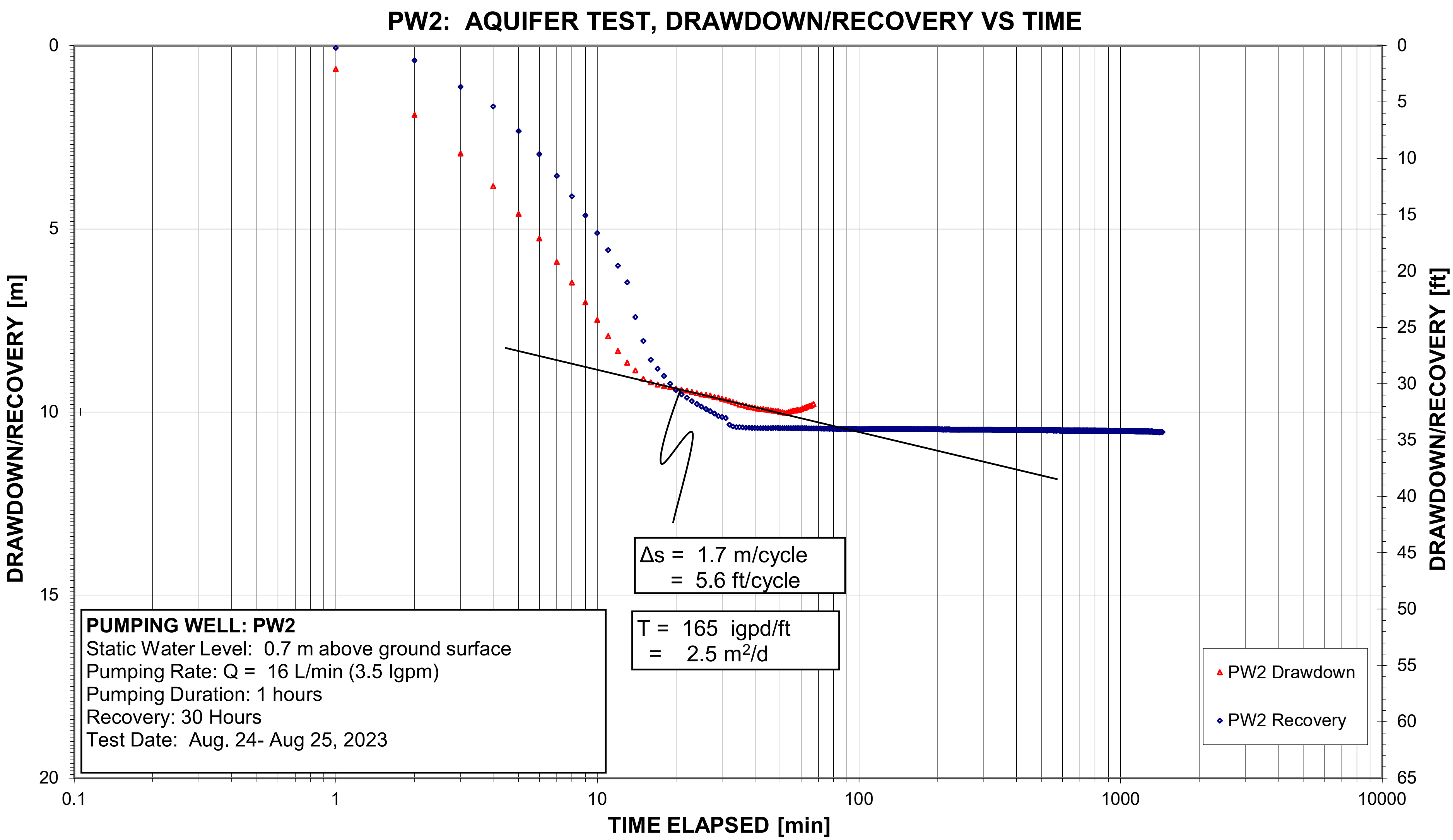


FIGURE F-1

PW2 PUMPING TEST Macville Community Drawdown vs. Time Caledon, ON	**Project No.:** 20-169-105 **Date:** 30-Aug-23	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

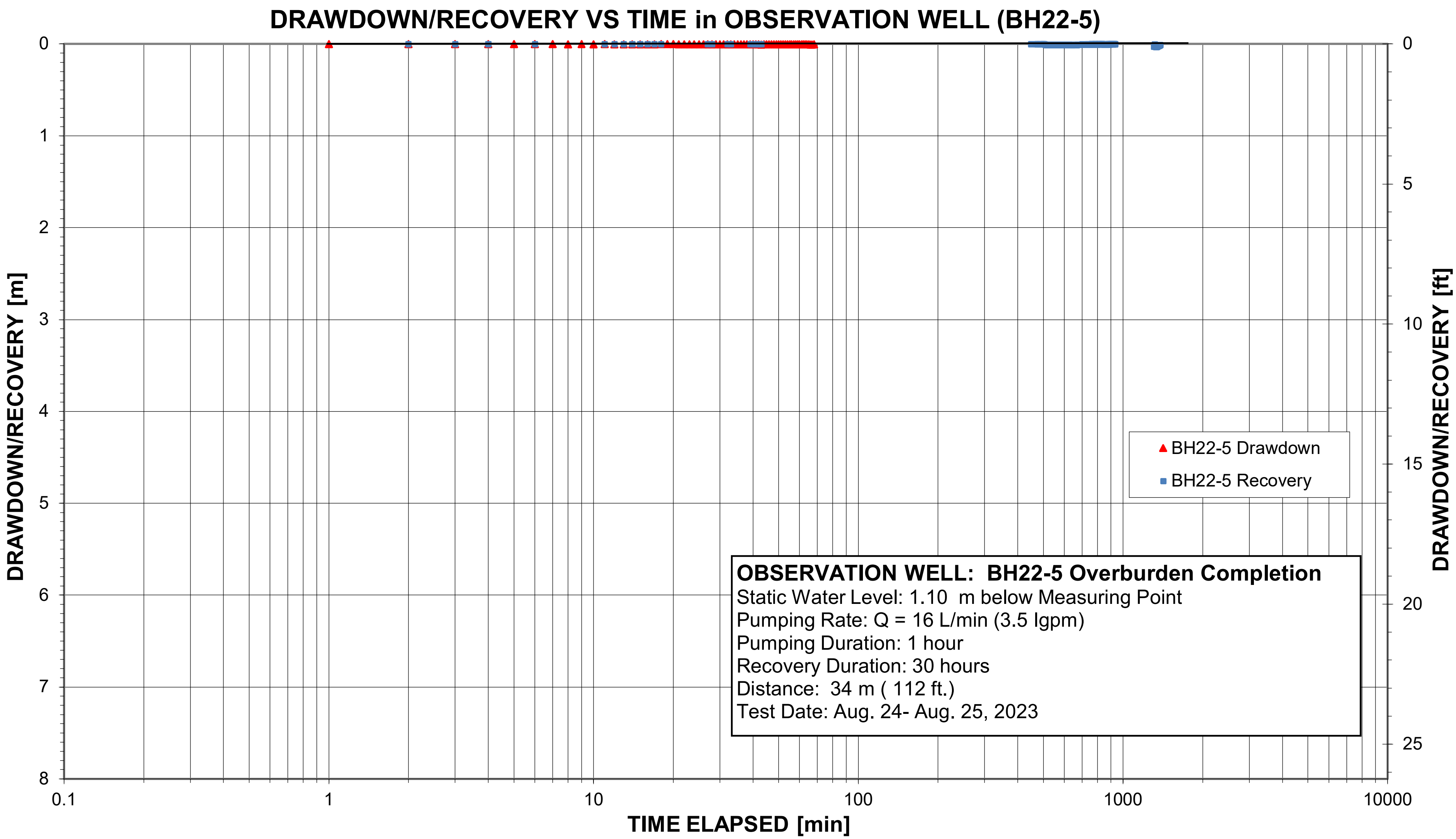
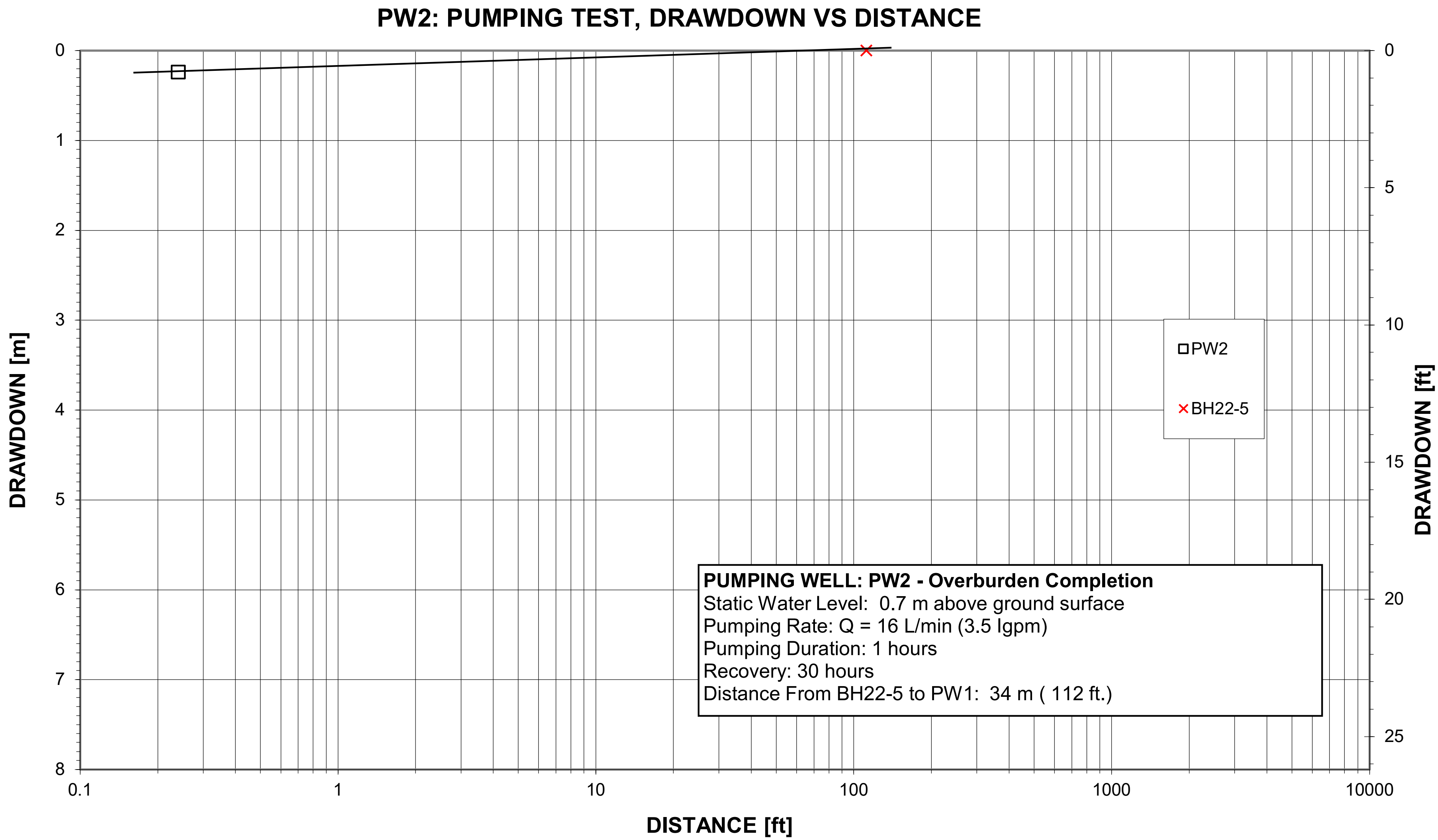


FIGURE F-2

PW2 PUMPING TEST - (Obs. Well BH22-5) Macville Community Drawdown vs. Time Caledon, ON	**Project No.:** 20-169-105 **Date:** 30-Aug-23	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology



PUMPING WELL: PW2 - Overburden Completion
Static Water Level: 0.7 m above ground surface
Pumping Rate: Q = 16 L/min (3.5 Igpm)
Pumping Duration: 1 hours
Recovery: 30 hours
Distance From BH22-5 to PW1: 34 m (112 ft.)

FIGURE F-3

PW2 PUMPING TEST Macville Community Drawdown vs. Time Caledon, ON	**Project No.:** 20-169-105	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology
	Date: 30-Aug-23	

Appendix G

THEORETICAL GROUNDWATER CONTROL MODEL

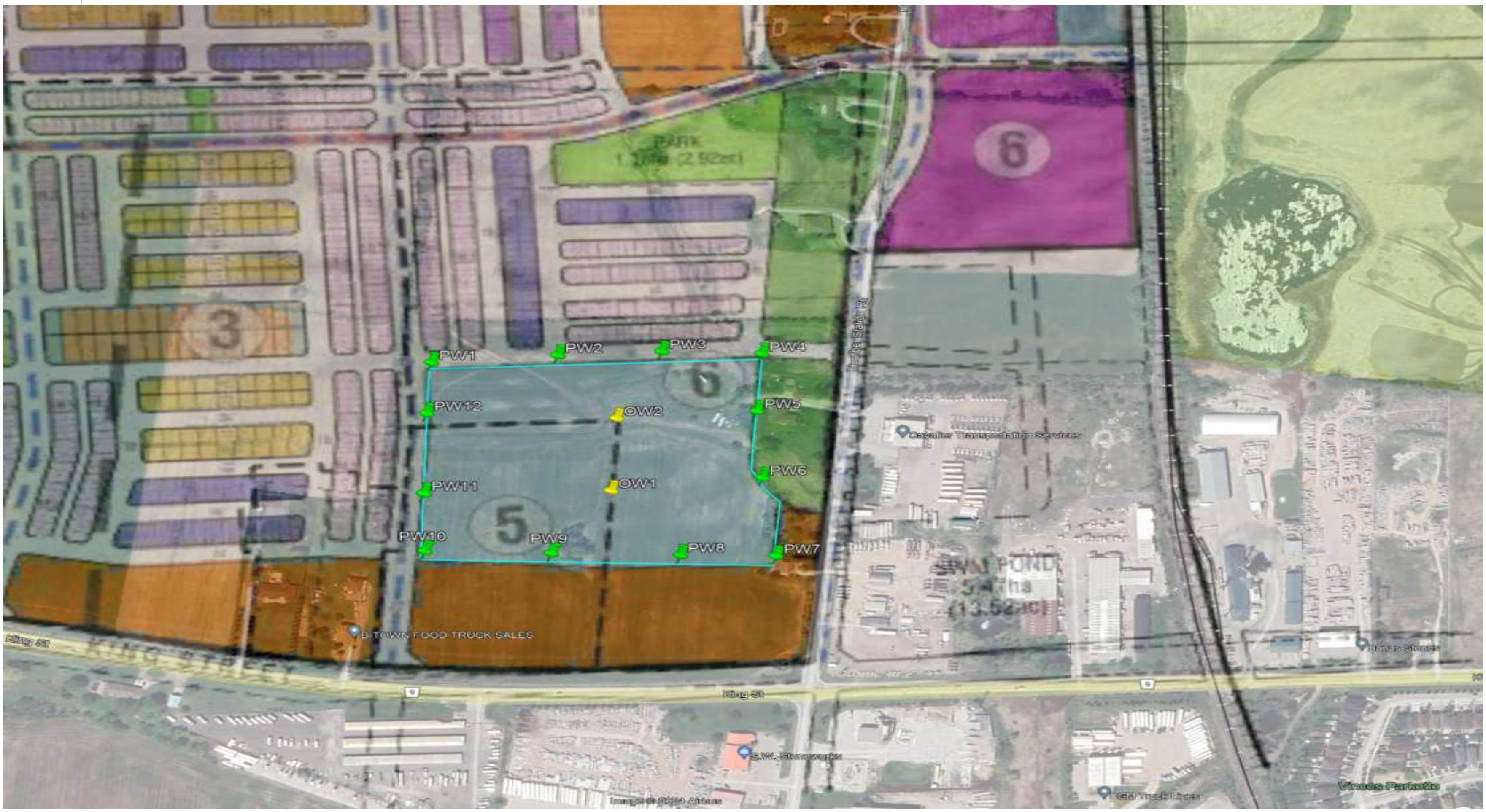


FIGURE G-1

THEORETICAL GROUNDWATER CONTROL MODEL Hydrogeological Investigation Macville Community- SWM Pond 1 Caledon, Ontario	Project No.: 20-169-105 Date: 15-Sep-23	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Drawdown in a well from pumping and interference from all other pumping wells

Groundwater Control Model for Temporary Construction Dewatering - Drawdown and Interference at Theoretical Well Locations

	PW1	PW2	PW3	PW4	PW5	PW6	PW7	PW8	PW9	PW10	PW11	PW12		OW1	OW2	
PW1	4.00	1.78	1.43	1.22	1.22	1.16	1.06	1.16	1.29	1.35	1.55	2.09		1.37	1.51	
PW2	1.78	4.00	1.88	1.49	1.47	1.34	1.17	1.26	1.32	1.27	1.42	1.66		1.51	1.86	
PW3	1.43	1.88	4.00	1.90	1.76	1.49	1.25	1.29	1.27	1.16	1.26	1.38		1.50	1.87	
PW4	1.22	1.49	1.90	4.00	2.01	1.58	1.30	1.28	1.18	1.06	1.13	1.20		1.39	1.59	
PW5	1.22	1.47	1.76	2.01	4.00	1.93	1.48	1.46	1.30	1.14	1.19	1.22		1.55	1.70	
PW6	1.16	1.34	1.49	1.58	1.93	4.00	1.83	1.72	1.41	1.19	1.21	1.19		1.66	1.60	
PW7	1.06	1.17	1.25	1.30	1.48	1.83	4.00	1.92	1.44	1.19	1.17	1.11		1.53	1.37	
PW8	1.16	1.26	1.29	1.28	1.46	1.72	1.92	4.00	1.76	1.34	1.23	0.00		1.82	1.49	
PW9	1.29	1.32	1.27	1.18	1.30	1.41	1.44	1.76	4.00	1.78	1.66	1.42		1.87	1.50	
PW10	1.35	1.27	1.16	1.06	1.14	1.19	1.19	1.37	1.78	4.00	2.02	1.53		1.50	1.35	
PW11	1.55	1.42	1.26	1.13	1.19	1.21	1.17	1.34	1.66	2.02	4.00	1.83		1.55	1.46	
PW12	2.09	1.66	1.38	1.20	1.22	1.19	1.11	1.23	1.42	1.53	1.83	4.00		1.47	1.54	
Total Drawdown at each location (ft)	**19.30**	**20.04**	**20.07**	**19.35**	**20.17**	**20.03**	**18.89**	**19.78**	**19.82**	**19.02**	**19.68**	**18.64**		**18.71**	**18.85**	
Total Drawdown at each location (m)	5.89	*6.11*	*6.12*	*5.90*	*6.15*	*6.11*	*5.76*	*6.03*	*6.04*	*5.80*	*6.00*	5.68		*5.71*	*5.75*	
Final Pumping Elev. (masl)	**259.81**	**259.59**	**259.58**	**259.80**	**259.55**	**259.59**	**259.94**	**259.67**	**259.66**	**259.90**	**259.70**	**260.02**		**259.99**	**259.95**	

Ground Level Elev. (masl)	**267.2**	**Well**	**IGPM**	**Q (l/min)**	**Units**		
Static Water Elev. (masl)	**265.7**	PW1-PW12	6.70	30.4	S	1.E-04	
Est. Bottom of SWM (261 masl)	**261.0**	Total	80.4	365	t	5	day(s)
Safety Factor (1 m)	**1**				T	2700	igpd/ft
Target Pumping Water Level	**260.00**						

Notes: **In Rows** - Drawdown in feet at each location due to pumping of well in that row

In Columns - Drawdown in feet in each column due to interference from pumping indicated well W/L elevation at each location is shown in bottom of row of matrix.

FIGURE G-2

GROUNDWATER CONTROL MODEL

Hydrogeological Investigation

Macville Community- SWM Pond 1

Caledon, Ontario

Project No.: **20-169-105**

Date: **15-Sep-23**

DS CONSULTANTS LTD.

Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Drawdown in a well from pumping and interference from all other pumping wells

Groundwater Control Model for Permanent Drainage - Drawdown and Interference at Theoretical Well Locations

	PW1	PW2	PW3	PW4	PW5	PW6	PW7	PW8	PW9	PW10	PW11	PW12		OW1	OW2
PW1	2.00	1.60	1.35	1.20	1.20	1.16	1.08	1.16	1.25	1.29	1.44	1.83		1.31	1.41
PW2	1.60	2.00	1.67	1.40	1.38	1.29	1.17	1.23	1.27	1.24	1.34	1.52		1.41	1.66
PW3	1.35	1.67	2.00	1.69	1.59	1.39	1.22	1.26	1.23	1.16	1.23	1.32		1.40	1.67
PW4	1.20	1.40	1.69	2.00	1.77	1.46	1.26	1.24	1.18	1.09	1.14	1.19		1.32	1.47
PW5	1.20	1.38	1.59	1.77	2.00	1.71	1.39	1.37	1.26	1.14	1.18	1.20		1.44	1.55
PW6	1.16	1.29	1.39	1.46	1.71	2.00	1.64	1.56	1.34	1.18	1.19	1.18		1.52	1.47
PW7	1.08	1.17	1.22	1.26	1.39	1.64	2.00	1.70	1.36	1.18	1.16	1.12		1.42	1.31
PW8	1.16	1.23	1.26	1.24	1.37	1.56	1.70	2.00	1.59	1.29	1.21	0.00		1.63	1.40
PW9	1.25	1.27	1.23	1.18	1.26	1.34	1.36	1.59	2.00	1.60	1.52	1.35		1.67	1.41
PW10	1.29	1.24	1.16	1.09	1.14	1.18	1.18	1.31	1.60	2.00	1.78	1.42		1.40	1.29
PW11	1.44	1.34	1.23	1.14	1.18	1.19	1.16	1.29	1.52	1.78	2.00	1.64		1.44	1.37
PW12	1.83	1.52	1.32	1.19	1.20	1.18	1.12	1.21	1.35	1.42	1.64	2.00		1.38	1.43
Total Drawdown at each location (ft)	**16.57**	**17.10**	**17.12**	**16.61**	**17.19**	**17.10**	**16.28**	**16.91**	**16.94**	**16.37**	**16.84**	**15.77**		**17.34**	**17.44**
Total Drawdown at each location (m)	5.05	*5.21*	*5.22*	*5.06*	*5.24*	*5.21*	*4.96*	*5.16*	*5.16*	*4.99*	*5.13*	4.81		*5.29*	*5.32*
Final Pumping Elev. (masl)	**260.65**	**260.49**	**260.48**	**260.64**	**260.46**	**260.49**	**260.74**	**260.54**	**260.54**	**260.71**	**260.57**	**260.89**		**260.41**	**260.38**

Ground Level Elev. (masl)	**267.2**	**Well**	**IGPM**	**Q (l/min)**	**Units**		
Static Water Elev. (masl)	**265.7**	PW1-PW12	4.80	21.8	S	1.E-04	
Est. Bottom of SWM Pond - 261 masl	**261.0**	Total	57.6	262	t	25	day(s)
					T	2700	igpd/ft
Target Pumping Water Level	**260.50**						

Notes: **In Rows** - Drawdown in feet at each location due to pumping of well in that row

In Columns - Drawdown in feet in each column due to interference from pumping indicated well W/L elevation at each location is shown in bottom of row of matrix.

FIGURE G-3

GROUNDWATER CONTROL MODEL

Hydrogeological Investigation

Macville Community- SWM Pond 1

Caledon, Ontario

Project No.:	**20-169-105**
Date:	**15-Sep-23**

DS CONSULTANTS LTD.

Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Appendix H

THEORETICAL GROUNDWATER CONTROL MODEL

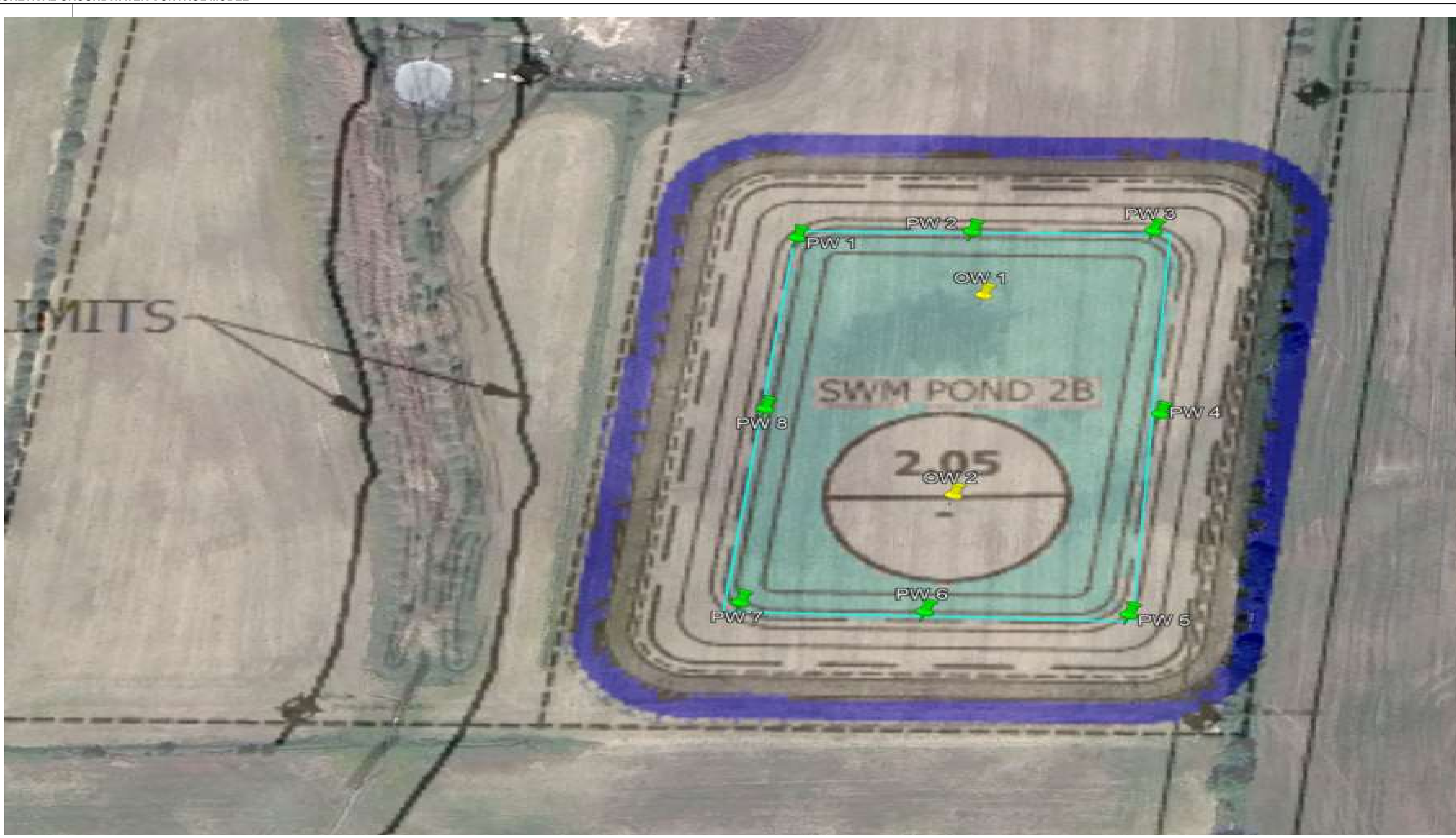


FIGURE H-1

THEORETICAL GROUNDWATER CONTROL MODEL **Hydrogeological Investigation** **Macville Community- SWM Pond 2B** Caledon, Ontario	Project No.: **20-169-105** Date: **15-Sep-23**	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Drawdown in a well from pumping and interference from all other pumping wells

Groundwater Control Model for Temporary Construction Dewatering - Drawdown and Interference at Theoretical Well Locations

	PW1	PW2	PW3	PW4	PW5	PW6	PW7	PW8		OW1	OW2	
PW1	4.00	2.09	1.85	1.25	1.30	1.27	0.99	2.27		2.03	1.44	
PW2	2.09	4.00	3.68	1.80	1.97	1.34	1.24	1.72		2.94	1.55	
PW3	1.85	3.68	4.00	1.96	2.20	1.32	1.29	1.58		2.80	1.53	
PW4	1.25	1.80	1.96	4.00	3.21	1.59	2.01	1.30		2.02	1.77	
PW5	1.30	1.97	2.20	3.21	4.00	1.40	1.69	1.27		2.07	1.58	
PW6	1.27	1.34	1.32	1.59	1.40	4.00	2.00	1.72		1.64	3.28	
PW7	0.99	1.24	1.29	2.01	1.69	2.00	4.00	1.19		1.46	1.98	
PW8	2.27	1.72	1.58	1.30	1.27	1.72	1.19	4.00		1.95	1.90	
Total Drawdown at each location (ft)	**15.02**	**17.83**	**17.88**	**17.13**	**17.04**	**14.64**	**14.40**	**15.02**		**16.90**	**15.03**	
Total Drawdown at each location (m)	*4.58*	*5.44*	*5.45*	*5.22*	*5.20*	*4.46*	*4.39*	*4.58*		*5.15*	*4.58*	
Final Pumping Elev. (masl)	**255.42**	**254.56**	**254.55**	**254.78**	**254.80**	**255.54**	**255.61**	**255.42**		**254.85**	**255.42**	

Ground Level Elev. (masl)	**259.3**	**Well**	**IGPM**	**Q (l/min)**	**Units**		
Static Water Elev. (masl)	**260**	PW1-PW8	0.80	3.6	S	1.E-04	
Est. Bottom of SWM Pond - 256 masl	**256.0**	Total	6.4	29	t	3	day(s)
Factor of safety 1 m	**1**				T	165	igpd/ft
Target Pumping Water Level	**255.00**						

Notes: **In Rows** - Drawdown in feet at each location due to pumping of well in that row

In Columns - Drawdown in feet in each column due to interference from pumping indicated well W/L elevation at each locatior

FIGURE H-2

GROUNDWATER CONTROL MODEL **Hydrogeological Investigation** **Macville Community- SWM Pond 2B** Caledon, Ontario	Project No.: **20-169-105** Date: **15-Sep-23**	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Drawdown in a well from pumping and interference from all other pumping wells

Groundwater Control Model for Permanent Drainage - Drawdown and Interference at Theoretical Well Locations

	PW1	PW2	PW3	PW4	PW5	PW6	PW7	PW8		OW1	OW2
PW1	4.00	2.01	1.85	1.47	1.50	1.48	1.30	2.12		1.96	1.59
PW2	2.01	4.00	3.02	1.82	1.93	1.52	1.46	1.77		2.54	1.66
PW3	1.85	3.02	4.00	1.92	2.08	1.51	1.49	1.68		2.46	1.65
PW4	1.47	1.82	1.92	4.00	2.72	1.69	1.96	1.50		1.96	1.80
PW5	1.50	1.93	2.08	2.72	4.00	1.57	1.75	1.48		1.99	1.68
PW6	1.48	1.52	1.51	1.69	1.57	4.00	1.95	1.77		1.72	2.77
PW7	1.30	1.46	1.49	1.96	1.75	1.95	4.00	1.43		1.61	1.93
PW8	2.12	1.77	1.68	1.50	1.48	1.77	1.43	4.00		1.91	1.88
Total Drawdown at each location (ft)	**15.73**	**17.52**	**17.55**	**17.07**	**17.02**	**15.49**	**15.34**	**15.73**		**16.15**	**14.96**
Total Drawdown at each location (m)	*4.80*	*5.34*	*5.35*	*5.21*	*5.19*	*4.72*	*4.68*	*4.80*		*4.92*	*4.56*
Final Pumping Elev. (masl)	**255.20**	**254.66**	**254.65**	**254.79**	**254.81**	**255.28**	**255.32**	**255.20**		**255.08**	**255.44**

Ground Level Elev. (masl)	**259.3**	**Well**	**IGPM**	**Q (l/min)**	**Units**		
Static Water Elev. (masl)	**260**	PW1-PW8	0.51	2.3	S	1.E-04	
Est. Bottom of SWM - 256 masl	**256.0**	Total	4.1	19	t	20	day(s)
					T	165	igpd/ft
Target Pumping Water Level	**255.50**						

Notes: **In Rows** - Drawdown in feet at each location due to pumping of well in that row

In Columns - Drawdown in feet in each column due to interference from pumping indicated well W/L elevation at each locati

FIGURE H-3

GROUNDWATER CONTROL MODEL **Hydrogeological Investigation** **Macville Community- SWM Pond 2B** Caledon, Ontario	Project No.: **20-169-105** Date: **15-Sep-23**	DS CONSULTANTS LTD. Geotechnical ◆ Environmental ◆ Materials ◆ Hydrogeology

Appendix I-1

Caledon Station

FINAL REPORT

CA15868-OCT20 R1

20-169-100

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2143
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	brad.moore@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA15868-OCT20
Project	20-169-100	Received	10/29/2020
Order Number		Approved	10/30/2020
Samples	Surface Water (2)	Report Number	CA15868-OCT20 R1
		Date Reported	10/30/2020

COMMENTS

MAC - Maximum Acceptable Concentration

AO/OG - Aesthetic Objective / Operational Guideline

NR - Not reportable under applicable Provincial drinking water regulations as per client.

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present:Yes

Custody Seal Present:Yes

Chain of Custody Number:018069

Hg spike reported as NV due to technician error. No spike used for the replicate sample. Data accepted as the spike blank met tolerance as well as secondary QC

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA15868-OCT20 R1

Client: DS Consultants

Project: 20-169-100

Project Manager: Dorothy Garda

Samplers: Dorothy Grada

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

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	7	8
			Sample Name	SGW1	SGW6
			Sample Matrix	Surface Water	Surface Water
			Sample Date	29/10/2020	29/10/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
General Chemistry					
Dissolved Oxygen	mg/L	1		8.8	9.1
Total Suspended Solids	mg/L	2		103	33
Alkalinity	mg/L as CaCO3	2		247	375
Bicarbonate	mg/L as CaCO3	2		247	375
Carbonate	mg/L as CaCO3	2		< 2	< 2
OH	mg/L as CaCO3	2		< 2	< 2
Colour	TCU	3		9	13
Conductivity	uS/cm	2		889	2190
Turbidity	NTU	0.10		56.7	50.1
Ammonia+Ammonium (N)	as N mg/L	0.04		0.04	0.32
Phosphorus (total reactive)	mg/L	0.03		0.09	0.10
Total Organic Carbon	mg/L	1		4	8
Ion Ratio	-	-9999		1.58	1
Total Dissolved Solids (calculated)	mg/L	-9999		460	1155
Conductivity (calculated)	uS/cm	-9999		1020	2135
Langeliers Index 4° C	@ 4° C	-9999		0.46	0.77
Saturation pH 4°C	pHs @ 4°C	-9999		7.61	7.25

FINAL REPORT

CA15868-OCT20 R1

Client: DS Consultants
Project: 20-169-100
Project Manager: Dorothy Garda
Samplers: Dorothy Grada

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

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

				Sample Number	7	8
				Sample Name	SGW1	SGW6
				Sample Matrix	Surface Water	Surface Water
				Sample Date	29/10/2020	29/10/2020
Parameter	**Units**	**RL**	**L1**		**Result**	**Result**
Metals and Inorganics						
Fluoride	mg/L	0.06			0.12	0.67
Bromide	mg/L	0.05			<0.05	0.15
Nitrite (as N)	as N mg/L	0.003			<0.003	<0.003
Nitrate (as N)	as N mg/L	0.006			0.058	0.042
Sulphate	mg/L	0.04			20	14
Mercury	µg/L	0.01	0.2		< 0.01	< 0.01
Hardness	mg/L as CaCO3	0.05			311	467
Aluminum	µg/L	1	75		2610	2400
Aluminum (0.2µm)	mg/L	0.001	0.015		0.034	0.096
Arsenic	µg/L	0.2	5		12.0	1.0
Boron	µg/L	2	200		17	32
Barium	µg/L	0.02			178	82.0
Beryllium	µg/L	0.007	1100		0.139	0.109
Cobalt	µg/L	0.004	0.9		1.86	1.87
Calcium	mg/L	0.01			93.0	153
Cadmium	µg/L	0.003	0.5		0.059	0.036
Copper	µg/L	0.2	5		5.9	3.2
Chromium	µg/L	0.08	100		3.82	2.80
Iron	ug/L	7	300		36800	4300
Potassium	mg/L	0.009			2.69	7.23
Magnesium	mg/L	0.001			19.1	20.8
Manganese	µg/L	0.01			1910	3270
Molybdenum	µg/L	0.04	40		1.34	1.53

FINAL REPORT

CA15868-OCT20 R1

Client: DS Consultants

Project: 20-169-100

Project Manager: Dorothy Garda

Samplers: Dorothy Grada

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

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	7	8
			Sample Name	SGW1	SGW6
			Sample Matrix	Surface Water	Surface Water
			Sample Date	29/10/2020	29/10/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Metals and Inorganics (continued)					
Nickel	µg/L	0.1	25	1.8	2.8
Sodium	mg/L	0.01		87.3	254
Phosphorus	mg/L	0.003	0.01	1.93	0.358
Lead	µg/L	0.01	25	5.68	1.72
Silicon	ug/L	20		12800	9560
Silver	µg/L	0.05	0.1	< 0.05	< 0.05
Strontium	µg/L	0.02		306	466
Thallium	µg/L	0.005	0.3	0.034	0.026
Tin	µg/L	0.06		0.20	0.19
Titanium	ug/L	0.05		87.3	75.4
Antimony	µg/L	0.09	20	0.19	0.19
Selenium	µg/L	0.04	100	0.22	0.28
Uranium	µg/L	0.002	5	0.220	1.30
Vanadium	µg/L	0.01	6	5.20	3.92
Zinc	µg/L	2	20	24	19
Cation sum	meq/L	-9999		12.5	21.35
Anion Sum	meq/L	-9999		7.89	21.36
Anion-Cation Balance	% difference	-9999		22.58	-0.03

FINAL REPORT

CA15868-OCT20 R1

Client: DS Consultants

Project: 20-169-100

Project Manager: Dorothy Garda

Samplers: Dorothy Grada

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

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	7	8
			Sample Name	SGW1	SGW6
			Sample Matrix	Surface Water	Surface Water
			Sample Date	29/10/2020	29/10/2020
Parameter	**Units**	**RL**	**L1**	**Result**	**Result**
Other (ORP)					
pH	No unit	0.05	8.6	8.07	8.02
Chloride	mg/L	0.04		90	480

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
SGW1				
Aluminum	SM 3030/EPA 200.8	µg/L	2610	75
Aluminum (dissolved)	SM 3030/EPA 200.8	µg/L	0.034	0.015
Arsenic	SM 3030/EPA 200.8	µg/L	12.0	5
Cobalt	SM 3030/EPA 200.8	µg/L	1.86	0.9
Copper	SM 3030/EPA 200.8	µg/L	5.9	5
Iron	SM 3030/EPA 200.8	µg/L	36800	300
Phosphorus	SM 3030/EPA 200.8	µg/L	1.93	0.01
Zinc	SM 3030/EPA 200.8	µg/L	24	20
SGW6				
Aluminum	SM 3030/EPA 200.8	µg/L	2400	75
Aluminum (dissolved)	SM 3030/EPA 200.8	µg/L	0.096	0.015
Cobalt	SM 3030/EPA 200.8	µg/L	1.87	0.9
Iron	SM 3030/EPA 200.8	µg/L	4300	300
Phosphorus	SM 3030/EPA 200.8	µg/L	0.358	0.01

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0551-OCT20	mg/L as CaCO3	2	< 2	1	20	102	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0324-OCT20	mg/L	0.04	<0.04	0	10	100	90	110	99	75	125

QC SUMMARY

Anions by IC

Method: EPA300/MA300-Ions1.3 l Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bromide	DIO0586-OCT20	mg/L	0.05	<0.05	ND	20	102	80	120	98	75	125
Chloride	DIO0586-OCT20	mg/L	0.04	<0.04	8	20	100	80	120	94	75	125
Nitrite (as N)	DIO0586-OCT20	mg/L	0.003	<0.003	ND	20	101	80	120	98	75	125
Nitrate (as N)	DIO0586-OCT20	mg/L	0.006	<0.006	20	20	103	80	120	102	75	125
Sulphate	DIO0586-OCT20	mg/L	0.04	<0.04	NV	20	98	80	120	91	75	125
Chloride	DIO0590-OCT20	mg/L	0.04	<0.04	2	20	98	80	120	100	75	125

Carbon by SFA

Method: SM 5310 l Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Organic Carbon	SKA0327-OCT20	mg/L	1	<1	2	10	103	90	110	109	75	125

QC SUMMARY

Carbonate/Bicarbonate

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Carbonate	EWL0551-OCT20	mg/L as CaCO3	2	< 2	ND	10	NA	90	110	NA		
Bicarbonate	EWL0551-OCT20	mg/L as CaCO3	2	< 2	1	10	NA	90	110	NA		
OH	EWL0551-OCT20	mg/L as CaCO3	2	< 2	ND	10	NA	90	110	NA		

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0563-OCT20	TCU	3	< 3	ND	10	100	80	120	NA		

QC SUMMARY

Conductivity

Method: SM 2510 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Conductivity	EWL0551-OCT20	uS/cm	2	< 2	0	20	99	90	110	NA		

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Fluoride	EWL0560-OCT20	mg/L	0.06	<0.06	ND	10	98	90	110	111	75	125

Mercury by CVAAS

Method: SM3112/EPA 245 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Mercury	EHG0029-OCT20	ug/L	0.01	-0.020	ND	20	90	80	120	NV	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 I Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0179-OCT20	ug/L	0.05	<0.00005	ND	20	101	90	110	98	70	130
Aluminum	EMS0179-OCT20	ug/L	1	<0.001	ND	20	99	90	110	115	70	130
Aluminum (0.2µm)	EMS0179-OCT20	mg/L	0.001	<0.001	ND	20	99	90	110	115	70	130
Arsenic	EMS0179-OCT20	ug/L	0.2	<0.0002	4	20	102	90	110	101	70	130
Barium	EMS0179-OCT20	ug/L	0.02	<0.00002	4	20	98	90	110	109	70	130
Beryllium	EMS0179-OCT20	ug/L	0.007	<0.000007	0	20	95	90	110	94	70	130
Boron	EMS0179-OCT20	ug/L	2	<0.002	6	20	91	90	110	NV	70	130
Calcium	EMS0179-OCT20	mg/L	0.01	<0.01	3	20	96	90	110	103	70	130
Cadmium	EMS0179-OCT20	ug/L	0.003	<0.000003	7	20	99	90	110	100	70	130
Cobalt	EMS0179-OCT20	ug/L	0.004	<0.000004	3	20	100	90	110	98	70	130
Chromium	EMS0179-OCT20	ug/L	0.08	<0.00008	ND	20	102	90	110	104	70	130
Copper	EMS0179-OCT20	ug/L	0.2	<0.0002	14	20	101	90	110	105	70	130
Iron	EMS0179-OCT20	ug/L	7	<0.007	18	20	97	90	110	NV	70	130
Potassium	EMS0179-OCT20	mg/L	0.009	<0.009	2	20	100	90	110	100	70	130
Magnesium	EMS0179-OCT20	mg/L	0.001	<0.001	4	20	95	90	110	97	70	130
Manganese	EMS0179-OCT20	ug/L	0.01	<0.00001	1	20	101	90	110	104	70	130
Molybdenum	EMS0179-OCT20	ug/L	0.04	<0.00004	ND	20	102	90	110	106	70	130
Sodium	EMS0179-OCT20	mg/L	0.01	<0.01	6	20	91	90	110	94	70	130
Nickel	EMS0179-OCT20	ug/L	0.1	<0.0001	18	20	101	90	110	83	70	130
Lead	EMS0179-OCT20	ug/L	0.01	<0.00001	2	20	96	90	110	105	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus	EMS0179-OCT20	mg/L	0.003	<0.003	ND	20	96	90	110	NV	70	130
Antimony	EMS0179-OCT20	ug/L	0.09	<0.0009	ND	20	98	90	110	110	70	130
Selenium	EMS0179-OCT20	ug/L	0.04	<0.00004	ND	20	100	90	110	110	70	130
Silicon	EMS0179-OCT20	ug/L	20	<0.02	5	20	99	90	110	NV	70	130
Tin	EMS0179-OCT20	ug/L	0.06	<0.00006	ND	20	98	90	110	NV	70	130
Strontium	EMS0179-OCT20	ug/L	0.02	< 0.02	3	20	102	90	110	103	70	130
Titanium	EMS0179-OCT20	ug/L	0.05	<0.00005	ND	20	98	90	110	NV	70	130
Thallium	EMS0179-OCT20	ug/L	0.005	<0.000005	13	20	99	90	110	104	70	130
Uranium	EMS0179-OCT20	ug/L	0.002	<0.000002	4	20	97	90	110	102	70	130
Vanadium	EMS0179-OCT20	ug/L	0.01	<0.00001	8	20	99	90	110	87	70	130
Zinc	EMS0179-OCT20	ug/L	2	<0.002	ND	20	97	90	110	126	70	130

QC SUMMARY

Metals in aqueous samples - ICP-OES

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Hardness	EMS0179-OCT20	mg/L as CaCO3	0.05		3	20						

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0551-OCT20	No unit	0.05	NA	0		101			NA		

Reactive Phosphorus by SFA

Method: SM 4500-P F | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Phosphorus (total reactive)	SKA0319-OCT20	mg/L	0.03	<0.03	ND	10	97	90	110	NV	75	125

QC SUMMARY

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0555-OCT20	mg/L	2	< 2	0	10	96	90	110	NA		

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0554-OCT20	NTU	0.10	< 0.10	1	10	99	90	110	NA		

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

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

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

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

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

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 018069

Page 1 of 1

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

Laboratory Information Section - Lab use only

Received By: Scott
Received By (signature):
Received Date: 10 / 29 / 2020 (mm/dd/yy)
Received Time: 16 20 (hr : min)
Custody Seal Present: Yes [X] No [ ]
Custody Seal Intact: Yes [X] No [ ]
Cooling Agent Present: Yes [X] No [ ] Type: Ice
Temperature Upon Receipt (°C) 9°C, 9°C, 8°C
LAB LIMS #: CA15868-OCT20

REPORT INFORMATION	INVOICE INFORMATION
Company: DS	[X] (same as Report Information)
Contact: Dorothy Garda	Company: accounting
Address: 16-6221 Hwy 7	Contact:
Vaughan, ON	Address:
Phone: (905) 324-2735	Phone:
Fax:	
Email: dorothy.garda@dsconsultants.ca	Email: accounting@dsconsultants.ca

Quotation #:
P.O. #:
Project #: 20-169-100
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

[ ] Regular TAT (5-7days)

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

RUSH TAT (Additional Charges May Apply): [X] 1 Day [ ] 2 Days [ ] 3 Days [ ] 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

[ ] O.Reg 153/04 [ ] O.Reg 406/19

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

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

Sewer By-Law:
[ ] Sanitary
[ ] Storm
Municipality:

RECORD OF SITE CONDITION (RSC) [ ] YES [ ] NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH, (B(HWS), EC, SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni...)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs [ ] Total [ ] Aroclor
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): DO; TSS; Gen Chem Characterization Package; Appendix 2: 406/19 Leachate Screening Levels Table; Sewer Use: (Specify pkg); Water Characterization Pkg [ ] General [ ] Extended
TCLP: Specify TCLP tests [ ] M&I [ ] VOC [ ] PCB [ ] B(a)P [ ] ABN [ ] Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	DO	TSS	Gen Chem Characterization Package	COMMENTS
1	SGW1	10/29/20	8:30am	8	SW	X	X	X	
2	SGW6	10/29/20	9.am	8	SW	X	X	X	
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Observations/Comments/Special Instructions

Sampled By (NAME): Dorothy Garda	Signature:	Date: 10 / 29 / 20 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Dorothy Garda	Signature:	Date: 10 / 29 / 20 (mm/dd/yy)	Yellow & White Copy - SGS

FINAL REPORT

CA40078-NOV22 R1

20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2000
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA40078-NOV22
Project	20-169-104, 14275 The Gore Rd, Bolton (MacVille)	Received	11/03/2022
Order Number		Approved	11/11/2022
Samples	Ground Water (1)	Report Number	CA40078-NOV22 R1
		Date Reported	11/11/2022

COMMENTS

RL - SGS Reporting Limit

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

Chain of Custody Number: 029791

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40078-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry Chai Hanya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-13
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑
Total Suspended Solids	mg/L	2		492
Total Kjeldahl Nitrogen	as N mg/L	0.5		0.6
Metals and Inorganics				
Fluoride	mg/L	0.06		0.11
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		200
Aluminum (0.2µm)	mg/L	0.001	0.075	0.016
Aluminum (total)	mg/L	0.001		0.016
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0010
Cadmium (total)	mg/L	0.000003	0.0001	< 0.000003
Chromium (total)	mg/L	0.00008	0.1	0.00009
Copper (total)	mg/L	0.0002	0.001	0.0005
Cobalt (total)	mg/L	0.000004	0.0009	0.000676
Lead (total)	mg/L	0.00009	0.005	< 0.00009
Manganese (total)	mg/L	0.00001		0.132
Molybdenum (total)	mg/L	0.00004	0.04	0.00234
Nickel (total)	mg/L	0.0001	0.025	0.0008
Phosphorus (total)	mg/L	0.003	0.01	0.011
Selenium (total)	mg/L	0.00004	0.1	0.00012
Silver (total)	mg/L	0.00005	0.0001	< 0.00005

FINAL REPORT

CA40078-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry Chai Hanya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-13
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Tin (total)	mg/L	0.00006		0.00079
Titanium (total)	mg/L	0.00005		0.00133
Zinc (total)	mg/L	0.002	0.02	< 0.002
Microbiology				
E. Coli	cfu/100mL	0	100	0
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

CA40078-NOV22 R1

Client: DS Consultants
Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)
Project Manager: Dorothy Garda
Samplers: Harry Chai Hanya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-13
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	7.46
Mercury (total)	mg/L	0.00001	0.0002	0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	0.003
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

CA40078-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry Chai Hanya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number 8

Sample Name BH 22-13

Sample Matrix Ground Water

Sample Date 03/11/2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH 22-13				
Phosphorus	SM 3030/EPA 200.8	mg/L	0.011	0.01
4AAP-Phenolics	SM 5530B-D	mg/L	0.003	0.001

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5034-NOV22	mg/L	2	<2	1	20	103	80	120	104	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0008-NOV22	mg/L	2	< 2	9	30	105	70	130	115	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0057-NOV22	mg/L	0.01	<0.01	ND	10	100	90	110	106	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0127-NOV22	mg/L	0.06	<0.06	ND	10	103	90	110	105	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0012-NOV22	mg/L	0.00001	< 0.00001	15	20	90	80	120	95	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 l Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	ND	20	101	90	110	98	70	130
Aluminum (total)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Aluminum (0.2µm)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Arsenic (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	ND	20	101	90	110	104	70	130
Cadmium (total)	EMS0052-NOV22	mg/L	0.000003	<0.000003	5	20	99	90	110	98	70	130
Cobalt (total)	EMS0052-NOV22	mg/L	0.000004	<0.000004	1	20	98	90	110	95	70	130
Chromium (total)	EMS0052-NOV22	mg/L	0.00008	<0.00008	14	20	98	90	110	106	70	130
Copper (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	0	20	102	90	110	99	70	130
Manganese (total)	EMS0052-NOV22	mg/L	0.00001	<0.00001	0	20	101	90	110	95	70	130
Molybdenum (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	8	20	102	90	110	105	70	130
Nickel (total)	EMS0052-NOV22	mg/L	0.0001	<0.0001	2	20	99	90	110	96	70	130
Lead (total)	EMS0052-NOV22	mg/L	0.00009	<0.00001	2	20	98	90	110	86	70	130
Phosphorus (total)	EMS0052-NOV22	mg/L	0.003	<0.003	20	20	93	90	110	NV	70	130
Antimony (total)	EMS0052-NOV22	mg/L	0.0009	<0.0009	ND	20	104	90	110	112	70	130
Selenium (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	5	20	102	90	110	95	70	130
Tin (total)	EMS0052-NOV22	mg/L	0.00006	<0.00006	14	20	101	90	110	NV	70	130
Titanium (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	0	20	99	90	110	NV	70	130
Zinc (total)	EMS0052-NOV22	mg/L	0.002	<0.002	1	20	110	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9087-NOV22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			83	55	120			
Nonylphenol Ethoxylates	GCM0148-NOV22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			90	55	120			
Nonylphenol	GCM0148-NOV22	mg/L	0.001	< 0.001			91	55	120			

FINAL REPORT

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM5174-NOV22	mg/L	2	<2	NSS	20	106	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0124-NOV22	No unit	0.05	NA	0		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0078-NOV22	mg/L	0.002	<0.002	ND	10	95	80	120	111	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0127-NOV22	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Bis(2-ethylhexyl)phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	129	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	117	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Suspended Solids	EWL0148-NOV22	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Kjeldahl Nitrogen	SKA0094-NOV22	as N mg/L	0.5	<0.5	ND	10	102	90	110	103	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	103	50	140
1,2-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
1,4-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Benzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	101	60	130	103	50	140
Chloroform	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	104	50	140
m-p-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	103	50	140
Methyl ethyl ketone	GCM0117-NOV22	mg/L	0.02	<0.02	ND	30	97	50	140	100	50	140
Methylene Chloride	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
o-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	105	50	140
Styrene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
Tetrachloroethylene (perchloroethylene)	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Toluene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Trichloroethylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 029791

Page 1 of 1

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

Laboratory Information Section - Lab use only

Received By: Nicole Brigant
Received By (signature): [signature]
CM
Received Date: Nov 1 2 / 22 (mm/dd/yy)
Custody Seal Present: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Received Time: 17 : 30 (hr : min)
Custody Seal Intact: Yes ☑ No ☐
Temperature Upon Receipt (°C) 9 . 9 . 9
LAB LIMS #: CA-40078-NOV22

REPORT INFORMATION	INVOICE INFORMATION
Company: DS Consultants ltd	☑ (same as Report Information)
Contact: Dorothy Santos	Company:
Address: 6221 Hwy 7, unit 16, Vaughan, ON	Contact: Accounting
Phone: 905 329 2735	Address:
Fax:	Phone:
Email: dorothy.santos@dsconsultants.ca	Email:

Quotation #:
P.O. #:
Project #: 20-167-104
Site Location/ID: 14275 The Gore Rd, Bolton (Macville)

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs (☐ Total ☐ Aroclor)
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): (Peel Storm and Sanitary Sewer); PWQO; Sewer Use: (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended)
SPLP (Specify tests): ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN
TCLP (Specify tests): ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	(Peel Storm and Sanitary Sewer)	PWQO			Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS:
1	BH 22-13	Nov 3rd, 22	PM	17	GW	N												✓	✓							Non Filtered Sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME):	Harry / Chaitanya	Signature:	[signature]	Date: 11 / 03 / 22 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME):	Harry	Signature:	[signature]	Date: 11 / 03 / 22 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

FINAL REPORT

CA40078-NOV22 R1

20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8, Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2000
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA40078-NOV22
Project	20-169-104, 14275 The Gore Rd, Bolton (MacVille)	Received	11/03/2022
Order Number		Approved	11/11/2022
Samples	Ground Water (1)	Report Number	CA40078-NOV22 R1
		Date Reported	11/11/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029791

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40078-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry Chai Hanya

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-13
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4↑
Total Suspended Solids	mg/L	2	350	15	492
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	0.6
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.11
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		200
Aluminum (0.2µm)	mg/L	0.001			0.016
Aluminum (total)	mg/L	0.001	50		0.016
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0010
Cadmium (total)	mg/L	0.000003	0.7	0.008	< 0.000003
Chromium (total)	mg/L	0.00008	5	0.08	0.00009
Copper (total)	mg/L	0.0002	3	0.05	0.0005
Cobalt (total)	mg/L	0.000004	5		0.000676
Lead (total)	mg/L	0.00009	3	0.12	< 0.00009
Manganese (total)	mg/L	0.00001	5	0.05	0.132
Molybdenum (total)	mg/L	0.00004	5		0.00234
Nickel (total)	mg/L	0.0001	3	0.08	0.0008
Phosphorus (total)	mg/L	0.003	10	0.4	0.011
Selenium (total)	mg/L	0.00004	1	0.02	0.00012
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry Chai Hanya

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-13
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Metals and Inorganics (continued)					
Tin (total)	mg/L	0.00006	5		0.00079
Titanium (total)	mg/L	0.00005	5		0.00133
Zinc (total)	mg/L	0.002	3	0.04	< 0.002
Microbiology					
E. Coli	cfu/100mL	0		200	0
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

FINAL REPORT

CA40078-NOV22 R1

Client: DS Consultants
Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)
Project Manager: Dorothy Garda
Samplers: Harry Chai Hanya

MATRIX: WATER

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

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

					Sample Number	8
					Sample Name	BH 22-13
					Sample Matrix	Ground Water
					Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**		**Result**
Other (ORP)						
pH	No unit	0.05	10	9		7.46
Mercury (total)	mg/L	0.00001	0.01	0.0004		0.00001
PCBs						
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004		< 0.0001
Phenols						
4AAP-Phenolics	mg/L	0.002	1	0.008		0.003
SVOCs						
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088		< 0.002
VOCs						
Chloroform	mg/L	0.0005	0.04	0.002		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056		< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052		< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017		< 0.0005
Methyl ethyl ketone	mg/L	0.02	8			< 0.02
Styrene	mg/L	0.0005	0.2			< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044		< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008		< 0.0005

FINAL REPORT

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry Chai Hanya

MATRIX: WATER

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

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

Sample Number	8
Sample Name	BH 22-13
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	L2	Result
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2

BH 22-13

Parameter	Method	Units	Result	L1	L2
Total Suspended Solids	SM 2540D	mg/L	492	350	15
Manganese	SM 3030/EPA 200.8	mg/L	0.132		0.05

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5034-NOV22	mg/L	2	<2	1	20	103	80	120	104	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0008-NOV22	mg/L	2	< 2	9	30	105	70	130	115	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0057-NOV22	mg/L	0.01	<0.01	ND	10	100	90	110	106	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0127-NOV22	mg/L	0.06	<0.06	ND	10	103	90	110	105	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0012-NOV22	mg/L	0.00001	< 0.00001	15	20	90	80	120	95	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	ND	20	101	90	110	98	70	130
Aluminum (total)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Aluminum (0.2µm)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Arsenic (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	ND	20	101	90	110	104	70	130
Cadmium (total)	EMS0052-NOV22	mg/L	0.000003	<0.000003	5	20	99	90	110	98	70	130
Cobalt (total)	EMS0052-NOV22	mg/L	0.000004	<0.000004	1	20	98	90	110	95	70	130
Chromium (total)	EMS0052-NOV22	mg/L	0.00008	<0.00008	14	20	98	90	110	106	70	130
Copper (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	0	20	102	90	110	99	70	130
Manganese (total)	EMS0052-NOV22	mg/L	0.00001	<0.00001	0	20	101	90	110	95	70	130
Molybdenum (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	8	20	102	90	110	105	70	130
Nickel (total)	EMS0052-NOV22	mg/L	0.0001	<0.0001	2	20	99	90	110	96	70	130
Lead (total)	EMS0052-NOV22	mg/L	0.00009	<0.00001	2	20	98	90	110	86	70	130
Phosphorus (total)	EMS0052-NOV22	mg/L	0.003	<0.003	20	20	93	90	110	NV	70	130
Antimony (total)	EMS0052-NOV22	mg/L	0.0009	<0.0009	ND	20	104	90	110	112	70	130
Selenium (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	5	20	102	90	110	95	70	130
Tin (total)	EMS0052-NOV22	mg/L	0.00006	<0.00006	14	20	101	90	110	NV	70	130
Titanium (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	0	20	99	90	110	NV	70	130
Zinc (total)	EMS0052-NOV22	mg/L	0.002	<0.002	1	20	110	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9087-NOV22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			83	55	120			
Nonylphenol Ethoxylates	GCM0148-NOV22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			90	55	120			
Nonylphenol	GCM0148-NOV22	mg/L	0.001	< 0.001			91	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM5174-NOV22	mg/L	2	<2	NSS	20	106	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0124-NOV22	No unit	0.05	NA	0		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0078-NOV22	mg/L	0.002	<0.002	ND	10	95	80	120	111	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0127-NOV22	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	129	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	117	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0148-NOV22	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0094-NOV22	as N mg/L	0.5	<0.5	ND	10	102	90	110	103	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	103	50	140
1,2-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
1,4-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Benzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	101	60	130	103	50	140
Chloroform	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	104	50	140
m-p-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	103	50	140
Methyl ethyl ketone	GCM0117-NOV22	mg/L	0.02	<0.02	ND	30	97	50	140	100	50	140
Methylene Chloride	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
o-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	105	50	140
Styrene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
Tetrachloroethylene (perchloroethylene)	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Toluene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Trichloroethylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

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

No: 029791

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Nicole Brigante
Received By (signature): [signature]
CM
Received Date: Nov 12 / 22 (mm/dd/yy)
Custody Seal Present: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Received Time: 17 : 30 (hr : min)
Custody Seal Intact: Yes ☑ No ☐
Temperature Upon Receipt (°C) 9, 9, 9
LAB LIMS #: CA-40078-NOV22

REPORT INFORMATION	INVOICE INFORMATION
Company: DS Consultants ltd	☑ (same as Report Information)
Contact: Dorothy Santos	Company:
Address: 6221 Hwy 7, unit 16, Vaughan, ON	Contact: Accounting
Phone: 905 329 2735	Address:
Fax:	Phone:
Email: dorothy.santos@dsconsultants.ca	Email:

Quotation #:
P.O. #:
Project #: 20-167-104
Site Location/ID: 14275 The Gore Rd, Bolton (Macville)

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH, (B(HWS), EC, SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs ☐ Total ☐ Aroclor
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): (Peel Storm and Sanitary); PWQO; Sewer Use: (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended)
SPLP (Specify tests): ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN
TCLP (Specify tests): ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	(Peel Storm and Sanitary)	PWQO	COMMENTS:
1	BH 22-13	Nov 3rd, 22	PM	17	GW	N	✓	✓	Non filtered sample
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya	Signature: [signature]	Date: 11 / 03 / 22 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Harry	Signature: [signature]	Date: 11 / 03 / 22 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

SGS

FINAL REPORT

CA40079-NOV22 R1

20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8, Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2000
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA40079-NOV22
Project	20-169-104, 14275 The Gore Rd, Bolton (MacVille)	Received	11/03/2022
Order Number		Approved	11/11/2022
Samples	Ground Water (1)	Report Number	CA40079-NOV22 R1
		Date Reported	11/11/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029792

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40079-NOV22 R1

Client: DS Consultants
Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)
Project Manager: Dorothy Garda
Samplers: Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-32
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑
Total Suspended Solids	mg/L	2		98
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.10
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		63
Aluminum (0.2µm)	mg/L	0.001	0.075	0.001
Aluminum (total)	mg/L	0.001		0.608
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	< 0.0002
Cadmium (total)	mg/L	0.000003	0.0001	0.000005
Chromium (total)	mg/L	0.00008	0.1	0.00118
Copper (total)	mg/L	0.0002	0.001	0.0011
Cobalt (total)	mg/L	0.000004	0.0009	0.000342
Lead (total)	mg/L	0.00009	0.005	0.00043
Manganese (total)	mg/L	0.00001		0.0462
Molybdenum (total)	mg/L	0.00004	0.04	0.00084
Nickel (total)	mg/L	0.0001	0.025	0.0010
Phosphorus (total)	mg/L	0.003	0.01	0.073
Selenium (total)	mg/L	0.00004	0.1	< 0.00004
Silver (total)	mg/L	0.00005	0.0001	< 0.00005

FINAL REPORT

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number: 8
Sample Name: BH 22-32
Sample Matrix: Ground Water
Sample Date: 03/11/2022

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Tin (total)	mg/L	0.00006		0.00128
Titanium (total)	mg/L	0.00005		0.0246
Zinc (total)	mg/L	0.002	0.02	0.004
Microbiology				
E. Coli	cfu/100mL	0	100	1
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

CA40079-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH 22-32
			Sample Matrix	Ground Water
			Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**Result**
Other (ORP)				
pH	No unit	0.05	8.6	7.63
Mercury (total)	mg/L	0.00001	0.0002	< 0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

CA40079-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-32
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1

BH 22-32

Parameter	Method	Units	Result	L1
Copper	SM 3030/EPA 200.8	mg/L	0.0011	0.001
Phosphorus	SM 3030/EPA 200.8	mg/L	0.073	0.01
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5034-NOV22	mg/L	2	<2	1	20	103	80	120	104	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0008-NOV22	mg/L	2	< 2	9	30	105	70	130	115	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0057-NOV22	mg/L	0.01	<0.01	ND	10	100	90	110	106	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0127-NOV22	mg/L	0.06	<0.06	ND	10	103	90	110	105	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0012-NOV22	mg/L	0.00001	< 0.00001	15	20	90	80	120	95	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	ND	20	101	90	110	98	70	130
Aluminum (total)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Aluminum (0.2µm)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Arsenic (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	ND	20	101	90	110	104	70	130
Cadmium (total)	EMS0052-NOV22	mg/L	0.000003	<0.000003	5	20	99	90	110	98	70	130
Cobalt (total)	EMS0052-NOV22	mg/L	0.000004	<0.000004	1	20	98	90	110	95	70	130
Chromium (total)	EMS0052-NOV22	mg/L	0.00008	<0.00008	14	20	98	90	110	106	70	130
Copper (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	0	20	102	90	110	99	70	130
Manganese (total)	EMS0052-NOV22	mg/L	0.00001	<0.00001	0	20	101	90	110	95	70	130
Molybdenum (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	8	20	102	90	110	105	70	130
Nickel (total)	EMS0052-NOV22	mg/L	0.0001	<0.0001	2	20	99	90	110	96	70	130
Lead (total)	EMS0052-NOV22	mg/L	0.00009	<0.00001	2	20	98	90	110	86	70	130
Phosphorus (total)	EMS0052-NOV22	mg/L	0.003	<0.003	20	20	93	90	110	NV	70	130
Antimony (total)	EMS0052-NOV22	mg/L	0.0009	<0.0009	ND	20	104	90	110	112	70	130
Selenium (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	5	20	102	90	110	95	70	130
Tin (total)	EMS0052-NOV22	mg/L	0.00006	<0.00006	14	20	101	90	110	NV	70	130
Titanium (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	0	20	99	90	110	NV	70	130
Zinc (total)	EMS0052-NOV22	mg/L	0.002	<0.002	1	20	110	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9087-NOV22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			83	55	120			
Nonylphenol Ethoxylates	GCM0148-NOV22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			90	55	120			
Nonylphenol	GCM0148-NOV22	mg/L	0.001	< 0.001			91	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM5174-NOV22	mg/L	2	<2	NSS	20	106	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0124-NOV22	No unit	0.05	NA	0		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0078-NOV22	mg/L	0.002	<0.002	ND	10	95	80	120	111	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0127-NOV22	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0219-NOV22	mg/L	0.002	< 0.002	NSS	30	125	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0219-NOV22	mg/L	0.002	< 0.002	NSS	30	117	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0148-NOV22	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0082-NOV22	as N mg/L	0.5	<0.5	ND	10	101	90	110	99	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	103	50	140
1,2-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
1,4-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Benzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	101	60	130	103	50	140
Chloroform	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	104	50	140
m-p-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	103	50	140
Methyl ethyl ketone	GCM0117-NOV22	mg/L	0.02	<0.02	ND	30	97	50	140	100	50	140
Methylene Chloride	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
o-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	105	50	140
Styrene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
Tetrachloroethylene (perchloroethylene)	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Toluene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Trichloroethylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm.
The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

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

No: 029792

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Nicole Bryant
Received By (signature): NB
Received Date: Nov 12 / 22 (mm/dd/yy)
Received Time: 12 : 30 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C) 9 . 9 . 9

CA 40079-NOV22

LAB LIMS #: ~~Nov 3 40079~~

REPORT INFORMATION	INVOICE INFORMATION
Company: DS Consultants Ltd	☑ (same as Report Information)
Contact: Dorothy Santos	Company:
Address: 6221 Hwy 7, Unit 16, Vaughan, ON	Contact: Accounting
	Address:
Phone: 905 329 2735	Phone:
Fax:	
Email: dorothy.santos@dsconsultants.ca	Email:

Quotation #:
P.O. #:
Project #: 20-167-104
Site Location/ID: 14275 The Gore Rd, Bolton (Macville)

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19

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

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

Sewer By-Law:
☑ Sanitary
☐ Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Analysis columns: M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn). SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs). PCB: PCBs (☐ Aroclor ☐ Total). PHC: F1-F4 + BTEX; F1-F4 only (no BTEX). VOC: VOCs (all incl BTEX); BTEX only. Pest: Pesticides (Organochlorine or specify other). Other (please specify): (Peel Storm and Sanitary Use); PWQO; Sewer Use: (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended). SPLP (Specify tests): ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN. TCLP (Specify tests): ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	(Peel Storm and Sanitary Use)	PWQO				Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS:
1	BH 22-32	Nov 3rd, 22	PM	17	GW	N												✓	✓								Non Filtered Sample
2																											
3																											
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya	Signature: Harry	Date: 11 / 03 / 22 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Harry	Signature: Harry	Date: 11 / 03 / 22 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

FINAL REPORT

CA40079-NOV22 R1

20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2000
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA40079-NOV22
Project	20-169-104, 14275 The Gore Rd, Bolton (MacVille)	Received	11/03/2022
Order Number		Approved	11/11/2022
Samples	Ground Water (1)	Report Number	CA40079-NOV22 R1
		Date Reported	11/11/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029792

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40079-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-32
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4↑
Total Suspended Solids	mg/L	2	350	15	98
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.10
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		63
Aluminum (0.2µm)	mg/L	0.001			0.001
Aluminum (total)	mg/L	0.001	50		0.608
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	< 0.0002
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000005
Chromium (total)	mg/L	0.00008	5	0.08	0.00118
Copper (total)	mg/L	0.0002	3	0.05	0.0011
Cobalt (total)	mg/L	0.000004	5		0.000342
Lead (total)	mg/L	0.00009	3	0.12	0.00043
Manganese (total)	mg/L	0.00001	5	0.05	0.0462
Molybdenum (total)	mg/L	0.00004	5		0.00084
Nickel (total)	mg/L	0.0001	3	0.08	0.0010
Phosphorus (total)	mg/L	0.003	10	0.4	0.073
Selenium (total)	mg/L	0.00004	1	0.02	< 0.00004
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005

FINAL REPORT

CA40079-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-32
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Metals and Inorganics (continued)					
Tin (total)	mg/L	0.00006	5		0.00128
Titanium (total)	mg/L	0.00005	5		0.0246
Zinc (total)	mg/L	0.002	3	0.04	0.004
Microbiology					
E. Coli	cfu/100mL	0		200	1
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-32
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Other (ORP)					
pH	No unit	0.05	10	9	7.63
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

FINAL REPORT

CA40079-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton (MacVille)

Project Manager: Dorothy Garda

Samplers: Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-32
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2
BH 22-32					
Total Suspended Solids	SM 2540D	mg/L	98		15

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5034-NOV22	mg/L	2	<2	1	20	103	80	120	104	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0008-NOV22	mg/L	2	< 2	9	30	105	70	130	115	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0057-NOV22	mg/L	0.01	<0.01	ND	10	100	90	110	106	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0127-NOV22	mg/L	0.06	<0.06	ND	10	103	90	110	105	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0012-NOV22	mg/L	0.00001	< 0.00001	15	20	90	80	120	95	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	ND	20	101	90	110	98	70	130
Aluminum (total)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Aluminum (0.2µm)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Arsenic (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	ND	20	101	90	110	104	70	130
Cadmium (total)	EMS0052-NOV22	mg/L	0.000003	<0.000003	5	20	99	90	110	98	70	130
Cobalt (total)	EMS0052-NOV22	mg/L	0.000004	<0.000004	1	20	98	90	110	95	70	130
Chromium (total)	EMS0052-NOV22	mg/L	0.00008	<0.00008	14	20	98	90	110	106	70	130
Copper (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	0	20	102	90	110	99	70	130
Manganese (total)	EMS0052-NOV22	mg/L	0.00001	<0.00001	0	20	101	90	110	95	70	130
Molybdenum (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	8	20	102	90	110	105	70	130
Nickel (total)	EMS0052-NOV22	mg/L	0.0001	<0.0001	2	20	99	90	110	96	70	130
Lead (total)	EMS0052-NOV22	mg/L	0.00009	<0.00001	2	20	98	90	110	86	70	130
Phosphorus (total)	EMS0052-NOV22	mg/L	0.003	<0.003	20	20	93	90	110	NV	70	130
Antimony (total)	EMS0052-NOV22	mg/L	0.0009	<0.0009	ND	20	104	90	110	112	70	130
Selenium (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	5	20	102	90	110	95	70	130
Tin (total)	EMS0052-NOV22	mg/L	0.00006	<0.00006	14	20	101	90	110	NV	70	130
Titanium (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	0	20	99	90	110	NV	70	130
Zinc (total)	EMS0052-NOV22	mg/L	0.002	<0.002	1	20	110	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D I Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9087-NOV22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			83	55	120			
Nonylphenol Ethoxylates	GCM0148-NOV22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			90	55	120			
Nonylphenol	GCM0148-NOV22	mg/L	0.001	< 0.001			91	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM5174-NOV22	mg/L	2	<2	NSS	20	106	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0124-NOV22	No unit	0.05	NA	0		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0078-NOV22	mg/L	0.002	<0.002	ND	10	95	80	120	111	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0127-NOV22	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Bis(2-ethylhexyl)phthalate	GCM0219-NOV22	mg/L	0.002	< 0.002	NSS	30	125	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0219-NOV22	mg/L	0.002	< 0.002	NSS	30	117	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Suspended Solids	EWL0148-NOV22	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Kjeldahl Nitrogen	SKA0082-NOV22	as N mg/L	0.5	<0.5	ND	10	101	90	110	99	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	103	50	140
1,2-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
1,4-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Benzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	101	60	130	103	50	140
Chloroform	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	104	50	140
m-p-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	103	50	140
Methyl ethyl ketone	GCM0117-NOV22	mg/L	0.02	<0.02	ND	30	97	50	140	100	50	140
Methylene Chloride	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
o-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	105	50	140
Styrene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
Tetrachloroethylene (perchloroethylene)	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Toluene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Trichloroethylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm.
The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 029792

Page 1 of 1

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

Laboratory Information Section - Lab use only

Received By: Nicole Bryant
Received By (signature): NB
Received Date: Nov 12/22 (mm/dd/yy)
Received Time: 12 : 30 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C): 9 . 9 . 9

CA 40079-NOV22

LAB LIMS #: ~~Nov 3 40079~~

REPORT INFORMATION	INVOICE INFORMATION
Company: DS Consultants Ltd	☑ (same as Report Information)
Contact: Dorothy Santos	Company:
Address: 6221 Hwy 7, Unit 16, Vaughan, ON	Contact: Accounting
	Address:
Phone: 905 329 2735	
Fax:	Phone:
Email: dorothy.santos@dsconsultants.ca	Email:

Quotation #:
P.O. #:
Project #: 20-167-104
Site Location/ID: 14275 The Gore Rd, Bolton (Macville)

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Analysis columns: Field Filtered (Y/N); M & I: Metals & Inorganics (incl CrVI, CN, Hg pH, (B(HWS), EC, SAR-soil) (Cl, Na-water)), Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI), ICP Metals only (Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn); SVOC: PAHs only, SVOCs (all incl PAHs, ABNs, CPs); PCB: PCBs (☐ Aroclor, ☐ Total); PHC: F1-F4 + BTEX, F1-F4 only (no BTEX); VOC: VOCs (all incl BTEX), BTEX only; Pest: Pesticides (Organochlorine or specify other); Other (please specify): (Peel Storm and Sanitary Use), PWQO; Sewer Use (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended); SPLP Specify tests (☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN); TCLP Specify tests (☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.)

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	Other: (Peel Storm and Sanitary Use)	Other: PWQO	Other	Other	Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS
1	BH 22-32	Nov 3rd, 22	PM	17	GW	N												✓	✓							Non Filtered Sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya	Signature: Harry	Date: 11 / 03 / 22 (mm/dd/yy)		Pink Copy - Client
Relinquished by (NAME): Harry	Signature: Harry	Date: 11 / 03 / 22 (mm/dd/yy)		Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

FINAL REPORT

CA40080-NOV22 R1

20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2000
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA40080-NOV22
Project	20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)	Received	11/03/2022
Order Number		Approved	11/11/2022
Samples	Ground Water (1)	Report Number	CA40080-NOV22 R1
		Date Reported	11/11/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029793

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40080-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Project Manager: Dorothy Garda

Samplers: Chaitanya Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-17
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑
Total Suspended Solids	mg/L	2		169
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.12
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		50
Aluminum (0.2µm)	mg/L	0.001	0.075	0.003
Aluminum (total)	mg/L	0.001		1.64
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0009
Cadmium (total)	mg/L	0.000003	0.0001	0.000013
Chromium (total)	mg/L	0.00008	0.1	0.00283
Copper (total)	mg/L	0.0002	0.001	0.0025
Cobalt (total)	mg/L	0.000004	0.0009	0.00106
Lead (total)	mg/L	0.00009	0.005	0.00108
Manganese (total)	mg/L	0.00001		0.101
Molybdenum (total)	mg/L	0.00004	0.04	0.00151
Nickel (total)	mg/L	0.0001	0.025	0.0021
Phosphorus (total)	mg/L	0.003	0.01	0.098
Selenium (total)	mg/L	0.00004	0.1	0.00015
Silver (total)	mg/L	0.00005	0.0001	< 0.00005

FINAL REPORT

Client: DS Consultants
Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)
Project Manager: Dorothy Garda
Samplers: Chaitanya Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH 22-17
			Sample Matrix	Ground Water
			Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**Result**
Metals and Inorganics (continued)				
Tin (total)	mg/L	0.00006		0.00188
Titanium (total)	mg/L	0.00005		0.0409
Zinc (total)	mg/L	0.002	0.02	0.006
Microbiology				
E. Coli	cfu/100mL	0	100	0
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

Client: DS Consultants
Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)
Project Manager: Dorothy Garda
Samplers: Chaitanya Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-17
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	7.61
Mercury (total)	mg/L	0.00001	0.0002	0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Project Manager: Dorothy Garda

Samplers: Chaitanya Harry

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-17
Sample Matrix	Ground Water
Sample Date	03/11/2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH 22-17				
Cobalt	SM 3030/EPA 200.8	mg/L	0.00106	0.0009
Copper	SM 3030/EPA 200.8	mg/L	0.0025	0.001
Phosphorus	SM 3030/EPA 200.8	mg/L	0.098	0.01
4AAP-Phenolics	SM 5530B-D	mg/L	0.002	0.001

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5034-NOV22	mg/L	2	<2	1	20	103	80	120	104	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0008-NOV22	mg/L	2	< 2	9	30	105	70	130	115	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0057-NOV22	mg/L	0.01	<0.01	ND	10	100	90	110	106	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0127-NOV22	mg/L	0.06	<0.06	ND	10	103	90	110	105	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0012-NOV22	mg/L	0.00001	< 0.00001	15	20	90	80	120	95	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	ND	20	101	90	110	98	70	130
Aluminum (total)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Aluminum (0.2µm)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Arsenic (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	ND	20	101	90	110	104	70	130
Cadmium (total)	EMS0052-NOV22	mg/L	0.000003	<0.000003	5	20	99	90	110	98	70	130
Cobalt (total)	EMS0052-NOV22	mg/L	0.000004	<0.000004	1	20	98	90	110	95	70	130
Chromium (total)	EMS0052-NOV22	mg/L	0.00008	<0.00008	14	20	98	90	110	106	70	130
Copper (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	0	20	102	90	110	99	70	130
Manganese (total)	EMS0052-NOV22	mg/L	0.00001	<0.00001	0	20	101	90	110	95	70	130
Molybdenum (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	8	20	102	90	110	105	70	130
Nickel (total)	EMS0052-NOV22	mg/L	0.0001	<0.0001	2	20	99	90	110	96	70	130
Lead (total)	EMS0052-NOV22	mg/L	0.00009	<0.00001	2	20	98	90	110	86	70	130
Phosphorus (total)	EMS0052-NOV22	mg/L	0.003	<0.003	20	20	93	90	110	NV	70	130
Antimony (total)	EMS0052-NOV22	mg/L	0.0009	<0.0009	ND	20	104	90	110	112	70	130
Selenium (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	5	20	102	90	110	95	70	130
Tin (total)	EMS0052-NOV22	mg/L	0.00006	<0.00006	14	20	101	90	110	NV	70	130
Titanium (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	0	20	99	90	110	NV	70	130
Zinc (total)	EMS0052-NOV22	mg/L	0.002	<0.002	1	20	110	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9087-NOV22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			83	55	120			
Nonylphenol Ethoxylates	GCM0148-NOV22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			90	55	120			
Nonylphenol	GCM0148-NOV22	mg/L	0.001	< 0.001			91	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM5174-NOV22	mg/L	2	<2	NSS	20	106	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0124-NOV22	No unit	0.05	NA	0		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0078-NOV22	mg/L	0.002	<0.002	ND	10	95	80	120	111	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0127-NOV22	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	129	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	117	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0148-NOV22	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0082-NOV22	as N mg/L	0.5	<0.5	ND	10	101	90	110	99	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	103	50	140
1,2-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
1,4-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Benzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	101	60	130	103	50	140
Chloroform	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	104	50	140
m-p-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	103	50	140
Methyl ethyl ketone	GCM0117-NOV22	mg/L	0.02	<0.02	ND	30	97	50	140	100	50	140
Methylene Chloride	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
o-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	105	50	140
Styrene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
Tetrachloroethylene (perchloroethylene)	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Toluene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Trichloroethylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

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

No: 029793

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Nicole Bryant
Received By (signature): [signature]
Received Date: NOV 3 22 (mm/dd/yy)
Received Time: 17 : 30 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C) 9, 9, 9
LAB LIMS #: CA-40080-NOV22

REPORT INFORMATION	INVOICE INFORMATION
Company: DS consultants Ltd	☑ (same as Report Information)
Contact: Dorthy Santos	Company:
Address: 6221 Hwy-7, Unit-16 Vaughan, ON	Contact: Accounting
	Address:
Phone:	Phone:
Fax:	
Email: dorthy.santos@dsconsultants.ca	Email:

Quotation #:
P.O. #:
Project #: 20-169-104
Site Location/ID: 14275 The Gore Rd, Bolton ON (Macville)

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

Sewer By-Law:
☑ Sanitary
☐ Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Column groups: M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn). SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs). PCB: PCBs (☐ Total ☐ Aroclor). PHC: F1-F4 + BTEX; F1-F4 only (no BTEX). VOC: VOCs (all incl BTEX); BTEX only. Pest: Pesticides (Organochlorine or specify other). Other (please specify): Peel sanitary / storm sewer Bylaw; PWQO; Sewer Use (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended). SPLP (Specify tests: ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN). TCLP (Specify tests: ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.)

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	Peel sanitary / storm sewer Bylaw	PWQO			Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS:
1	BH 22-17	Nov 03	PM	17	GW	N												✓	✓							Non-filtered sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Chaitanya / Harry Signature: Chaitanya Date: 11 / 3 / 22 (mm/dd/yy) Pink Copy - Client

Relinquished by (NAME): Harry Signature: Harry Date: 11 / 3 / 22 (mm/dd/yy) Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

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

FINAL REPORT

CA40080-NOV22 R1

20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Garda	Telephone	705-652-2000
Telephone	905-264-9393	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.garda@dsconsultants.ca	SGS Reference	CA40080-NOV22
Project	20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)	Received	11/03/2022
Order Number		Approved	11/11/2022
Samples	Ground Water (1)	Report Number	CA40080-NOV22 R1
		Date Reported	11/11/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029793

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40080-NOV22 R1

Client: DS Consultants
Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)
Project Manager: Dorothy Garda
Samplers: Chaitanya Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-17
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4↑
Total Suspended Solids	mg/L	2	350	15	169
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.12
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		50
Aluminum (0.2µm)	mg/L	0.001			0.003
Aluminum (total)	mg/L	0.001	50		1.64
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0009
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000013
Chromium (total)	mg/L	0.00008	5	0.08	0.00283
Copper (total)	mg/L	0.0002	3	0.05	0.0025
Cobalt (total)	mg/L	0.000004	5		0.00106
Lead (total)	mg/L	0.00009	3	0.12	0.00108
Manganese (total)	mg/L	0.00001	5	0.05	0.101
Molybdenum (total)	mg/L	0.00004	5		0.00151
Nickel (total)	mg/L	0.0001	3	0.08	0.0021
Phosphorus (total)	mg/L	0.003	10	0.4	0.098
Selenium (total)	mg/L	0.00004	1	0.02	0.00015
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005

FINAL REPORT

CA40080-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Project Manager: Dorothy Garda

Samplers: Chaitanya Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-17
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Metals and Inorganics (continued)					
Tin (total)	mg/L	0.00006	5		0.00188
Titanium (total)	mg/L	0.00005	5		0.0409
Zinc (total)	mg/L	0.002	3	0.04	0.006
Microbiology					
E. Coli	cfu/100mL	0		200	0
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

FINAL REPORT

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Project Manager: Dorothy Garda

Samplers: Chaitanya Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-17
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Other (ORP)					
pH	No unit	0.05	10	9	7.61
Mercury (total)	mg/L	0.00001	0.01	0.0004	0.00001
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

FINAL REPORT

CA40080-NOV22 R1

Client: DS Consultants

Project: 20-169-104, 14275 The Gore Rd, Bolton, ON. (Macville)

Project Manager: Dorothy Garda

Samplers: Chaitanya Harry

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-17
				Sample Matrix	Ground Water
				Sample Date	03/11/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2
BH 22-17					
Total Suspended Solids	SM 2540D	mg/L	169		15
Manganese	SM 3030/EPA 200.8	mg/L	0.101		0.05

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Sulphate	DIO5034-NOV22	mg/L	2	<2	1	20	103	80	120	104	75	125

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Biochemical Oxygen Demand (BOD5)	BOD0008-NOV22	mg/L	2	< 2	9	30	105	70	130	115	70	130

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Cyanide (total)	SKA0057-NOV22	mg/L	0.01	<0.01	ND	10	100	90	110	106	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0127-NOV22	mg/L	0.06	<0.06	ND	10	103	90	110	105	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0012-NOV22	mg/L	0.00001	< 0.00001	15	20	90	80	120	95	70	130

FINAL REPORT

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	ND	20	101	90	110	98	70	130
Aluminum (total)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Aluminum (0.2µm)	EMS0052-NOV22	mg/L	0.001	<0.001	2	20	101	90	110	102	70	130
Arsenic (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	ND	20	101	90	110	104	70	130
Cadmium (total)	EMS0052-NOV22	mg/L	0.000003	<0.000003	5	20	99	90	110	98	70	130
Cobalt (total)	EMS0052-NOV22	mg/L	0.000004	<0.000004	1	20	98	90	110	95	70	130
Chromium (total)	EMS0052-NOV22	mg/L	0.00008	<0.00008	14	20	98	90	110	106	70	130
Copper (total)	EMS0052-NOV22	mg/L	0.0002	<0.0002	0	20	102	90	110	99	70	130
Manganese (total)	EMS0052-NOV22	mg/L	0.00001	<0.00001	0	20	101	90	110	95	70	130
Molybdenum (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	8	20	102	90	110	105	70	130
Nickel (total)	EMS0052-NOV22	mg/L	0.0001	<0.0001	2	20	99	90	110	96	70	130
Lead (total)	EMS0052-NOV22	mg/L	0.00009	<0.00001	2	20	98	90	110	86	70	130
Phosphorus (total)	EMS0052-NOV22	mg/L	0.003	<0.003	20	20	93	90	110	NV	70	130
Antimony (total)	EMS0052-NOV22	mg/L	0.0009	<0.0009	ND	20	104	90	110	112	70	130
Selenium (total)	EMS0052-NOV22	mg/L	0.00004	<0.00004	5	20	102	90	110	95	70	130
Tin (total)	EMS0052-NOV22	mg/L	0.00006	<0.00006	14	20	101	90	110	NV	70	130
Titanium (total)	EMS0052-NOV22	mg/L	0.00005	<0.00005	0	20	99	90	110	NV	70	130
Zinc (total)	EMS0052-NOV22	mg/L	0.002	<0.002	1	20	110	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9087-NOV22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Nonylphenol diethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			83	55	120			
Nonylphenol Ethoxylates	GCM0148-NOV22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0148-NOV22	mg/L	0.01	< 0.01			90	55	120			
Nonylphenol	GCM0148-NOV22	mg/L	0.001	< 0.001			91	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM5174-NOV22	mg/L	2	<2	NSS	20	106	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM5174-NOV22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0124-NOV22	No unit	0.05	NA	0		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0078-NOV22	mg/L	0.002	<0.002	ND	10	95	80	120	111	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0127-NOV22	mg/L	0.0001	<0.0001	NSS	30	87	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	129	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0113-NOV22	mg/L	0.002	< 0.002	NSS	30	117	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0148-NOV22	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0082-NOV22	as N mg/L	0.5	<0.5	ND	10	101	90	110	99	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	103	50	140
1,2-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
1,4-Dichlorobenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Benzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	101	60	130	103	50	140
Chloroform	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140
cis-1,2-Dichloroethene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	104	50	140
m-p-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	103	50	140
Methyl ethyl ketone	GCM0117-NOV22	mg/L	0.02	<0.02	ND	30	97	50	140	100	50	140
Methylene Chloride	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
o-xylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	102	60	130	105	50	140
Styrene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	104	60	130	106	50	140
Tetrachloroethylene (perchloroethylene)	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Toluene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
trans-1,3-Dichloropropene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	100	60	130	101	50	140
Trichloroethylene	GCM0117-NOV22	mg/L	0.0005	<0.0005	ND	30	99	60	130	101	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

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

No: 029793
Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Nicole Bryant
Received By (signature): [signature]
Received Date: NW 3 22 (mm/dd/yy)
Custody Seal Present: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Received Time: 17 : 30 (hr : min)
Custody Seal Intact: Yes ☑ No ☐
Temperature Upon Receipt (°C) 9, 9, 9
LAB LIMS #: CA-40080-NOV22

REPORT INFORMATION	INVOICE INFORMATION	
Company: DS consultants Ltd	☑ (same as Report Information)	Quotation #: ____ P.O. #: ____
Contact: Dorthy Santos	Company:	Project #: 20-169-104 Site Location/ID: 14275 The Gore Rd, Bolton ON (Macville)
Address: 6221 Hwy-7, Unit-16	Contact: Accounting	
Vaughan, ON	Address:	
Phone:		
Fax:	Phone:	
Email: dorthy.santos@dsconsultants.ca	Email:	Specify Due Date:

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

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

REGULATIONS

O.Reg 153/04 / O.Reg 406/19	Other Regulations:	Sewer By-Law:
☐ O.Reg 153/04 ☐ O.Reg 406/19	☐ Reg 347/558 (3 Day min TAT)	☑ Sanitary
☐ Table 1 ☐ Res/Park Soil Texture:	☑ PWQO ☐ MMER	☐ Storm
☐ Table 2 ☐ Ind/Com ☐ Coarse	☐ CCME ☐ Other:	Municipality: Peel
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine	☐ MISA	
☐ Table ____ Appx. ____	☐ ODWS Not Reportable *See note	
Soil Volume ☐ <350m3 ☐ >350m3		

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Analysis columns: Field Filtered (Y/N); M & I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)), Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI), ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn); SVOC: PAHs only, SVOCs (all incl PAHs, ABNs, CPs); PCB: PCBs (☐ Total ☐ Aroclor); PHC: F1-F4 + BTEX, F1-F4 only (no BTEX); VOC: VOCs (all incl BTEX), BTEX only; Pest: Pesticides (Organochlorine or specify other); Other (please specify): Peel sanitary / Storm sewer Use, PWQO; Sewer Use: (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended); SPLP Specify tests (☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN); TCLP Specify tests (☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.)

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Peel sanitary / Storm sewer Use	PWQO	COMMENTS:
1	BH 22-17	Nov 03	PM	17	GW	N	✓	✓	Non-filtered sample
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Observations/Comments/Special Instructions

Sampled By (NAME): Chaitanya / Harry	Signature: [signature]	Date: 11 / 3 / 22 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): Harry	Signature: [signature]	Date: 11 / 03 / 22 (mm/dd/yy)	Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

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

FINAL REPORT

CA40033-JUL23 R1

20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada
Contact	Dorothy Santos
Telephone	905-329-2735
Facsimile	905-264-2685
Email	dorothy.santos@dsconsultants.ca
Project	20-169-105, 14155 The Gore Rd, C aledon Macville Properties
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA40033-JUL23
Received	07/07/2023
Approved	07/14/2023
Report Number	CA40033-JUL23 R1
Date Reported	07/14/2023

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 036524

Spike rep slightly high, accepted results based off other QC

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40033-JUL23 R1

Client: DS Consultants

Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Project Manager: Dorothy Santos

Samplers: Ken

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

					Sample Number	8
					Sample Name	BH23-1D
					Sample Matrix	Ground Water
					Sample Date	07/07/2023
Parameter	**Units**	**RL**	**L1**	**L2**		**Result**
General Chemistry						
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15		< 4↑
Total Suspended Solids	mg/L	2	350	15		139
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1		< 0.5
Metals and Inorganics						
Fluoride	mg/L	0.06	10			0.12
Cyanide (total)	mg/L	0.01	2	0.02		< 0.01
Sulphate	mg/L	2	1500			9
Aluminum (total)	mg/L	0.001	50			1.91
Antimony (total)	mg/L	0.0009	5			< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02		0.0012
Cadmium (total)	mg/L	0.000003	0.7	0.008		0.000014
Chromium (total)	mg/L	0.00008	5	0.08		0.00216
Copper (total)	mg/L	0.0002	3	0.05		0.0042
Cobalt (total)	mg/L	0.000004	5			0.00108
Lead (total)	mg/L	0.00009	3	0.12		0.00157
Manganese (total)	mg/L	0.00001	5	0.05		0.0849
Molybdenum (total)	mg/L	0.00004	5			0.00148
Nickel (total)	mg/L	0.0001	3	0.08		0.0027
Phosphorus (total)	mg/L	0.003	10	0.4		0.129
Selenium (total)	mg/L	0.00004	1	0.02		< 0.00004
Silver (total)	mg/L	0.00005	5	0.12		< 0.00005
Tin (total)	mg/L	0.00006	5			0.00035

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Sample Number	8
Sample Name	BH23-1D
Sample Matrix	Ground Water
Sample Date	07/07/2023

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.00007	5		0.0562
Zinc (total)	mg/L	0.002	3	0.04	0.012
Microbiology					
E. Coli	cfu/100mL	0		200	4
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

FINAL REPORT

CA40033-JUL23 R1

Client: DS Consultants

Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Project Manager: Dorothy Santos

Samplers: Ken

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

				Sample Number	8
				Sample Name	BH23-1D
				Sample Matrix	Ground Water
				Sample Date	07/07/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Other (ORP)					
pH	No unit	0.05	10	9	7.95
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

FINAL REPORT

Client: DS Consultants

Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Project Manager: Dorothy Santos

Samplers: Ken

MATRIX: WATER

Sample Number	8
Sample Name	BH23-1D
Sample Matrix	Ground Water
Sample Date	07/07/2023

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010 L2
BH23-1D					
Total Suspended Solids	SM 2540D	mg/L	139		15
Manganese	SM 3030/EPA 200.8	mg/L	0.0849		0.05

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5026-JUL23	mg/L	2	<2	1	20	106	80	120	110	75	125

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0013-JUL23	mg/L	2	< 2	1	30	101	70	130	131	70	130

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0065-JUL23	mg/L	0.01	<0.01	ND	10	101	90	110	NV	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0144-JUL23	mg/L	0.06	<0.06	3	10	101	90	110	104	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0016-JUL23	mg/L	0.00001	< 0.00001	0	20	105	80	120	104	70	130

FINAL REPORT

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0048-JUL23	mg/L	0.00005	<0.00005	ND	20	96	90	110	93	70	130
Aluminum (total)	EMS0048-JUL23	mg/L	0.001	<0.001	2	20	93	90	110	88	70	130
Arsenic (total)	EMS0048-JUL23	mg/L	0.0002	<0.0002	4	20	98	90	110	107	70	130
Cadmium (total)	EMS0048-JUL23	mg/L	0.000003	<0.000003	4	20	95	90	110	108	70	130
Cobalt (total)	EMS0048-JUL23	mg/L	0.000004	<0.000004	5	20	94	90	110	103	70	130
Chromium (total)	EMS0048-JUL23	mg/L	0.00008	<0.00008	1	20	98	90	110	110	70	130
Copper (total)	EMS0048-JUL23	mg/L	0.0002	<0.0002	4	20	98	90	110	112	70	130
Manganese (total)	EMS0048-JUL23	mg/L	0.00001	<0.00001	3	20	100	90	110	115	70	130
Molybdenum (total)	EMS0048-JUL23	mg/L	0.00004	<0.00004	2	20	103	90	110	116	70	130
Nickel (total)	EMS0048-JUL23	mg/L	0.0001	<0.0001	1	20	99	90	110	106	70	130
Lead (total)	EMS0048-JUL23	mg/L	0.00009	<0.00009	1	20	98	90	110	107	70	130
Phosphorus (total)	EMS0048-JUL23	mg/L	0.003	<0.003	5	20	102	90	110	NV	70	130
Antimony (total)	EMS0048-JUL23	mg/L	0.0009	<0.0009	ND	20	109	90	110	103	70	130
Selenium (total)	EMS0048-JUL23	mg/L	0.00004	<0.00004	0	20	96	90	110	110	70	130
Tin (total)	EMS0048-JUL23	mg/L	0.00006	<0.00006	ND	20	99	90	110	NV	70	130
Titanium (total)	EMS0048-JUL23	mg/L	0.00007	<0.00005	1	20	99	90	110	NV	70	130
Zinc (total)	EMS0048-JUL23	mg/L	0.002	<0.002	1	20	94	90	110	112	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9121-JUL23	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0145-JUL23	mg/L	0.01	<0.01			84	55	120			
Nonylphenol Ethoxylates	GCM0145-JUL23	mg/L	0.01	0								
Nonylphenol monoethoxylate	GCM0145-JUL23	mg/L	0.01	<0.01			82	55	120			
Nonylphenol	GCM0145-JUL23	mg/L	0.001	<0.001			63	55	120			

FINAL REPORT

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM0167-JUL23	mg/L	2	<2	NSS	20	102	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM0167-JUL23	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0167-JUL23	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0227-JUL23	No unit	0.05	NA	1		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0094-JUL23	mg/L	0.002	<0.002	ND	10	91	80	120	101	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0105-JUL23	mg/L	0.0001	<0.0001	NSS	30	136	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0110-JUL23	mg/L	0.002	< 0.002	NSS	30	116	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0110-JUL23	mg/L	0.002	< 0.002	NSS	30	105	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0250-JUL23	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0074-JUL23	as N mg/L	0.5	<0.5	6	10	97	90	110	92	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	103	60	130	111	50	140
1,2-Dichlorobenzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	86	60	130	92	50	140
1,4-Dichlorobenzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	86	60	130	90	50	140
Benzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	88	60	130	94	50	140
Chloroform	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	84	60	130	91	50	140
cis-1,2-Dichloroethene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	91	60	130	96	50	140
Ethylbenzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	91	60	130	95	50	140
m-p-xylene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	92	60	130	97	50	140
Methyl ethyl ketone	GCM0120-JUL23	mg/L	0.02	<0.02	ND	30	105	50	140	112	50	140
Methylene Chloride	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	90	60	130	97	50	140
o-xylene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	93	60	130	97	50	140
Styrene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	91	60	130	95	50	140
Tetrachloroethylene (perchloroethylene)	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	93	60	130	96	50	140
Toluene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	95	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	79	60	130	90	50	140
Trichloroethylene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	102	60	130	106	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 036524

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

Page ____ of ____

Laboratory Information Section - Lab use only

Received By: Abneer
Received Date: 07 / 07 / 23 (mm/dd/yy)
Received Time: 10 : 30 (hr : min)
Received By (signature): AR
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ICE
Temperature Upon Receipt (°C) 9x3
LAB LIMS #: ~~Jul 40033~~ CA40033-Jul23

REPORT INFORMATION

Company: DS Consultants Ltd.
Contact: Dorothy Santos
Address: 6221 Hwy 7, Unit 16, Vaughan
Phone: 905-329-2735
Fax:
Email: DSantos@dsconsultants.ca

INVOICE INFORMATION

☑ (Same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 20-169-105
Site Location/ID: 14155 The Gore Rd. Caledon Maxville Properties

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Analysis columns: Field Filtered (Y/N); M & I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn); SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs); PCB: PCBs (☐ Total ☐ Aroclor); PHC: F1-F4 + BTEX; F1-F4 only (no BTEX); VOC: VOCs (all incl BTEX); BTEX only; Pest: Pesticides (Organochlorine or specify other); Other (please specify): Peel Storm (Sanitary) sewer use by-law; Sewer Use: (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended); SPLP Specify tests (☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN); TCLP Specify tests (☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.)

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Peel Storm (Sanitary) sewer use by-law	COMMENTS
1	BH 23-1 D	7/7/23	Am		GW	N	✓	Non filtered
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Observations/Comments/Special Instructions

Sampled By (NAME): Ken Signature: Ken Date: July 7 / 2023 (mm/dd/yy)
Relinquished by (NAME): Ken Signature: Ken Date: July 7 / 2023 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.7
Date of Issue: 07 JUNE 2023

SGS

FINAL REPORT

CA40033-JUL23 R1

20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	705-652-2143
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	brad.moore@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40033-JUL23
Project	20-169-105, 14155 The Gore Rd, C aledon Macville Properties	Received	07/07/2023
Order Number		Approved	07/14/2023
Samples	Ground Water (1)	Report Number	CA40033-JUL23 R1
		Date Reported	10/11/2023

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 036524

Spike rep slightly high, accepted results based off other QC

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40033-JUL23 R1

Client: DS Consultants
Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties
Project Manager: Dorothy Santos
Samplers: Ken

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH23-1D
Sample Matrix	Ground Water
Sample Date	07/07/2023

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑
Total Suspended Solids	mg/L	2		139
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.12
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		9
Aluminum (total)	mg/L	0.001		1.91
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0012
Cadmium (total)	mg/L	0.000003	0.0001	0.000014
Chromium (total)	mg/L	0.00008	0.1	0.00216
Copper (total)	mg/L	0.0002	0.001	0.0042
Cobalt (total)	mg/L	0.000004	0.0009	0.00108
Lead (total)	mg/L	0.00009	0.005	0.00157
Manganese (total)	mg/L	0.00001		0.0849
Molybdenum (total)	mg/L	0.00004	0.04	0.00148
Nickel (total)	mg/L	0.0001	0.025	0.0027
Phosphorus (total)	mg/L	0.003	0.01	0.129
Selenium (total)	mg/L	0.00004	0.1	< 0.00004
Silver (total)	mg/L	0.00005	0.0001	< 0.00005
Tin (total)	mg/L	0.00006		0.00035

Client: DS Consultants

Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Project Manager: Dorothy Santos

Samplers: Ken

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH23-1D
			Sample Matrix	Ground Water
			Sample Date	07/07/2023

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Titanium (total)	mg/L	0.00007		0.0562
Zinc (total)	mg/L	0.002	0.02	0.012
Microbiology				
E. Coli	cfu/100mL	0	100	4
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

CA40033-JUL23 R1

Client: DS Consultants
Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties
Project Manager: Dorothy Santos
Samplers: Ken

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH23-1D
Sample Matrix	Ground Water
Sample Date	07/07/2023

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	7.95
Mercury (total)	mg/L	0.00001	0.0002	< 0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

CA40033-JUL23 R1

Client: DS Consultants

Project: 20-169-105, 14155 The Gore Rd, C aledon Macville Properties

Project Manager: Dorothy Santos

Samplers: Ken

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH23-1D
Sample Matrix	Ground Water
Sample Date	07/07/2023

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH23-1D				
Cobalt	SM 3030/EPA 200.8	mg/L	0.00108	0.0009
Copper	SM 3030/EPA 200.8	mg/L	0.0042	0.001
Phosphorus	SM 3030/EPA 200.8	mg/L	0.129	0.01
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5026-JUL23	mg/L	2	<2	1	20	106	80	120	110	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0013-JUL23	mg/L	2	< 2	1	30	101	70	130	131	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0065-JUL23	mg/L	0.01	<0.01	ND	10	101	90	110	NV	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0144-JUL23	mg/L	0.06	<0.06	3	10	101	90	110	104	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0016-JUL23	mg/L	0.00001	< 0.00001	0	20	105	80	120	104	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 I Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0048-JUL23	mg/L	0.00005	<0.00005	ND	20	96	90	110	93	70	130
Aluminum (total)	EMS0048-JUL23	mg/L	0.001	<0.001	2	20	93	90	110	88	70	130
Arsenic (total)	EMS0048-JUL23	mg/L	0.0002	<0.0002	4	20	98	90	110	107	70	130
Cadmium (total)	EMS0048-JUL23	mg/L	0.000003	<0.000003	4	20	95	90	110	108	70	130
Cobalt (total)	EMS0048-JUL23	mg/L	0.000004	<0.000004	5	20	94	90	110	103	70	130
Chromium (total)	EMS0048-JUL23	mg/L	0.00008	<0.00008	1	20	98	90	110	110	70	130
Copper (total)	EMS0048-JUL23	mg/L	0.0002	<0.0002	4	20	98	90	110	112	70	130
Manganese (total)	EMS0048-JUL23	mg/L	0.00001	<0.00001	3	20	100	90	110	115	70	130
Molybdenum (total)	EMS0048-JUL23	mg/L	0.00004	<0.00004	2	20	103	90	110	116	70	130
Nickel (total)	EMS0048-JUL23	mg/L	0.0001	<0.0001	1	20	99	90	110	106	70	130
Lead (total)	EMS0048-JUL23	mg/L	0.00009	<0.00009	1	20	98	90	110	107	70	130
Phosphorus (total)	EMS0048-JUL23	mg/L	0.003	<0.003	5	20	102	90	110	NV	70	130
Antimony (total)	EMS0048-JUL23	mg/L	0.0009	<0.0009	ND	20	109	90	110	103	70	130
Selenium (total)	EMS0048-JUL23	mg/L	0.00004	<0.00004	0	20	96	90	110	110	70	130
Tin (total)	EMS0048-JUL23	mg/L	0.00006	<0.00006	ND	20	99	90	110	NV	70	130
Titanium (total)	EMS0048-JUL23	mg/L	0.00007	<0.00005	1	20	99	90	110	NV	70	130
Zinc (total)	EMS0048-JUL23	mg/L	0.002	<0.002	1	20	94	90	110	112	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9121-JUL23	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0145-JUL23	mg/L	0.01	<0.01			84	55	120			
Nonylphenol Ethoxylates	GCM0145-JUL23	mg/L	0.01	0								
Nonylphenol monoethoxylate	GCM0145-JUL23	mg/L	0.01	<0.01			82	55	120			
Nonylphenol	GCM0145-JUL23	mg/L	0.001	<0.001			63	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0167-JUL23	mg/L	2	<2	NSS	20	102	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0167-JUL23	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0167-JUL23	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0227-JUL23	No unit	0.05	NA	1		99			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0094-JUL23	mg/L	0.002	<0.002	ND	10	91	80	120	101	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0105-JUL23	mg/L	0.0001	<0.0001	NSS	30	136	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0110-JUL23	mg/L	0.002	< 0.002	NSS	30	116	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0110-JUL23	mg/L	0.002	< 0.002	NSS	30	105	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0250-JUL23	mg/L	2	< 2	1	10	96	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0074-JUL23	as N mg/L	0.5	<0.5	6	10	97	90	110	92	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	103	60	130	111	50	140
1,2-Dichlorobenzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	86	60	130	92	50	140
1,4-Dichlorobenzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	86	60	130	90	50	140
Benzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	88	60	130	94	50	140
Chloroform	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	84	60	130	91	50	140
cis-1,2-Dichloroethene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	91	60	130	96	50	140
Ethylbenzene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	91	60	130	95	50	140
m-p-xylene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	92	60	130	97	50	140
Methyl ethyl ketone	GCM0120-JUL23	mg/L	0.02	<0.02	ND	30	105	50	140	112	50	140
Methylene Chloride	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	90	60	130	97	50	140
o-xylene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	93	60	130	97	50	140
Styrene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	91	60	130	95	50	140
Tetrachloroethylene (perchloroethylene)	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	93	60	130	96	50	140
Toluene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	95	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	79	60	130	90	50	140
Trichloroethylene	GCM0120-JUL23	mg/L	0.0005	<0.0005	ND	30	102	60	130	106	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 036524

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

Page ____ of ____

Laboratory Information Section - Lab use only

Received By: Abneer
Received By (signature): AR
Received Date: 07/07/23 (mm/dd/yy)
Received Time: 10:30 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ICE
Temperature Upon Receipt (°C): 9x3
LAB LIMS #: ~~Jul 40033~~ CA40033-Jul23

REPORT INFORMATION

Company: DS Consultants Ltd.
Contact: Dorothy Santos
Address: 6221 Hwy 7, Unit 16, Vaughan
Phone: 905-329-2735
Fax:
Email: DSantos@dsconsultants.ca

INVOICE INFORMATION

☑ (Same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 20-169-105
Site Location/ID: 14155 The Gore Rd. Caledon

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

Marville Properties

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Columns: Field Filtered (Y/N); M & I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn); SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs); PCB: PCBs (☐ Total ☐ Aroclor); PHC: F1-F4 + BTEX; F1-F4 only (no BTEX); VOC: VOCs (all incl BTEX); BTEX only; Pest: Pesticides (Organochlorine or specify other); Other (please specify): Peel Storm (Sanitary) sewer use by-law; Sewer Use: (Specify pkg:); Water Characterization Pkg (☐ General ☐ Extended); SPLP Specify tests: ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN; TCLP Specify tests: ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Other: Peel Storm (Sanitary) sewer use by-law	COMMENTS
1	BH23-1D	7/7/23	AM		GW	N	✓	Non filtered
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Observations/Comments/Special Instructions

Sampled By (NAME): Ken Signature: Ken Date: July 7, 2023 (mm/dd/yy)
Relinquished by (NAME): Ken Signature: Ken Date: July 7, 2023 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.7
Date of Issue: 07 JUNE 2023

FINAL REPORT

CA40149-AUG23 RFinal 2

20-169-105, Macville

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	705-652-2000
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40149-AUG23
Project	20-169-105, Macville	Received	08/14/2023
Order Number		Approved	08/21/2023
Samples	Ground Water (1)	Report Number	CA40149-AUG23 RFinal 2
		Date Reported	10/10/2023

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 036525

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

				Sample Number	8
				Sample Name	PW1
				Sample Matrix	Ground Water
				Sample Date	14/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4↑
Total Suspended Solids	mg/L	2	350	15	3
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.09
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		63
Aluminum (total)	mg/L	0.001	50		0.020
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0004
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000004
Chromium (total)	mg/L	0.00008	5	0.08	0.00017
Copper (total)	mg/L	0.0002	3	0.05	0.0024
Cobalt (total)	mg/L	0.000004	5		0.000365
Lead (total)	mg/L	0.00009	3	0.12	< 0.00009
Manganese (total)	mg/L	0.00001	5	0.05	0.0449
Molybdenum (total)	mg/L	0.00004	5		0.00106
Nickel (total)	mg/L	0.0001	3	0.08	0.0010
Phosphorus (total)	mg/L	0.003	10	0.4	0.006
Selenium (total)	mg/L	0.00004	1	0.02	0.00005
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00463

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

Sample Number	8
Sample Name	PW1
Sample Matrix	Ground Water
Sample Date	14/08/2023

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.00007	5		0.00062
Zinc (total)	mg/L	0.002	3	0.04	0.023
Microbiology					
E. Coli	cfu/100mL	0		200	0
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

FINAL REPORT

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

				Sample Number	8
				Sample Name	PW1
				Sample Matrix	Ground Water
				Sample Date	14/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Other (ORP)					
pH	No unit	0.05	10	9	7.70
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

FINAL REPORT

Client: DS Consultants

Project: 20-169-105, Macville

Project Manager: Dorothy Santos

Samplers: Dorothy Santos

MATRIX: WATER

L1 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Sanitary Sewer Discharge - BL_53_2010

L2 = SANSEW / WATER / - - Peel Sewer Use ByLaw - Storm Sewer Discharge - BL_53_2010

				Sample Number	8
				Sample Name	PW1
				Sample Matrix	Ground Water
				Sample Date	14/08/2023
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5041-AUG23	mg/L	2	<2	ND	20	103	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0027-AUG23	mg/L	2	< 2	6	30	97	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0141-AUG23	mg/L	0.01	<0.01	ND	10	93	90	110	90	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Fluoride	EWL0310-AUG23	mg/L	0.06	<0.06	ND	10	100	90	110	108	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Mercury (total)	EHG0026-AUG23	mg/L	0.00001	< 0.00001	0	20	103	80	120	93	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 I Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0090-AUG23	mg/L	0.00005	<0.00005	ND	20	98	90	110	70	70	130
Aluminum (total)	EMS0090-AUG23	mg/L	0.001	<0.001	1	20	100	90	110	94	70	130
Arsenic (total)	EMS0090-AUG23	mg/L	0.0002	<0.0002	2	20	96	90	110	94	70	130
Cadmium (total)	EMS0090-AUG23	mg/L	0.000003	<0.000003	11	20	98	90	110	80	70	130
Cobalt (total)	EMS0090-AUG23	mg/L	0.000004	<0.000004	0	20	96	90	110	76	70	130
Chromium (total)	EMS0090-AUG23	mg/L	0.00008	<0.00008	9	20	95	90	110	96	70	130
Copper (total)	EMS0090-AUG23	mg/L	0.0002	<0.0002	4	20	97	90	110	98	70	130
Manganese (total)	EMS0090-AUG23	mg/L	0.00001	<0.00001	1	20	102	90	110	101	70	130
Molybdenum (total)	EMS0090-AUG23	mg/L	0.00004	<0.00004	3	20	98	90	110	101	70	130
Nickel (total)	EMS0090-AUG23	mg/L	0.0001	<0.0001	1	20	98	90	110	91	70	130
Lead (total)	EMS0090-AUG23	mg/L	0.00009	<0.00009	2	20	103	90	110	84	70	130
Phosphorus (total)	EMS0090-AUG23	mg/L	0.003	<0.003	2	20	104	90	110	NV	70	130
Antimony (total)	EMS0090-AUG23	mg/L	0.0009	<0.0009	ND	20	101	90	110	103	70	130
Selenium (total)	EMS0090-AUG23	mg/L	0.00004	<0.00004	16	20	101	90	110	109	70	130
Tin (total)	EMS0090-AUG23	mg/L	0.00006	<0.00006	17	20	103	90	110	NV	70	130
Titanium (total)	EMS0090-AUG23	mg/L	0.00007	<0.00005	1	20	99	90	110	NV	70	130
Zinc (total)	EMS0090-AUG23	mg/L	0.002	<0.002	1	20	95	90	110	87	70	130

FINAL REPORT

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9234-AUG23	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0217-AUG23	mg/L	0.01	<0.01			93	55	120			
Nonylphenol Ethoxylates	GCM0217-AUG23	mg/L	0.01	0								
Nonylphenol monoethoxylate	GCM0217-AUG23	mg/L	0.01	<0.01			94	55	120			
Nonylphenol	GCM0217-AUG23	mg/L	0.001	<0.001			94	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM0236-AUG23	mg/L	2	<2	NSS	20	96	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM0236-AUG23	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0236-AUG23	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0288-AUG23	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0145-AUG23	mg/L	0.002	<0.002	ND	10	110	80	120	90	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0298-AUG23	mg/L	0.0001	<0.0001	NSS	30	105	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0262-AUG23	mg/L	0.002	< 0.002	NSS	30	111	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0262-AUG23	mg/L	0.002	< 0.002	NSS	30	108	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0303-AUG23	mg/L	2	< 2	0	10	97	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0150-AUG23	as N mg/L	0.5	<0.5	ND	10	100	90	110	97	75	125

FINAL REPORT

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	106	60	130	100	50	140
1,2-Dichlorobenzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	103	60	130	99	50	140
1,4-Dichlorobenzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	100	60	130	97	50	140
Benzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
Chloroform	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
cis-1,2-Dichloroethene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Ethylbenzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	100	60	130	99	50	140
m-p-xylene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140
Methyl ethyl ketone	GCM0269-AUG23	mg/L	0.02	<0.02	ND	30	95	50	140	93	50	140
Methylene Chloride	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	96	50	140
o-xylene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	102	60	130	102	50	140
Styrene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
Tetrachloroethylene (perchloroethylene)	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	98	50	140
Toluene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
Trichloroethylene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS

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

No: 036525

Laboratory Information Section - Lab use only

Received By: Tejasvi Lad
Received By (signature): T.L.
Received Date: 08 / 14 / 23 (mm/dd/yy)
Received Time: 12 : 30 (hr : min)
Custody Seal Present: Yes [✓] No [ ]
Custody Seal Intact: Yes [✓] No [ ]
Cooling Agent Present: Yes [✓] No [ ] Type: ICE
Temperature Upon Receipt (°C): 9, 9, 9 °C
LAB LIMS #: CA40M9-AUG23

REPORT INFORMATION	INVOICE INFORMATION	
Company: DS Consultants	[X] (same as Report Information)	Quotation #:
Contact: Dorothy Santos	Company:	P.O. #:
Address: [redacted] 6221- Hwy 7, Unit 16, Vaughan	Contact:	Project #: 20-169-105
Phone: (905) 329-2735	Address:	Site Location/ID: Macville
Fax:	Phone:	
Email: dsantos@dsconsultants.ca	Email:	

TURNAROUND TIME (TAT) REQUIRED

[X] Regular TAT (5-7days)

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

RUSH TAT (Additional Charges May Apply): [ ] 1 Day [ ] 2 Days [ ] 3 Days [ ] 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

Sewer By-Law:
[X] Sanitary
[X] Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) [ ] YES [ ] NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH (B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs ([ ] Total [ ] Aroclor)
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): Sewer Use: (Specify pkg: Peel); Water Characterization Pkg ([ ] General [ ] Extended)
SPLP (Specify tests): [ ] Metals [ ] VOC [ ] 1,4-Dioxane [ ] OCP [ ] ABN
TCLP (Specify tests): [ ] M&I [ ] VOC [ ] PCB [ ] B(a)P [ ] ABN [ ] Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Sewer Use: Peel	COMMENTS:
1	PW1	14/8/23		17	GW	N	X	Non filtered sample
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Observations/Comments/Special Instructions

Sampled By (NAME):	Dorothy Santos	Signature:	[signature]	Date: 8 / 14 / 23 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME):	Dorothy Santos	Signature:	[signature]	Date: 8 / 14 / 23 (mm/dd/yy)	Yellow & White Copy - SGS

FINAL REPORT

CA40149-AUG23 RFinal 2

20-169-105, Macville

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Maarit Wolfe, Hon.B.Sc
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	705-652-2000
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	Maarit.Wolfe@sgs.com
Email	dsantos@dsconsultants.ca	SGS Reference	CA40149-AUG23
Project	20-169-105, Macville	Received	08/14/2023
Order Number		Approved	08/21/2023
Samples	Ground Water (1)	Report Number	CA40149-AUG23 RFinal 2
		Date Reported	05/28/2024

COMMENTS

RL - SGS Reporting Limit

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

Chain of Custody Number: 036525

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA40149-AUG23 RFinal 2

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	PW1
Sample Matrix	Ground Water
Sample Date	14/08/2023

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑
Total Suspended Solids	mg/L	2		3
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.09
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		63
Aluminum (total)	mg/L	0.001		0.020
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0004
Cadmium (total)	mg/L	0.000003	0.0001	0.000004
Chromium (total)	mg/L	0.00008	0.1	0.00017
Copper (total)	mg/L	0.0002	0.001	0.0024
Cobalt (total)	mg/L	0.000004	0.0009	0.000365
Lead (total)	mg/L	0.00009	0.005	< 0.00009
Manganese (total)	mg/L	0.00001		0.0449
Molybdenum (total)	mg/L	0.00004	0.04	0.00106
Nickel (total)	mg/L	0.0001	0.025	0.0010
Phosphorus (total)	mg/L	0.003	0.01	0.006
Selenium (total)	mg/L	0.00004	0.1	0.00005
Silver (total)	mg/L	0.00005	0.0001	< 0.00005
Tin (total)	mg/L	0.00006		0.00463

FINAL REPORT

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	PW1
Sample Matrix	Ground Water
Sample Date	14/08/2023

Parameter	Units	RL	L1	Result
Metals and Inorganics (continued)				
Titanium (total)	mg/L	0.00007		0.00062
Zinc (total)	mg/L	0.002	0.02	0.023
Microbiology				
E. Coli	cfu/100mL	0	100	0
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	PW1
			Sample Matrix	Ground Water
			Sample Date	14/08/2023

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	7.70
Mercury (total)	mg/L	0.00001	0.0002	< 0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

Client: DS Consultants
Project: 20-169-105, Macville
Project Manager: Dorothy Santos
Samplers: Dorothy Santos

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	PW1
Sample Matrix	Ground Water
Sample Date	14/08/2023

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
PW1				
Copper	SM 3030/EPA 200.8	mg/L	0.0024	0.001
Zinc	SM 3030/EPA 200.8	mg/L	0.023	0.02
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5041-AUG23	mg/L	2	<2	ND	20	103	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0027-AUG23	mg/L	2	< 2	6	30	97	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0141-AUG23	mg/L	0.01	<0.01	ND	10	93	90	110	90	75	125

FINAL REPORT

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0310-AUG23	mg/L	0.06	<0.06	ND	10	100	90	110	108	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0026-AUG23	mg/L	0.00001	< 0.00001	0	20	103	80	120	93	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0090-AUG23	mg/L	0.00005	<0.00005	ND	20	98	90	110	70	70	130
Aluminum (total)	EMS0090-AUG23	mg/L	0.001	<0.001	1	20	100	90	110	94	70	130
Arsenic (total)	EMS0090-AUG23	mg/L	0.0002	<0.0002	2	20	96	90	110	94	70	130
Cadmium (total)	EMS0090-AUG23	mg/L	0.000003	<0.000003	11	20	98	90	110	80	70	130
Cobalt (total)	EMS0090-AUG23	mg/L	0.000004	<0.000004	0	20	96	90	110	76	70	130
Chromium (total)	EMS0090-AUG23	mg/L	0.00008	<0.00008	9	20	95	90	110	96	70	130
Copper (total)	EMS0090-AUG23	mg/L	0.0002	<0.0002	4	20	97	90	110	98	70	130
Manganese (total)	EMS0090-AUG23	mg/L	0.00001	<0.00001	1	20	102	90	110	101	70	130
Molybdenum (total)	EMS0090-AUG23	mg/L	0.00004	<0.00004	3	20	98	90	110	101	70	130
Nickel (total)	EMS0090-AUG23	mg/L	0.0001	<0.0001	1	20	98	90	110	91	70	130
Lead (total)	EMS0090-AUG23	mg/L	0.00009	<0.00009	2	20	103	90	110	84	70	130
Phosphorus (total)	EMS0090-AUG23	mg/L	0.003	<0.003	2	20	104	90	110	NV	70	130
Antimony (total)	EMS0090-AUG23	mg/L	0.0009	<0.0009	ND	20	101	90	110	103	70	130
Selenium (total)	EMS0090-AUG23	mg/L	0.00004	<0.00004	16	20	101	90	110	109	70	130
Tin (total)	EMS0090-AUG23	mg/L	0.00006	<0.00006	17	20	103	90	110	NV	70	130
Titanium (total)	EMS0090-AUG23	mg/L	0.00007	<0.00005	1	20	99	90	110	NV	70	130
Zinc (total)	EMS0090-AUG23	mg/L	0.002	<0.002	1	20	95	90	110	87	70	130

FINAL REPORT

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9234-AUG23	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0217-AUG23	mg/L	0.01	<0.01			93	55	120			
Nonylphenol Ethoxylates	GCM0217-AUG23	mg/L	0.01	0								
Nonylphenol monoethoxylate	GCM0217-AUG23	mg/L	0.01	<0.01			94	55	120			
Nonylphenol	GCM0217-AUG23	mg/L	0.001	<0.001			94	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM0236-AUG23	mg/L	2	<2	NSS	20	96	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM0236-AUG23	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0236-AUG23	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0288-AUG23	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0145-AUG23	mg/L	0.002	<0.002	ND	10	110	80	120	90	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0298-AUG23	mg/L	0.0001	<0.0001	NSS	30	105	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0262-AUG23	mg/L	0.002	< 0.002	NSS	30	111	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0262-AUG23	mg/L	0.002	< 0.002	NSS	30	108	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0303-AUG23	mg/L	2	< 2	0	10	97	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0150-AUG23	as N mg/L	0.5	<0.5	ND	10	100	90	110	97	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	106	60	130	100	50	140
1,2-Dichlorobenzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	103	60	130	99	50	140
1,4-Dichlorobenzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	100	60	130	97	50	140
Benzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
Chloroform	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
cis-1,2-Dichloroethene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
Ethylbenzene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	100	60	130	99	50	140
m-p-xylene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	101	60	130	100	50	140
Methyl ethyl ketone	GCM0269-AUG23	mg/L	0.02	<0.02	ND	30	95	50	140	93	50	140
Methylene Chloride	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	97	60	130	96	50	140
o-xylene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	102	60	130	102	50	140
Styrene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	102	60	130	98	50	140
Tetrachloroethylene (perchloroethylene)	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	98	50	140
Toluene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	98	60	130	99	50	140
Trichloroethylene	GCM0269-AUG23	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 036525

Page 1 of N

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

Laboratory Information Section - Lab use only

Received By: Tejasvi Lad
Received Date: 08 / 14 / 23 (mm/dd/yy)
Received Time: 12 : 30 (hr : min)
Received By (signature): T.L.
Custody Seal Present: Yes [x] No [ ]
Custody Seal Intact: Yes [x] No [ ]
Cooling Agent Present: Yes [x] No [ ] Type: ICE
Temperature Upon Receipt (°C): 9, 9, 9 °C
LAB LIMS #: CA40M9-AUG23

REPORT INFORMATION	INVOICE INFORMATION	
Company: DS Consultants	[x] (same as Report Information)	Quotation #:
Contact: Dorothy Santos	Company:	P.O. #:
Address: [redacted] 6221- Hwy 7, Unit 16, Vaughan	Contact:	Project #: 20-169-105
Phone: (905) 329-2735	Address:	Site Location/ID: Macville
Fax:	Phone:	
Email: dsantos@dsconsultants.ca	Email:	

TURNAROUND TIME (TAT) REQUIRED

[x] Regular TAT (5-7days)

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

RUSH TAT (Additional Charges May Apply): [ ] 1 Day [ ] 2 Days [ ] 3 Days [ ] 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

Sewer By-Law:
[x] Sanitary
[x] Storm
Municipality: Peel

RECORD OF SITE CONDITION (RSC) [ ] YES [ ] NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs [ ] Aroclor [ ] Total
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): Sewer Use: (Specify pkg: Peel); Water Characterization Pkg ([ ] General [ ] Extended)
SPLP (Specify tests): [ ] Metals [ ] VOC [ ] 1,4-Dioxane [ ] OCP [ ] ABN
TCLP (Specify tests): [ ] M&I [ ] VOC [ ] PCB [ ] B(a)P [ ] ABN [ ] Ignit.

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Sewer Use: Peel	COMMENTS:
1	PW1	14/8/23		17	GW	N	X	Non filtered sample
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Observations/Comments/Special Instructions

Sampled By (NAME): Dorothy Santos Signature: [signature] Date: 8 / 14 / 23 (mm/dd/yy) Pink Copy - Client
Relinquished by (NAME): Dorothy Santos Signature: [signature] Date: 8 / 14 / 23 (mm/dd/yy) Yellow & White Copy - SGS

Revision #: 1.7
Date of Issue: 07 JUNE 2023

Appendix I-2
Argo King I & II

FINAL REPORT

CA40196-OCT22 R1

19-093-100, 7675 King St., Bolton

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8, Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	2165
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40196-OCT22
Project	19-093-100, 7675 King St., Bolton	Received	10/26/2022
Order Number		Approved	11/03/2022
Samples	Ground Water (1)	Report Number	CA40196-OCT22 R1
		Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

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

Chain of Custody Number: 029795

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

Jill Campbell

TABLE OF CONTENTS

FINAL REPORT

CA40196-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
Project Manager: Dorothy Santos
Samplers: Harry/ Chaitemya

MATRIX: WATER

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

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

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	5
Total Suspended Solids	mg/L	2	350	15	94
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.27
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		22
Aluminum (total)	mg/L	0.001	50		4.96
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0061
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000024
Chromium (total)	mg/L	0.00008	5	0.08	0.00591
Copper (total)	mg/L	0.0002	3	0.05	0.0056
Cobalt (total)	mg/L	0.000004	5		0.00314
Lead (total)	mg/L	0.00009	3	0.12	0.00155
Manganese (total)	mg/L	0.00001	5	0.05	0.148
Molybdenum (total)	mg/L	0.00004	5		0.00761
Nickel (total)	mg/L	0.0001	3	0.08	0.0064
Phosphorus (total)	mg/L	0.003	10	0.4	0.171
Selenium (total)	mg/L	0.00004	1	0.02	0.00023
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00340

FINAL REPORT

Client: DS Consultants

Project: 19-093-100, 7675 King St., Bolton

Project Manager: Dorothy Santos

Samplers: Harry/ Chaitemya

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-5
				Sample Matrix	Ground Water
				Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.00005	5		0.0707
Zinc (total)	mg/L	0.002	3	0.04	0.019
Microbiology					
E. Coli	cfu/100mL	0		200	2
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 2
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

FINAL REPORT

CA40196-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
Project Manager: Dorothy Santos
Samplers: Harry/ Chaitemya

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-5
				Sample Matrix	Ground Water
				Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Other (ORP)					
pH	No unit	0.05	10	9	8.04
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

Client: DS Consultants

Project: 19-093-100, 7675 King St., Bolton

Project Manager: Dorothy Santos

Samplers: Harry/ Chaitemya

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-5
				Sample Matrix	Ground Water
				Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.27	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2
BH 22-5					
Total Suspended Solids	SM 2540D	mg/L	94		15
Manganese	SM 3030/EPA 200.8	mg/L	0.148		0.05

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 I Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0224-OCT22	mg/L	0.00005	<0.00005	ND	20	106	90	110	98	70	130
Aluminum (total)	EMS0224-OCT22	mg/L	0.001	<0.001	1	20	107	90	110	110	70	130
Arsenic (total)	EMS0224-OCT22	mg/L	0.0002	<0.0002	11	20	109	90	110	105	70	130
Cadmium (total)	EMS0224-OCT22	mg/L	0.000003	<0.000003	ND	20	106	90	110	101	70	130
Cobalt (total)	EMS0224-OCT22	mg/L	0.000004	<0.000004	0	20	106	90	110	93	70	130
Chromium (total)	EMS0224-OCT22	mg/L	0.00008	<0.00008	19	20	106	90	110	113	70	130
Copper (total)	EMS0224-OCT22	mg/L	0.0002	<0.0002	6	20	105	90	110	97	70	130
Manganese (total)	EMS0224-OCT22	mg/L	0.00001	<0.00001	1	20	109	90	110	108	70	130
Molybdenum (total)	EMS0224-OCT22	mg/L	0.00004	<0.00004	5	20	105	90	110	105	70	130
Nickel (total)	EMS0224-OCT22	mg/L	0.0001	<0.0001	5	20	102	90	110	94	70	130
Lead (total)	EMS0224-OCT22	mg/L	0.00009	<0.00001	18	20	106	90	110	95	70	130
Phosphorus (total)	EMS0224-OCT22	mg/L	0.003	<0.003	0	20	108	90	110	NV	70	130
Antimony (total)	EMS0224-OCT22	mg/L	0.0009	<0.0009	ND	20	101	90	110	94	70	130
Selenium (total)	EMS0224-OCT22	mg/L	0.00004	<0.00004	11	20	109	90	110	108	70	130
Tin (total)	EMS0224-OCT22	mg/L	0.00006	<0.00006	ND	20	104	90	110	NV	70	130
Titanium (total)	EMS0224-OCT22	mg/L	0.00005	<0.00005	13	20	106	90	110	NV	70	130
Zinc (total)	EMS0224-OCT22	mg/L	0.002	<0.002	1	20	103	90	110	121	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0015-NOV22	as N mg/L	0.5	<0.5	2	10	100	90	110	107	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 029795

Page 1 of 1

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

Laboratory Information Section - Lab use only

Received By: B. [illegible]
Received Date: 10/26/22 (mm/dd/yy)
Received Time: 18:00 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☐ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice.
Temperature Upon Receipt (°C) 9, 9, 9
LAB LIMS #: CA40196-Oct 22

REPORT INFORMATION	INVOICE INFORMATION
Company: DS consultants Ltd.	☑ (same as Report Information)
Contact: Dorthy Santos	Company:
Address: 6221 Hwy-7, Unit-16 Vaughan, ON	Contact: Accounting
	Address:
Phone: 905-264-9393	
Fax:	Phone:
Email: dorthy.santos@dsconsultants.ca	Email:

Quotation #:
P.O. #:
Project #: 19-093-100
Site Location/ID: 7675 King St, Bolton

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

☐ O.Reg 406/19

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

Sewer By-Law: ☑ Sanitary ☑ Storm; Municipality: Peel

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs ☐ Total ☐ Aroclor
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): Peel Sanitary/Storm Sewer Use; PWQO; Sewer Use: (Specify pkg); Water Characterization Pkg ☐ General ☐ Extended
SPLP (Specify tests): ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN
TCLP (Specify tests): ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Peel Sanitary/Storm Sewer Use	PWQO	COMMENTS
1	BH 22-5	Oct 26th, 22	PM	17	GW	N	✓	✓	Non-filtered sample
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya — Signature: Chaitanya — Date: 10/26/22 (mm/dd/yy)
Relinquished by (NAME): Harry / Chaitanya — Signature: Chaitanya — Date: 10/26/22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

FINAL REPORT

CA40196-OCT22 R1

19-093-100, 7675 King St., Bolton

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	2165
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40196-OCT22
Project	19-093-100, 7675 King St., Bolton	Received	10/26/2022
Order Number		Approved	11/03/2022
Samples	Ground Water (1)	Report Number	CA40196-OCT22 R1
		Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029795

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

Jill Campbell

TABLE OF CONTENTS

FINAL REPORT

CA40196-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
Project Manager: Dorothy Santos
Samplers: Harry/ Chaitemya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		5
Total Suspended Solids	mg/L	2		94
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.27
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		22
Aluminum (total)	mg/L	0.001		4.96
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0061
Cadmium (total)	mg/L	0.000003	0.0001	0.000024
Chromium (total)	mg/L	0.00008	0.1	0.00591
Copper (total)	mg/L	0.0002	0.001	0.0056
Cobalt (total)	mg/L	0.000004	0.0009	0.00314
Lead (total)	mg/L	0.00009	0.005	0.00155
Manganese (total)	mg/L	0.00001		0.148
Molybdenum (total)	mg/L	0.00004	0.04	0.00761
Nickel (total)	mg/L	0.0001	0.025	0.0064
Phosphorus (total)	mg/L	0.003	0.01	0.171
Selenium (total)	mg/L	0.00004	0.1	0.00023
Silver (total)	mg/L	0.00005	0.0001	< 0.00005
Tin (total)	mg/L	0.00006		0.00340

FINAL REPORT

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
Project Manager: Dorothy Santos
Samplers: Harry/ Chaitemya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH 22-5
			Sample Matrix	Ground Water
			Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**Result**
Metals and Inorganics (continued)				
Titanium (total)	mg/L	0.00005		0.0707
Zinc (total)	mg/L	0.002	0.02	0.019
Microbiology				
E. Coli	cfu/100mL	0	100	2
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 2
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

CA40196-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St., Bolton
Project Manager: Dorothy Santos
Samplers: Harry/ Chaitemya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-5
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	8.04
Mercury (total)	mg/L	0.00001	0.0002	< 0.00001
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

CA40196-OCT22 R1

Client: DS Consultants

Project: 19-093-100, 7675 King St., Bolton

Project Manager: Dorothy Santos

Samplers: Harry/ Chaitemya

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH 22-5
			Sample Matrix	Ground Water
			Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**Result**
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	< 0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

FINAL REPORT

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH 22-5				
Arsenic	SM 3030/EPA 200.8	mg/L	0.0061	0.005
Cobalt	SM 3030/EPA 200.8	mg/L	0.00314	0.0009
Copper	SM 3030/EPA 200.8	mg/L	0.0056	0.001
Phosphorus	SM 3030/EPA 200.8	mg/L	0.171	0.01
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0224-OCT22	mg/L	0.00005	<0.00005	ND	20	106	90	110	98	70	130
Aluminum (total)	EMS0224-OCT22	mg/L	0.001	<0.001	1	20	107	90	110	110	70	130
Arsenic (total)	EMS0224-OCT22	mg/L	0.0002	<0.0002	11	20	109	90	110	105	70	130
Cadmium (total)	EMS0224-OCT22	mg/L	0.000003	<0.000003	ND	20	106	90	110	101	70	130
Cobalt (total)	EMS0224-OCT22	mg/L	0.000004	<0.000004	0	20	106	90	110	93	70	130
Chromium (total)	EMS0224-OCT22	mg/L	0.00008	<0.00008	19	20	106	90	110	113	70	130
Copper (total)	EMS0224-OCT22	mg/L	0.0002	<0.0002	6	20	105	90	110	97	70	130
Manganese (total)	EMS0224-OCT22	mg/L	0.00001	<0.00001	1	20	109	90	110	108	70	130
Molybdenum (total)	EMS0224-OCT22	mg/L	0.00004	<0.00004	5	20	105	90	110	105	70	130
Nickel (total)	EMS0224-OCT22	mg/L	0.0001	<0.0001	5	20	102	90	110	94	70	130
Lead (total)	EMS0224-OCT22	mg/L	0.00009	<0.00001	18	20	106	90	110	95	70	130
Phosphorus (total)	EMS0224-OCT22	mg/L	0.003	<0.003	0	20	108	90	110	NV	70	130
Antimony (total)	EMS0224-OCT22	mg/L	0.0009	<0.0009	ND	20	101	90	110	94	70	130
Selenium (total)	EMS0224-OCT22	mg/L	0.00004	<0.00004	11	20	109	90	110	108	70	130
Tin (total)	EMS0224-OCT22	mg/L	0.00006	<0.00006	ND	20	104	90	110	NV	70	130
Titanium (total)	EMS0224-OCT22	mg/L	0.00005	<0.00005	13	20	106	90	110	NV	70	130
Zinc (total)	EMS0224-OCT22	mg/L	0.002	<0.002	1	20	103	90	110	121	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0015-NOV22	as N mg/L	0.5	<0.5	2	10	100	90	110	107	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS

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

No: 029795
Page 1 of 1

Laboratory Information Section - Lab use only

Received By: B. [illegible]
Received By (signature):
Received Date: 10 / 26 / 22 (mm/dd/yy)
Received Time: 18 : 00 (hr : min)
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☐ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: Ice.
Temperature Upon Receipt (°C) 9, 9, 9
LAB LIMS #: CA40196-Oct 22

REPORT INFORMATION

Company: DS consultants Ltd.
Contact: Dorthy Santos
Address: 6221 Hwy-7, Unit-16 Vaughan, ON
Phone: 905-264-9393
Fax:
Email: dorthy.santos@dsconsultants.ca

INVOICE INFORMATION

☑ (same as Report Information)
Company:
Contact: Accounting
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: 19-093-100
Site Location/ID: 7675 King St, Bolton

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Column groups: M & I — Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn). SVOC — PAHs only; SVOCs (all incl PAHs, ABNs, CPs). PCB — PCBs (☐ Total ☐ Aroclor). PHC — F1-F4 + BTEX; F1-F4 only (no BTEX). VOC — VOCs (all incl BTEX); BTEX only. Pest — Pesticides (Organochlorine or specify other). Other (please specify) — Peel Sanitary/Storm Sewer Use; PWQO; Sewer Use: (Specify pkg); Water Characterization Pkg (☐ General ☐ Extended). SPLP — Specify tests: ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN. TCLP — Specify tests: ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	Peel Sanitary/Storm Sewer Use	PWQO			Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS
1	BH 22-5	Oct 26th 22	PM	17	GW	N												✓	✓							Non-filtered sample
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya Signature: Chaitanya Date: 10 / 26 / 22 (mm/dd/yy)
Relinquished by (NAME): Harry / Chaitanya Signature: Chaitanya Date: 10 / 26 / 22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

FINAL REPORT

CA40197-OCT22 R1

19-093-100, 7675 King St, Bolton

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	2165
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40197-OCT22
Project	19-093-100, 7675 King St, Bolton	Received	10/26/2022
Order Number		Approved	11/03/2022
Samples	Ground Water (1)	Report Number	CA40197-OCT22 R1
		Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number: 029796

Note: Elevated E coli reporting limit due to excessive growth of bacteria at higher volumes.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

Jill Campbell

TABLE OF CONTENTS

FINAL REPORT

CA40197-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-1
				Sample Matrix	Ground Water
				Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	< 4↑
Total Suspended Solids	mg/L	2	350	15	38300
Total Kjeldahl Nitrogen	as N mg/L	0.5	100	1	< 0.5
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.14
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Sulphate	mg/L	2	1500		24
Aluminum (total)	mg/L	0.001	50		15.7
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0072
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000178
Chromium (total)	mg/L	0.00008	5	0.08	0.0326
Copper (total)	mg/L	0.0002	3	0.05	0.0266
Cobalt (total)	mg/L	0.000004	5		0.0125
Lead (total)	mg/L	0.00009	3	0.12	0.0180
Manganese (total)	mg/L	0.00001	5	0.05	2.17
Molybdenum (total)	mg/L	0.00004	5		0.00230
Nickel (total)	mg/L	0.0001	3	0.08	0.0248
Phosphorus (total)	mg/L	0.003	10	0.4	3.12
Selenium (total)	mg/L	0.00004	1	0.02	0.00022
Silver (total)	mg/L	0.00005	5	0.12	0.00006
Tin (total)	mg/L	0.00006	5		0.00227

FINAL REPORT

CA40197-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

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

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

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.00005	5		0.576
Zinc (total)	mg/L	0.002	3	0.04	0.057
Microbiology					
E. Coli	cfu/100mL	0		200	< 20↑
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2		< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 4↑
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

FINAL REPORT

CA40197-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

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

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

				Sample Number	8
				Sample Name	BH 22-1
				Sample Matrix	Ground Water
				Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**L2**	**Result**
Other (ORP)					
pH	No unit	0.05	10	9	7.72
Mercury (total)	mg/L	0.00001	0.01	0.0004	0.00002
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.002	1	0.008	< 0.002
SVOCs					
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	< 0.002
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Methyl ethyl ketone	mg/L	0.02	8		< 0.02
Styrene	mg/L	0.0005	0.2		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.008	< 0.0005

FINAL REPORT

Client: DS Consultants

Project: 19-093-100, 7675 King St, Bolton

Project Manager: Dorothy Santos

Samplers: Harry/Chaitanyo

MATRIX: WATER

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

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

					Sample Number	8
					Sample Name	BH 22-1
					Sample Matrix	Ground Water
					Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**L2**		**Result**
VOCs - BTEX						
Benzene	mg/L	0.0005	0.01	0.002		< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002		< 0.0005
Toluene	mg/L	0.0005	0.27	0.002		0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044		< 0.0005
m-p-xylene	mg/L	0.0005				< 0.0005
o-xylene	mg/L	0.0005				< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Peel Table 1 - Sanitary Sewer Discharge - BL_53_2010 L1	SANSEW / WATER / - - Peel Table 2 - Storm Sewer Discharge - BL_53_2010 L2
BH 22-1					
Total Suspended Solids	SM 2540D	mg/L	38300	350	15
Manganese	SM 3030/EPA 200.8	mg/L	2.17		0.05
Phosphorus	SM 3030/EPA 200.8	mg/L	3.12		0.4
Zinc	SM 3030/EPA 200.8	mg/L	0.057		0.04

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	104	90	110	102	70	130
Aluminum (total)	EMS0217-OCT22	mg/L	0.001	<0.001	3	20	103	90	110	107	70	130
Arsenic (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	ND	20	110	90	110	106	70	130
Cadmium (total)	EMS0217-OCT22	mg/L	0.000003	<0.000003	ND	20	103	90	110	102	70	130
Cobalt (total)	EMS0217-OCT22	mg/L	0.000004	<0.000004	2	20	104	90	110	99	70	130
Chromium (total)	EMS0217-OCT22	mg/L	0.00008	<0.00008	4	20	105	90	110	104	70	130
Copper (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	5	20	105	90	110	92	70	130
Manganese (total)	EMS0217-OCT22	mg/L	0.00001	<0.00001	ND	20	107	90	110	83	70	130
Molybdenum (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	105	90	110	105	70	130
Nickel (total)	EMS0217-OCT22	mg/L	0.0001	<0.0001	ND	20	105	90	110	90	70	130
Lead (total)	EMS0217-OCT22	mg/L	0.00009	<0.00001	3	20	103	90	110	93	70	130
Phosphorus (total)	EMS0217-OCT22	mg/L	0.003	<0.003	ND	20	97	90	110	NV	70	130
Antimony (total)	EMS0217-OCT22	mg/L	0.0009	<0.0009	ND	20	103	90	110	106	70	130
Selenium (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	110	90	110	100	70	130
Tin (total)	EMS0217-OCT22	mg/L	0.00006	<0.00006	ND	20	106	90	110	NV	70	130
Titanium (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	105	90	110	NV	70	130
Zinc (total)	EMS0217-OCT22	mg/L	0.002	<0.002	1	20	102	90	110	104	70	130

QC SUMMARY

Microbiology

Method: SM 9222D I Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 I Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Total Kjeldahl Nitrogen	SKA0004-NOV22	as N mg/L	0.5	<0.5	2	10	98	90	110	106	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS

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

No: 029796

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: Scott Ross
Received By (signature):
Received Date: 10-26-2022 (mm/dd/yy)
Received Time: 17:50 (hr : min)
Custody Seal Present: Yes ☐ No ☐
Custody Seal Intact: Yes ☐ No ☐
Cooling Agent Present: Yes ☐ No ☐ Type: Ice
Temperature Upon Receipt (°C) 7C×3
LAB LIMS #: CA40197-Oct 22

REPORT INFORMATION	INVOICE INFORMATION	
Company: DS Consultants Ltd	☑ (same as Report Information)	Quotation #: / P.O. #:
Contact: Dorothy Santos	Company:	Project #: 19-073-100 / Site Location/ID: 7675 King St Bolton
Address: 6221 Hwy 7, Unit 16, Vaughan, ON	Contact: Accounting	**TURNAROUND TIME (TAT) REQUIRED**
	Address:	☑ Regular TAT (5-7days). TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day
Phone: 905 329 2735		RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
Fax:	Phone:	PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Email: dorothy.santos@dsconsultants.ca	Email:	Specify Due Date: / *NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

Column groups: M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH, (B(HWS), EC, SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni, Se, Ag, Tl, U, V, Zn). SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs). PCB: PCBs ☐ Total ☐ Aroclor. PHC: F1-F4 + BTEX; F1-F4 only (no BTEX). VOC: VOCs (all incl BTEX); BTEX only. Pest: Pesticides (Organochlorine or specify other). Other (please specify): (Peel Storm and Sanitary Use); PWQO; Sewer Use: (Specify pkg:); Water Characterization Pkg (General / Extended). SPLP (Specify tests): ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN. TCLP (Specify tests): ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

#	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	Peel Storm and Sanitary Use	PWQO			Sewer Use	Water Characterization Pkg	SPLP	TCLP	COMMENTS
1	BH 22-1	Oct 26,22	pm	17	GW	N												✓	✓							Non filtered samples
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya Signature: [signature] Date: 10 / 26 / 22 (mm/dd/yy)
Relinquished by (NAME): Harry / Chaitanya Signature: [signature] Date: 10 / 26 / 22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

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

FINAL REPORT

CA40197-OCT22 R1

19-093-100, 7675 King St, Bolton

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	DS Consultants	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Dorothy Santos	Telephone	2165
Telephone	905-329-2735	Facsimile	705-652-6365
Facsimile	905-264-2685	Email	jill.campbell@sgs.com
Email	dorothy.santos@dsconsultants.ca	SGS Reference	CA40197-OCT22
Project	19-093-100, 7675 King St, Bolton	Received	10/26/2022
Order Number		Approved	11/03/2022
Samples	Ground Water (1)	Report Number	CA40197-OCT22 R1
		Date Reported	11/03/2022

COMMENTS

RL - SGS Reporting Limit

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

Chain of Custody Number: 029796

Note: Elevated E coli reporting limit due to excessive growth of bacteria at higher volumes.

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

Jill Campbell

TABLE OF CONTENTS

FINAL REPORT

CA40197-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH 22-1
			Sample Matrix	Ground Water
			Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
General Chemistry				
Biochemical Oxygen Demand (BOD5)	mg/L	2		< 4↑
Total Suspended Solids	mg/L	2		38300
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Metals and Inorganics				
Fluoride	mg/L	0.06		0.14
Cyanide (total)	mg/L	0.01		< 0.01
Sulphate	mg/L	2		24
Aluminum (total)	mg/L	0.001		15.7
Antimony (total)	mg/L	0.0009	0.02	< 0.0009
Arsenic (total)	mg/L	0.0002	0.005	0.0072
Cadmium (total)	mg/L	0.000003	0.0001	0.000178
Chromium (total)	mg/L	0.00008	0.1	0.0326
Copper (total)	mg/L	0.0002	0.001	0.0266
Cobalt (total)	mg/L	0.000004	0.0009	0.0125
Lead (total)	mg/L	0.00009	0.005	0.0180
Manganese (total)	mg/L	0.00001		2.17
Molybdenum (total)	mg/L	0.00004	0.04	0.00230
Nickel (total)	mg/L	0.0001	0.025	0.0248
Phosphorus (total)	mg/L	0.003	0.01	3.12
Selenium (total)	mg/L	0.00004	0.1	0.00022
Silver (total)	mg/L	0.00005	0.0001	0.00006
Tin (total)	mg/L	0.00006		0.00227

FINAL REPORT

CA40197-OCT22 R1

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

			Sample Number	8
			Sample Name	BH 22-1
			Sample Matrix	Ground Water
			Sample Date	26/10/2022
Parameter	**Units**	**RL**	**L1**	**Result**
Metals and Inorganics (continued)				
Titanium (total)	mg/L	0.00005		0.576
Zinc (total)	mg/L	0.002	0.02	0.057
Microbiology				
E. Coli	cfu/100mL	0	100	< 20↑
Nonylphenol and Ethoxylates				
Nonylphenol	mg/L	0.001		< 0.001
Nonylphenol Ethoxylates	mg/L	0.01		< 0.01
Nonylphenol diethoxylate	mg/L	0.01		< 0.01
Nonylphenol monoethoxylate	mg/L	0.01		< 0.01
Oil and Grease				
Oil & Grease (total)	mg/L	2		< 4↑
Oil & Grease (animal/vegetable)	mg/L	4		< 4
Oil & Grease (mineral/synthetic)	mg/L	4		< 4

FINAL REPORT

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
Other (ORP)				
pH	No unit	0.05	8.6	7.72
Mercury (total)	mg/L	0.00001	0.0002	0.00002
PCBs				
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001		< 0.0001
Phenols				
4AAP-Phenolics	mg/L	0.002	0.001	< 0.002
SVOCs				
di-n-Butyl Phthalate	mg/L	0.002		< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002		< 0.002
VOCs				
Chloroform	mg/L	0.0005		< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005		< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005		< 0.0005
cis-1,2-Dichloroethene	mg/L	0.0005		< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005		< 0.0005
Methylene Chloride	mg/L	0.0005	0.1	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	0.07	< 0.0005
Methyl ethyl ketone	mg/L	0.02		< 0.02
Styrene	mg/L	0.0005		< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	0.05	< 0.0005
Trichloroethylene	mg/L	0.0005	0.02	< 0.0005

FINAL REPORT

Client: DS Consultants
Project: 19-093-100, 7675 King St, Bolton
Project Manager: Dorothy Santos
Samplers: Harry/Chaitanyo

MATRIX: WATER

L1 = PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E

Sample Number	8
Sample Name	BH 22-1
Sample Matrix	Ground Water
Sample Date	26/10/2022

Parameter	Units	RL	L1	Result
VOCs - BTEX				
Benzene	mg/L	0.0005	0.1	< 0.0005
Ethylbenzene	mg/L	0.0005	0.008	< 0.0005
Toluene	mg/L	0.0005	0.0008	0.0005
Xylene (total)	mg/L	0.0005		< 0.0005
m-p-xylene	mg/L	0.0005	0.002	< 0.0005
o-xylene	mg/L	0.0005	0.04	< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	PWQO_L / WATER / - - Table 2 - General - July 1999 PIBS 3303E L1
BH 22-1				
Arsenic	SM 3030/EPA 200.8	mg/L	0.0072	0.005
Cadmium	SM 3030/EPA 200.8	mg/L	0.000178	0.0001
Cobalt	SM 3030/EPA 200.8	mg/L	0.0125	0.0009
Copper	SM 3030/EPA 200.8	mg/L	0.0266	0.001
Lead	SM 3030/EPA 200.8	mg/L	0.0180	0.005
Phosphorus	SM 3030/EPA 200.8	mg/L	3.12	0.01
Zinc	SM 3030/EPA 200.8	mg/L	0.057	0.02
4AAP-Phenolics	SM 5530B-D	mg/L	< 0.002	0.001

QC SUMMARY

Anions by discrete analyzer

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5002-NOV22	mg/L	2	<2	ND	20	106	80	120	106	75	125

Biochemical Oxygen Demand

Method: SM 5210 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0054-OCT22	mg/L	2	< 2	18	30	99	70	130	NV	70	130

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-[ENV]SFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0285-OCT22	mg/L	0.01	<0.01	ND	10	98	90	110	101	75	125

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0664-OCT22	mg/L	0.06	<0.06	ND	10	104	90	110	100	75	125

Mercury by CVAAS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0051-OCT22	mg/L	0.00001	< 0.00001	4	20	115	80	120	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	104	90	110	102	70	130
Aluminum (total)	EMS0217-OCT22	mg/L	0.001	<0.001	3	20	103	90	110	107	70	130
Arsenic (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	ND	20	110	90	110	106	70	130
Cadmium (total)	EMS0217-OCT22	mg/L	0.000003	<0.000003	ND	20	103	90	110	102	70	130
Cobalt (total)	EMS0217-OCT22	mg/L	0.000004	<0.000004	2	20	104	90	110	99	70	130
Chromium (total)	EMS0217-OCT22	mg/L	0.00008	<0.00008	4	20	105	90	110	104	70	130
Copper (total)	EMS0217-OCT22	mg/L	0.0002	<0.0002	5	20	105	90	110	92	70	130
Manganese (total)	EMS0217-OCT22	mg/L	0.00001	<0.00001	ND	20	107	90	110	83	70	130
Molybdenum (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	105	90	110	105	70	130
Nickel (total)	EMS0217-OCT22	mg/L	0.0001	<0.0001	ND	20	105	90	110	90	70	130
Lead (total)	EMS0217-OCT22	mg/L	0.00009	<0.00001	3	20	103	90	110	93	70	130
Phosphorus (total)	EMS0217-OCT22	mg/L	0.003	<0.003	ND	20	97	90	110	NV	70	130
Antimony (total)	EMS0217-OCT22	mg/L	0.0009	<0.0009	ND	20	103	90	110	106	70	130
Selenium (total)	EMS0217-OCT22	mg/L	0.00004	<0.00004	ND	20	110	90	110	100	70	130
Tin (total)	EMS0217-OCT22	mg/L	0.00006	<0.00006	ND	20	106	90	110	NV	70	130
Titanium (total)	EMS0217-OCT22	mg/L	0.00005	<0.00005	ND	20	105	90	110	NV	70	130
Zinc (total)	EMS0217-OCT22	mg/L	0.002	<0.002	1	20	102	90	110	104	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-[ENV]MIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9419-OCT22	cfu/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Nonylphenol diethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			113	55	120			
Nonylphenol Ethoxylates	GCM0431-OCT22	mg/L	0.01	< 0.01								
Nonylphenol monoethoxylate	GCM0431-OCT22	mg/L	0.01	<0.01			115	55	120			
Nonylphenol	GCM0431-OCT22	mg/L	0.001	<0.001			115	55	120			

QC SUMMARY

Oil & Grease

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (total)	GCM0410-OCT22	mg/L	2	<2	NSS	20	100	75	125			

Oil & Grease-AV/MS

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
Oil & Grease (animal/vegetable)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0410-OCT22	mg/L	4	< 4	NSS	20	NA	70	130			

pH

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0681-OCT22	No unit	0.05	NA	0		101			NA		

QC SUMMARY

Phenols by SFA

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0318-OCT22	mg/L	0.002	<0.002	ND	10	100	80	120	100	75	125

Polychlorinated Biphenyls

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0377-OCT22	mg/L	0.0001	<0.0001	NSS	30	84	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Bis(2-ethylhexyl)phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	123	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0391-OCT22	mg/L	0.002	< 0.002	NSS	30	113	50	140	NSS	50	140

Suspended Solids

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0006-NOV22	mg/L	2	< 2	0	10	93	90	110	NA		

Total Nitrogen

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0004-NOV22	as N mg/L	0.5	<0.5	2	10	98	90	110	106	75	125

QC SUMMARY

Volatile Organics

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

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	92	60	130	94	50	140
1,2-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	95	60	130	98	50	140
1,4-Dichlorobenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	94	60	130	96	50	140
Benzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Chloroform	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	100	50	140
cis-1,2-Dichloroethene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	100	60	130	102	50	140
Ethylbenzene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
m-p-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	100	50	140
Methyl ethyl ketone	GCM0375-OCT22	mg/L	0.02	<0.02	ND	30	93	50	140	95	50	140
Methylene Chloride	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	98	50	140
o-xylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	102	50	140
Styrene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	98	60	130	101	50	140
Tetrachloroethylene (perchloroethylene)	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	100	50	140
Toluene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140
trans-1,3-Dichloropropene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	96	60	130	97	50	140
Trichloroethylene	GCM0375-OCT22	mg/L	0.0005	<0.0005	ND	30	97	60	130	99	50	140

QC SUMMARY

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

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

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

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

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

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

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

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

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

LEGEND

FOOTNOTES

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

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

This report supersedes all previous versions.

-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY

No: 029796

Page 1 of 1

Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment

- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Laboratory Information Section - Lab use only

Received By: Scott Ross

Received By (signature):

Received Date: 10-26-2022 (mm/dd/yy)

Received Time: 17:58 (hr : min)

Custody Seal Present: Yes ☐ No ☐

Custody Seal Intact: Yes ☐ No ☐

Cooling Agent Present: Yes ☐ No ☐ Type: Ice

Temperature Upon Receipt (°C) 7Cx3

LAB LIMS #: CA40197-Oct 22

REPORT INFORMATION	INVOICE INFORMATION
Company: DS Consultants Ltd	☑ (same as Report Information)
Contact: Dorothy Santos	Company:
Address: 6221 Hwy 7, Unit 16, Vaughan, ON	Contact: Accounting
Phone: 905 329 2735	Address:
Fax:	Phone:
Email: dorothy.santos@dsconsultants.ca	Email:

Quotation #:

P.O. #:

Project #: 19-073-100

Site Location/ID: 7675 King St Bolton

TURNAROUND TIME (TAT) REQUIRED

☑ Regular TAT (5-7days)

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

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

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

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

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19

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

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

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

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN,Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs (☐ Total ☐ Aroclor)
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): Peel Storm and Sanitary (use); PWQO; Sewer Use: Specify pkg; Water Characterization Pkg (General ☐ Extended ☐)
SPLP Specify tests: ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN
TCLP Specify tests: ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Peel Storm and Sanitary (use)	PWQO	COMMENTS:
1	BH 22-1	Oct 26,22	pm	17	GW	N	✓	✓	Non Filtered Samples
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Observations/Comments/Special Instructions

Sampled By (NAME): Harry / Chaitanya Signature: [signature] Date: 10 / 26 / 22 (mm/dd/yy)

Relinquished by (NAME): Harry Chaitanya Signature: [signature] Date: 10 / 26 / 22 (mm/dd/yy)

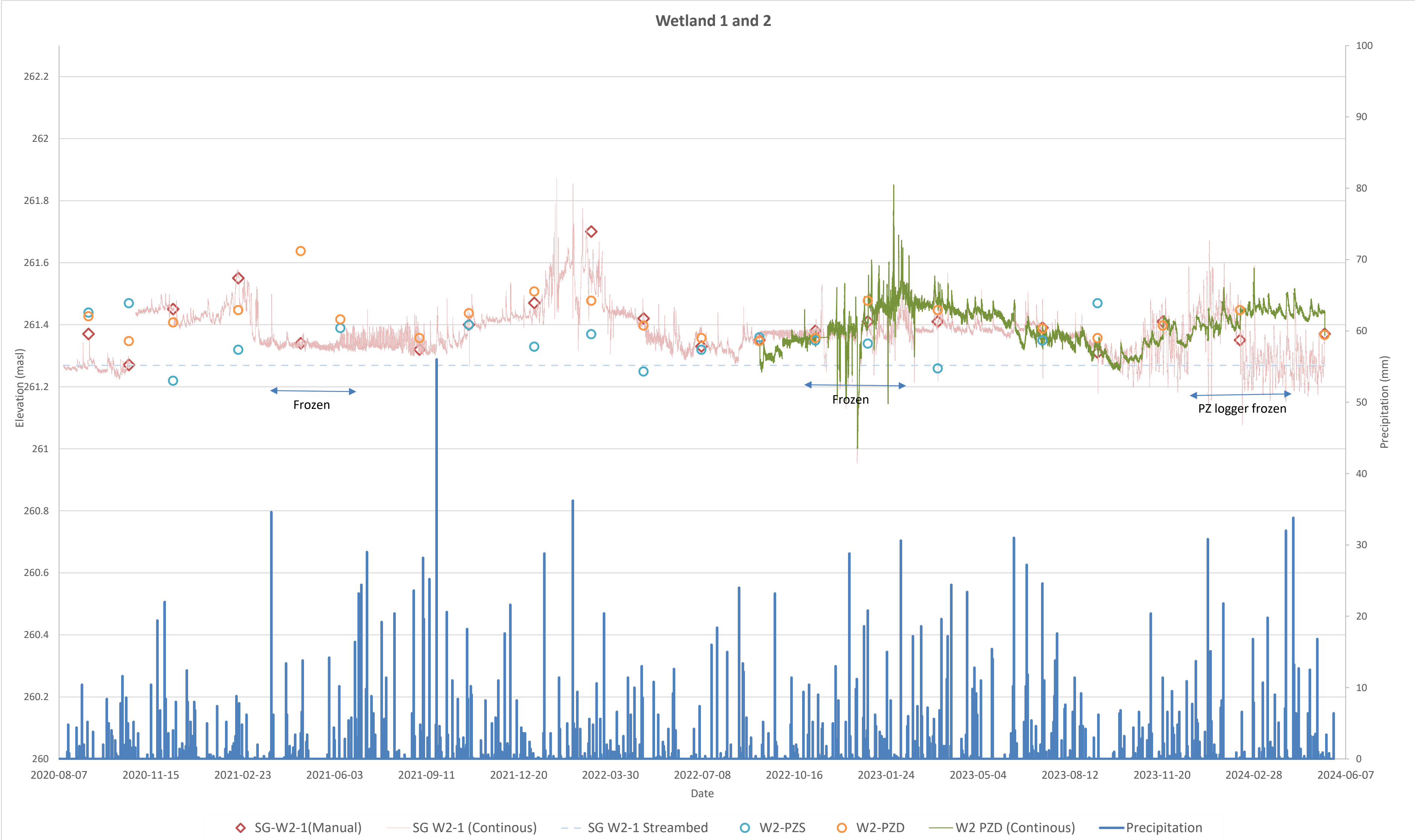
Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.6
Date of Issue: 02 May 2022

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

Appendix J

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

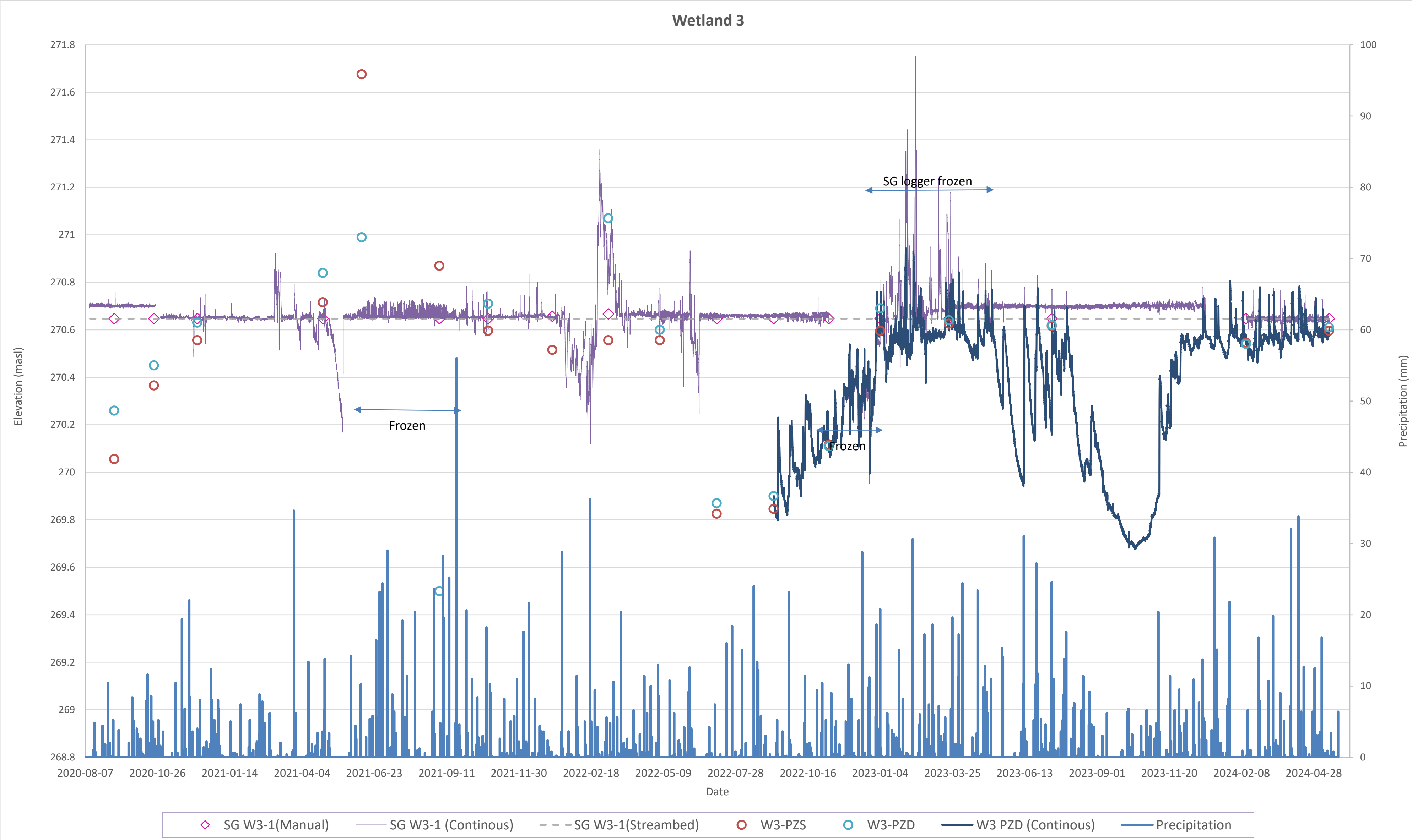
Caledon Station

WETLAND 1 & 2 HYDROGRAPH

August 2020 -May 2024

J-1

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical · Environmental · Materials · Hydrogeology

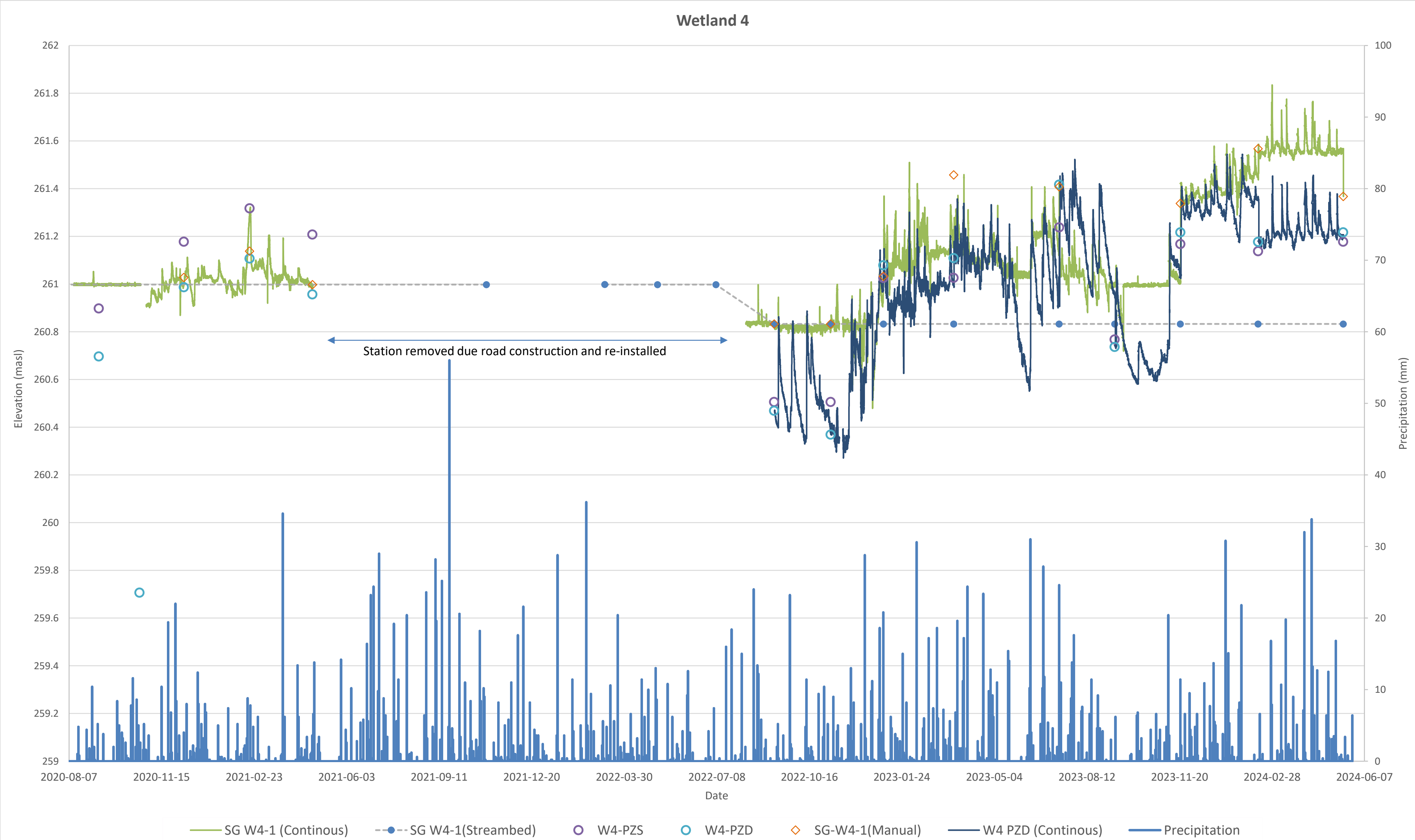
Caledon Station

WETLAND 3 HYDROGRAPH

August 2020 - May 2024

J-2

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.

Geotechnical • Environmental • Materials • Hydrogeology

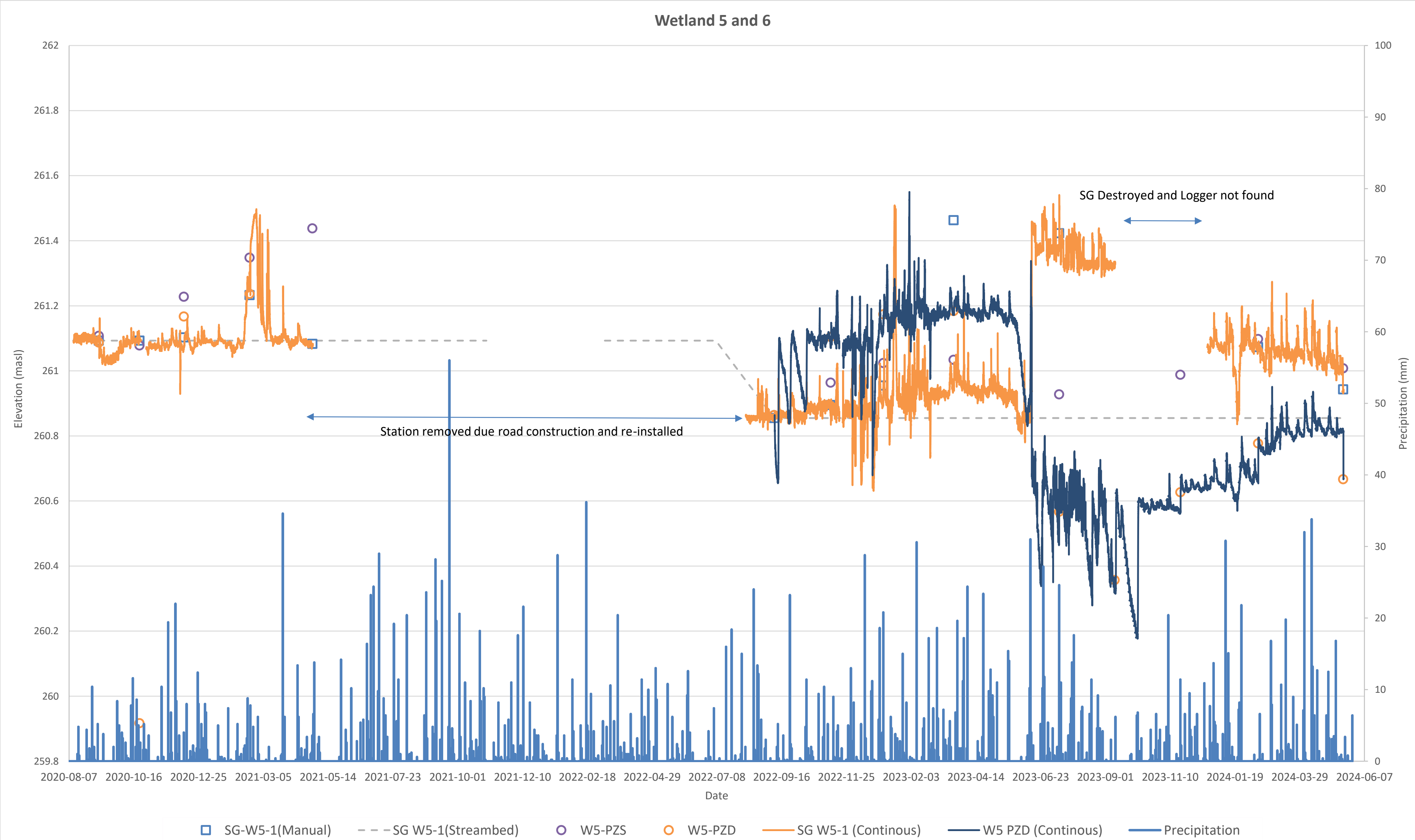
Caledon Station

WETLAND 4 HYDROGRAPH

August 2020 -May 2024

J-3

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical · Environmental · Materials · Hydrogeology

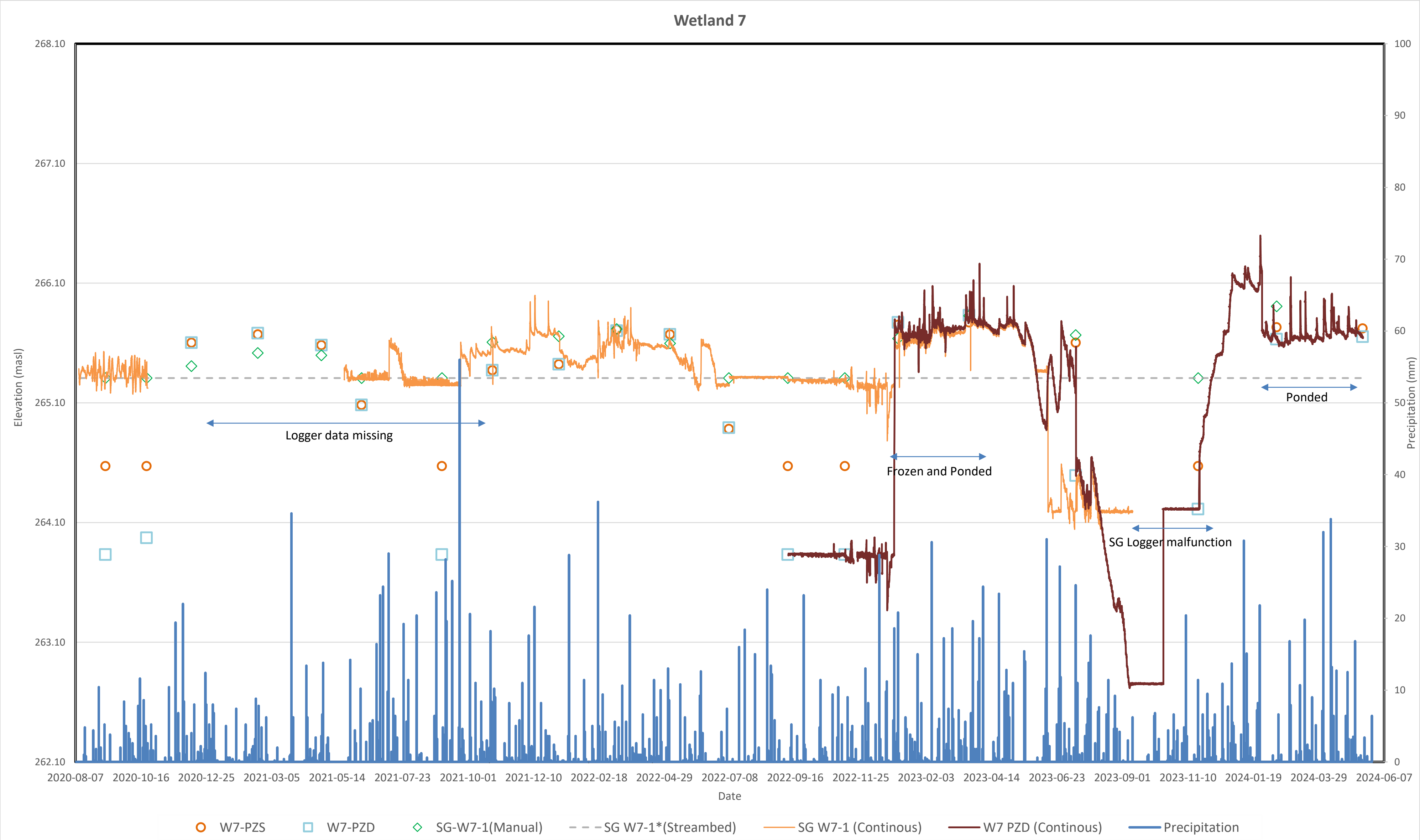
Caledon Station

WETLANDS 5 & 6 HYDROGRAPH

August 2020 - May 2024

J-4

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical · Environmental · Materials · Hydrogeology

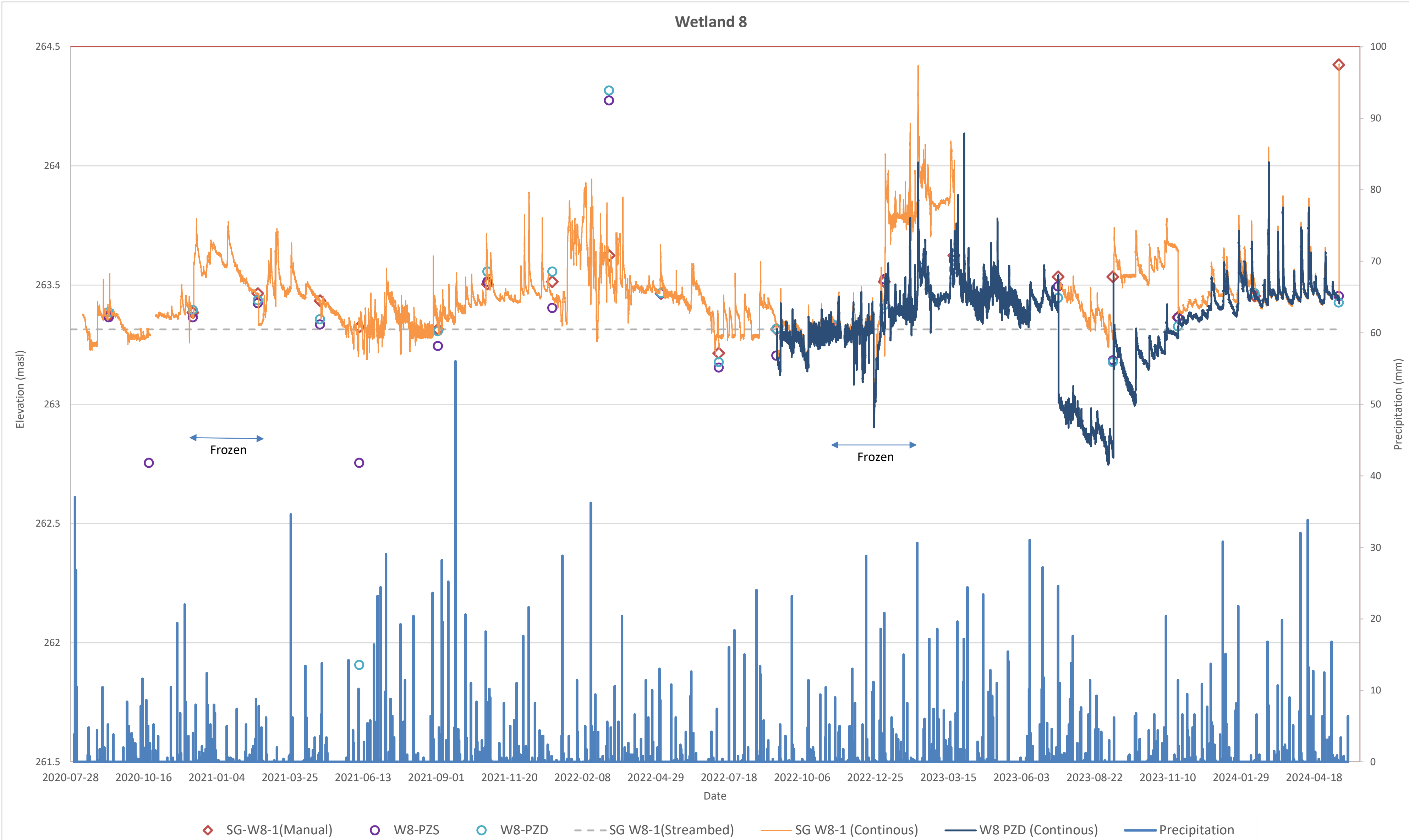
Caledon Station

WETLAND 7 HYDROGRAPH

August 2020 - May 2024

J-5

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.

Geotechnical • Environmental • Materials • Hydrogeology

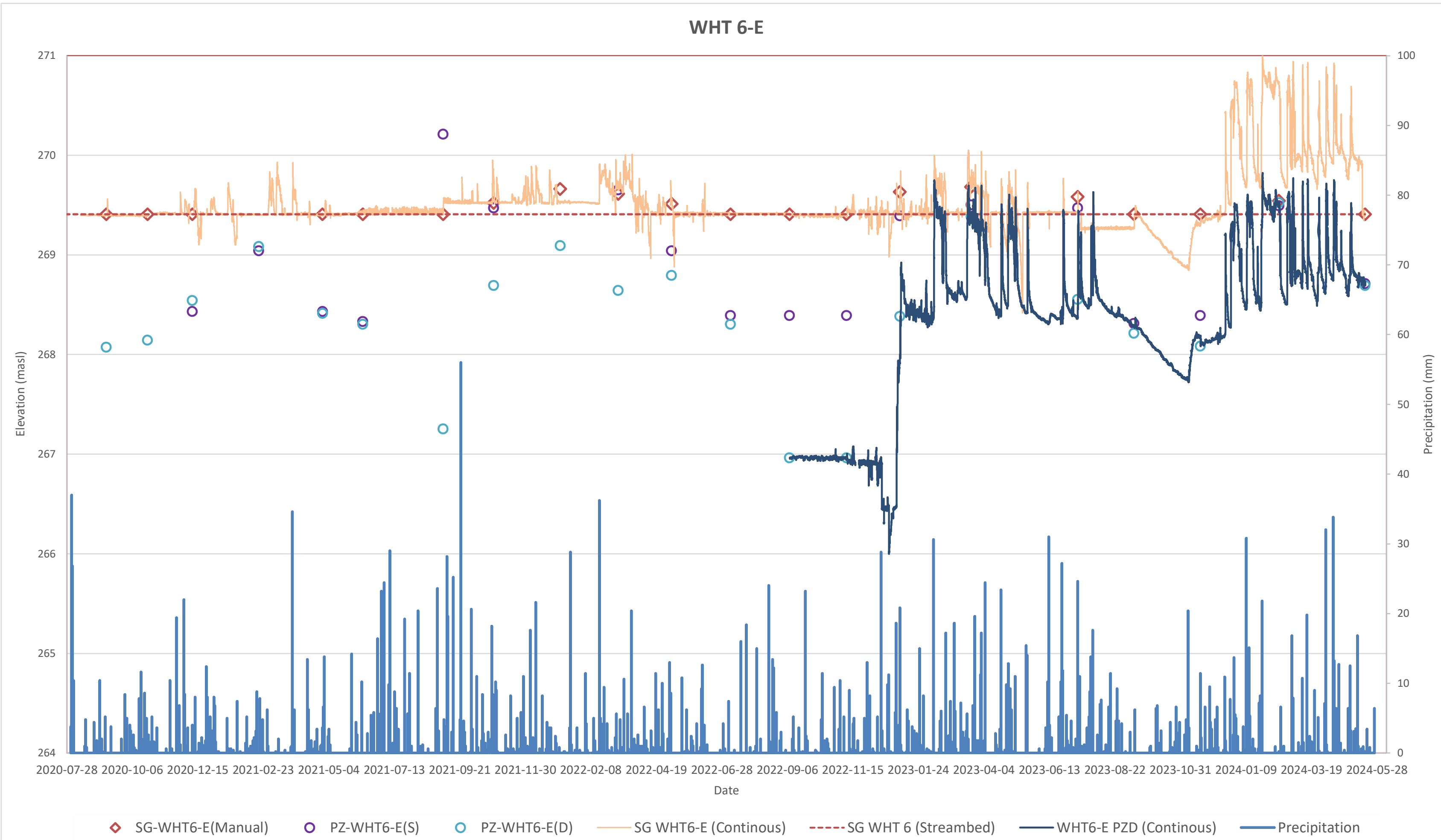
Caledon Station

WETLAND 8 HYDROGRAPH

August 2020 - May 2024

J-6

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

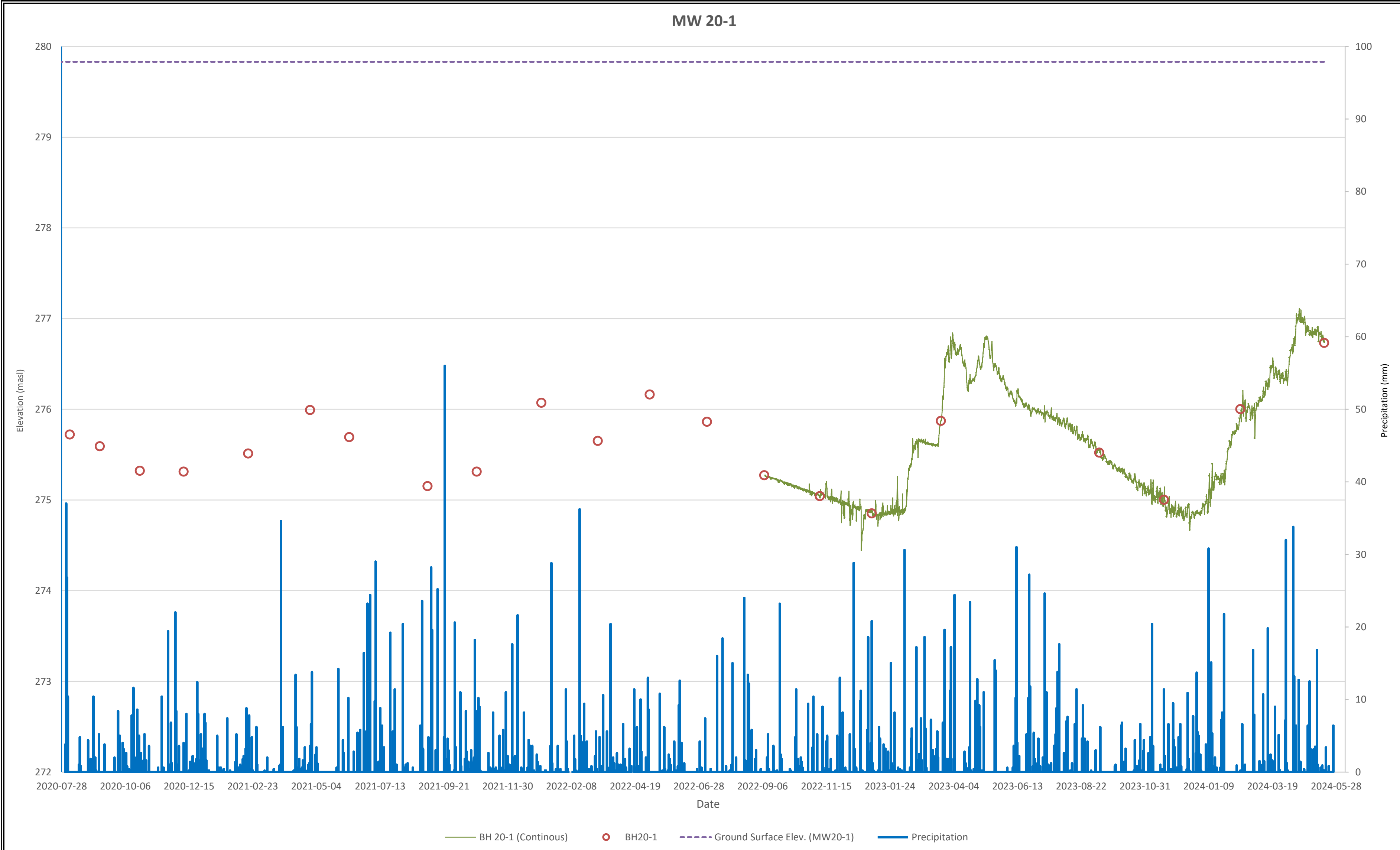
Caledon Station

WHT 6-E HYDROGRAPH

August 2020 - May 2024

J-7

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

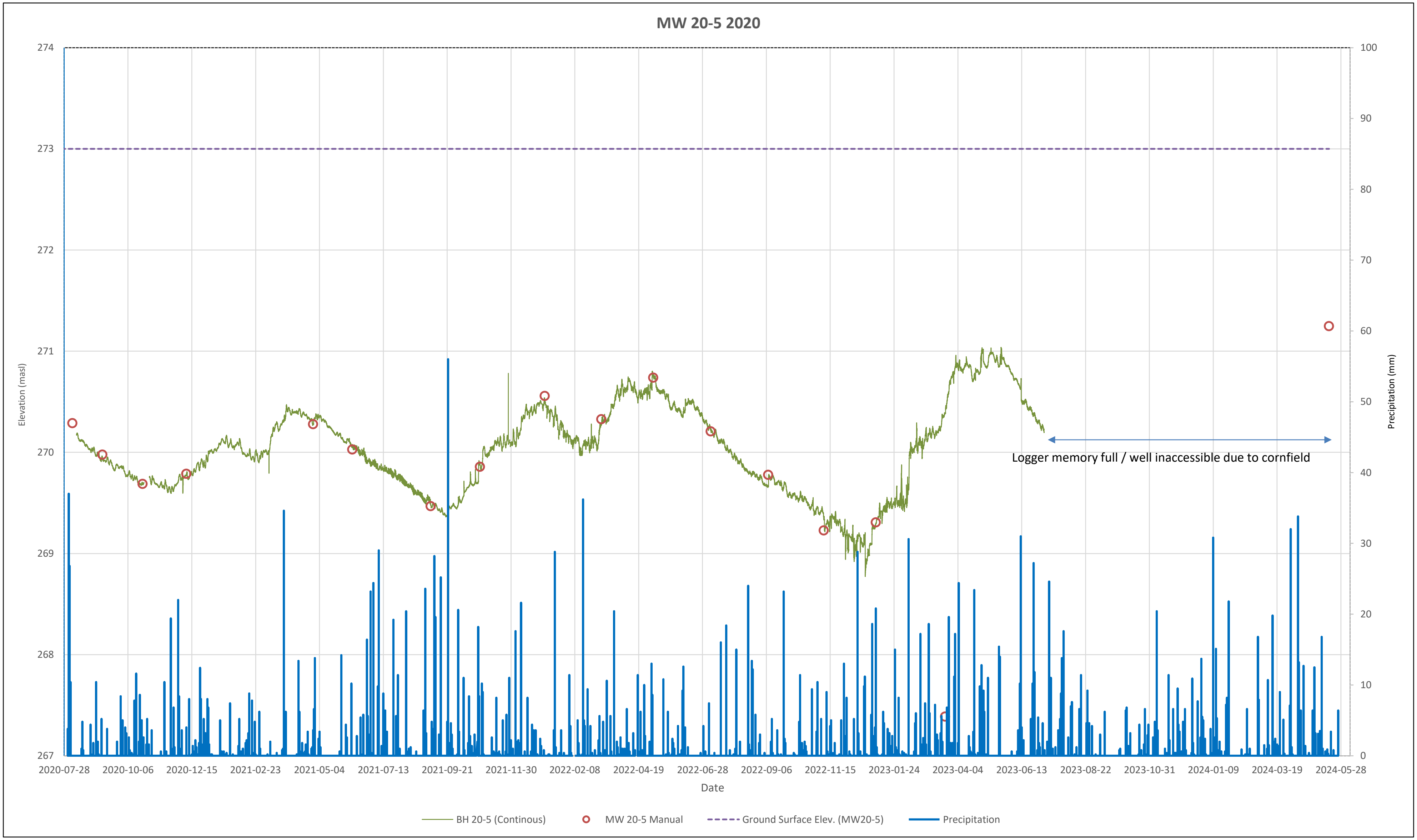
Caledon Station

MW 20-1 HYDROGRAPH

August 2020 - May 2024

J-8

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

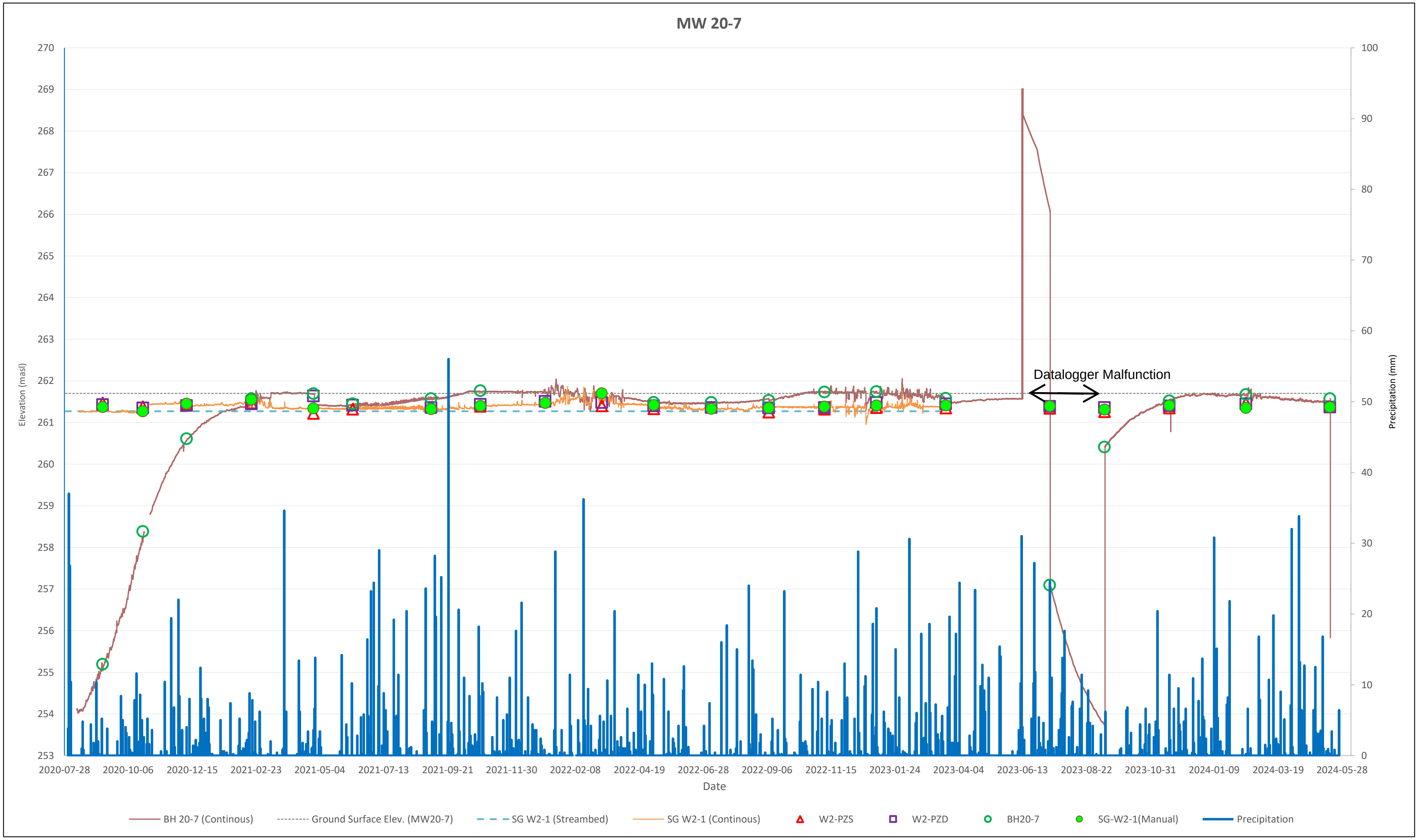
Caledon Station

MW 20-5 HYDROGRAPH

August 2020 - May 2024

J-9

WATER LEVEL HYDROGRAPH



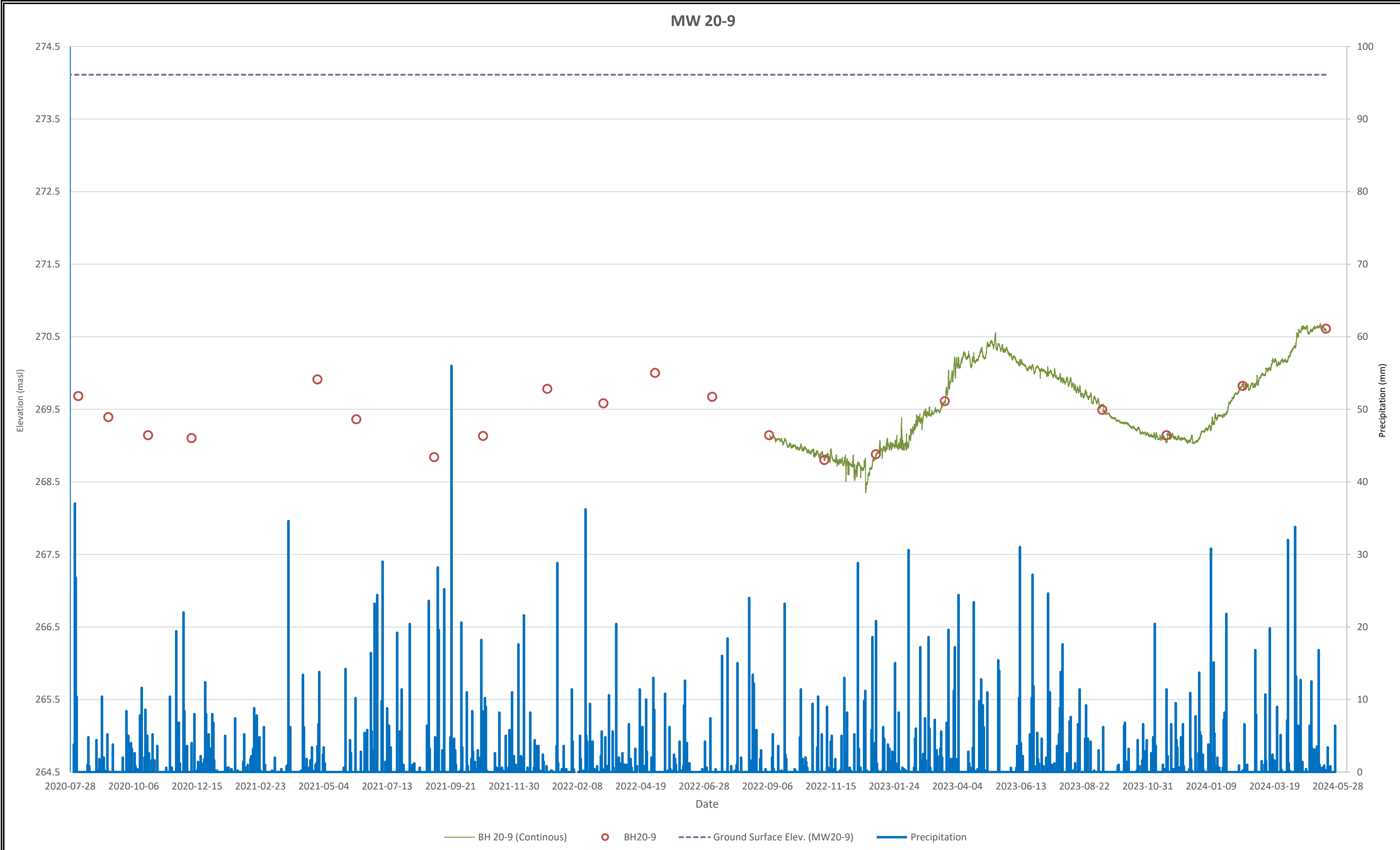
DS CONSULTANTS LTD.
Geotechnical · Environmental · Materials · Hydrogeology

Caledon Station MW
20-7 HYDROGRAPH

August 2020 - May 2024

J-10

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical - Environmental - Materials - Hydrogeology

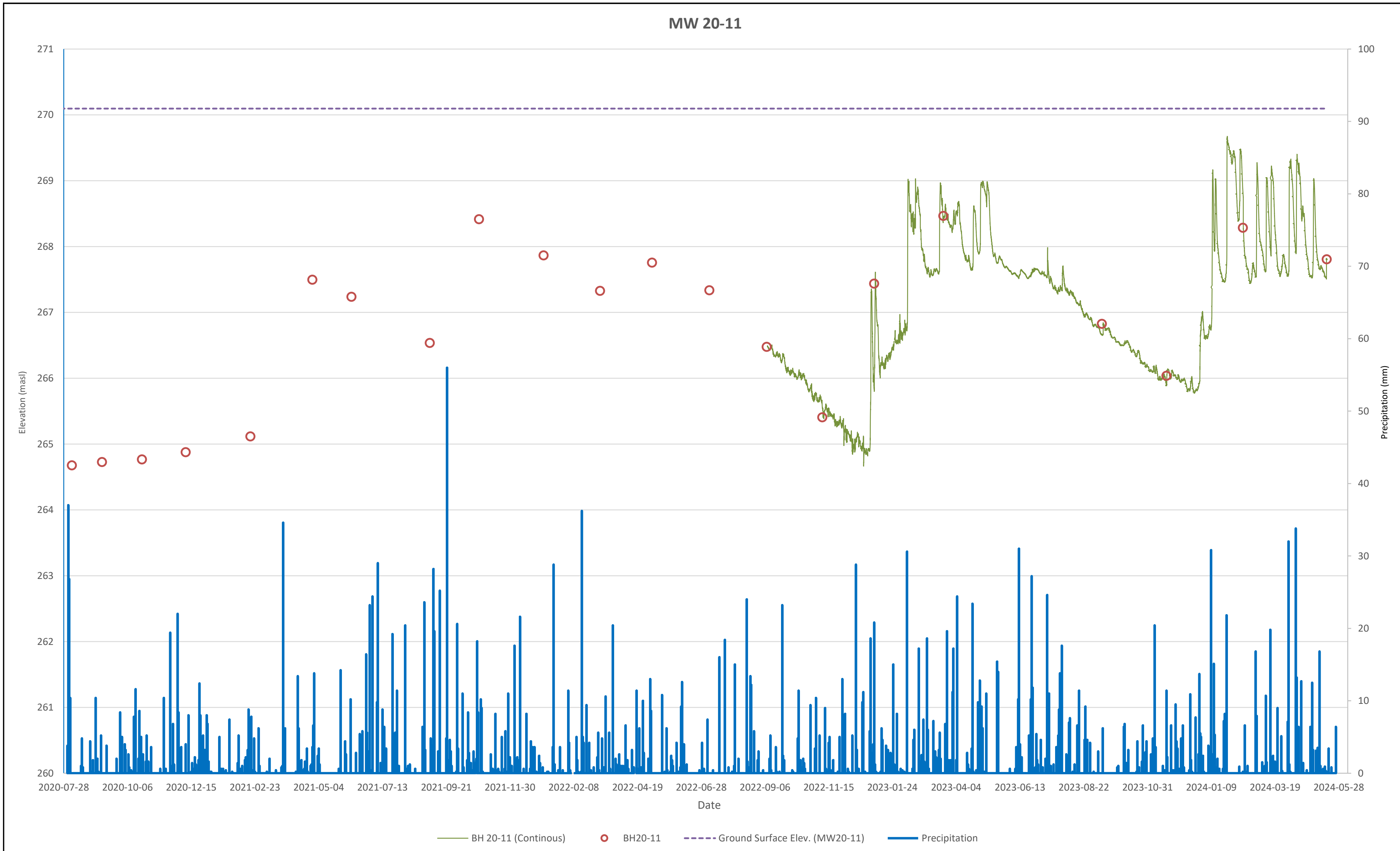
Caledon Station

MW 20-9 HYDROGRAPH

August 2020 -May 2024

J-11

WATER LEVEL HYDROGRAPH

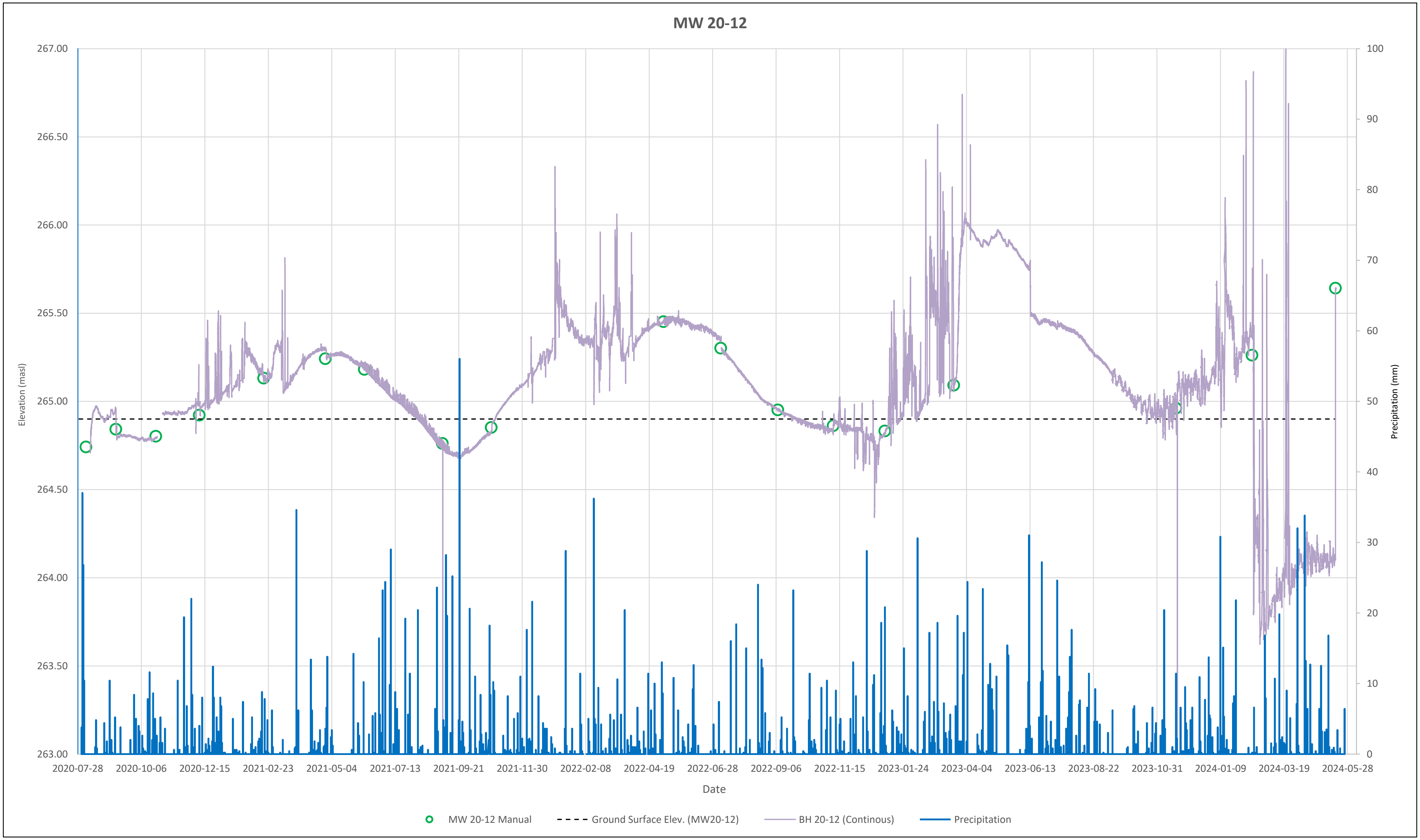


DS CONSULTANTS LTD.
Geotechnical - Environmental - Materials - Hydrogeology

Caledon Station
MW 20-11 HYDROGRAPH

August 2020 - May 2024
J-12

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.

Geotechnical • Environmental • Materials • Hydrogeology

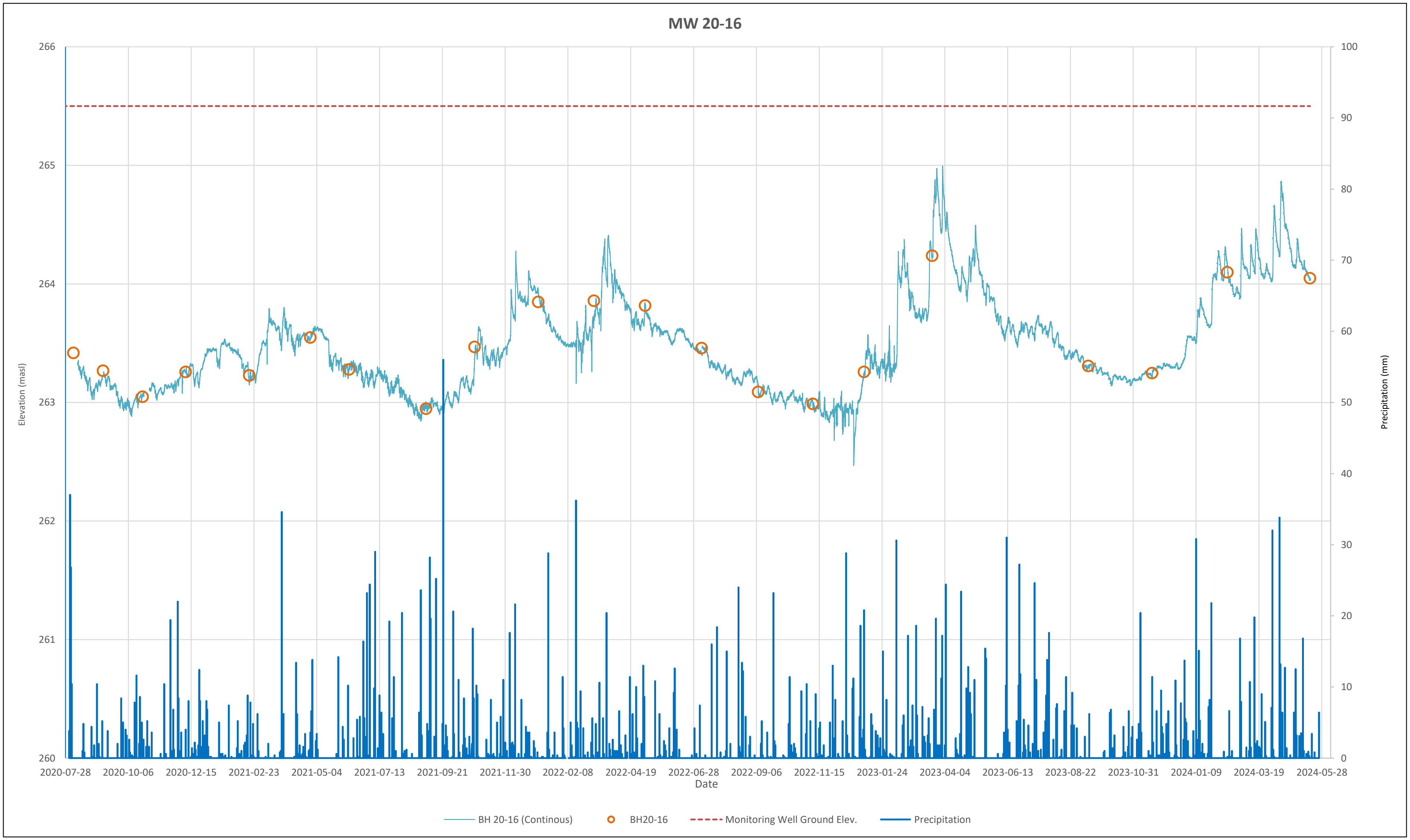
Caledon Station

MW 20-12 HYDROGRAPH

August 2020 -May 2024

J-13

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical - Environmental - Materials - Hydrogeology

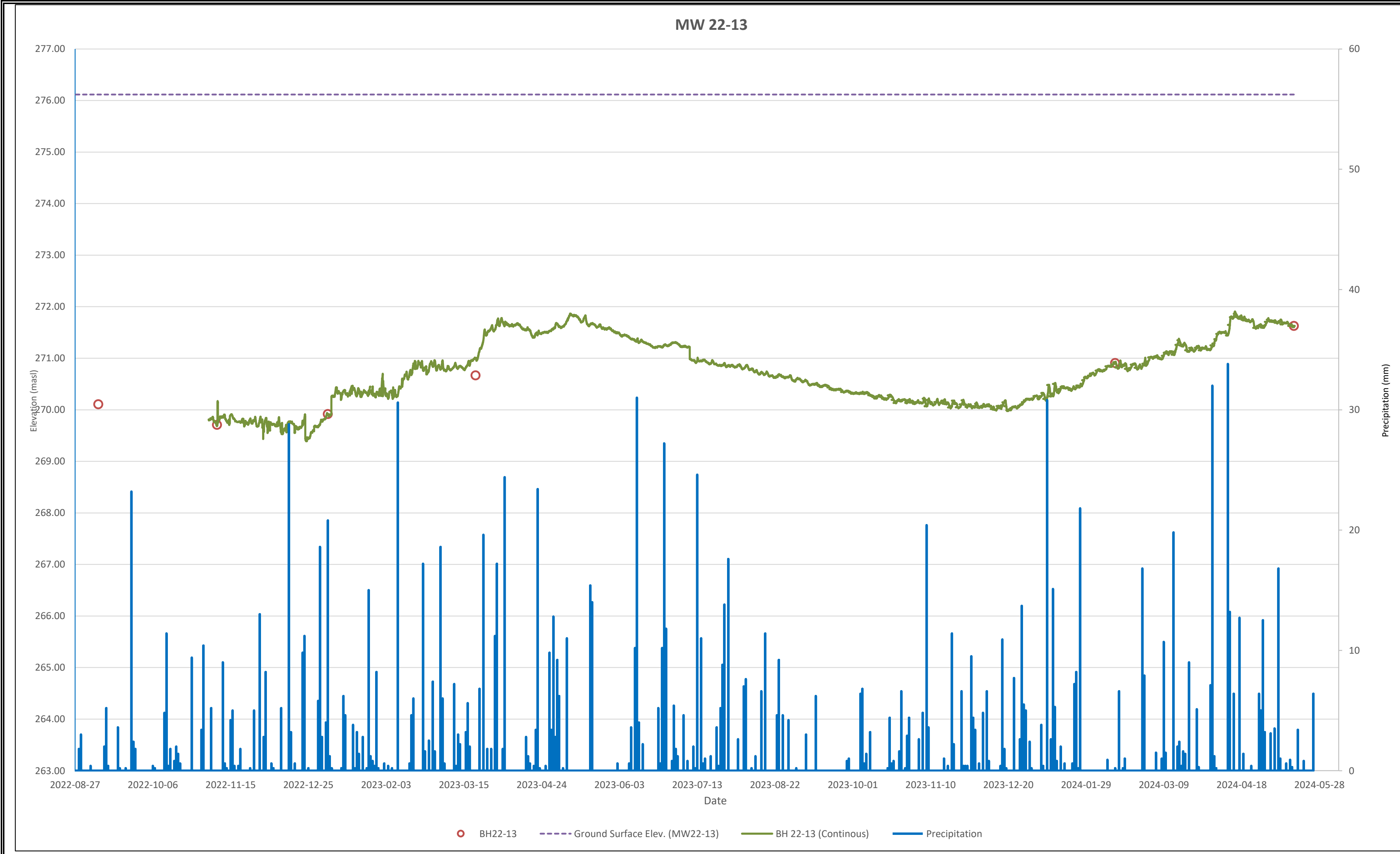
Caledon Station

MW 20-16 HYDROGRAPH

August 2020 - May 2024

F-14

WATER LEVEL HYDROGRAPH

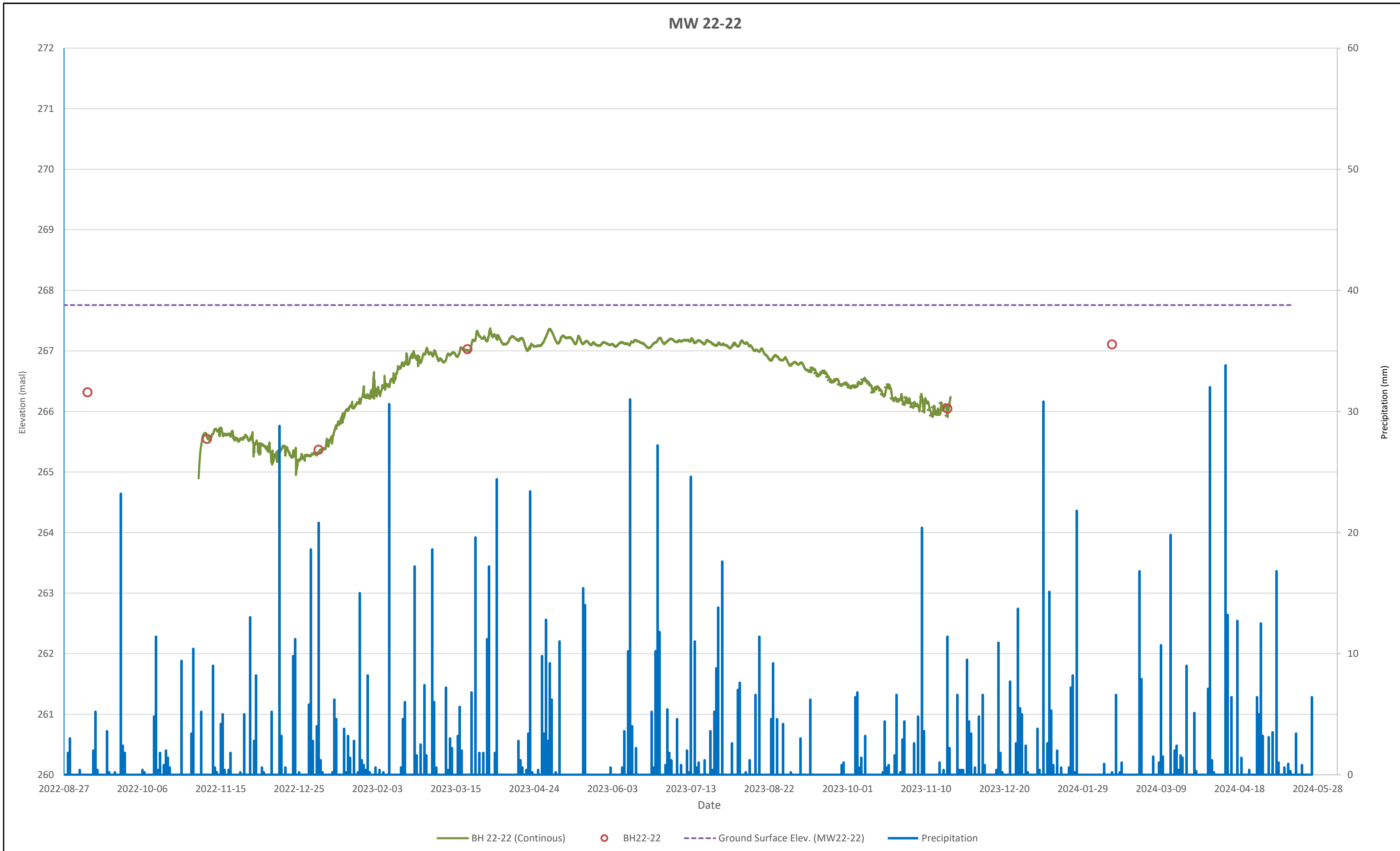


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Caledon Station
MW 22-13 HYDROGRAPH

August 2022 -May 2024
J-15

WATER LEVEL HYDROGRAPH

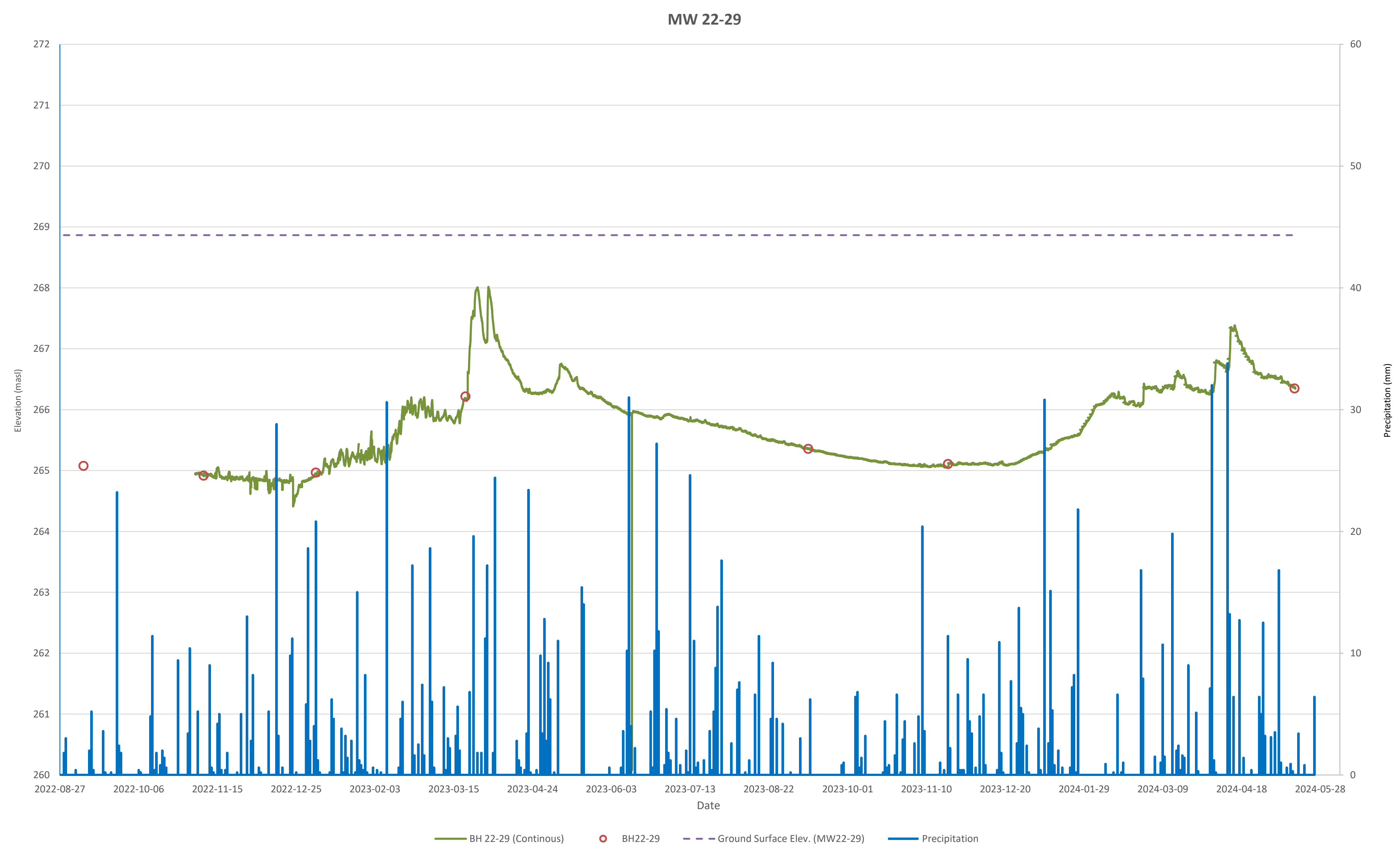


DS CONSULTANTS LTD.
Geotechnical - Environmental - Materials - Hydrogeology

Caledon Station
MW 22-22 HYDROGRAPH

August 2022 - May 2024
J-16

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.

Geotechnical • Environmental • Materials • Hydrogeology

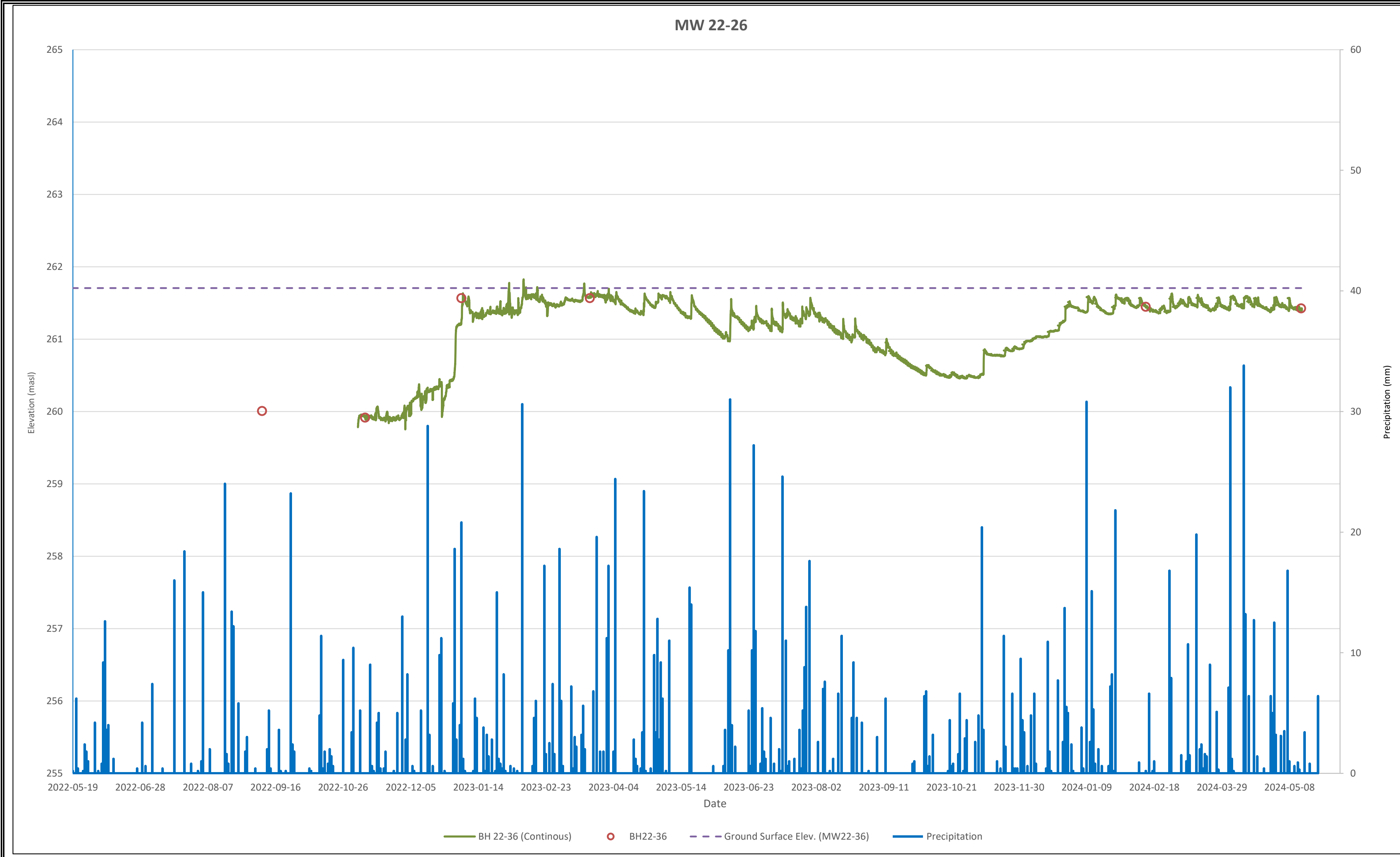
Caledon Station

MW 22-29 HYDROGRAPH

August 2022 - May 2024

J-17

WATER LEVEL HYDROGRAPH

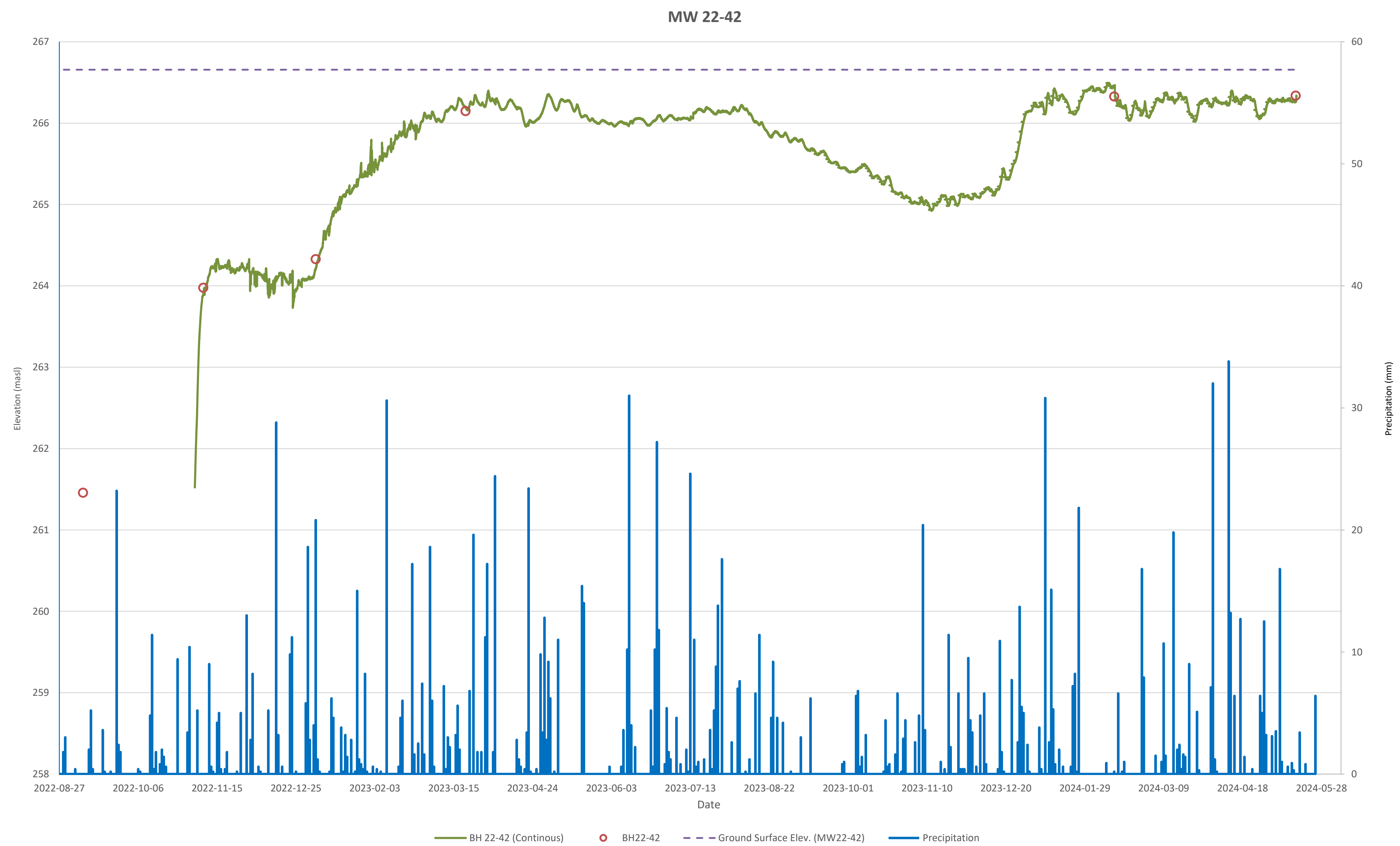


DS CONSULTANTS LTD.
Geotechnical - Environmental - Materials - Hydrogeology

Caledon Station
MW 22-26 HYDROGRAPH

August 2022 - May 2024
J-18

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

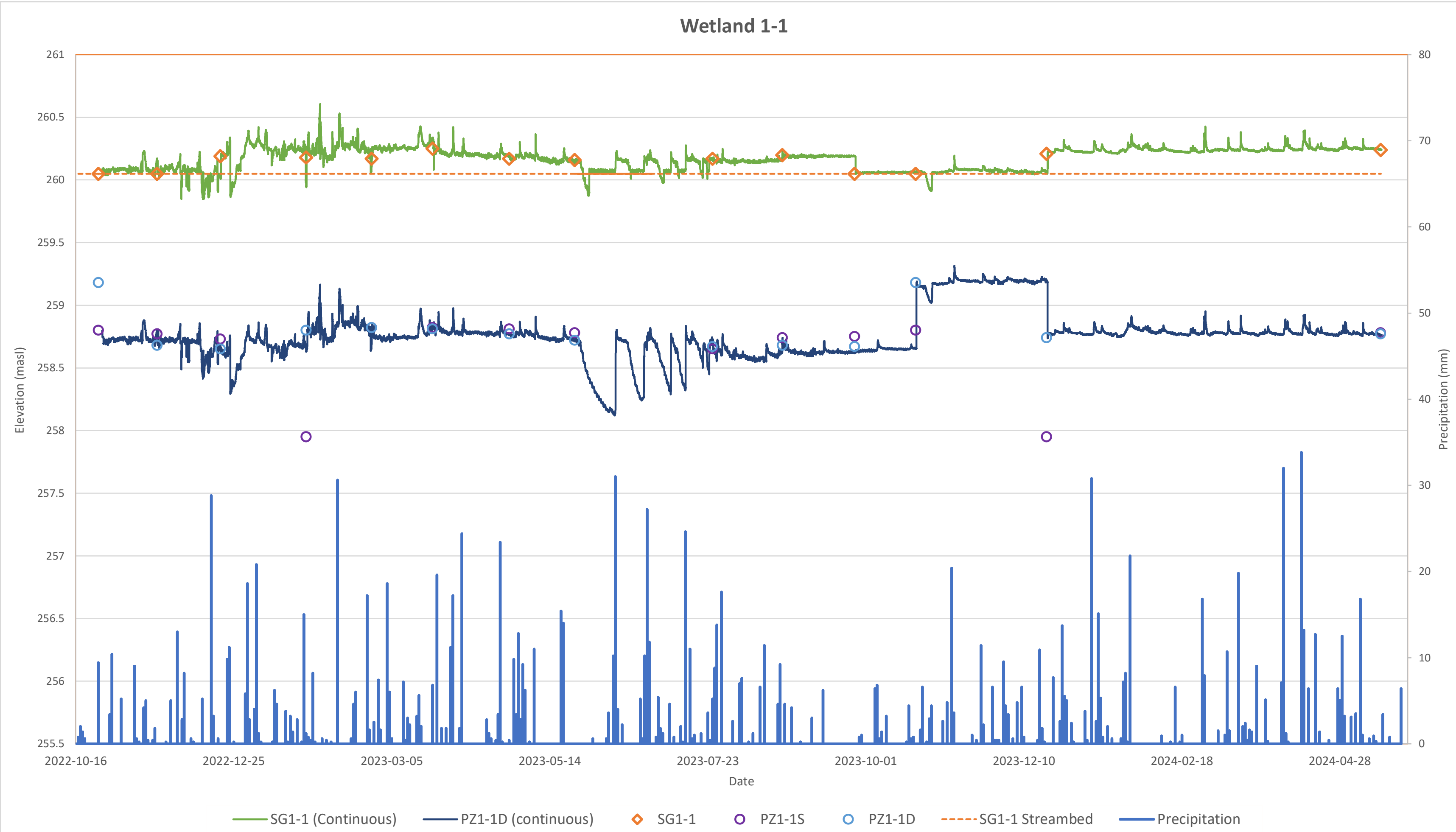
Caledon Station

MW 22-42 HYDROGRAPH

August 2022 - May 2024

J-19

WATER LEVEL HYDROGRAPH

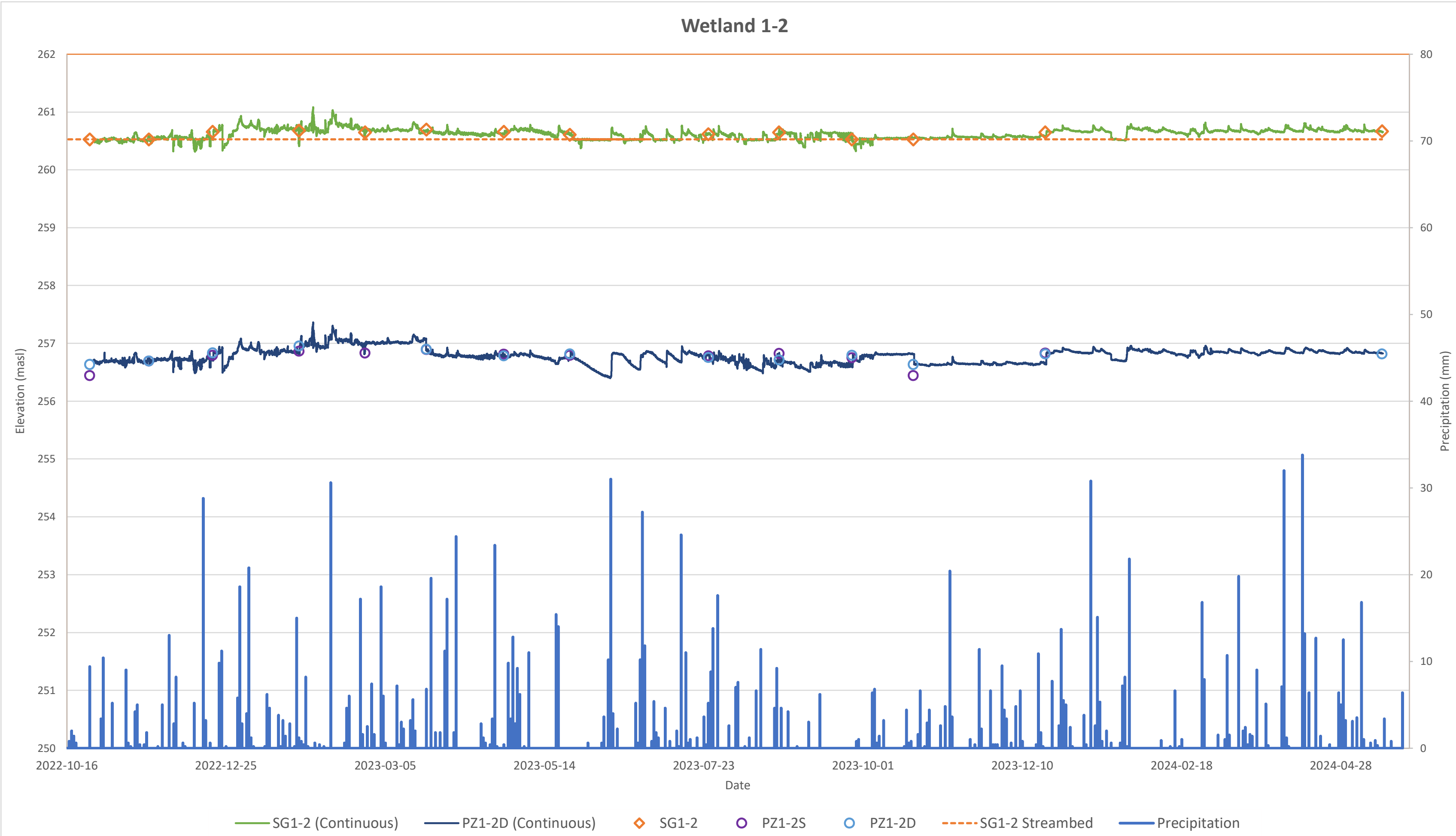


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
WETLAND 1-1 HYDROGRAPH

October 2022 - May 2024
J-20

WATER LEVEL HYDROGRAPH

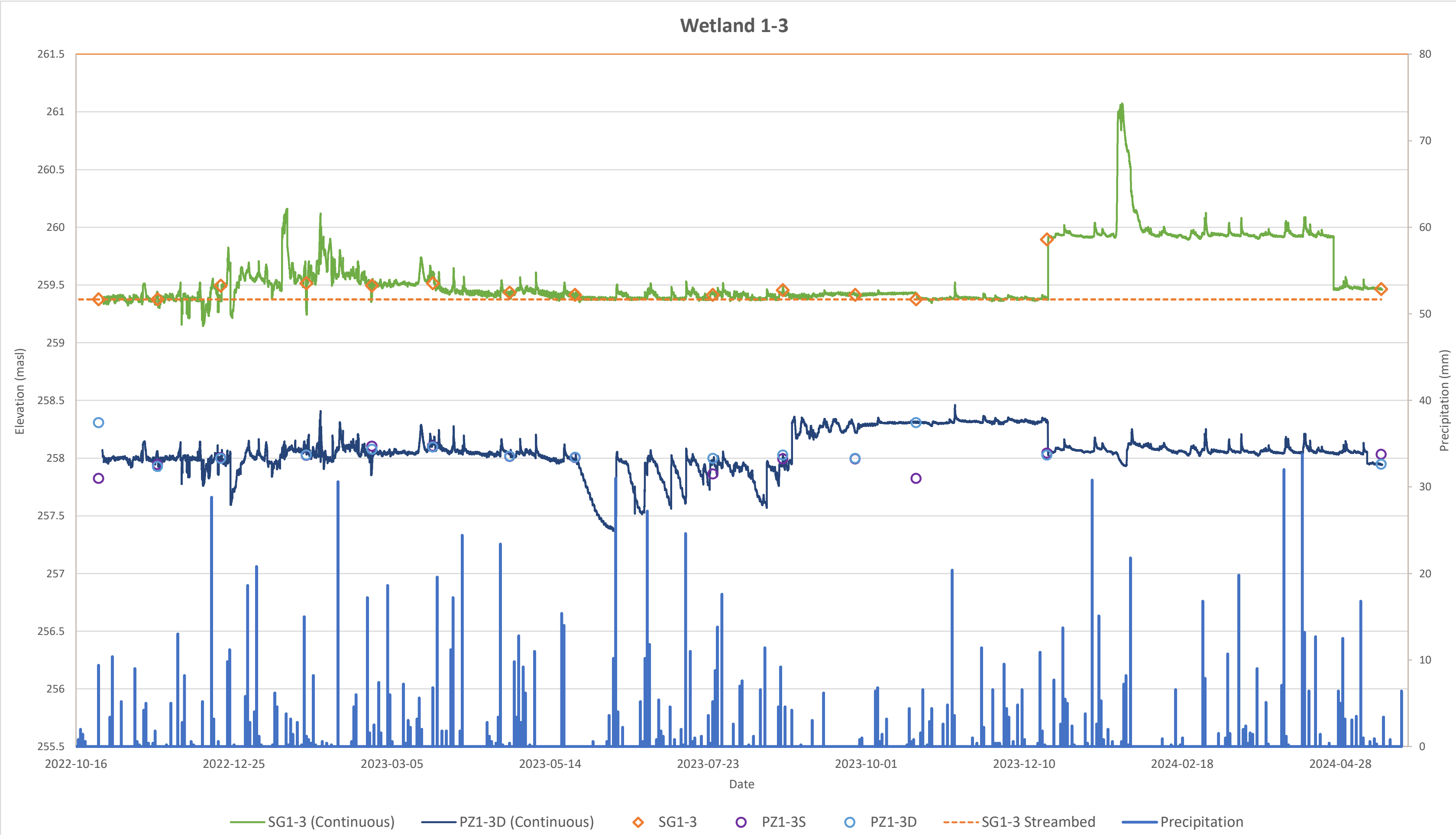


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
WETLAND 1-2 HYDROGRAPH

October 2022 - May 2024
J-21

WATER LEVEL HYDROGRAPH

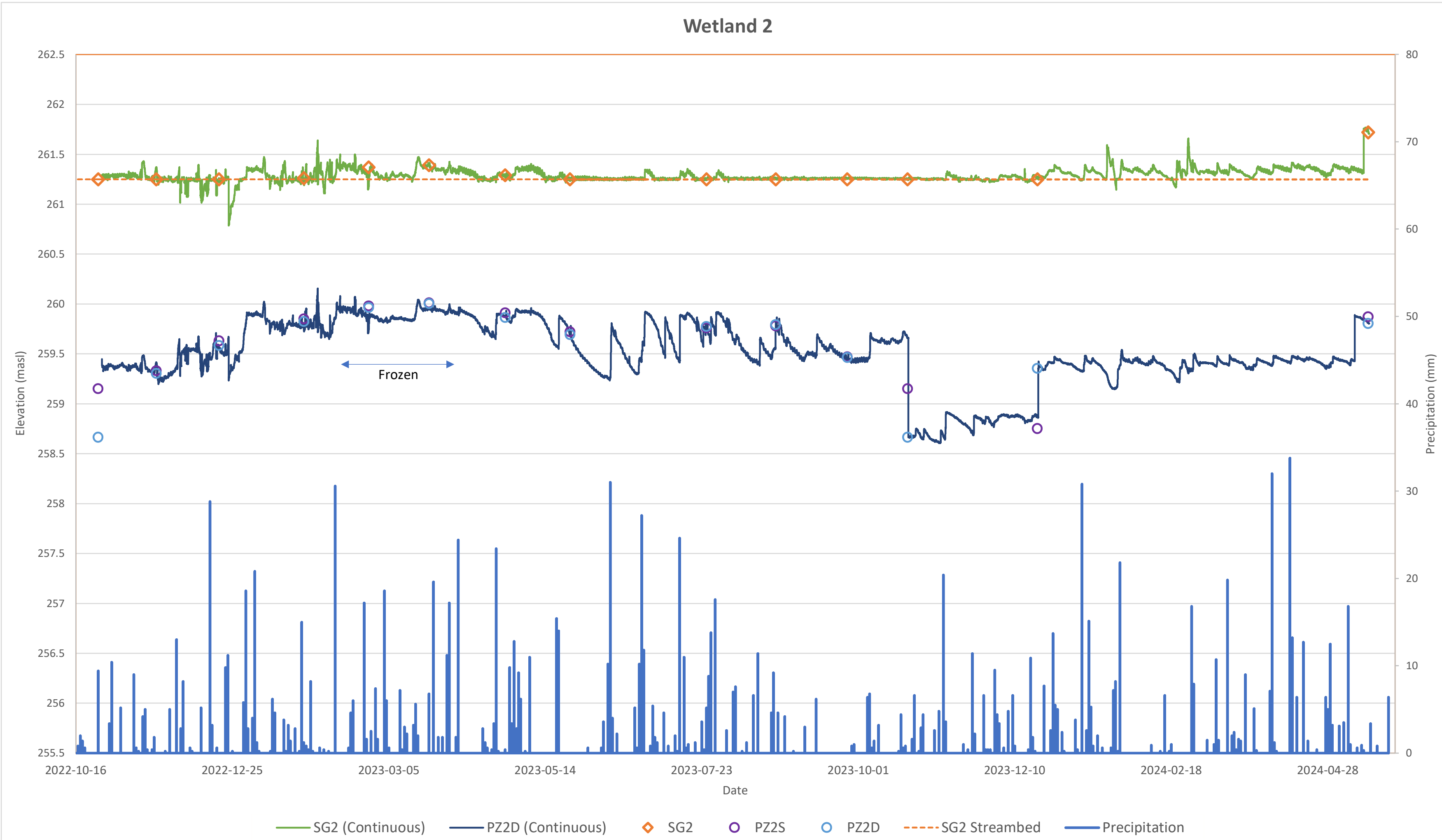


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
WETLAND 1-3 HYDROGRAPH

October 2022 - May 2024
J-22

WATER LEVEL HYDROGRAPH

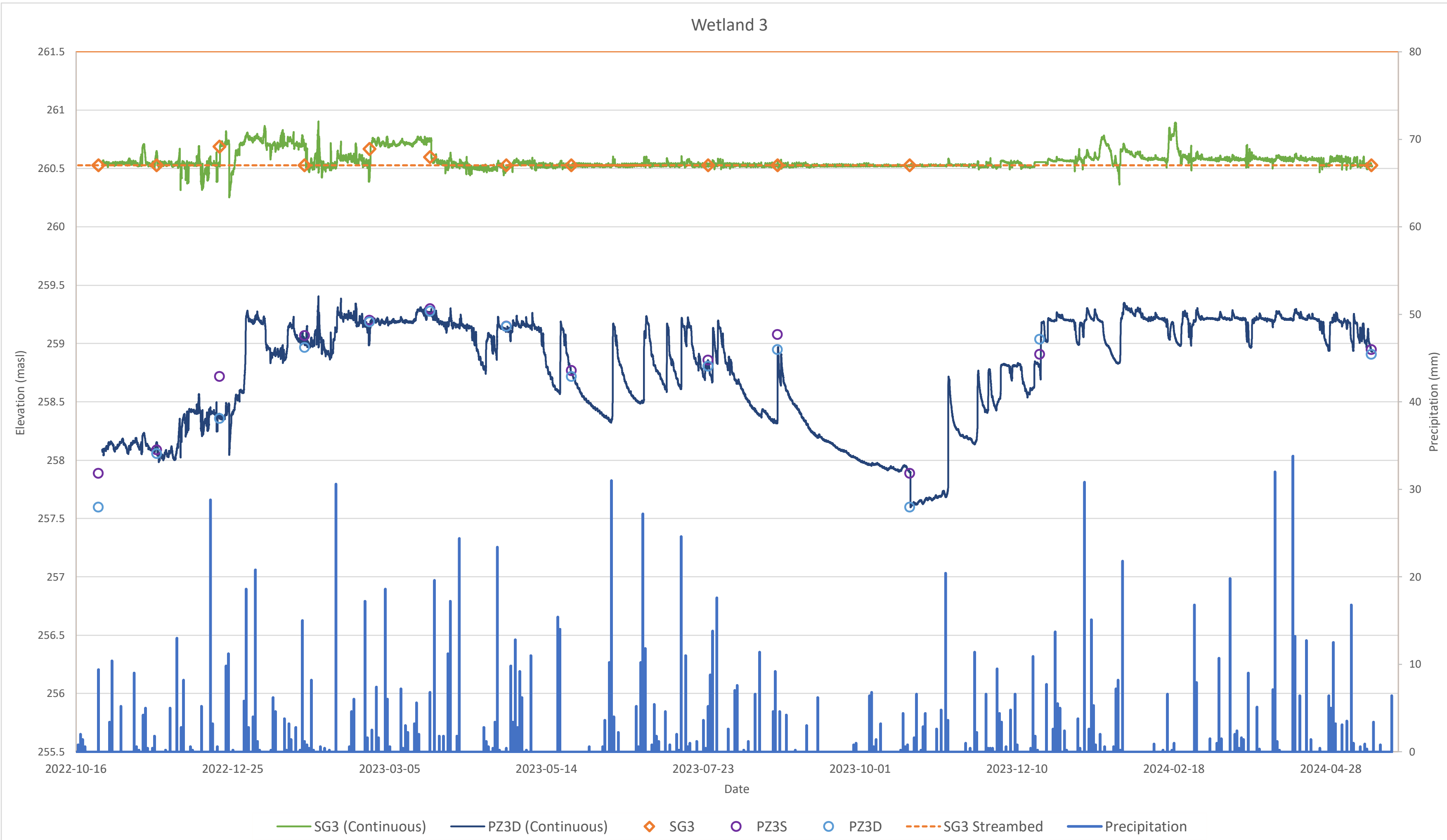


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
WETLAND 2 HYDROGRAPH

October 2022 - May 2024
J-23

WATER LEVEL HYDROGRAPH

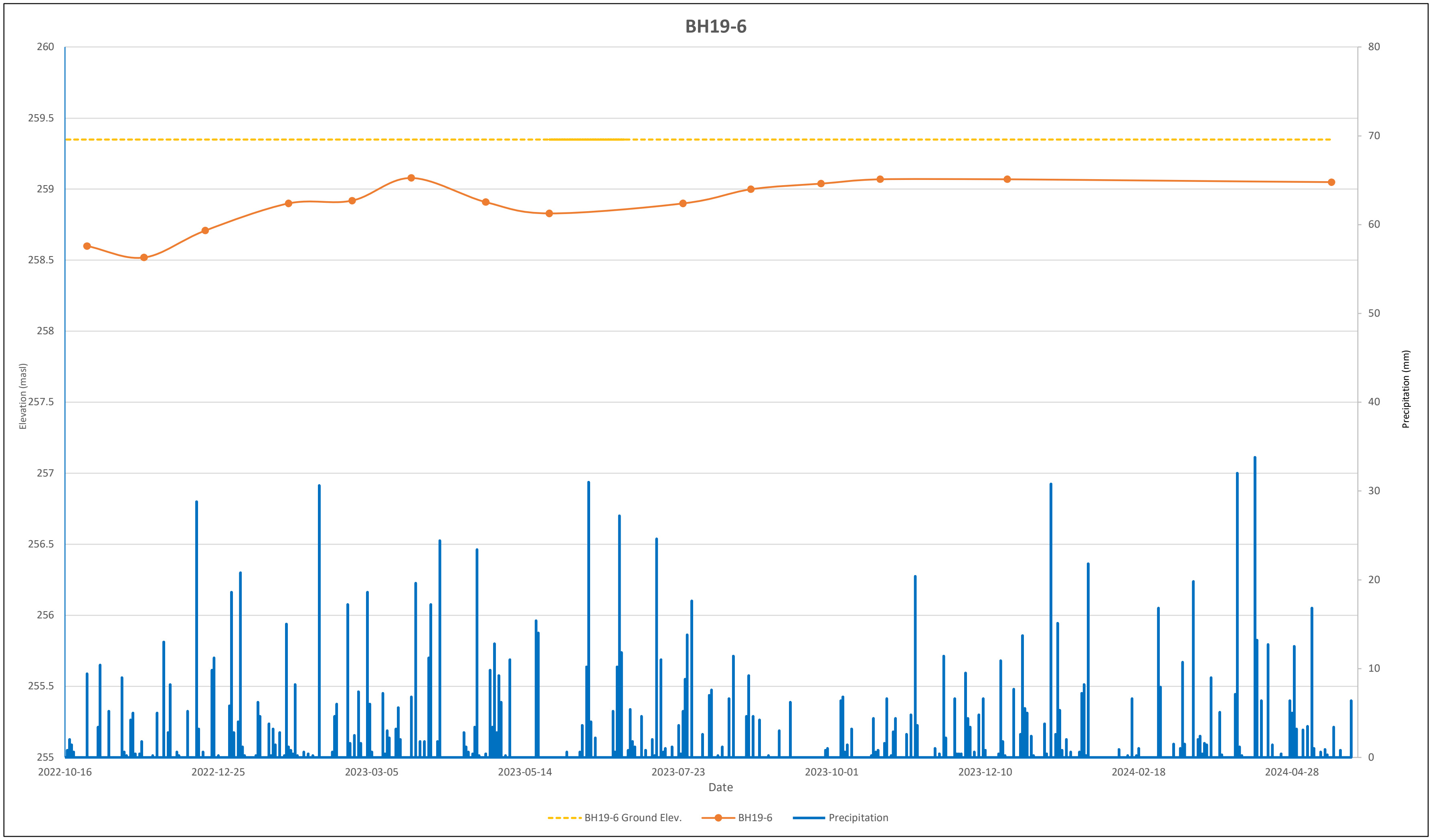


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
WETLAND 3 HYDROGRAPH

October 2022 - May 2024
J-24

WATER LEVEL HYDROGRAPH

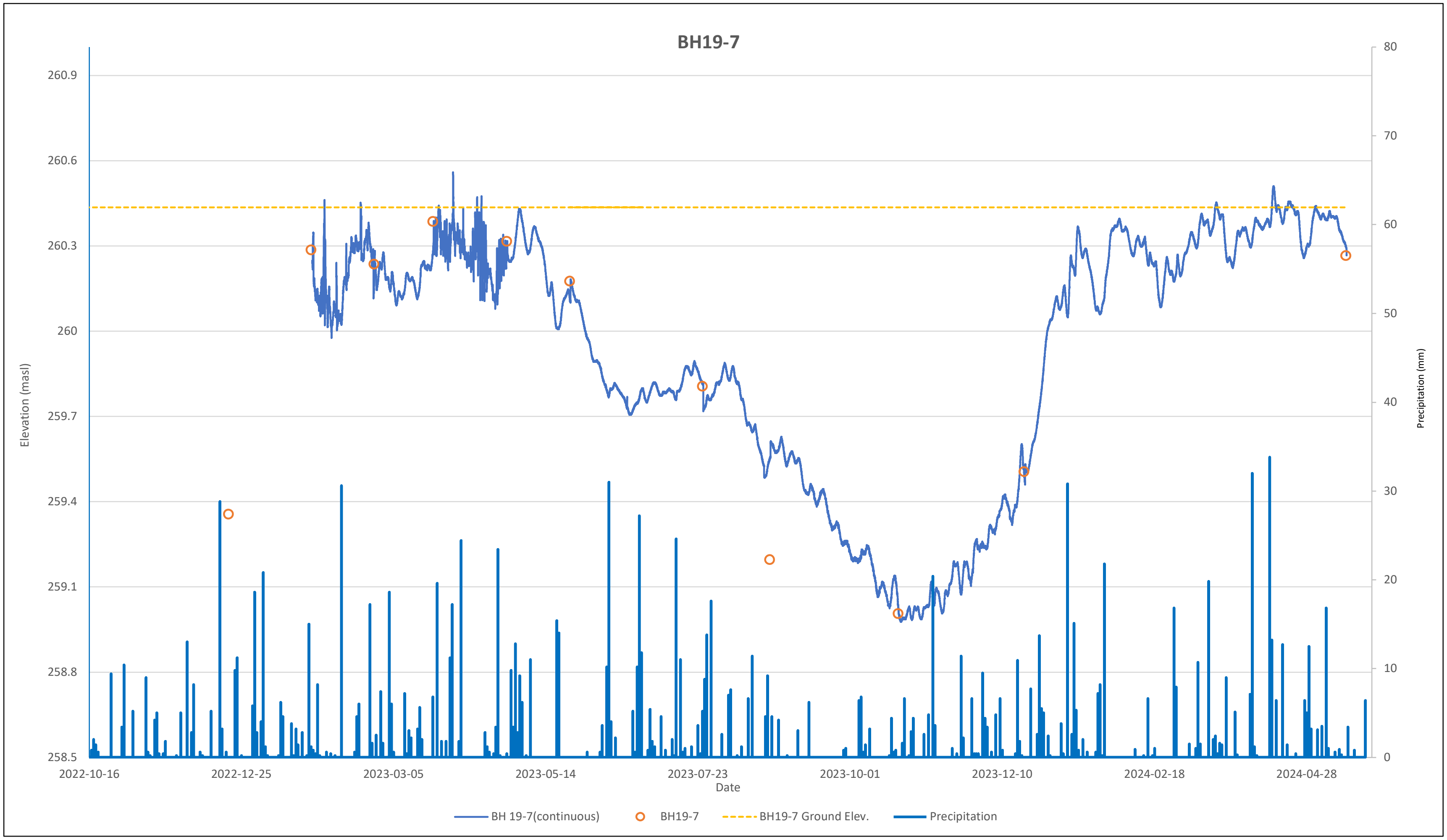


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
BH19-6 HYDROGRAPH

October 2022 - May 2022
J-25

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

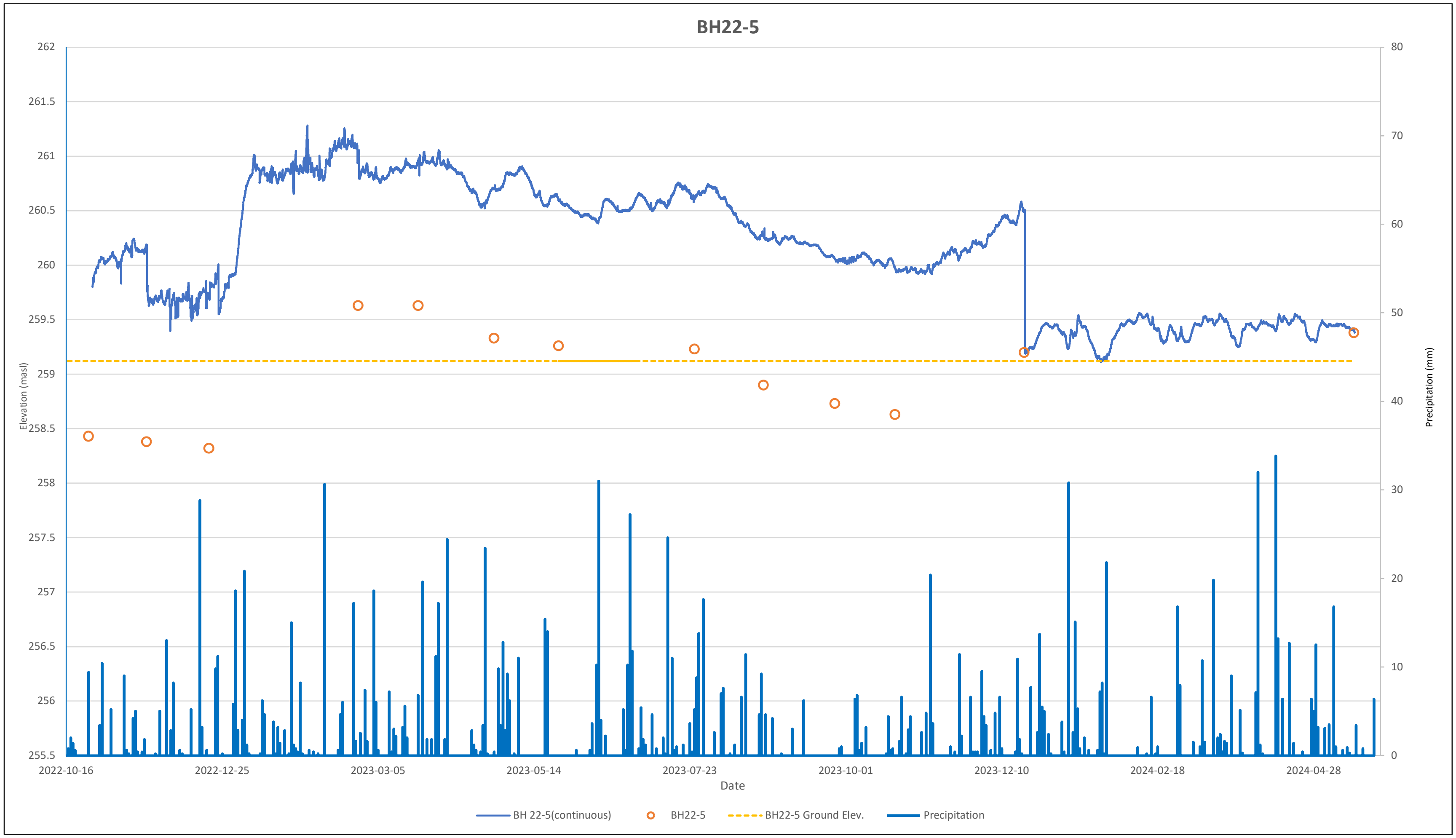
Argo King I & II

BH19-7 HYDROGRAPH

October 2022 - May 2024

J-26

WATER LEVEL HYDROGRAPH

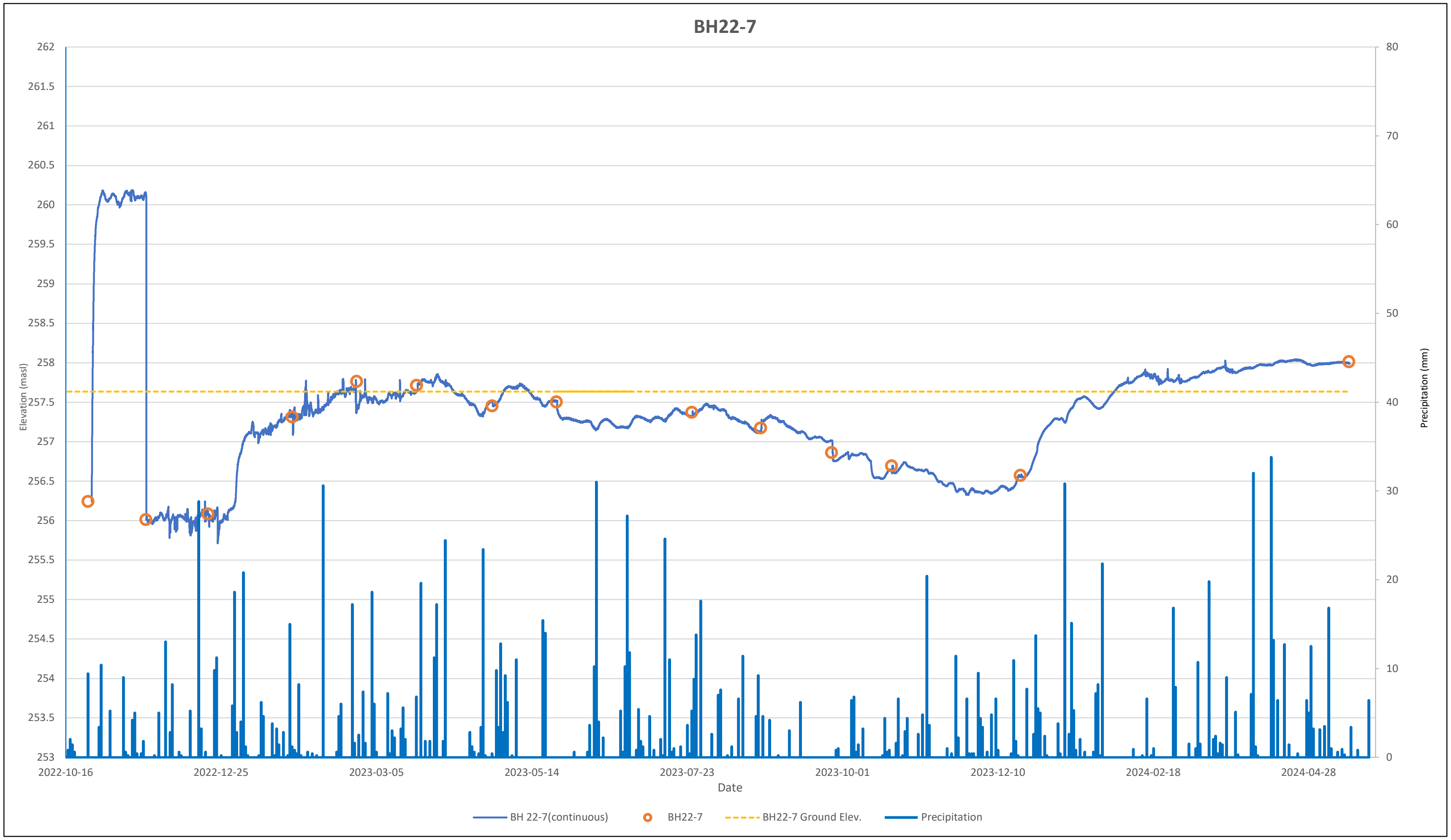


DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
BH22-5 HYDROGRAPH

October 2022 - May 2024
J-27

WATER LEVEL HYDROGRAPH



DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

Argo King I & II
BH22-7 HYDROGRAPH

October 2022 - May 2024
J-28

Appendix K

TABLE K-1
CLIMATE NORMALS - PERSON CLIMATE STATION
CALED ON STATION & ARGO KING I & II

Month	Thornthwaite (1948)					
	Mean Temperature (°C)	Heat Index	Unadjusted Potential Evapotranspiration (mm)	Daylight Correction Value	Adjusted Potential Evapotranspiration (mm)	Total Precipitation (mm)
January	-5.5	0.0	0.0	0.78	0.0	51.8
February	-4.5	0.0	0.0	0.88	0.0	47.7
March	0.1	0.0	0.2	0.99	0.2	49.8
April	7.1	1.7	30.4	1.12	34.1	68.5
May	13.1	4.3	60.7	1.22	74.1	74.3
June	18.6	7.3	90.2	1.28	115.4	71.5
July	21.5	9.1	106.2	1.25	132.7	75.7
August	20.6	8.5	101.2	1.16	117.4	78.1
September	16.2	5.9	77.2	1.04	80.2	74.5
October	9.5	2.6	42.3	0.92	38.9	61.1
November	3.7	0.6	14.6	0.81	11.8	75.1
December	-2.2	0.0	0.0	0.75	0.0	57.9
TOTALS		**40.1**	**522.9**		**604.8**	**786.0**

Notes: Daylight Correction values obtained from Instruction and Tables For Computing Potential Evapotranspiration and The Water Balance (Thornthwaite & Mather, 1957)

TABLE K-2
PRE-DEVELOPMENT WATER BALANCE
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Site	Pasture/Shrub, Silty Clay Soils	Soil Moisture Storage (mm)	200.00	200.00	200.00	156.09	99.08	59.83	54.09	76.31	139.58	197.48	200.00	200.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	110.59	112.07	93.70	76.14	38.88	11.82	0.00	0.00	0.00	**551.60**
		P-AET (mm)	49.55	34.41	0.22	-39.09	-36.37	-15.60	-1.64	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-39.09	-75.46	-91.05	-92.69	-70.47	-7.19	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	39.09	36.37	15.60	1.64	-22.22	-63.28	-7.19	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	0.00	50.71	51.80	47.70	234.40
		Infiltration Factor	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Run-Off Coefficient	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Infiltration (mm)	19.82	13.77	0.09	0.00	0.00	0.00	0.00	0.00	0.00	20.28	20.72	19.08	93.76
		Run-Off (mm)	29.73	20.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	30.43	31.08	28.62	140.64
		Catchment Area (m^2) = 191092.70	Monthly Volumes												
		AET (m^3)	47.05	6513.62	14156.19	21132.56	21415.29	17904.51	14548.87	7430.31	2258.85	0.00	0.00	0.00	105407.26
		Infiltration (m^3)	3787.75	2630.49	16.80	0.00	0.00	0.00	0.00	0.00	0.00	3876.12	3959.44	3646.05	17916.64
		Run-Off (m^3)	5681.62	3945.74	25.20	0.00	0.00	0.00	0.00	0.00	0.00	5814.18	5939.16	5469.07	26874.96
	Moderately Rooted Crop, Silty Clay Soils	Soil Moisture Storage (mm)	150.00	150.00	150.00	106.09	49.08	9.83	4.09	26.31	89.58	147.48	150.00	150.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	108.98	105.19	85.81	74.77	38.88	11.82	0.00	0.00	0.00	**533.86**
		P-AET (mm)	49.55	34.41	0.22	-37.48	-29.49	-7.71	-0.27	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.48	-66.97	-74.68	-74.94	-52.73	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	37.48	29.49	7.71	0.27	-22.22	-52.73	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	10.55	57.90	51.80	47.70	252.14
		Infiltration Factor	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	-
		Run-Off Coefficient	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	-
		Infiltration (mm)	17.34	12.04	0.08	0.00	0.00	0.00	0.00	0.00	3.69	20.27	18.13	16.70	88.25
		Run-Off (mm)	32.21	22.37	0.14	0.00	0.00	0.00	0.00	0.00	6.86	37.64	33.67	31.01	163.89
		Catchment Area (m^2) = 1168287.32	Monthly Volumes												
		AET (m^3)	287.67	39822.47	86546.98	127321.61	122889.29	100249.50	87348.60	45426.83	13809.98	0.00	0.00	0.00	623702.93
		Infiltration (m^3)	20262.57	14071.82	89.87	0.00	0.00	0.00	0.00	0.00	4314.61	23675.34	21181.05	19504.56	103099.82
		Run-Off (m^3)	37630.48	26133.39	166.90	0.00	0.00	0.00	0.00	0.00	8012.85	43968.49	39336.23	36222.75	191471.09
	Tile Drained Cultivated lands, Silty Clay Soils	Soil Moisture Storage (mm)	150.00	150.00	150.00	106.09	49.08	9.83	4.09	26.31	89.58	147.48	150.00	150.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	108.98	105.19	85.81	74.77	38.88	11.82	0.00	0.00	0.00	**533.86**
		P-AET (mm)	49.55	34.41	0.22	-37.48	-29.49	-7.71	-0.27	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.48	-66.97	-74.68	-74.94	-52.73	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	37.48	29.49	7.71	0.27	-22.22	-52.73	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	10.55	57.90	51.80	47.70	252.14
		Infiltration Factor	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
		Run-Off Coefficient	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	-
		Infiltration (mm)	7.43	5.16	0.03	0.00	0.00	0.00	0.00	0.00	1.58	8.69	7.77	7.16	37.82
		Run-Off (mm)	42.12	29.25	0.19	0.00	0.00	0.00	0.00	0.00	8.97	49.22	44.03	40.55	214.32
		Catchment Area (m^2) = 388529.98	Monthly Volumes												
		AET (m^3)	95.67	13243.51	28782.39	42342.55	40868.52	33339.35	29048.98	15107.32	4592.70	0.00	0.00	0.00	207420.97
		Infiltration (m^3)	2887.97	2005.62	12.81	0.00	0.00	0.00	0.00	0.00	614.95	3374.38	3018.88	2779.93	14694.54
		Run-Off (m^3)	16365.16	11365.18	72.58	0.00	0.00	0.00	0.00	0.00	3484.72	19121.50	17106.98	15752.95	83269.06
	Urban Lawn - Pervious Development	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 102064.98	Monthly Volumes												
		AET (m^3)	25.13	3479.01	7561.00	10467.29	8932.38	7971.28	7603.84	3968.62	1206.48	0.00	0.00	0.00	51215.02
		Infiltration (m^3)	1517.31	1053.73	6.73	0.00	0.00	0.00	0.00	0.00	1305.13	1772.87	1586.09	1460.55	8702.42
		Run-Off (m^3)	3540.39	2458.71	15.70	0.00	0.00	0.00	0.00	0.00	3045.31	4136.69	3700.88	3407.95	20305.64
	Impervious Development	Catchment Area (m^2) = 37177.65	Monthly Volumes												
		Evaporation from Imperv. (m^3) - 15% of P.	277.72	382.00	414.34	398.73	422.15	435.54	415.46	340.73	418.81	322.89	288.87	266.01	**4383.24**
		Run-Off from Imperv. (m^3) - with 15% evap.	1573.73	2164.67	2347.95	2259.47	2392.20	2468.04	2354.27	1930.82	2373.24	1829.70	1636.93	1507.37	**24838.39**
	Total Catchment Volumes														
		Total ET (m^3)	277.72	382.00	414.34	398.73	422.15	435.54	415.46	340.73	418.81	322.89	288.87	266.01	**4383.24**
		Total AET (m^3)	455.52	63058.61	137046.56	201264.00	194105.48	159464.63	138550.29	71933.08	21868.02	0.00	0.00	0.00	**987746.18**
		Total Infiltration (m^3)	28455.59	19761.67	126.20	0.00	0.00	0.00	0.00	0.00	6234.69	32698.71	29745.46	27391.09	**144413.41**
		Total Runoff (m^3)	64791.38	46067.68	2628.33	2259.47	2392.20	2468.04	2354.27	1930.82	16916.11	74870.56	67720.18	62360.09	**346759.13**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

TABLE K-3
POST-DEVELOPMENT WATER BALANCE
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 101	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 22062.86	Imperv coeff. 0.84					Monthly Volumes							
		AET (m^3)	5.43	752.04	1634.42	2262.66	1930.87	1723.11	1643.68	857.88	260.80	0.00	0.00	0.00	11070.89
		Infiltration (m^3)	327.99	227.78	1.45	0.00	0.00	0.00	0.00	0.00	282.12	383.23	342.86	315.72	1881.16
		Run-Off (m^3)	765.31	531.49	3.39	0.00	0.00	0.00	0.00	0.00	658.29	894.21	800.00	736.68	4389.36
	Development - Impervious Area	Catchment Area (m^2) = 118337.14						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	883.98	1215.91	1318.87	1269.17	1343.72	1386.32	1322.42	1084.56	1333.07	1027.76	919.48	846.70	**13951.95**
		Run-Off from Imperv. (m^3) - with 15% evap.	5009.21	6890.18	7473.58	7191.94	7614.40	7855.81	7493.70	6145.84	7554.05	5823.96	5210.38	4797.98	**79061.05**
Catchment 102	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 29200.00	Imperv coeff. 0.71					Monthly Volumes							
		AET (m^3)	7.19	995.32	2163.14	2994.61	2555.49	2280.52	2175.40	1135.39	345.16	0.00	0.00	0.00	14652.22
		Infiltration (m^3)	434.09	301.46	1.93	0.00	0.00	0.00	0.00	0.00	373.39	507.20	453.77	417.85	2489.69
		Run-Off (m^3)	1012.88	703.42	4.49	0.00	0.00	0.00	0.00	0.00	871.24	1183.48	1058.79	974.99	5809.29
	Development - Impervious Area	Catchment Area (m^2) = 73000.00						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	545.31	750.08	813.59	782.93	828.92	855.20	815.78	669.05	822.35	634.01	567.21	522.32	**8606.70**
		Run-Off from Imperv. (m^3) - with 15% evap.	3090.09	4250.43	4610.32	4436.58	4697.19	4846.11	4622.73	3791.26	4659.96	3592.70	3214.19	2959.79	**48771.30**
Catchment 103	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 11960.00	Imperv coeff. 0.90					Monthly Volumes							
		AET (m^3)	2.94	407.67	886.00	1226.56	1046.70	934.08	891.02	465.04	141.38	0.00	0.00	0.00	6001.39
		Infiltration (m^3)	177.80	123.48	0.79	0.00	0.00	0.00	0.00	0.00	152.94	207.75	185.86	171.15	1019.75
		Run-Off (m^3)	414.86	288.11	1.84	0.00	0.00	0.00	0.00	0.00	356.85	484.74	433.67	399.34	2379.42
	Development - Impervious Area	Catchment Area (m^2) = 107640.00						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	804.07	1106.00	1199.65	1154.44	1222.25	1261.00	1202.88	986.52	1212.56	934.85	836.36	770.16	**12690.76**
		Run-Off from Imperv. (m^3) - with 15% evap.	4556.40	6267.34	6798.00	6541.82	6926.10	7145.68	6816.30	5590.28	6871.20	5297.50	4739.39	4364.26	**71914.28**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-3

POST-DEVELOPMENT WATER BALANCE

CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
PET - Adjusted Potential Evapotranspiration (mm)			0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
P - Total Precipitation (mm)			49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
P-PET (mm)			49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
Soil Moisture Deficit (mm)			0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 186634.29	Imperv coeff. 0.74					Monthly Volumes							
		AET (m^3)	45.95	6361.65	13825.91	19140.30	16333.61	14576.14	13904.25	7256.95	2206.15	0.00	0.00	0.00	93650.92
		Infiltration (m^3)	2774.53	1926.84	12.31	0.00	0.00	0.00	0.00	0.00	2386.54	3241.84	2900.30	2670.74	15913.09
		Run-Off (m^3)	6473.90	4495.96	28.71	0.00	0.00	0.00	0.00	0.00	5568.60	7564.29	6767.36	6231.72	37130.54
	Development - Impervious Area	Catchment Area (m^2) = 539165.71						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	4027.57	5539.93	6009.00	5782.55	6122.23	6316.33	6025.18	4941.45	6073.70	4682.65	4189.32	3857.73	**63567.64**
		Run-Off from Imperv. (m^3) - with 15% evap.	22822.88	31392.92	34051.01	32767.80	34692.62	35792.52	34142.67	28001.57	34417.64	26535.04	23739.47	21860.47	**360216.61**
Catchment 105	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 72514.29	Imperv coeff. 0.74					Monthly Volumes							
		AET (m^3)	17.86	2471.74	5371.87	7436.71	6346.21	5663.37	5402.31	2819.59	857.17	0.00	0.00	0.00	36386.83
		Infiltration (m^3)	1078.01	748.65	4.78	0.00	0.00	0.00	0.00	0.00	927.26	1259.57	1126.87	1037.68	6182.82
		Run-Off (m^3)	2515.35	1746.84	11.16	0.00	0.00	0.00	0.00	0.00	2163.61	2939.00	2629.37	2421.25	14426.58
	Development - Impervious Area	Catchment Area (m^2) = 209485.71						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	1564.86	2152.47	2334.72	2246.73	2378.71	2454.13	2341.00	1919.94	2359.86	1819.38	1627.70	1498.87	**24698.37**
		Run-Off from Imperv. (m^3) - with 15% evap.	8867.53	12197.31	13230.07	12731.49	13479.36	13906.71	13265.68	10879.64	13372.52	10309.84	9223.66	8493.60	**139957.41**
Catchment 106	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 59954.29	Imperv coeff. 0.77					Monthly Volumes							
		AET (m^3)	14.76	2043.61	4441.43	6148.62	5247.00	4682.43	4466.59	2331.22	708.70	0.00	0.00	0.00	30084.37
		Infiltration (m^3)	891.29	618.98	3.95	0.00	0.00	0.00	0.00	0.00	766.65	1041.41	931.69	857.95	5111.91
		Run-Off (m^3)	2079.67	1444.28	9.22	0.00	0.00	0.00	0.00	0.00	1788.85	2429.95	2173.94	2001.87	11927.79
	Development - Impervious Area	Catchment Area (m^2) = 202345.71						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	1511.52	2079.10	2255.14	2170.16	2297.64	2370.48	2261.21	1854.50	2279.42	1757.37	1572.23	1447.78	**23856.56**
		Run-Off from Imperv. (m^3) - with 15% evap.	8565.29	11781.58	12779.14	12297.56	13019.93	13432.72	12813.54	10508.82	12916.74	9958.44	8909.28	8204.11	**135187.17**

NOTES:

1) PET and P Taken from Table 1

2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET

3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March

4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-3
POST-DEVELOPMENT WATER BALANCE
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Channel 1 & 2	Development - Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 26640.00	Imperv coeff. 0.10					**Monthly Volumes**							
		AET (m^3)	6.56	908.06	1973.50	2732.07	2331.44	2080.58	1984.68	1035.85	314.90	0.00	0.00	0.00	13367.64
		Infiltration (m^3)	396.03	275.04	1.76	0.00	0.00	0.00	0.00	0.00	340.65	462.74	413.99	381.22	2271.42
		Run-Off (m^3)	924.08	641.75	4.10	0.00	0.00	0.00	0.00	0.00	794.86	1079.72	965.97	889.51	5299.98
	Development - Impervious Area	**Catchment Area (m^2) = 2960.00**						**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	22.11	30.41	32.99	31.75	33.61	34.68	33.08	27.13	33.34	25.71	23.00	21.18	**348.98**
		Run-Off from Imperv. (m^3) - with 15% evap.	125.30	172.35	186.94	179.89	190.46	196.50	187.44	153.73	188.95	145.68	130.33	120.01	**1977.58**
Pond 2A	Development - Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 18650.00	Imperv coeff. 0.50					**Monthly Volumes**							
		AET (m^3)	4.59	635.71	1381.60	1912.65	1632.19	1456.57	1389.43	725.17	220.46	0.00	0.00	0.00	9358.35
		Infiltration (m^3)	277.25	192.55	1.23	0.00	0.00	0.00	0.00	0.00	238.48	323.95	289.82	266.88	1590.16
		Run-Off (m^3)	646.92	449.27	2.87	0.00	0.00	0.00	0.00	0.00	556.46	755.88	676.25	622.72	3710.38
	Development - Impervious Area	**Catchment Area (m^2) = 18650.00**						**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	139.32	191.63	207.85	200.02	211.77	218.48	208.41	170.93	210.09	161.98	144.91	133.44	**2198.84**
		Run-Off from Imperv. (m^3) - with 15% evap.	789.45	1085.90	1177.84	1133.45	1200.03	1238.08	1181.01	968.59	1190.52	917.86	821.16	756.16	**12460.07**
Pond 2B	Development - Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 28620.00	Imperv coeff. 0.69					**Monthly Volumes**							
		AET (m^3)	7.05	975.55	2120.18	2935.13	2504.73	2235.22	2132.19	1112.84	338.31	0.00	0.00	0.00	14361.18
		Infiltration (m^3)	425.47	295.48	1.89	0.00	0.00	0.00	0.00	0.00	365.97	497.13	444.75	409.55	2440.24
		Run-Off (m^3)	992.76	689.45	4.40	0.00	0.00	0.00	0.00	0.00	853.93	1159.97	1037.76	955.62	5693.90
	Development - Impervious Area	**Catchment Area (m^2) = 62280.00**						**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	465.23	639.93	694.11	667.95	707.19	729.61	695.98	570.80	701.58	540.90	483.92	445.61	**7342.81**
		Run-Off from Imperv. (m^3) - with 15% evap.	2636.31	3626.25	3933.29	3785.07	4007.41	4134.46	3943.88	3234.51	3975.64	3065.11	2742.19	2525.14	**41609.27**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-3
POST-DEVELOPMENT WATER BALANCE
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
NHS	Pasture/Shrub, Silty Clay Soils	Soil Moisture Storage (mm)	200.00	200.00	200.00	156.09	99.08	59.83	54.09	76.31	75.00	132.90	135.42	135.42	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	110.59	112.07	93.70	76.14	38.88	11.82	0.00	0.00	0.00	**551.60**
		P-AET (mm)	49.55	34.41	0.22	-39.09	-36.37	-15.60	-1.64	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-39.09	-75.46	-91.05	-92.69	-70.47	-7.19	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	39.09	36.37	15.60	1.64	-22.22	-63.28	-7.19	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	0.00	50.71	51.80	47.70	234.40
		Infiltration Factor	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Run-Off Coefficient	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Infiltration (mm)	19.82	13.77	0.09	0.00	0.00	0.00	0.00	0.00	0.00	20.28	20.72	19.08	93.76
		Run-Off (mm)	29.73	20.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	30.43	31.08	28.62	140.64
		Catchment Area (m^2) 97052.63	Imperv coeff. 0.00					Monthly Volumes							
		AET (m^3)	23.90	3308.16	7189.68	10732.86	10876.45	9093.39	7389.12	3773.72	1147.23	0.00	0.00	0.00	53534.50
		Infiltration (m^3)	1923.73	1335.98	8.53	0.00	0.00	0.00	0.00	0.00	0.00	1968.61	2010.93	1851.76	9099.55
		Run-Off (m^3)	2885.59	2003.97	12.80	0.00	0.00	0.00	0.00	0.00	0.00	2952.92	3016.40	2777.65	13649.32
	Development - Impervious Area	Catchment Area (m^2) = 0.00						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		Run-Off from Imperv. (m^3) - with 15% evap.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total Site								Total Catchment Volumes							
		Total ET (m^3)	9963.97	13705.46	14865.92	14305.69	15146.03	15626.22	14905.93	12224.87	15025.98	11584.61	10364.13	9543.80	**157262.60**
		Total AET (m^3)	136.24	18859.50	40987.72	57522.17	50804.67	44725.40	41378.68	21513.66	6540.26	0.00	0.00	0.00	**282468.29**
		Total Infiltration (m^3)	8706.19	6046.22	38.61	0.00	0.00	0.00	0.00	0.00	5834.01	9893.43	9100.83	8380.50	**47999.79**
		Total Runoff (m^3)	75173.81	90658.78	84323.19	81065.60	85827.50	88548.58	84466.96	69274.24	98759.92	87090.28	78289.55	72092.88	**995571.29**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

POST-DEVELOPMENT WATER BALANCE WITH MITIGATION

CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 101	Development - Unconnected Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 13942.86	Monthly Volumes												
		AET (m^3)	3.43	475.26	1032.89	1429.91	1220.23	1088.94	1038.74	542.14	164.81	0.00	0.00	0.00	**6996.36**
		Infiltration (m^3)	207.28	143.95	0.92	0.00	0.00	0.00	0.00	0.00	178.29	242.19	216.67	199.52	**1188.82**
		Run-Off (m^3)	483.64	335.88	2.15	0.00	0.00	0.00	0.00	0.00	416.01	565.10	505.57	465.55	**2773.91**
	Development - Unconnected Impervious Area	Catchment Area (m^2) = 115107.14	Imperv coeff. 0.84	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	859.85	1182.73	1282.87	1234.52	1307.04	1348.48	1286.32	1054.96	1296.68	999.71	894.38	823.59	**13571.13**
		Run-Off from Imperv. (m^3) - with 15% evap.	4872.49	6702.11	7269.59	6995.64	7406.57	7641.39	7289.16	5978.09	7347.86	5665.00	5068.17	4667.02	**76903.08**
	Mitigation - Connected Pervious Park Area	P - Total Precipitation plus irrigation (mm)	54.03	74.32	80.62	77.58	82.13	84.74	80.83	66.29	81.48	62.82	56.20	51.75	**852.81**
		P-PET (mm)	53.79	40.24	6.54	-37.83	-50.57	-32.62	0.59	27.41	69.66	62.82	56.20	51.75	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.83	-88.40	-121.02	-120.43	-93.02	-23.36	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.17	0.00	0.00	0.59	28.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.33	89.83	78.10	74.52	38.88	11.82	0.00	0.00	0.00	**505.90**
		P-AET (mm)	53.79	40.24	6.54	-26.76	-7.69	6.64	6.31	27.41	69.66	62.82	56.20	51.75	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.76	-34.45	-27.81	-21.50	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.76	7.69	-6.64	-6.31	-21.50	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	53.79	40.24	6.54	0.00	0.00	0.00	0.00	5.91	69.66	62.82	56.20	51.75	**346.91**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.14	12.07	1.96	0.00	0.00	0.00	0.00	1.77	20.90	18.85	16.86	15.53	**104.07**
		Run-Off (mm)	37.65	28.17	4.57	0.00	0.00	0.00	0.00	4.14	48.76	43.98	39.34	36.23	**242.84**
		Catchment Area (m^2) 7500.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	1.85	255.65	555.60	782.51	673.70	585.75	558.92	291.62	88.66	0.00	0.00	0.00	**3794.25**
		Infiltration (m^3)	121.02	90.53	14.70	0.00	0.00	0.00	0.00	13.30	156.74	141.35	126.46	116.45	**780.55**
		Run-Off (m^3)	282.38	211.24	34.31	0.00	0.00	0.00	0.00	31.03	365.73	329.81	295.07	271.71	**1821.28**
	Mitigation - Connected Impervious Park Area	Catchment Area (m^2) = 750.00	Imperv coeff. 0.10	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	5.60	7.71	8.36	8.04	8.52	8.79	8.38	6.87	8.45	6.51	5.83	5.37	**88.43**
		Run-Off Directed to Pervious Area (m^3)	31.75	43.67	47.37	45.58	48.26	49.79	47.49	38.95	47.88	36.91	33.02	30.41	**501.08**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 101 (Continued)	Mitigation ROWs - Pervious Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 620.00	Monthly Volumes												
		AET (m^3)	0.15	21.13	45.93	63.58	54.26	48.42	46.19	24.11	7.33	0.00	0.00	0.00	**311.11**
		Infiltration (m^3)	9.22	6.40	0.04	0.00	0.00	0.00	0.00	0.00	7.93	10.77	9.63	8.87	**52.86**
		Run-Off Directed to Silva Cells (m^3)	21.51	14.94	0.10	0.00	0.00	0.00	0.00	0.00	18.50	25.13	22.48	20.70	**123.35**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	19.36	13.44	0.09	0.00	0.00	0.00	0.00	0.00	16.65	22.62	20.23	18.63	**111.01**
		Run-Off (m^3)	2.15	1.49	0.01	0.00	0.00	0.00	0.00	0.00	1.85	2.51	2.25	2.07	**12.33**
	Mitigation ROWs - Impervious Area to Silva Cells	Catchment Area (m^2) = 2480.00	Imperv coeff. 0.80	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	18.53	25.48	27.64	26.60	28.16	29.05	27.71	22.73	27.94	21.54	19.27	17.74	**292.39**
		Run-Off Directed to Silva Cells (m^3)	104.98	144.40	156.62	150.72	159.58	164.63	157.05	128.80	158.31	122.05	109.19	100.55	**1656.89**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	94.48	129.96	140.96	135.65	143.62	148.17	141.34	115.92	142.48	109.85	98.27	90.50	**1491.20**
		Run-Off (m^3)	10.50	14.44	15.66	15.07	15.96	16.46	15.70	12.88	15.83	12.21	10.92	10.06	**165.69**
	Total Catchment Volumes														
	Total ET (m^3)		883.98	1215.91	1318.87	1269.17	1343.72	1386.32	1322.42	1084.56	1333.07	1027.76	919.48	846.70	**13951.95**
	Total AET (m^3)		5.43	752.04	1634.42	2276.00	1948.19	1723.11	1643.85	857.88	260.80	0.00	0.00	0.00	**11101.72**
	Total Infiltration (m^3)		451.35	384.28	156.71	135.65	143.62	148.17	141.34	129.22	502.09	526.77	471.27	433.97	**3624.44**
	Total Runoff (m^3)		5651.16	7265.17	7321.72	7010.71	7422.53	7657.85	7304.86	6022.00	8147.29	6574.63	5881.97	5416.41	**81676.29**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 102	Development - Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 26590.00	**Monthly Volumes**												
		AET (m^3)	6.55	906.35	1969.79	2726.94	2327.07	2076.68	1980.96	1033.91	314.31	0.00	0.00	0.00	**13342.55**
		Infiltration (m^3)	395.29	274.52	1.75	0.00	0.00	0.00	0.00	0.00	340.01	461.87	413.21	380.50	**2267.16**
		Run-Off (m^3)	922.34	640.54	4.09	0.00	0.00	0.00	0.00	0.00	793.37	1077.69	964.15	887.84	**5290.03**
	Development - Impervious Area	**Catchment Area (m^2) = 64710.00**	Imperv coeff. 0.71	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	483.38	664.90	721.19	694.01	734.78	758.08	723.13	593.07	728.96	562.01	502.80	463.00	**7629.31**
		Run-Off from Imperv. (m^3) - with 15% evap.	2739.17	3767.74	4086.76	3932.75	4163.76	4295.77	4097.76	3360.71	4130.76	3184.70	2849.18	2623.67	**43232.75**
	Mitigation LNPARK 2 - Connected Pervious Park Area to Silva Cells	**P - Total Precipitation plus irrigation (mm)**	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	**860.23**
		P-PET (mm)	-50.48	-69.43	-75.31	-72.47	-76.73	-79.16	-75.51	-61.93	-76.12	-58.68	-52.50	-48.35	-
		Soil Moisture Deficit (mm)	0.00	-69.43	-144.74	-217.20	-293.93	-373.09	-448.60	-510.53	-586.65	-645.33	-697.83	-746.18	-
		Soil Moisture Storage (mm)	75.00	5.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	71.50	75.70	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**458.92**
		P-AET (mm)	54.26	40.88	7.24	6.75	7.15	7.38	7.04	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	6.75	7.15	7.38	7.04	27.99	70.37	63.37	56.69	52.21	**401.32**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	2.03	2.14	2.21	2.11	8.40	21.11	19.01	17.01	15.66	**120.40**
		Run-Off (mm)	37.98	28.62	5.07	4.73	5.00	5.16	4.93	19.59	49.26	44.36	39.68	36.54	**280.92**
		Catchment Area (m^2) 2610.00	**Monthly Volumes**												
		AET (m^3)	0.64	88.96	193.35	186.62	197.58	203.84	194.45	101.49	30.85	0.00	0.00	0.00	**1197.77**
		Infiltration (m^3)	42.48	32.01	5.67	5.29	5.60	5.78	5.51	21.91	55.10	49.62	44.39	40.88	**314.23**
		Run-Off to Silva Cells (m^3)	99.13	74.69	13.22	12.34	13.06	13.48	12.85	51.13	128.57	115.77	103.58	95.38	**733.21**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	89.21	67.22	11.90	11.10	11.76	12.13	11.57	46.02	115.71	104.20	93.22	85.84	**659.89**
		Run-Off (m^3)	9.91	7.47	1.32	1.23	1.31	1.35	1.29	5.11	12.86	11.58	10.36	9.54	**73.32**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4

POST-DEVELOPMENT WATER BALANCE WITH MITIGATION

CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 102 (Continued)	Mitigation LNPARK 2 - Connected Impervious Park Area	Catchment Area (m^2) = 290.00	Imperv coeff. 0.10					Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	2.17	2.98	3.23	3.11	3.29	3.40	3.24	2.66	3.27	2.52	2.25	2.07	**34.19**
		Run-Off Directed to Pervious Area (m^3)	12.28	16.89	18.31	17.62	18.66	19.25	18.36	15.06	18.51	14.27	12.77	11.76	**193.75**
	Mitigation LNPARK 2- Impervious Area to Silva Cells	Catchment Area (m^2) = 8000.00						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	59.76	82.20	89.16	85.80	90.84	93.72	89.40	73.32	90.12	69.48	62.16	57.24	**943.20**
		Run-Off Directed to Pervious Area (m^3)	338.64	465.80	505.24	486.20	514.76	531.08	506.60	415.48	510.68	393.72	352.24	324.36	**5344.80**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	304.78	419.22	454.72	437.58	463.28	477.97	455.94	373.93	459.61	354.35	317.02	291.92	**4810.32**
		Run-Off (m^3)	33.86	46.58	50.52	48.62	51.48	53.11	50.66	41.55	51.07	39.37	35.22	32.44	**534.48**
								Total Catchment Volumes							
	Total ET (m^3)		545.31	750.08	813.59	782.93	828.92	855.20	815.78	669.05	822.35	634.01	567.21	522.32	**8606.70**
	Total AET (m^3)		7.19	995.32	2163.14	2913.56	2524.64	2280.52	2175.40	1135.39	345.16	0.00	0.00	0.00	**14540.33**
	Total Infiltration (m^3)		831.76	792.97	474.04	453.97	480.64	495.88	473.02	441.87	970.44	970.03	867.83	799.14	**8051.59**
	Total Runoff (m^3)		3705.30	4462.33	4142.70	3982.60	4216.55	4350.23	4149.71	3407.38	4988.05	4313.34	3858.92	3553.48	**49130.58**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	786.00
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	181.17
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 103	Development - Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	501.79
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 11820.00	Monthly Volumes												
		AET (m^3)	2.91	402.90	875.63	1212.20	1034.45	923.14	880.59	459.60	139.72	0.00	0.00	0.00	5931.14
		Infiltration (m^3)	175.72	122.03	0.78	0.00	0.00	0.00	0.00	0.00	151.15	205.31	183.68	169.14	1007.81
		Run-Off (m^3)	410.01	284.74	1.82	0.00	0.00	0.00	0.00	0.00	352.67	479.06	428.59	394.67	2351.57
	Development - Impervious Area	Catchment Area (m^2) = 107080.00	Imperv coeff. 0.90	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	799.89	1100.25	1193.41	1148.43	1215.89	1254.44	1196.62	981.39	1206.26	929.99	832.01	766.16	12624.73
		Run-Off from Imperv. (m^3) - with 15% evap.	4532.70	6234.73	6762.64	6507.79	6890.06	7108.51	6780.84	5561.20	6835.45	5269.94	4714.73	4341.56	71540.15
	Mitigation ROWs - Pervious Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	501.79
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 140.00	Monthly Volumes												
		AET (m^3)	0.03	4.77	10.37	14.36	12.25	10.93	10.43	5.44	1.65	0.00	0.00	0.00	70.25
		Infiltration (m^3)	2.08	1.45	0.01	0.00	0.00	0.00	0.00	0.00	1.79	2.43	2.18	2.00	11.94
		Run-Off Directed to Silva Cells (m^3)	4.86	3.37	0.02	0.00	0.00	0.00	0.00	0.00	4.18	5.67	5.08	4.67	27.85
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	4.37	3.04	0.02	0.00	0.00	0.00	0.00	0.00	3.76	5.11	4.57	4.21	25.07
		Run-Off (m^3)	0.49	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.57	0.51	0.47	2.79
	Mitigation ROWs - Impervious Area to Silva Cells	Catchment Area (m^2) = 560.00	Imperv coeff. 0.80	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	4.18	5.75	6.24	6.01	6.36	6.56	6.26	5.13	6.31	4.86	4.35	4.01	66.02
		Run-Off Directed to Silva Cells (m^3)	23.70	32.61	35.37	34.03	36.03	37.18	35.46	29.08	35.75	27.56	24.66	22.71	374.14
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	21.33	29.35	31.83	30.63	32.43	33.46	31.92	26.18	32.17	24.80	22.19	20.43	336.72
		Run-Off (m^3)	2.37	3.26	3.54	3.40	3.60	3.72	3.55	2.91	3.57	2.76	2.47	2.27	37.41
	Total Catchment Volumes														
	Total ET (m^3)		804.07	1106.00	1199.65	1154.44	1222.25	1261.00	1202.88	986.52	1212.56	934.85	836.36	770.16	12690.76
	Total AET (m^3)		2.94	407.67	886.00	1226.56	1046.70	934.08	891.02	465.04	141.38	0.00	0.00	0.00	6001.39
	Total Infiltration (m^3)		203.50	155.86	32.64	30.63	32.43	33.46	31.92	26.18	188.87	237.66	212.62	195.79	1381.54
	Total Runoff (m^3)		4945.56	6523.07	6767.99	6511.19	6893.67	7112.22	6784.39	5564.11	7192.12	5752.33	5146.30	4738.97	73931.91

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104	Development - Unconnected Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 99894.29	**Monthly Volumes**												
		AET (m^3)	24.60	3405.02	7400.19	10244.67	8742.41	7801.74	7442.12	3884.22	1180.82	0.00	0.00	0.00	**50125.79**
		Infiltration (m^3)	1485.04	1031.32	6.59	0.00	0.00	0.00	0.00	0.00	1277.38	1735.16	1552.36	1429.49	**8517.33**
		Run-Off (m^3)	3465.10	2406.42	15.37	0.00	0.00	0.00	0.00	0.00	2980.54	4048.72	3622.17	3335.47	**19873.78**
	Development - Unconnected Impervious Area	**Catchment Area (m^2) = 462205.71**	Imperv coeff. 0.74					**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	3452.68	4749.16	5151.28	4957.16	5248.35	5414.74	5165.15	4236.12	5206.75	4014.26	3591.34	3307.08	**54494.05**
		Run-Off from Imperv. (m^3) - with 15% evap.	19565.17	26911.93	29190.60	28090.55	29740.63	30683.53	29269.18	24004.65	29504.90	22747.45	20350.92	18740.13	**308799.64**
	Mitigation - Connected Pervious Park Area	**P - Total Precipitation plus irrigation (mm)**	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	**860.23**
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) 35100.00	**Monthly Volumes (Pervious Area)**												
		AET (m^3)	8.64	1196.43	2600.22	3669.07	3161.91	2741.31	2616.69	1364.80	414.91	0.00	0.00	0.00	**17773.97**
		Infiltration (m^3)	571.33	430.50	76.21	0.00	0.00	0.00	0.00	93.06	741.02	667.27	596.97	549.72	**3726.06**
		Run-Off Directed to Silva Cells (m^3)	1333.10	1004.50	177.81	0.00	0.00	0.00	0.00	217.13	1729.04	1556.96	1392.93	1282.68	**8694.15**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	1199.79	904.05	160.03	0.00	0.00	0.00	0.00	195.42	1556.14	1401.26	1253.64	1154.41	**7824.74**
		Run-Off (m^3)	133.31	100.45	17.78	0.00	0.00	0.00	0.00	21.71	172.90	155.70	139.29	128.27	**869.42**
	Mitigation - Connected Impervious Park Area	**Catchment Area (m^2) = 3900.00**	Imperv coeff. 0.10					**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	29.13	40.07	43.47	41.83	44.28	45.69	43.58	35.74	43.93	33.87	30.30	27.90	**459.81**
		Run-Off Directed to Pervious Area (m^3)	165.09	227.08	246.30	237.02	250.95	258.90	246.97	202.55	248.96	191.94	171.72	158.13	**2605.59**
	Mitigation - Additional Impervious Area (LNPARK) to Silva Cells	**Catchment Area (m^2) = 7200.00**						**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	53.78	73.98	80.24	77.22	81.76	84.35	80.46	65.99	81.11	62.53	55.94	51.52	**848.88**
		Run-Off Directed to Silva Cells (m^3)	304.78	419.22	454.72	437.58	463.28	477.97	455.94	373.93	459.61	354.35	317.02	291.92	
		Run-Off stored in Silva Cells (m^3)	274.30	377.30	409.24	393.82	416.96	430.17	410.35	336.54	413.65	318.91	285.31	262.73	**4329.29**
		Run-Off (m^3)	30.48	41.92	45.47	43.76	46.33	47.80	45.59	37.39	45.96	35.43	31.70	29.19	**481.03**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			March	April	May	June	July	August	September	October	November	December	January	February	Total
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	786.00
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	181.17
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104 (continued)	Mitigation - Connected Pervious Pond Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	1454.10
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	849.27
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	254.78
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	594.49
		Catchment Area (m^2) 24100.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	5.93	821.48	1785.33	2781.33	3198.25	2828.25	1933.82	937.09	284.88	0.00	0.00	0.00	14576.36
		Infiltration (m^3)	664.32	669.78	458.20	121.95	53.05	196.15	416.33	536.12	919.04	774.44	692.85	638.01	6140.24
		Run-Off (m^3)	1550.08	1562.82	1069.13	284.55	123.78	457.69	971.43	1250.94	2144.42	1807.03	1616.65	1488.69	14327.22
	Mitigation - Connected Impervious Pond Area	Catchment Area (m^2) = 24100.00	Imperv coeff. 0.50	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	180.03	247.63	268.59	258.47	273.66	282.33	269.32	220.88	271.49	209.31	187.26	172.44	2841.39
		Run-Off Directed to Pervious Area (m^3)	1020.15	1403.22	1522.04	1464.68	1550.71	1599.88	1526.13	1251.63	1538.42	1186.08	1061.12	977.13	16101.21
	Mitigation - Connected Pervious Rear Yard Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	1454.10
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	849.27
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	254.78
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	594.49
		Catchment Area (m^2) 22800.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	5.61	777.17	1689.03	2631.30	3025.73	2675.69	1829.50	886.54	269.51	0.00	0.00	0.00	13790.08
		Infiltration (m^3)	628.48	633.65	433.48	115.37	50.19	185.57	393.87	507.20	869.46	732.67	655.48	603.60	5809.02
		Run-Off (m^3)	1466.46	1478.52	1011.46	269.20	117.11	433.00	919.03	1183.46	2028.74	1709.56	1529.45	1408.39	13554.38
	Mitigation - Connected Impervious Roof Area	Catchment Area (m^2) = 22800.00	Imperv coeff. 0.50	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	170.32	234.27	254.11	244.53	258.89	267.10	254.79	208.96	256.84	198.02	177.16	163.13	2688.12
		Run-Off Directed to Pervious Area (m^3)	965.12	1327.53	1439.93	1385.67	1467.07	1513.58	1443.81	1184.12	1455.44	1122.10	1003.88	924.43	15232.68

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchment	Sub-area	Catchments and Hydrologic Components	March	April	May	June	July	August	September	October	November	December	January	February	Total
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	786.00
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	181.17
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 104 (continued)	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 18960.00	Imperv coeff. 0.80					Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	141.63	194.81	211.31	203.35	215.29	222.12	211.88	173.77	213.58	164.67	147.32	135.66	2235.38
		Run-Off Directed to Pervious Area (m^3)	802.58	1103.95	1197.42	1152.29	1219.98	1258.66	1200.64	984.69	1210.31	933.12	834.81	768.73	12667.18
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	802.58	1103.95	1197.42	1152.29	1219.98	1258.66	1200.64	984.69	1210.31	933.12	834.81	768.73	12667.18
		Run-Off (m^3)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	501.79
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 4740.00						Monthly Volumes							
		AET (m^3)	1.17	161.57	351.14	486.11	414.83	370.19	353.13	184.31	56.03	0.00	0.00	0.00	2378.48
		Infiltration (m^3)	70.47	48.94	0.31	0.00	0.00	0.00	0.00	0.00	60.61	82.33	73.66	67.83	404.15
		Run-Off Directed to Silva Cells (m^3)	164.42	114.18	0.73	0.00	0.00	0.00	0.00	0.00	141.43	192.11	171.87	158.27	943.01
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	147.98	102.77	0.66	0.00	0.00	0.00	0.00	0.00	127.28	172.90	154.69	142.44	848.71
		Run-Off (m^3)	16.44	11.42	0.07	0.00	0.00	0.00	0.00	0.00	14.14	19.21	17.19	15.83	94.30
								Total Catchment Volumes							
		Total ET (m^3)	4027.57	5539.93	6009.00	5782.55	6122.23	6316.33	6025.18	4941.45	6073.70	4682.65	4189.32	3857.73	63567.64
		Total AET (m^3)	45.95	6361.65	13825.91	19812.47	18543.14	16417.19	14175.27	7256.95	2206.15	0.00	0.00	0.00	98644.69
		Total Infiltration (m^3)	5844.28	5302.25	2742.14	1783.44	1740.17	2070.56	2421.19	2653.02	7174.89	6818.07	6099.76	5616.96	50266.72
		Total Runoff (m^3)	26227.04	32513.47	31349.89	28688.06	30027.84	31622.01	31205.24	26498.16	36891.62	30523.10	27307.36	25145.97	357999.76

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4

POST-DEVELOPMENT WATER BALANCE WITH MITIGATION

CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 105	Development - Unconnected Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 7166.29	**Monthly Volumes**												
		AET (m^3)	1.76	244.27	530.88	734.94	627.17	559.69	533.89	278.65	84.71	0.00	0.00	0.00	**3595.96**
		Infiltration (m^3)	106.53	73.99	0.47	0.00	0.00	0.00	0.00	0.00	91.64	124.48	111.36	102.55	**611.02**
		Run-Off (m^3)	248.58	172.63	1.10	0.00	0.00	0.00	0.00	0.00	213.82	290.45	259.85	239.28	**1425.72**
	Development - Unconnected Impervious Area	**Catchment Area (m^2) = 184243.71**	Imperv coeff. 0.74	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	1376.30	1893.10	2053.40	1976.01	2092.09	2158.42	2058.92	1688.59	2075.51	1600.16	1431.57	1318.26	**21722.33**
		Run-Off from Imperv. (m^3) - with 15% evap.	7799.04	10727.59	11635.91	11197.41	11855.16	12231.02	11667.23	9568.70	11761.20	9067.55	8112.25	7470.16	**123093.23**
	Mitigation - Connected Pervious Park Area	**P - Total Precipitation + Impervious runoff (mm)**	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	**860.23**
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) 50850.00	**Monthly Volumes (Pervious Area)**												
		AET (m^3)	12.52	1733.28	3766.98	5315.44	4580.72	3971.39	3790.84	1977.21	601.08	0.00	0.00	0.00	**25749.47**
		Infiltration (m^3)	827.69	623.67	110.40	0.00	0.00	0.00	0.00	134.81	1073.53	966.68	864.84	796.39	**5398.02**
		Run-Off (m^3)	1931.28	1455.24	257.60	0.00	0.00	0.00	0.00	314.57	2504.89	2255.60	2017.96	1858.24	**12595.37**
	Mitigation - Connected Impervious Park Area	**Catchment Area (m^2) = 5650.00**	Imperv coeff. 0.10	**Monthly Volumes**											
		Evaporation from Imperv. (m^3) - 15% of P.	42.21	58.05	62.97	60.60	64.16	66.19	63.14	51.78	63.65	49.07	43.90	40.43	**666.14**
		Run-Off Directed to Pervious Area (m^3)	239.16	328.97	356.83	343.38	363.55	375.08	357.79	293.43	360.67	278.06	248.77	229.08	**3774.77**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			March	April	May	June	July	August	September	October	November	December	January	February	Total
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	786.00
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	181.17
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 105 (continued)	Mitigation - Connected Pervious Rear Yard Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	1454.10
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	604.83
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	849.27
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	254.78
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	594.49
		Catchment Area (m^2) 12800.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	3.15	436.30	948.23	1477.22	1698.66	1502.14	1027.09	497.71	151.31	0.00	0.00	0.00	7741.80
		Infiltration (m^3)	352.83	355.73	243.36	64.77	28.18	104.18	221.12	284.74	488.12	411.32	367.99	338.86	3261.20
		Run-Off (m^3)	823.28	830.04	567.84	151.13	65.74	243.09	515.95	664.40	1138.94	959.75	858.64	790.68	7609.48
	Mitigation - Connected Impervious Roof Area	Catchment Area (m^2) = 12800.00	Imperv coeff. 0.50	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	95.62	131.52	142.66	137.28	145.34	149.95	143.04	117.31	144.19	111.17	99.46	91.58	1509.12
		Run-Off Directed to Pervious Area (m^3)	541.82	745.28	808.38	777.92	823.62	849.73	810.56	664.77	817.09	629.95	563.58	518.98	8551.68
	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	501.79
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	284.21
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	85.26
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	198.95
		Catchment Area (m^2) 1698.00	Monthly Volumes												
		AET (m^3)	0.42	57.88	125.79	174.14	148.60	132.61	126.50	66.02	20.07	0.00	0.00	0.00	852.04
		Infiltration (m^3)	25.24	17.53	0.11	0.00	0.00	0.00	0.00	0.00	21.71	29.49	26.39	24.30	144.78
		Run-Off (m^3)	58.90	40.90	0.26	0.00	0.00	0.00	0.00	0.00	50.66	68.82	61.57	56.70	337.81
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	53.01	36.81	0.24	0.00	0.00	0.00	0.00	0.00	45.60	61.94	55.41	51.03	304.03
		Run-Off (m^3)	5.89	4.09	0.03	0.00	0.00	0.00	0.00	0.00	5.07	6.88	6.16	5.67	33.78
	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 6792.00	Imperv coeff. 0.80	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	50.74	69.79	75.70	72.84	77.12	79.57	75.90	62.25	76.51	58.99	52.77	48.60	800.78
		Run-Off Directed to Silva Cells (m^3)	287.51	395.46	428.95	412.78	437.03	450.89	430.10	352.74	433.57	334.27	299.05	275.38	4537.74
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	258.75	355.92	386.05	371.51	393.33	405.80	387.09	317.47	390.21	300.84	269.15	247.84	4083.96
		Run-Off (m^3)	28.75	39.55	42.89	41.28	43.70	45.09	43.01	35.27	43.36	33.43	29.91	27.54	453.77
	Total Catchment Volumes														
	Total ET (m^3)		1564.86	2152.47	2334.72	2246.73	2378.71	2454.13	2341.00	1919.94	2359.86	1819.38	1627.70	1498.87	24698.37
	Total AET (m^3)		17.86	2471.74	5371.87	7701.74	7055.15	6165.83	5478.32	2819.59	857.17	0.00	0.00	0.00	37939.27
	Total Infiltration (m^3)		1624.07	1463.65	740.63	436.28	421.50	509.98	608.21	737.02	2110.80	1894.76	1695.14	1560.97	13803.01
	Total Runoff (m^3)		10836.82	13229.14	12505.37	11389.82	11964.61	12519.19	12226.19	10582.94	15667.28	12613.66	11284.76	10391.56	145211.35

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

DS CONSULTANTS LTD.
Geotechnical • Environmental • Materials • Hydrogeology

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month: March	April	May	June	July	August	September	October	November	December	January	February	Total
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 106	Development - Unconnected Pervious Landscape	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 33620.29	Monthly Volumes												
		AET (m^3)	8.28	1145.99	2490.60	3447.93	2942.33	2625.74	2504.71	1307.27	397.42	0.00	0.00	0.00	**16870.27**
		Infiltration (m^3)	499.80	347.10	2.22	0.00	0.00	0.00	0.00	0.00	429.91	583.98	522.46	481.11	**2866.58**
		Run-Off (m^3)	1166.21	809.90	5.17	0.00	0.00	0.00	0.00	0.00	1003.13	1362.63	1219.07	1122.58	**6688.69**
	Development - Unconnected Impervious Area	Catchment Area (m^2) = 192209.71	Imperv coeff. 0.77	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	1435.81	1974.95	2142.18	2061.45	2182.54	2251.74	2147.94	1761.60	2165.24	1669.34	1493.47	1375.26	**22661.53**
		Run-Off from Imperv. (m^3) - with 15% evap.	8136.24	11191.41	12139.00	11681.55	12367.73	12759.84	12171.68	9982.41	12269.71	9459.60	8462.99	7793.14	**128415.31**
	Mitigation - Connected Pervious Rear Yard Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	**860.23**
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) 24480.00	Monthly Volumes (Pervious Area)												
		AET (m^3)	6.03	834.43	1813.48	2558.94	2205.23	1911.89	1824.97	951.86	289.37	0.00	0.00	0.00	**12396.21**
		Infiltration (m^3)	398.46	300.25	53.15	0.00	0.00	0.00	0.00	64.90	516.81	465.38	416.35	383.39	**2598.69**
		Run-Off (m^3)	929.75	700.58	124.01	0.00	0.00	0.00	0.00	151.44	1205.90	1085.88	971.48	894.58	**6063.61**
	Mitigation - Connected Impervious Roof Area	Catchment Area (m^2) = 2720.00	Imperv coeff. 0.10	Monthly Volumes											
		Evaporation from Imperv. (m^3) - 15% of P.	20.32	27.95	30.31	29.17	30.89	31.86	30.40	24.93	30.64	23.62	21.13	19.46	**320.69**
		Run-Off Directed to Pervious Area (m^3)	115.14	158.37	171.78	165.31	175.02	180.57	172.24	141.26	173.63	133.86	119.76	110.28	**1817.23**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			March	April	May	June	July	August	September	October	November	December	January	February	Total
			Month												
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Catchment 106 (continued)	Mitigation - Pervious ROW Area to Silva Cells	Soil Moisture Storage (mm)	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 1854.00	Monthly Volumes												
		AET (m^3)	0.46	63.20	137.34	190.14	162.26	144.80	138.12	72.09	21.92	0.00	0.00	0.00	**930.32**
		Infiltration (m^3)	27.56	19.14	0.12	0.00	0.00	0.00	0.00	0.00	23.71	32.20	28.81	26.53	**158.08**
		Run-Off Directed to Silva Cells (m^3)	64.31	44.66	0.29	0.00	0.00	0.00	0.00	0.00	55.32	75.14	67.23	61.91	**368.85**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	57.88	40.20	0.26	0.00	0.00	0.00	0.00	0.00	49.79	67.63	60.50	55.71	**331.96**
		Run-Off (m^3)	6.43	4.47	0.03	0.00	0.00	0.00	0.00	0.00	5.53	7.51	6.72	6.19	**36.88**
	Mitigation - Impervious ROW Area to Silva Cells	Catchment Area (m^2) = 7416.00	Imperv coeff. 0.80					Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	55.40	76.20	82.65	79.54	84.21	86.88	82.87	67.97	83.54	64.41	57.62	53.06	**874.35**
		Run-Off Directed to Silva Cells (m^3)	313.92	431.80	468.36	450.71	477.18	492.31	469.62	385.15	473.40	364.98	326.53	300.68	**4954.63**
		Infiltration via Silva Cells (Sized for 25mm capture) (m^3)	282.53	388.62	421.52	405.64	429.46	443.08	422.66	346.63	426.06	328.48	293.87	270.61	**4459.17**
		Run-Off (m^3)	31.39	43.18	46.84	45.07	47.72	49.23	46.96	38.51	47.34	36.50	32.65	30.07	**495.46**
	Total Catchment Volumes														
	Total ET (m^3)		1511.52	2079.10	2255.14	2170.16	2297.64	2370.48	2261.21	1854.50	2279.42	1757.37	1572.23	1447.78	**23856.56**
	Total AET (m^3)		14.76	2043.61	4441.43	6197.01	5309.82	4682.43	4467.81	2331.22	708.70	0.00	0.00	0.00	**30196.79**
	Total Infiltration (m^3)		1266.24	1095.30	477.27	405.64	429.46	443.08	422.66	411.54	1446.28	1477.67	1322.00	1217.36	**10414.48**
	Total Runoff (m^3)		10270.02	12749.53	12315.05	11726.62	12415.45	12809.07	12218.64	10172.36	14531.60	11952.12	10692.92	9846.57	**141699.96**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4

POST-DEVELOPMENT WATER BALANCE WITH MITIGATION

CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Channels	Mitigation - Connected Impervious Area	Catchment Area (m^2) = 2960.00	Imperv coeff. 0.10					Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	22.11	30.41	32.99	31.75	33.61	34.68	33.08	27.13	33.34	25.71	23.00	21.18	**348.98**
		Run-Off Directed to Pervious Area (m^3)	125.30	172.35	186.94	179.89	190.46	196.50	187.44	153.73	188.95	145.68	130.33	120.01	**1977.58**
	Mitigation - Connected Pervious Area	P - Total Precipitation plus irrigation (mm)	54.50	74.97	81.32	78.25	82.85	85.48	81.54	66.87	82.19	63.37	56.69	52.21	**860.23**
		P-PET (mm)	54.26	40.88	7.24	-37.15	-49.86	-31.88	1.29	27.99	70.37	63.37	56.69	52.21	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-37.15	-87.01	-118.89	-117.60	-89.61	-19.24	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	37.85	0.00	0.00	1.29	29.28	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	104.53	90.08	78.10	74.55	38.88	11.82	0.00	0.00	0.00	**506.38**
		P-AET (mm)	54.26	40.88	7.24	-26.28	-7.23	7.38	6.99	27.99	70.37	63.37	56.69	52.21	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-26.28	-33.51	-26.14	-19.15	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	26.28	7.23	-7.38	-6.99	-19.15	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	54.26	40.88	7.24	0.00	0.00	0.00	0.00	8.84	70.37	63.37	56.69	52.21	**353.85**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	16.28	12.26	2.17	0.00	0.00	0.00	0.00	2.65	21.11	19.01	17.01	15.66	**106.16**
		Run-Off (mm)	37.98	28.62	5.07	0.00	0.00	0.00	0.00	6.19	49.26	44.36	39.68	36.54	**247.70**
		Catchment Area (m^2) 26640.00						Monthly Volumes (Pervious Area)							
		AET (m^3)	6.56	908.06	1973.50	2784.73	2399.81	2080.58	1986.00	1035.85	314.90	0.00	0.00	0.00	**13489.99**
		Infiltration (m^3)	433.62	326.74	57.84	0.00	0.00	0.00	0.00	70.63	562.41	506.44	453.08	417.22	**2827.99**
		Run-Off (m^3)	1011.79	762.39	134.96	0.00	0.00	0.00	0.00	164.80	1312.30	1181.69	1057.20	973.52	**6598.64**
Pond 2A	Mitigation - Connected Impervious Area	Catchment Area (m^2) = 18650.00	Imperv coeff. 0.50					Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	139.32	191.63	207.85	200.02	211.77	218.48	208.41	170.93	210.09	161.98	144.91	133.44	**2198.84**
		Run-Off from Imperv. (m^3) - with 15% evap.	789.45	1085.90	1177.84	1133.45	1200.03	1238.08	1181.01	968.59	1190.52	917.86	821.16	756.16	**12460.07**
	Mitigation - Connected Pervious Area	P - Total Precipitation plus irrigation (mm)	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	**1454.10**
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 18650.00						Monthly Volumes (Pervious Area)							
		AET (m^3)	4.59	635.71	1381.60	2152.35	2475.00	2188.67	1496.50	725.17	220.46	0.00	0.00	0.00	**11280.05**
		Infiltration (m^3)	514.09	518.31	354.58	94.37	41.05	151.79	322.18	414.88	711.20	599.31	536.17	493.73	**4751.68**
		Run-Off (m^3)	1199.54	1209.40	827.36	220.20	95.79	354.18	751.75	968.05	1659.48	1398.39	1251.06	1152.04	**11087.24**

NOTES:

1) PET and P Taken from Table 1

2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET

3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March

4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			Month												Total
			March	April	May	June	July	August	September	October	November	December	January	February	
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
Pond 2B	Development - Unconnected Impervious Area	**Catchment Area (m^2) = 44880.00**	Imperv coeff. 0.80					**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	335.25	461.14	500.19	481.34	509.61	525.77	501.53	411.33	505.57	389.78	348.72	321.12	**5291.35**
		Run-Off from Imperv. (m^3) - with 15% evap.	1899.77	2613.14	2834.40	2727.58	2887.80	2979.36	2842.03	2330.84	2864.91	2208.77	1976.07	1819.66	**29984.33**
	Development - Unconnected Pervious Landscape	**Soil Moisture Storage (mm)**	75.00	75.00	75.00	31.09	0.00	0.00	0.00	22.22	75.00	75.00	75.00	75.00	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	102.56	87.52	78.10	74.50	38.88	11.82	0.00	0.00	0.00	**501.79**
		P-AET (mm)	49.55	34.41	0.22	-31.06	-11.82	0.00	0.00	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-31.06	-42.87	-42.87	-42.87	-20.66	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	31.06	11.82	0.00	0.00	-22.22	-20.66	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	42.62	57.90	51.80	47.70	**284.21**
		Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	14.87	10.32	0.07	0.00	0.00	0.00	0.00	0.00	12.79	17.37	15.54	14.31	**85.26**
		Run-Off (mm)	34.69	24.09	0.15	0.00	0.00	0.00	0.00	0.00	29.84	40.53	36.26	33.39	**198.95**
		Catchment Area (m^2) 11220.00						**Monthly Volumes**							
		AET (m^3)	2.76	382.45	831.18	1150.67	981.94	876.28	835.89	436.27	132.63	0.00	0.00	0.00	**5630.07**
		Infiltration (m^3)	166.80	115.84	0.74	0.00	0.00	0.00	0.00	0.00	143.47	194.89	174.36	160.56	**956.66**
		Run-Off (m^3)	389.20	270.29	1.73	0.00	0.00	0.00	0.00	0.00	334.77	454.75	406.84	374.64	**2232.20**
	Mitigation - Connected Impervious Area	**Catchment Area (m^2) = 17400.00**	Imperv coeff. 0.50					**Monthly Volumes**							
		Evaporation from Imperv. (m^3) - 15% of P.	129.98	178.79	193.92	186.62	197.58	203.84	194.45	159.47	196.01	151.12	135.20	124.50	**2051.46**
		Run-Off from Imperv. (m^3) - with 15% evap.	736.54	1013.12	1098.90	1057.49	1119.60	1155.10	1101.86	903.67	1110.73	856.34	766.12	705.48	**11624.94**
	Mitigation - Connected Pervious Area	**P - Total Precipitation plus irrigation (mm)**	92.13	126.73	137.46	132.28	140.05	144.49	137.83	113.04	138.94	107.12	95.83	88.25	**1454.10**
		P-PET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Soil Moisture Storage (mm)	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	75.00	-
		Actual Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P-AET (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
		Precipitation Surplus (mm)	91.88	92.64	63.37	16.87	7.34	27.13	57.58	74.15	127.11	107.12	95.83	88.25	**849.27**
		MOECC Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	-
		Run-Off Coefficient	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-
		Infiltration (mm)	27.57	27.79	19.01	5.06	2.20	8.14	17.28	22.25	38.13	32.13	28.75	26.47	**254.78**
		Run-Off (mm)	64.32	64.85	44.36	11.81	5.14	18.99	40.31	51.91	88.98	74.98	67.08	61.77	**594.49**
		Catchment Area (m^2) 17400.00						**Monthly Volumes (Pervious Area)**							
		AET (m^3)	4.28	593.10	1289.00	2008.09	2309.11	2041.97	1396.20	676.57	205.68	0.00	0.00	0.00	**10524.01**
		Infiltration (m^3)	479.63	483.57	330.82	88.05	38.30	141.62	300.59	387.07	663.54	559.14	500.23	460.64	**4433.20**
		Run-Off (m^3)	1119.14	1128.34	771.90	205.44	89.37	330.45	701.37	903.17	1548.25	1304.66	1167.21	1074.82	**10344.13**
								Total Catchment Volumes							
	Total ET (m^3)		465.23	639.93	694.11	667.95	707.19	729.61	695.98	570.80	701.58	540.90	483.92	445.61	**7342.81**
	Total AET (m^3)		7.05	975.55	2120.18	3158.76	3291.05	2918.26	2232.09	1112.84	338.31	0.00	0.00	0.00	**16154.08**
	Total Infiltration (m^3)		646.43	599.41	331.56	88.05	38.30	141.62	300.59	387.07	807.01	754.03	674.59	621.20	**5389.85**
	Total Runoff (m^3)		3408.11	4011.76	3608.03	2933.03	2977.17	3309.80	3543.39	3234.01	4747.94	3968.18	3550.11	3269.12	**42560.66**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-4
POST-DEVELOPMENT WATER BALANCE WITH MITIGATION
CALED ON STATION & ARGO KING I & II

Catchments and Hydrologic Components			March	April	May	June	July	August	September	October	November	December	January	February	Total
		PET - Adjusted Potential Evapotranspiration (mm)	0.25	34.09	74.08	115.41	132.71	117.35	80.24	38.88	11.82	0.00	0.00	0.00	**604.83**
		P - Total Precipitation (mm)	49.80	68.50	74.30	71.50	75.70	78.10	74.50	61.10	75.10	57.90	51.80	47.70	**786.00**
		P-PET (mm)	49.55	34.41	0.22	-43.91	-57.01	-39.25	-5.74	22.22	63.28	57.90	51.80	47.70	**181.17**
		Soil Moisture Deficit (mm)	0.00	0.00	0.00	-43.91	-100.92	-140.17	-145.91	-123.69	-60.42	-2.52	0.00	0.00	-
NHS	Development - Pervious Landscape	Soil Moisture Storage (mm)	200.00	200.00	200.00	156.09	99.08	59.83	54.09	76.31	75.00	132.90	135.42	135.42	-
		Actual Evapotranspiration (mm)	0.25	34.09	74.08	110.59	112.07	93.70	76.14	38.88	11.82	0.00	0.00	0.00	**551.60**
		P-AET (mm)	49.55	34.41	0.22	-39.09	-36.37	-15.60	-1.64	22.22	63.28	57.90	51.80	47.70	-
		Actual Soil Moisture Deficit (mm)	0.00	0.00	0.00	-39.09	-75.46	-91.05	-92.69	-70.47	-7.19	0.00	0.00	0.00	-
		Change in Soil Moisture Deficit (mm)	0.00	0.00	0.00	39.09	36.37	15.60	1.64	-22.22	-63.28	-7.19	0.00	0.00	-
		Precipitation Surplus (mm)	49.55	34.41	0.22	0.00	0.00	0.00	0.00	0.00	0.00	50.71	51.80	47.70	**234.40**
		Infiltration Factor	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	-
		Run-Off Coefficient	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	-
		Infiltration (mm)	19.82	13.77	0.09	0.00	0.00	0.00	0.00	0.00	0.00	20.28	20.72	19.08	**93.76**
		Run-Off (mm)	29.73	20.65	0.13	0.00	0.00	0.00	0.00	0.00	0.00	30.43	31.08	28.62	**140.64**
		Catchment Area (m^2) 97052.63	Imperv coeff. 0.00					Monthly Volumes							
		AET (m^3)	23.90	3308.16	7189.68	10732.86	10876.45	9093.39	7389.12	3773.72	1147.23	0.00	0.00	0.00	**53534.50**
		Infiltration (m^3)	1923.73	1335.98	8.53	0.00	0.00	0.00	0.00	0.00	0.00	1968.61	2010.93	1851.76	**9099.55**
		Run-Off (m^3)	2885.59	2003.97	12.80	0.00	0.00	0.00	0.00	0.00	0.00	2952.92	3016.40	2777.65	**13649.32**
	Development - Impervious Area	Catchment Area (m^2) = 0.00						Monthly Volumes							
		Evaporation from Imperv. (m^3) - 15% of P.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
		Run-Off from Imperv. (m^3) - with 15% evap.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total Site								Total Catchment Volumes							
		Total ET (m^3)	9963.97	13705.46	14865.92	14305.69	15146.03	15626.22	14905.93	12224.87	15025.98	11584.61	10364.13	9543.80	**157262.60**
		Total AET (m^3)	136.24	18859.50	40987.72	58956.03	55469.96	48484.05	41935.38	21513.66	6540.26	0.00	0.00	0.00	**292882.80**
		Total Infiltration (m^3)	13739.08	11974.76	5375.93	3428.02	3327.18	3994.53	4721.10	5271.42	14473.99	15753.35	14343.39	13208.10	**109610.85**
		Total Runoff (m^3)	70140.92	84730.24	78985.87	72462.23	76013.61	79734.57	78184.18	66613.80	95137.67	81230.36	73046.99	67265.28	**923545.72**

NOTES:
1) PET and P Taken from Table 1
2) Soil Moisture Deficit (mm) is a function of P-Pet, once there is a shortage of P to satisfy PET
3) Water Holding Capacity (mm) of soils types taken from Table 3.1, SWM Planning & Design Manual (MOE, March 2003) and applied to March
4) Actual Evapotranspiration (AET) is a function of Adjusted Potential Evapotranspiration (PET) and change in Groundwater Storage (Δ ST) for a given soil type

TABLE K-5
SITE WATER BALANCE SUMMARY
CALED ON STATION & ARGO KING I & II

Total Site	Month												Total
	March	April	May	June	July	August	September	October	November	December	January	February	
Pre-Development													
Total ET (m^3)	278	382	414	399	422	436	415	341	419	323	289	266	**4383**
Total AET (m^3)	456	63059	137047	201264	194105	159465	138550	71933	21868	0	0	0	**987746**
Total Infiltration (m^3)	28456	19762	126	0	0	0	0	0	6235	32699	29745	27391	**144413**
Total Runoff (m^3)	64791	46068	2628	2259	2392	2468	2354	1931	16916	74871	67720	62360	**346759**
Post-Development without Mitigation													
Total ET (m^3)	9964	13705	14866	14306	15146	15626	14906	12225	15026	11585	10364	9544	**157263**
Total AET (m^3)	136	18859	40988	57522	50805	44725	41379	21514	6540	0	0	0	**282468**
Total Infiltration (m^3)	8706	6046	39	0	0	0	0	0	5834	9893	9101	8380	**48000**
Total Runoff (m^3)	75174	90659	84323	81066	85827	88549	84467	69274	98760	87090	78290	72093	**995571**
Post-Development Deficit without Mitigation (-ve value implies a net gain)													
Total ET (m^3)	-9686	-13323	-14452	-13907	-14724	-15191	-14490	-11884	-14607	-11262	-10075	-9278	**-152879**
Total AET (m^3)	319	44199	96059	143742	143301	114739	97172	50419	15328	0	0	0	**705278**
Total Infiltration (m^3)	19749	13715	88	0	0	0	0	0	401	22805	20645	19011	**96414**
Total Runoff (m^3)	-10382	-44591	-81695	-78806	-83435	-86081	-82113	-67343	-81844	-12220	-10569	-9733	**-648812**
Post-Development with Mitigation													
Total ET (m^3)	9964	13705	14866	14306	15146	15626	14906	12225	15026	11585	10364	9544	**157263**
Total AET (m^3)	136	18859	40988	58956	55470	48484	41935	21514	6540	0	0	0	**292883**
Total Infiltration (m^3)	13739	11975	5376	3428	3327	3995	4721	5271	14474	15753	14343	13208	**109611**
Total Runoff (m^3)	70141	84730	78986	72462	76014	79735	78184	66614	95138	81230	73047	67265	**923546**
Post-Development Deficit with Mitigation (-ve value implies a net gain)													
Total ET (m^3)	-9686	-13323	-14452	-13907	-14724	-15191	-14490	-11884	-14607	-11262	-10075	-9278	**-152879**
Total AET (m^3)	319	44199	96059	142308	138636	110981	96615	50419	15328	0	0	0	**694863**
Total Infiltration (m^3)	14717	7787	-5250	-3428	-3327	-3995	-4721	-5271	-8239	16945	15402	14183	**34803**
Total Runoff (m^3)	-5350	-38663	-76358	-70203	-73621	-77267	-75830	-64683	-78222	-6360	-5327	-4905	**-576787**