HYDROGEOLOGICAL ASSESSMENT

5783 Bloomington Road, Whitchurch-Stouffville, Ontario

October 22, 2024

Prepared for:
1398493 Ontario Inc.
5783 Bloomington Road, Whitchurch-Stouffville, Ontario

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Project Number:
122120514

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1 Introduction

1398493 Ontario Inc. (the Client) retained Stantec Consulting Ltd. (Stantec) to complete a hydrogeological assessment of lands located at 5783 Bloomington Road, Whitchurch-Stouffville, Ontario (the Site) (**Figure No.1, Appendix A**). The hydrogeological assessment has been completed to support a Site Alteration and Fill Permit Application with the Town of Whitchurch-Stouffville. The purpose of this study is to document the baseline groundwater conditions and evaluate how the form and/or function of the groundwater system could potentially be impacted by the proposed Site alteration and filling operations.

This hydrogeological report is arranged into six sections, including this introduction (**Section 1**). **Section 2** presents the physical setting and hydrogeological conditions within a broader area relative to the Site. **Section 3** discusses the source water protection considerations for the Site. **Section 4** provides a discussion and calculations of the dewatering options. Report conclusions and recommendations are listed as **Section 5**. Limitations and references are listed in **Sections 6** and **7,** respectively. All figures and tables referenced in this report are presented in **Appendices A** and **B**, respectively. **Appendix C** provides logs from on-site geotechnical boreholes completed by others. The result of single well response tests and groundwater quality sampling are provided in **Appendix D** and **Appendix E**, respectively. Source protection mapping, as provided by the Ontario Ministry of the Environment, Conservation and Parks, is included in **Appendix F**.

1.1 Site Description

The Site is approximately 340,000 m^2 in area and is located on the south side of Bloomington Road, approximately 230 metres west of Ninth Line. The Site is located within an area with mixed agricultural and residential land use. The Site has been used for agricultural purposes since the 1950s. The western part of the Site is occupied by a farm with three residential houses and various farm-related structures. Two small ponds are located at the western part of the Site, south of the residential houses. The eastern portion of the Site was used for industrial purposes as an aggregate pit for sand and gravel extraction from the 1960s to the late 1980s. According to the information, provided by the Client, the pit operated under licence No. 6562. The western portion of the pit, located at the northwestern part of the Site has been rehabilitated. Part of the eastern portion of the pit, located at the southeast corner of the Site, has been partially rehabilitated. The rehabilitation was completed around 1985. Two large ponds, formed by the former aggregate pit operations, are currently located at the eastern portion of the Site. The edge of the north pond is at approximate elevation of 313.4 m AMSL and the edge of the south pond is at approximate elevation of 312.7 m AMSL. The maximum depths of the ponds are at an approximate elevation of 307.85 m AMSL, indicating depths of the north pond of approximately 5.65 m and of the south pond of approximately 4.95 m.

The grade at the Site slopes generally from north to south. There is approximately 17 metres (m) of elevation difference between the water surface of the north pond and Bloomington Road. A site plan is included as **Figure No. 2, Appendix A**.

The majority of the Site is zoned as ORM-L – Oak Ridges Moraine Linkage, with parts of the eastern portion of the Site zoned as ENV-environmental, as shown on Schedule 41 of the Town of Whitchurch Stouffville Zoning By-law 2010-001-ZO, revised January 2019. The Site is also located within a Wellhead Protection Area under York Region Drinking Water Source Protection program, because of its proximity of the Stouffville Production Wells No. 5 and No. 6.

1.2 Study Objectives

This hydrogeological assessment was prepared to support the application for a Site Alteration and Fill Permit with the Town of Whitchurch-Stouffville.

The key objectives of the hydrogeological assessment for the Site were as follows:

1. Review of the available geological and hydrogeological conditions at the Site, including an evaluation of the seasonal variations in groundwater conditions, and the determination of what constraints these conditions could have on the proposed infilling operation.

2. Complete in situ single well response tests on the existing monitoring wells installed by others (MW201 to MW205) to determine the hydraulic conductivity of the soil at the Site.

3. Collect groundwater samples from each of the five existing monitoring wells for laboratory analysis of volatile organic compounds (VOC), petroleum hydrocarbons (PHC), metals and inorganics, and polycyclic aromatic hydrocarbons (PAH).

4. Collect surface water samples from each of the two ponds for analysis of VOC, PHC, metals and inorganics, PAH to determine if the water in ponds is suitable for discharge to the land used for agricultural purposes at the Site.

5. Using available groundwater level data, generate a groundwater flow map.

6. Evaluate whether proposed land use activities conform to Source Water Protection requirements as stipulated in the Clean Water Act, 2006. Investigate the drinking water wellhead protection area and comment on the potential impact of the proposed Site alteration and fill operation to the vulnerability of the regional aquifer.

7. Estimate the dewatering rates of the two ponds to be infilled and evaluate the potential requirement for application of an Ontario Ministry of the Environment, Conservation and Parks (MECP) Permit to Take Water (PTTW).

The hydrogeological assessment utilized information collected during two historical investigations completed at the Site and information collected during the field activities completed on July 17 and 19, 2024. Select information from the following investigations was used to develop a site hydrogeological conceptual model:

- *"Geotechnical Investigation, South of Bloomington Road East Between Highway 48 and Ninth Line, Whitchurch-Stouffville, Ontario"*, dated June 15, 2012, prepared by Golder Associates (Golder) for Camrock Development Corporation/RCG Haulage (1757196 Ontario Inc).

- *"Baseline Groundwater Study, 5783 Bloomington Road, Whitchurch-Stouffville, Ontario"*, dated June 27, 2012, prepared by G2S Environmental Consulting Inc. (G2S) for Recycling Canada Group.

Stantec completed the following field activities:

- On July 17, 2024, collected groundwater samples from three existing monitoring wells, installed by others (MW201, MW203 and MW205) for laboratory analysis of VOC, PHC, metals and inorganics, and PAH. Samples were not collected from monitoring well MW202, which was obstructed at depth of 0.96 m below the top of the pipe and from monitoring well MW204, which could not be located. The locations of the monitoring wells are shown on **Figure No. 2, Appendix A**.
- On July 17, 2024, collected samples from the surface water from each of the two ponds located at the east part of the Site for analysis of VOC, PHC, metals and inorganics, PAH to determine if the water in ponds is suitable for discharge to the land used for agricultural purposes at the Site.
- On July 19, 2024, completed in situ single well response tests (bail tests) on three existing monitoring wells installed by others (MW201, MW203 and MW205) to determine the hydraulic conductivity of the soil at each monitoring well location.

2 Physical Setting

2.1 Regional Settings

2.1.1 Physiography and Drainage

The majority of the Site is located within a physiographic region defined by Chapman and Putnam (1984) as the South Slope. Surficial deposits in the South Slope consist of shallow shale and till plains. In the vicinity of the Site the landform is characterized as a Halton till comprised of silt to silty clay matrix, high in carbonate content (**Figure No. 3, Appendix A**) (Ontario Geological Survey (OGS), 2010).

Available Toronto and Region Conservation Authority (TRCA) mapping indicates that the Site is located within the TRCA regulated area, in the Rouge River watershed. Stantec understands that TRCA staff visited the Site on September 4, 2024 and concluded that the two ponds at the northeastern part of the Site are not considered wetlands as per TRCA's definition and are therefore not regulated by TRCA.

Based on TRCA and Ministry of Natural Resources and Forestry Natural Heritage mapping, Bloomington Brook is located approximately 550 m to the southeast and an unnamed creek is located approximately 550 m to the south of the Site. Lake Ontario is located approximately 30 kilometres (km) south of the Site.

The Site is located within a Wellhead Protection Area under York Region Drinking Water Source Protection program, because of its proximity of the Stouffville Production Wells No. 5 and No. 6, located approximately 380 m southwest of the Site.

The Site is located within a Natural Linkage Area within the Oak Ridges Moraine Conservation Plan under the *Oak Ridges Moraine Conservation Act, 2001.*

2.1.2 Geology and Hydrogeology

Geological and hydrogeological conditions throughout the region have been mapped and described by the Oak Ridges Moraine Groundwater Program (ORMGP, 2018), the CTC Source Protection Committee (CTCSPC, 2022a), and the Ontario Geological Survey (2010). Near surface overburden soils, as mapped by the OGS (2010), are shown on **Figure No. 3, Appendix A**. Surficial geology surrounding the Site consists mainly of glaciolacustrine deposits of silty to clayey till and ice-contact stratified deposits.

Bedrock beneath the Site is mapped as the Ordovician aged, Blue Mountain Formation, dark blue-grey to brown to black shale, with thin interbeds of limestone or calcareous siltstone. According to regional mapping (ORMGP, 2018), the bedrock surface elevations range from 164 m above mean see level (AMSL) to 165 m AMSL near the Site.

Groundwater flow is regionally to the south toward Lake Ontario, with local convergence of flow at discharge areas such as surface water courses or areas of low topography. The Site is located within a Wellhead Protection Area under York Region Drinking Water Source Protection program, because of its

proximity of the Stouffville Production Wells No. 5 and No. 6, located approximately 380 m southwest of the Site.

A review of MECP water well records (MECP, 2017) at and within 500 m of the Site indicates that there are at least four water wells at the Site that are used for water supply. One record for a water well installed in 1956 is shown located onsite, in close proximity to the south property line, however it is associated with a municipal water well with owner listed as the Corporation of Stouffville and it is likely located off-site. The location information for each of the MECP water well records has not been independently verified by Stantec.

2.1.3 Existing Water Well Survey

The MECP Water Well Record (WWR) database was queried to identify the number of water wells installed within a 500 m of the Site boundary. A total of 161 records were reported. Eight records are associated with the Site—four records are for domestic water wells, one record is for a municipal water well and three records for monitoring wells. The off-site records were listed as follows: three municipal water wells, three public wells, 96 domestic water wells, one livestock water well, one commercial well, six test holes, seven monitoring wells, five observation wells that are not used, 13 abandoned wells, and 18 records for which no use was indicated.

The locations of the MECP WWR at and within 500 m of the Site are shown on **Figure No. 4, Appendix A**.

2.2 Local Hydrogeological Conditions

The description of local hydrogeological conditions is based on soil and groundwater investigations completed by Golder (2012) and G2S (2012) and the field data collected by Stantec in July 2024. The investigations acquired site-specific information to characterize the Site's soil and groundwater conditions. The site-specific data were assessed in the context of the regional setting to develop the site conceptual model as outlined in **Sections 2.2.1** to **2.2.6** below.

2.2.1 Topography and Drainage

Based on a topography survey completed at the Site in 2012 and updated in August 2024, the Site slopes steeply from the north property line to the south and less steeply from east property boundary to the west and from the south property boundary to the north towards the edges of the two ponds at the east part of the Site. Generally, elevations at the Site vary from approximately 330 m above mean sea level (AMSL) at the northwest corner of the Site to 313 m AMSL along the edges of the north and south ponds at the Site.

Based on TRCA and Ministry of Natural Resources and Forestry Natural Heritage mapping, Bloomington Brook is located approximately 550 m to the southeast and an unnamed creek is located approximately 550 m to the south of the Site. Lake Ontario is located approximately 30 kilometres (km) south of the Site.

Local drainage (other than what infiltrate into the ground), is naturally flowing to the four ponds located at the Site.

2.2.2 Hydrostratigraphy

Based on the findings of the geotechnical investigation (Golder, 2012), the Site stratigraphy under the 150 to 300 millimetres (mm) of topsoil includes an interval of fill (anticipated to be re-worked native material) generally extending to depths between approximately 1.1 m and 4.1 m below ground surface (BGS). The native subsoil conditions underlain by the fills generally consist of silt, sand, silty sand and sand and gravel that extended to the maximum investigated depth of 21.95 m BGS. Glacial till intervals ranging in gradation from silty clay till to silty sand till were also encountered with thickness ranging from 1.5 to 9 metres in four of the five boreholes. Bedrock was not encountered during the geotechnical drilling program.

According to regional mapping (ORMGP, 2018), the bedrock surface elevations range from 164 m AMSL to 165 m AMSL near the Site, suggesting that bedrock is located at depths of at least 149 m below ground surface in the vicinity of the Site.

Stratigraphy is illustrated on **Figures No. 5** and **No. 6, Appendix A**.

2.2.3 Groundwater Elevations and Flow

Groundwater depths measured at the Site by Golder on May 8, 2012 and by G2S on May 24, 2012, indicated that the overburden water table is generally present within the native sand/sand and gravel/silty sand intervals at depths of ranging from 9.96 m to 17.74 m below the existing ground surface or at elevations ranging from 310.04 m to 313.19 m AMSL. Groundwater monitoring results by Stantec on July 17, 2024 confirmed these findings.

Water levels were measured to the nearest 0.01 m using a battery-operated, water level or interface-probe. Measurements were obtained by lowering the electrode, attached to the graduated polyethylene tape, slowly into the well until a tone sounded. The depth-to-water from the reference point on the well was then read from the tape and recorded. Duplicate measurements were performed at each location to attain 0.01 m repeatability. The highest point of the well casing was used as the reference point.

A summary of calculated groundwater elevations is included in **Table 1, Appendix B**. An interpretation of the overburden groundwater surface for July 17, 2024 monitoring event is included as **Figure No. 7, Appendix A**. Groundwater at the Site is interpreted to flow in a southwesterly direction. The horizontal hydraulic gradient was interpreted to be approximately 0.0065 m/m.

In the vicinity of the eastern part of the Site (the area of proposed infilling operations), groundwater elevations from the monitoring events ranged from approximately 311.6 m AMSL (MW203) to 313.19 m AMSL (MW201) in May 2012 and from approximately 311.5 m AMSL (MW203) to 313.24 m AMSL (MW201) in July 2024.

A review of historical and current groundwater monitoring data (2012 and 2024) suggests that groundwater levels can vary by approximately 0.1 to 0.2 m.

2.2.4 Hydraulic Conductivity

Stantec conducted single well response tests at monitoring wells MW201, MW203 and MW205 on July 19, 2024. The results of the response testing were analyzed using the Bouwer and Rice (1976) / Bouwer (1989) solution provided in the software package AQTESOLVTM Pro Version 4.5 (Duffield, 2014) to determine the horizontal hydraulic conductivity of the soil formation within the immediate vicinity of the monitoring well screens.

A summary of the data analysis to estimate hydraulic conductivity is presented in **Appendix D**. Based on the groundwater recoveries measured at the monitoring wells, the estimated hydraulic conductivities are shown in the table below:

Monitoring well	**Screen Interval (m AMSL)**	**K (m/s)**	**Stratigraphy**
MW201	309.88 - 312.88	5.0×10^{-4}	Sand / Silt
MW203	309.06 – 312.06	4.5×10^{-4}	Sandy Gravel
MW205	304.63 – 307.63	3.6×10^{-6}	Sand

Horizontal hydraulic conductivity estimates calculated from on-Site hydraulic response testing of monitoring wells screened within sand, silt and sandy gravel deposits ranged from 3.6×10^{-6} to 4.5×10^{-4} m/s. These calculated values are generally consistent with the literature values of hydraulic conductivity provided for these sand, silt and sandy gravel deposits (Fetter, 2001).

2.2.5 Groundwater Quality

Four representative groundwater samples, including one field duplicate sample, were recovered from monitoring wells MW201, MW203 and MW205 on July 17, 2024 to evaluate groundwater quality at the Site. The groundwater samples were submitted to Bureau Veritas Canada Inc. (BV) in Mississauga, Ontario, for laboratory analysis of VOC, PHC, metals and inorganics, and PAH. Monitoring wells MW202 and MW204 were not accessible for sampling.

The reported analytical results were compared to the MECP Ontario Regulation (O.Reg.) 153/04 Table 1 Full Depth Background Site Condition Standards (SCS) for all types of property use. Concentrations of all parameters tested met the applicable SCS in all four groundwater samples.

The groundwater analytical results are summarized in **Table 2, Appendix B**. Laboratory certificates of analysis and chain of custody forms are included as **Appendix E**.

2.2.6 Surface Water Quality

A surface water sample was collected from each of the two ponds at the east portion of the Site (the north and south pond) on July 17, 2024 to determine if the water in the ponds is suitable for discharge to the land used for agricultural purposes at the Site. The surface water samples were submitted to BV in Mississauga, Ontario, for laboratory analysis of VOC, PHC, metals and inorganics, and PAH.

The reported analytical results were compared to the MECP O.Reg. 153/04 Table 1 SCS. Concentrations of all parameters tested met the Table 1 SCS in both surface water samples.

The surface water analytical results are summarized in **Table 3, Appendix B**. Laboratory certificates of analysis and chain of custody forms are included as **Appendix E**.

3 Source Water Protection Assessment

As established under the *Ontario Clean Water Act*, 2006, S.O., 2006, c. 22, source protection areas and associated land use restrictions exist for all municipal drinking water sources in the Toronto and Region Source Protection Area (CTCSPC, 2022a). Within the Source Protection Area, the Ministry of the Environment, Conservation and Parks (MECP) has designated four areas that warrant a higher level of protection from potential threats to the quality and/or quantity of surface water and groundwater drinking water sources, which include:

- Intake Protection Zones (IPZ)
- Highly Vulnerable Aquifers (HVA)
- Significant Groundwater Recharge Areas (SGRA)
- Wellhead Protection Areas (WHPA)

Source Protection Mapping, as provided by the MECP (2024), is included as Map A and Map B in **Appendix F**.

The Town of Whitchurch-Stouffville obtains its potable water from York Region (the Region). In the community of Stouffville the Region operates and maintains five ground production wells and supplements the supply by purchasing treated lake water from the City of Toronto. The Site is in an area that is not serviced by municipal drinking water.

An Intake Protection Zones (IPZ) is a zone established around surface water intake where it takes surface water two hours or less to flow to these intakes. These zones also include land adjacent to streams and storm sewers where runoff can quickly reach the intake. The area considered most vulnerable to contamination is delineated as a 120 m diameter circle around the intake and is referred to as Intake Protection Zone One (IPZ-1). Intake Protection Zone 2 (IPZ-2) represents the two-hour time-of-travel that surface water moving through inland pathways such as creeks and storm sewers will take to discharge near the lake intakes. According to regional mapping available from the MECP Source Water Protection Information Atlas (MECP, 2024), the Site does not intercept any IPZ (Map A and Map B, **Appendix F**).

Highly Vulnerable Aquifers (HVA) are defined as subsurface, geologic formations that are sources of drinking water, which could relatively easily be affected by the release of pollutants on the ground surface. The factors considered in assessing the vulnerability of an aquifer include the depth to the aquifer and water table, the physical properties of the overlying soil and/or rock, and the aquifer composition. According to MECP (2024) mapping, groundwater at the Property is considered part of an HVA (Map A, **Appendix F**).

Groundwater recharge represents the proportion of precipitation and/or surface water run-off that infiltrates to the subsurface and reaches the groundwater table. The volume of water that infiltrates to the subsurface is largely influenced by site topography, the physical properties of the soil and land cover characteristics. The CTCSPC (2022a) defines a Significant Groundwater Recharge Area

(SGRA) to be an area where the annual recharge rate is greater than the average plus 15% or more across the source protection region. According to MECP (2024) mapping, the lands within the Site are classified as SGRA, although no score was available (Map B, **Appendix F**).

A Wellhead Protection Area (WHPA) is an area delineated on the ground surface of zones within an aquifer that specifies the amount of time it would take groundwater to flow from the water table to the intake of a given municipal well. The majority of the Site (western part) is located within WHPA Zone B, with a small portion at the eastern part of the Site within WHPA Zone C (MECP, 2024), as shown on Map A, **Appendix F**.

As noted above, the ponds on the eastern part of the Property appear to be at the same elevation at the groundwater in nearby monitoring wells. As such, these ponds are expected to be connected to the groundwater aquifer, which makes the local groundwater aquifer vulnerable to impacts associated with runoff at the Site and surrounding area.

Filling in ponds can play a crucial role in protecting vulnerable groundwater resources by reducing the risk of contamination. Ponds often act as collection points for runoff, which can carry pollutants such as pesticides, fertilizers, or roadway runoff from surrounding areas. When these pollutants accumulate in ponds, they can seep into the groundwater, especially if the pond is unlined or has a permeable base. By filling in these ponds, the direct pathway for contaminants to reach the groundwater is eliminated, thereby reducing the risk of groundwater pollution.

Additionally, filling in ponds can help to stabilize the surrounding soil and prevent erosion, which is another factor in groundwater protection. Erosion can lead to increased sedimentation in water bodies, which can impact the natural filtration systems of the soil and reduce the recharge rate of aquifers. By eliminating ponds that contribute to erosion, the soil structure is maintained, and the natural filtration process is preserved. This helps ensure that rainwater can percolate through the soil effectively, replenishing groundwater supplies without carrying harmful sediments and pollutants

Considering the current vulnerability of the aquifer at the Property, filling the ponds with good quality soil will serve to protect the local groundwater resource.

4 Dewatering During Infilling Operations

Short-term dewatering during infilling activities is anticipated for the area of the two ponds at the east part of the property.

It is expected that the depth of the ponds is at approximate elevation of 307.85 m AMSL and the average water surface elevation is around 313 m ASL. The surface area of the north pond is estimated at approximately 17,600 m^2 and the area of the south pond is estimated at approximately 13,020 m^2.

Based on bathymetric surveys of the two eastern ponds provided by the Client, the volume of the water in the north pond is estimated to be approximately 40,500 m^3 and the volume of the water in the south pond is estimated to be 42,800 m^3.

Stantec evaluated a potential scenario to dewater the ponds without requiring a MECP PTTW. An MECP PTTW or Environmental Activity and Sector Registry (EASR) application is required for construction dewatering projects should recovery rates exceed 50,000 L/day. Construction dewatering undertakings can be completed through an EASR application, which would allow for dewatering rates of up to 400,000 L/day.

Preliminary estimates of the dewatering Zone of Influence (ZOI) and pumping rates are provided in the following section based on the following conservative assumptions and available information at the time of report preparation:

- The dewatering area was assumed to be the area of each of the two ponds at the east part of the Site. Each pond was considered to be rectangular to approximate dewatering an excavation.
- The maximum depth of the ponds is at approximately 307.85 m AMSL. The average depth was assumed to be 3 m.
- A surface water elevation of approximately 313 m AMSL (North Pond) and 312.3 (South Pond) were utilized in the estimate.
- The highest calculated horizontal hydraulic conductivity (5.0×10^{-4} m/s) was considered for the dewatering calculations.

4.1 Dewatering Estimate

An estimate of the radius of influence generated during pond dewatering was calculated using the Sichardt empirical equation:

$$R_o = 2.45\sqrt{\frac{H \cdot K}{S_y} \cdot t}$$

Equation 1

Where:

R_o = estimated radius of influence at pumping equilibrium (m)
H = hydraulic head at saturation (m) = 3 m
K = hydraulic conductivity (m/sec) = 5.0 x 10^{-4} m/sec
S_y = specific yield = 0.3
t = time to achieve pumping equilibrium (seconds) = 7 days = 604,800 seconds

Considering the equivalent radii of the dewatering area (i.e., the excavated area) of 74.85 m (North Pond) and 64.38 (South Pond), the estimated radius of influence is approximately 210 m (North Pond) and 200 m (South Pond).

The estimated discharge rate required to sufficiently depress the water table was estimated using the following equation for an unconfined aquifer (Powers, 1981):

$$Q = \frac{\pi \cdot K \cdot \left(H^2 - h^2\right)}{\ln\left(\frac{R_0}{r_w}\right)}$$

Equation 2

Where:

Q = discharge rate (m^3/day)
K = hydraulic conductivity (m/day)
H = total saturated thickness of aquifer (m)
h = saturated thickness at excavation under equilibrium (m)
R_o = estimated radius of influence (from Equation 1) (m)
r_w = equivalent well radius (m)

With the addition of a 50% safety factor, dewatering rates on the order of 400,000 L/day may lower the pond elevation by approximately 0.4 m. The radius of influence during dewatering may extend up to 210 m from the ponds and may moderately impact groundwater levels at adjacent properties.

A summary of the input parameters and calculations for pond dewatering is included in **Appendix D**.

4.2 Permit to Take Water

An MECP Permit to Take Water (PTTW) or Environmental Activity and Sector Registry application is required for construction dewatering projects should recovery rates exceed 50,000 L/day. Construction dewatering undertakings can be completed using an EASR application for dewatering up to 400,000 L/day. Should dewatering rates above 400,000 L/day be required, MECP PTTW will be required.

5 Conclusions and Recommendations

Based on the results of the hydrogeological assessment, using groundwater data collected at the Site and information obtained from a background review of regional data, the following conclusions are provided:

1) Shallow soils consist of topsoil (150 to 300 mm), underlain by reworked native material to depths of up to 4.1 m BGS, which is further underlain by silt, sand, silty sand and sand and gravel that extended to the maximum investigated depth of 21.95 m BGS.

2) The overburden groundwater elevation was observed at approximately 311.6 m AMSL (MW203) to 313.19 m AMSL (MW201) in May 2012 and from approximately 311.5 m AMSL (MW203) to 313.24 m AMSL (MW201) in July 2024.

3) The analytical results of collected surface water and groundwater samples met the Table 1 SCS.

4) The property is within a well-head protection area (WPHA) and groundwater at the Site is part of a highly vulnerable aquifer (HVA). Considering the current vulnerability of the aquifer at the Property, filling the ponds with good quality soil will serve to protect the local groundwater resource. The groundwater quality at the Site and at the neighbouring properties should be monitored against established baseline conditions during the filling operations.

5) Groundwater recharge conditions are expected to improve following filling of the North and South Ponds.

6) A dewatering rate of approximately 400,000 L/day may result in lowering the pond by approximately 0.4 m. Construction dewatering can be completed under a MECP PTTW or Environmental Activity and Sector Registry (EASR) application.

7) Dewatering of the ponds may result in a limited short-term lowering of the water table in the vicinity of the Property.

6 Limitations and Sign-off

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This report provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information obtained by and/or provided to Stantec at that time. There are no assurances regarding the accuracy and completeness of this information. All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this report can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted. Activities at the property subsequent to Stantec's assessment may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report, and are based solely on the scope of work described in the report, the limited data available and the results of the work. They are not a certification of the property's environmental condition. This report should not be construed as legal advice.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this report.

This report is limited by the following:

- *Geotechnical Investigation, South of Bloomington Road East Between Highway 48 and Ninth Line, Whichurch-Stouffville, Ontario"*, dated June 15, 2012, prepared by Golder Associates (Golder) for Camrock Development Corporation/RCG Haulage (1757196 Ontario Inc).
- *"Baseline Groundwater Study, 5783 Bloomington Road, Whitchurch-Stouffville, Ontario"*, dated June 27, 2012, prepared by G2S Environmental Consulting Inc. (G2S) for Recycling Canada Group.

The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.

The conclusions are based on the site conditions encountered by Stantec at the time the work was performed at the specific testing and/or sampling locations, and conditions may vary among sampling locations. Factors such as areas of potential concern identified in previous studies, site conditions (e.g., utilities) and cost may have constrained the sampling locations used in this assessment. In addition, analysis has been carried out for only a limited number of chemical parameters, and it should not be inferred that other chemical species are not present. Due to the nature of the investigation and the limited data available, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site. As the purpose of this report is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the site is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this report, Stantec specifically disclaims any responsibility to update the conclusions in this report.

This report was prepared by Irena Naydenova, P.Eng. and Joel Van Popta, M.Sc., P.Geo.

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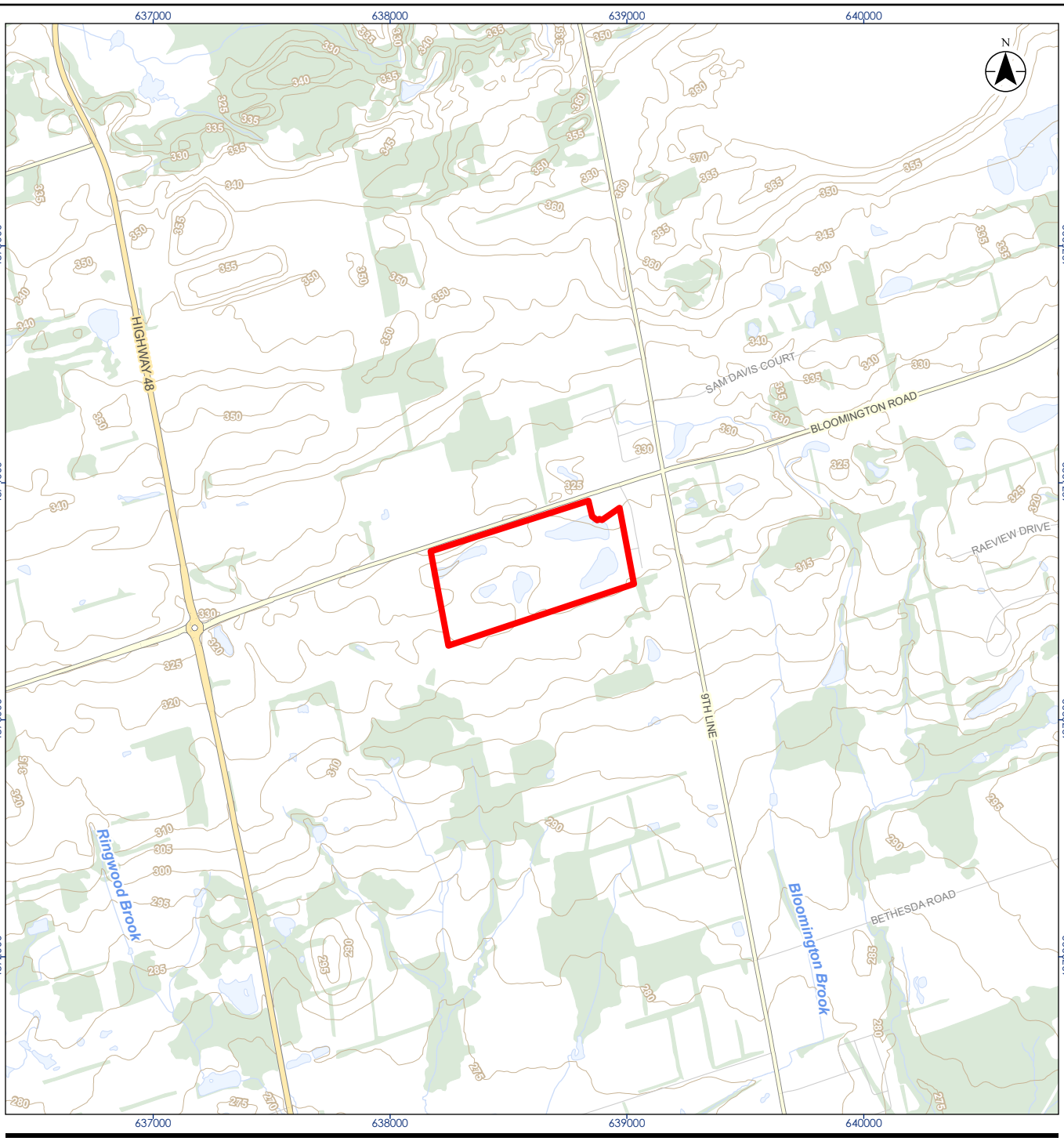
Appendices

Appendix A Figures



Notes

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3. This figure is to be viewed in the context of the accompanying report and is subject to the limitations specified in that report.
4. m AMSL - metres above mean sea level.

Legend

- Approximate Site Boundary
- Expressway / Highway
- Major Road
- Minor Road
- Topographic Contour (m AMSL)
- Watercourse
- Waterbody
- Wooded Area

0 500 1,000 metres

1:25,000 (at original document size of 8.5x11)

Stantec

Project Location
Whitchurch-Stouffville, Ontario

122120514
Prepared by SVD on 10/17/2024

Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

Figure No.
1

Title
Site Location

638000
639000
4874000
4873000
N
CASTLE GATE
KNIGHTS PLACE
AGRICULTURAL / RESIDENTIAL
BLOOMINGTON ROAD
MW201
North Pond
MW202
THORNBAY DRIVE
RESIDENTIAL
B
A'
South Pond
A
MW205
MW203
B'
9TH LINE
AGRICULTURAL
MW204
AGRICULTURAL

Stantec

Legend

- Approximate Monitoring Well Location (Golder, 2012)

Water Well Record (MECP)

- Domestic
- Livestock
- Monitoring
- Monitoring and Test Hole
- Municipal
- Not Used
- Cross Section
- Approximate Site Boundary
- Watercourse
- Waterbody

0 100 200 metres

1:5,500 (At original document size of 11x17)

Notes

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5. This figure is to be viewed in the context of the accompanying report and is subject to the limitations specified in that report.

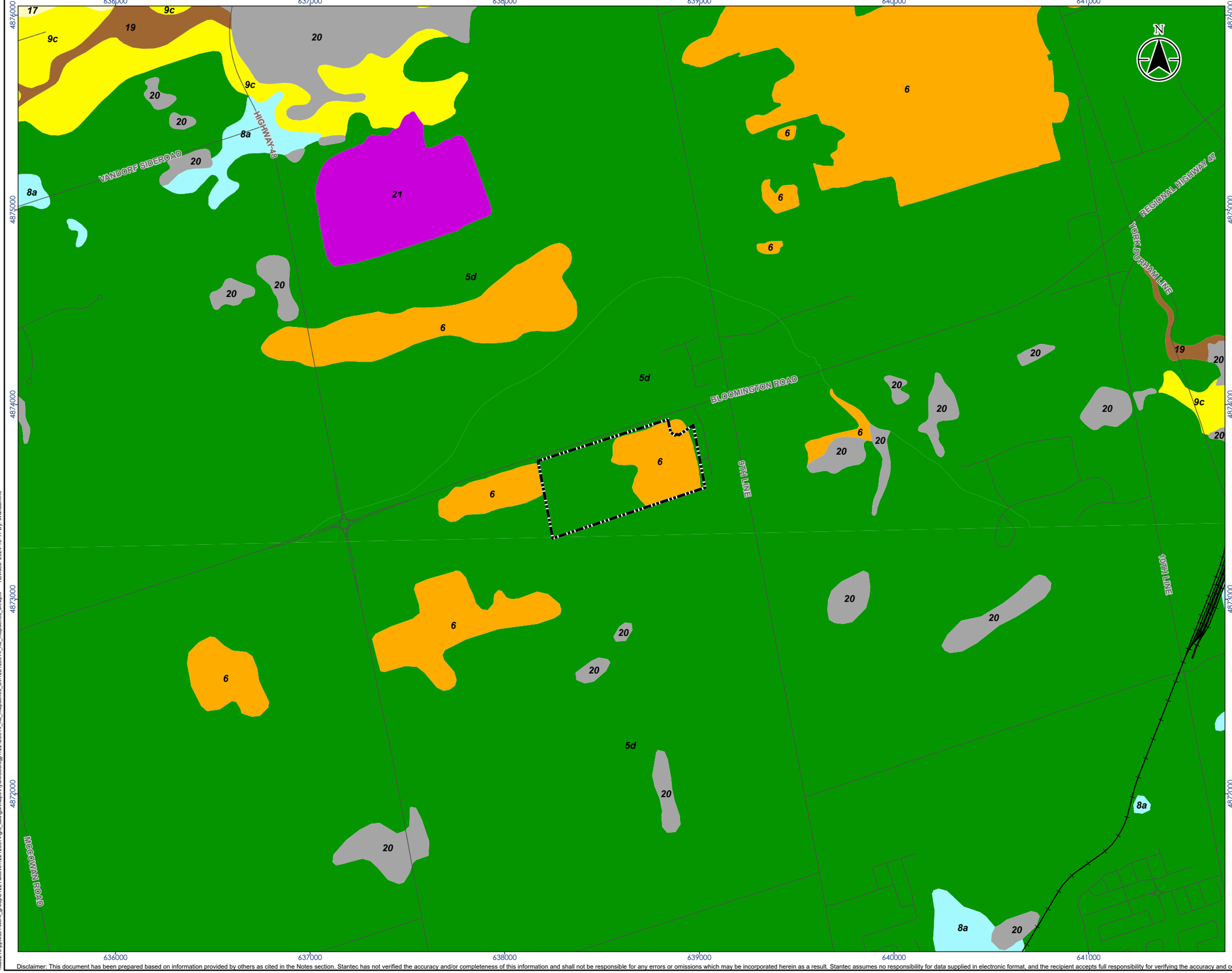
Project Location
Whitchurch-Stouffville, Ontario

122120514
Prepared by SVD on 10/17/2024

Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

Figure No.
2

Title
Site Plan



Stantec

Legend

- Railway - Operational
- Road
- Approximate Site Boundary
- 5d: Glaciolacustrine-derived silty to clayey till
- 6: Ice-contact stratified deposits
- 8a: Massive-well laminated
- 9c: Foreshore-basinal deposits
- 17: Eolian deposits
- 19: Modern alluvial deposits
- 20: Organic deposits
- 21: Man-made deposits

0 500 1,000 metres

1:20,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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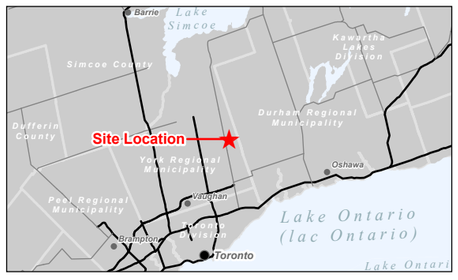
3. Surficial geology produced by the Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, MRD 128.



Project Location
Whitchurch-Stouffville, Ontario

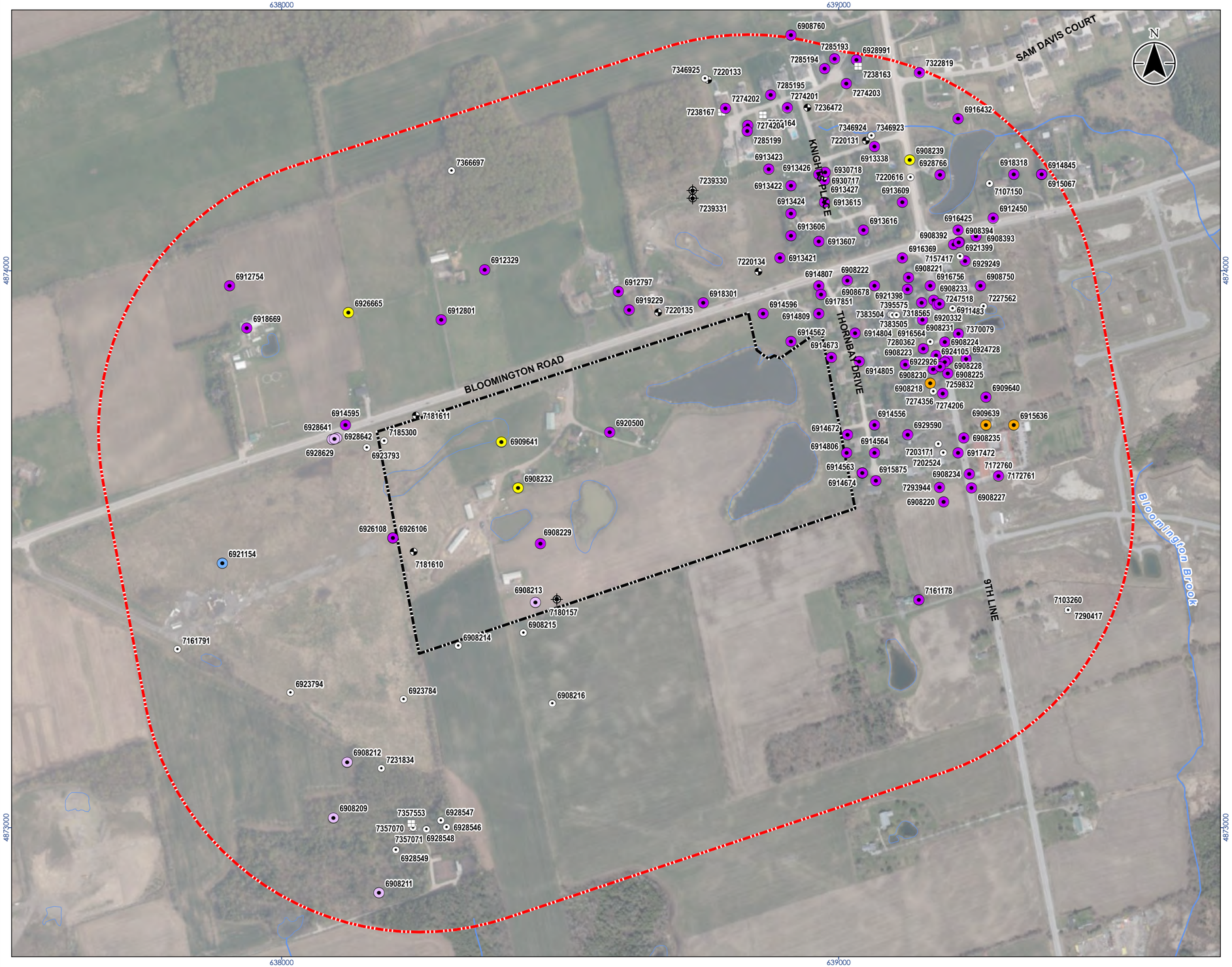
122120514
Prepared by SVD on 10/17/2024

Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

Figure No.
3

Title
Surficial Geology

\\cat2215-pfiled01\work_group\01221\active\122120514\gis_cad\gis\maps\HydroGeology\122120514_ha_mapseries_dft\122120514_ha_mapseries_dft.aprx Revised: 2024-10-17 By: svandamme



Stantec

Legend

Water Well Record (MECP)

- Commerical
- Domestic
- Livestock
- Monitoring
- Monitoring and Test Hole
- Municipal
- Not Used
- Public
- Test Hole
- Approximate Site Boundary
- 500 m Buffer from Property Boundary
- Watercourse
- Waterbody

0 200 400 metres

1:7,000 (At original document size of 11x17)

Notes

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5. This figure is to be viewed in the context of the accompanying report and is subject to the limitations specified in that report.
6. MECP - Ministry of the Environment, Conservation and Parks.

Project Location
Whitchurch-Stouffville, Ontario

122120514
Prepared by SVD on 10/17/2024

Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

Figure No.
4

Title
MECP Water Well Records

\\ca0215-vpfs01\work_group\01221\active\122120514\gis_cad\gis\mxd\HydroGeology\122120514_ha_mapseries_dfft\122120514_ha_mapseries_dfft.aprx Revised: 2024-10-17 By: svandamme

A
WEST

A'
EAST

MW205 (12.3 OS)

MW201 (195.6 OS)

MW202 (24.3 OS)

TOPSOIL (FILL)

SILT (FILL)

CLAYEY SILT (TILL)

SILTY CLAY (TILL)

SILTY SAND

SAND

SAND AND GRAVEL

SAND AND SILT (FILL)

SILTY SAND (TILL)

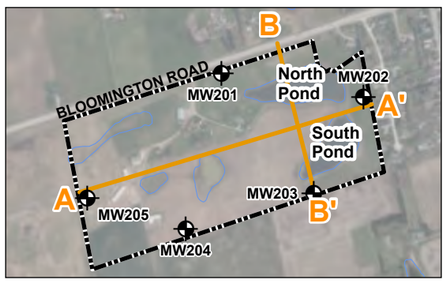
SILTY CLAY (FILL)

SILTY CLAY

SILT (TILL)

Elevation (m AMSL)

340
335
330
325
320
315
310
305
300



MW205 (OS m)
Sand
Stratigraphy
Water Level (July 17, 2024)
Well Screen

Well ID (Offset)

Legend
- Approximate Ground Surface
- Approximate Site Boundary
- Water Table
- Fill
- Till
- Pond

10x Vertical Exaggeration

0 50 100 m

1:2,400 (At original document size of 11x17)

Notes
1. Coordinate System:NAD 1983 UTM Zone 17N

Stantec

Project Location
Whitchurch-Stouffville, Ontario

122120514

Prepared by SVD on 10/17/2024

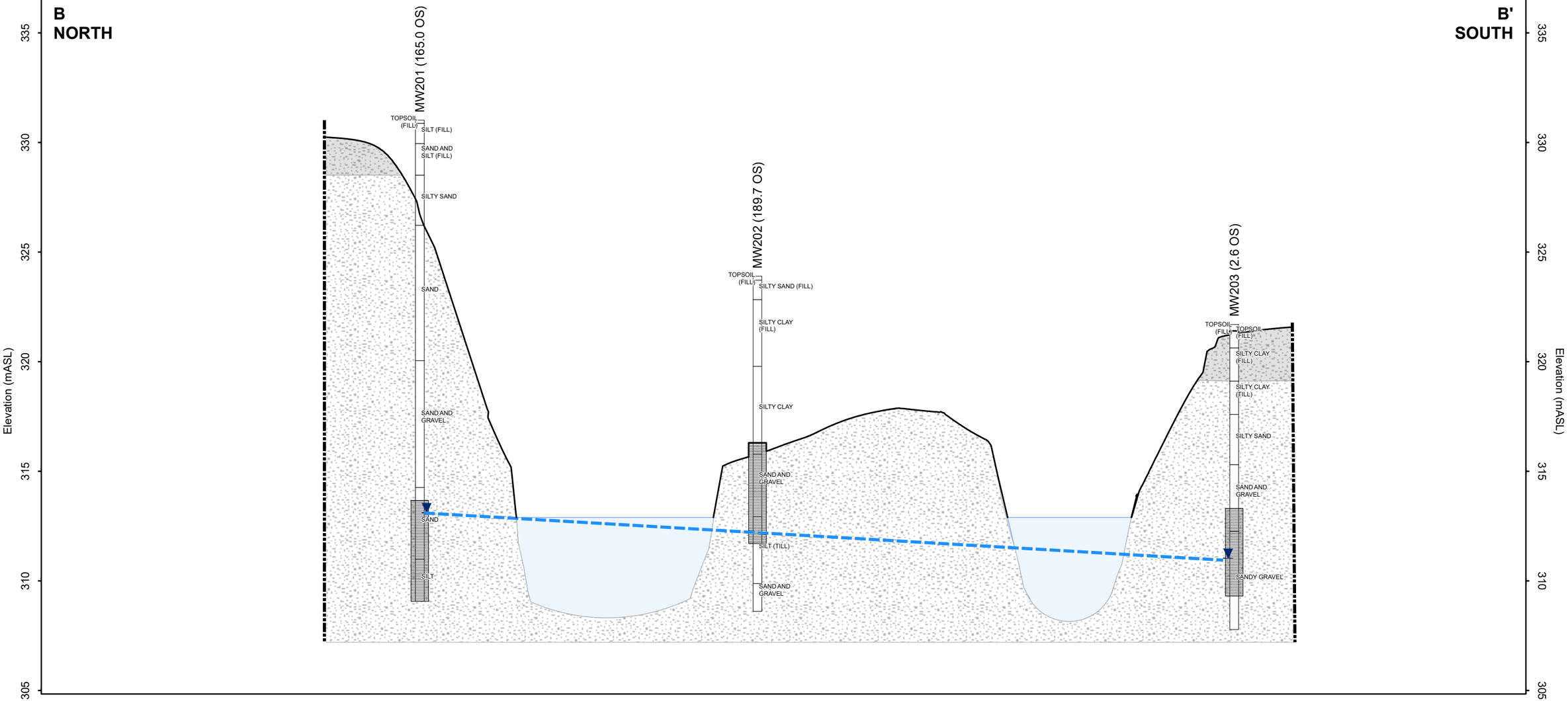
Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

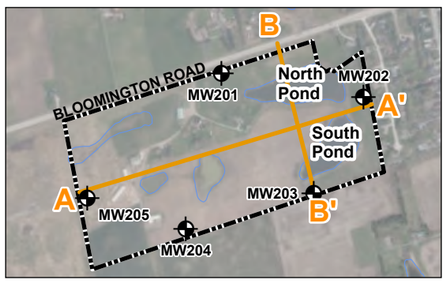
Figure No.
5

Title
Cross-Section A-A'

B
NORTH

B'
SOUTH





MW201 (OS m)
Sand

Well ID (Offset)

Stratigraphy

Water Level (July 17, 2024)

Well Screen

Legend
- Approximate Ground Surface
- Approximate Site Boundary
- Water Table
- Fill
- Till
- Pond

10x Vertical Exaggeration

0 30 60 m

1:1,800 (At original document size of 11x17)

Notes
1. Coordinate System:WGS 1984 Web Mercator Auxiliary Sphere

Stantec

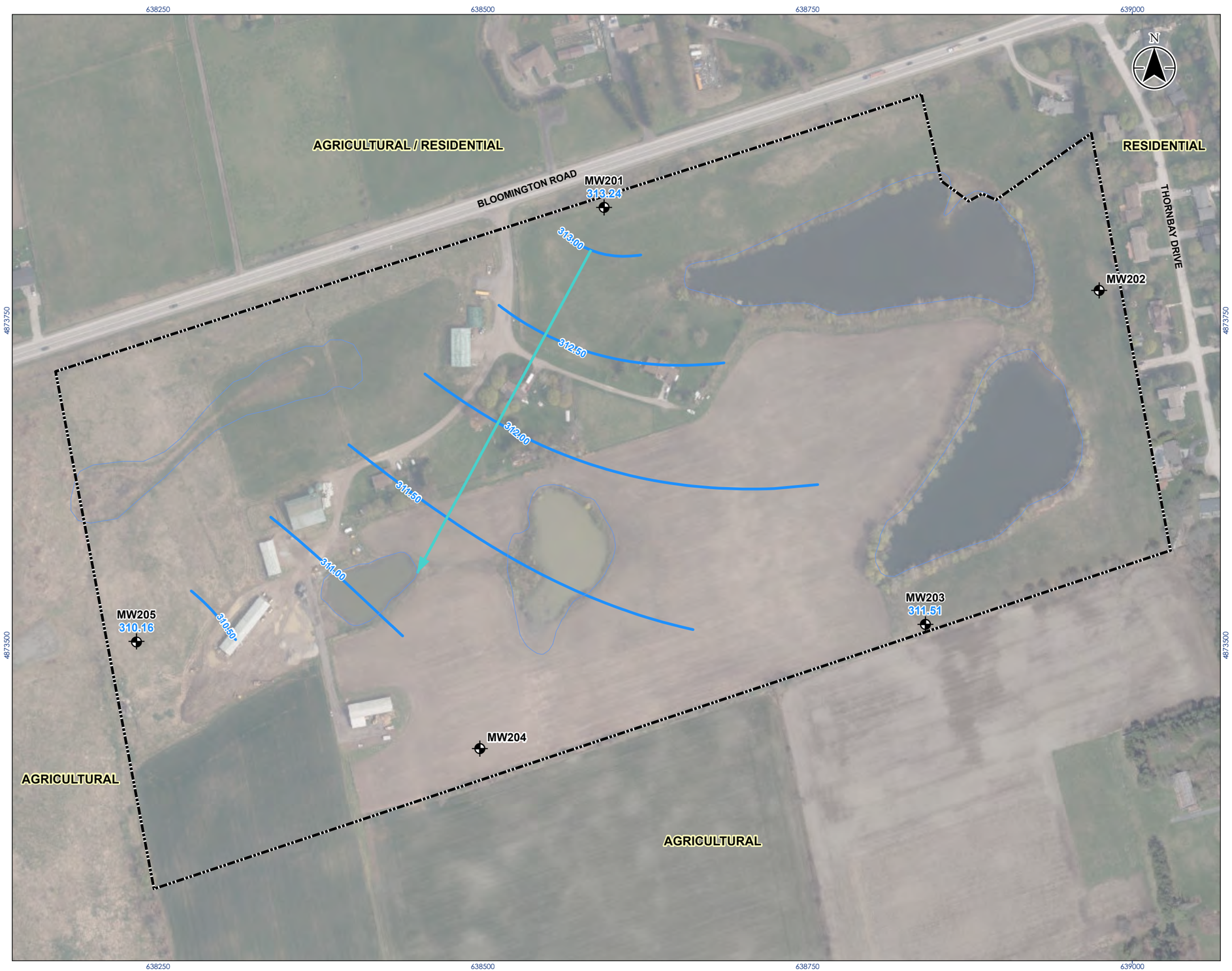
Project Location
Whitchurch-Stouffville, Ontario

122120514
Prepared by SVD on 10/17/2024

Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

Figure No.
6

Title
Cross-Section B-B'



Stantec

Legend

- Approximate Monitoring Well Location (Golder, 2012)
- 310|16 Groundwater Elevation (m AMSL)
- Groundwater Contour
- Inferred Direction of Groundwater Flow
- Approximate Site Boundary
- Waterbody

0 50 100 metres

1:3,000 (At original document size of 11x17)

Notes

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6. m AMSL - meters Above Mean Sea Level

Project Location
Whitchurch-Stouffville, Ontario

122120514
Prepared by SVD on 10/17/2024

Client/Project
1398493 Ontario Inc.
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, ON

Figure No.
7

Title
Interpreted Groundwater Elevations and Flow Direction, July 17, 2024

Appendix B Tables

Table 1
Summary of Groundwater Monitoring Data
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, Ontario
1398493 Ontario Inc.

Monitoring Location	Monitoring Date (dd-mmm-yy)	Ground Surface Elevation (m AMSL)	Top of Pipe Elevation (m AMSL)	Water Level Elevation (m AMSL)	Water Level Depth (m BTOP)	Water Level Depth (m BGS)	Liquid-Phase Petroleum Hydrocarbon Apparent Thickness (mm)	Well Headspace Combustible Vapour Concentration (ppm_v)	Well Headspace Total Organic Vapour Concentration (ppm_v)
MW201	17-Jul-24	330.88	331.80	313.24	18.56	17.64	0	NM	NM
MW202	17-Jul-24	323.76	NM	NA	NA	NA	NA	NA	NA
MW203	17-Jul-24	321.56	322.39	311.51	10.88	10.05	0	NM	NM
MW204	17-Jul-24	320.95	NM	NA	NA	NA	NA	NA	NA
MW205	17-Jul-24	325.63	326.49	310.16	16.33	15.47	0	NM	NM

Notes:

m AMSL	Metres above mean sea level
m BTOP	Metres below top of pipe
m BGS	Metres below ground surface
mm	Millimetres
ppm_v	All units in parts per million unless otherwise noted
NA	Not Accessible
NM	Not Measured

Table 2
Summary of Groundwater Analytical Results
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, Ontario
1398493 Ontario Inc.

Sample Location			MW201			MW203	MW205
Sample Date			17-Jul-24	17-Jul-24		17-Jul-24	17-Jul-24
Sample ID			MW 201	QC-01		MW 203	MW 205
Sampling Company			STANTEC	STANTEC		STANTEC	STANTEC
Laboratory			BV	BV		BV	BV
Laboratory Work Order			C4L9244	C4L9244		C4L9244	C4L9244
Laboratory Sample ID			ZTI184	ZTI185	RPD	ZTI183	ZTI182
Sample Type	Units	Ontario SCS		Field Duplicate	(%)		
Petroleum Hydrocarbons							
PHC F1 (C6-C10 range)	µg/L	$_{s7}$[A]	<25	<25	nc	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	420$_{s7}$[A]	<25	<25	nc	<25	<25
PHC F2 (>C10-C16 range)	µg/L	150$_{s15}$[A]	<100	<100	nc	<100	<100
PHC F3 (>C16-C34 range)	µg/L	500$_{s8}$[A]	<200	<200	nc	<200	<200
PHC F4 (>C34-C50 range)	µg/L	500$_{s10}$[A]	<200	<200	nc	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES	nc	YES	YES
Metals							
Antimony	µg/L	1.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Arsenic	µg/L	13[A]	<1.0	<1.0	nc	<1.0	<1.0
Barium	µg/L	610[A]	240	250	4%	85	98
Beryllium	µg/L	0.5[A]	<0.40	<0.40	nc	<0.40	<0.40
Boron	µg/L	1,700[A]	10	<10	nc	11	11
Cadmium	µg/L	0.5[A]	<0.090	<0.090	nc	<0.090	<0.090
Chromium	µg/L	11[A]	<5.0	<5.0	nc	<5.0	<5.0
Cobalt	µg/L	3.8[A]	0.58	0.73	nc	<0.50	<0.50
Copper	µg/L	5[A]	<0.90	<0.90	nc	<0.90	<0.90
Lead	µg/L	1.9[A]	<0.50	<0.50	nc	<0.50	<0.50
Molybdenum	µg/L	23[A]	<0.50	<0.50	nc	0.53	<0.50
Nickel	µg/L	14[A]	1.2	1.4	nc	1.2	<1.0
Selenium	µg/L	5[A]	<2.0	<2.0	nc	<2.0	<2.0
Silver	µg/L	0.3[A]	<0.090	<0.090	nc	<0.090	<0.090
Sodium	µg/L	490,000[A]	240,000	230,000	4%	35,000	5,800
Thallium	µg/L	0.5[A]	<0.050	<0.050	nc	<0.050	<0.050
Uranium	µg/L	8.9[A]	0.68	0.73	7%	1.1	0.88
Vanadium	µg/L	3.9[A]	<0.50	<0.50	nc	<0.50	<0.50
Zinc	µg/L	160[A]	<5.0	<5.0	nc	<5.0	<5.0
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	µg/L	4.1[A]	<0.050	<0.050	nc	<0.050	<0.050
Acenaphthylene	µg/L	1[A]	<0.050	<0.050	nc	<0.050	<0.050
Anthracene	µg/L	0.1[A]	<0.050	<0.050	nc	<0.050	<0.050
Benzo(a)anthracene	µg/L	0.2[A]	<0.050	<0.050	nc	<0.050	<0.050
Benzo(a)pyrene	µg/L	0.01[A]	<0.0090	<0.0090	nc	<0.0090	<0.0090
Benzo(b/j)fluoranthene	µg/L	0.1$_{s2}$[A]	<0.050	<0.050	nc	<0.050	<0.050
Benzo(g,h,i)perylene	µg/L	0.2[A]	<0.050	<0.050	nc	<0.050	<0.050
Benzo(k)fluoranthene	µg/L	0.1[A]	<0.050	<0.050	nc	<0.050	<0.050
Chrysene	µg/L	0.1[A]	<0.050	<0.050	nc	<0.050	<0.050
Dibenzo(a,h)anthracene	µg/L	0.2[A]	<0.050	<0.050	nc	<0.050	<0.050
Fluoranthene	µg/L	0.4[A]	<0.050	<0.050	nc	<0.050	<0.050
Fluorene	µg/L	120[A]	<0.050	<0.050	nc	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	µg/L	0.2[A]	<0.050	<0.050	nc	<0.050	<0.050
Methylnaphthalene (Total)	µg/L	2$_{s3}$[A]	<0.071	0.12	nc	<0.071	<0.071
Methylnaphthalene, 1-	µg/L	2$_{s3}$[A]	<0.050	0.054	nc	<0.050	<0.050
Methylnaphthalene, 2-	µg/L	2$_{s3}$[A]	<0.050	0.066	nc	<0.050	<0.050
Naphthalene	µg/L	7[A]	<0.050	<0.050	nc	<0.050	<0.050
Phenanthrene	µg/L	0.1[A]	0.030	0.036	nc	<0.030	<0.030
Pyrene	µg/L	0.2[A]	<0.050	<0.050	nc	<0.050	<0.050
Volatile Organic Compounds							
Acetone	µg/L	2,700[A]	<10	<10	nc	<10	<10
Benzene	µg/L	0.5[A]	<0.17	<0.17	nc	<0.17	<0.17
Bromodichloromethane	µg/L	2[A]	<0.50	<0.50	nc	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	5[A]	<1.0	<1.0	nc	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	0.89[A]	<0.50	<0.50	nc	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	0.2[A]	<0.20	<0.20	nc	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	2[A]	<0.20	<0.20	nc	<0.20	<0.20
Dibromochloromethane	µg/L	2[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	590[A]	<1.0	<1.0	nc	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	1.6[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	1.6[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + tran	µg/L	0.5$_{s11}$[A]	<0.50	<0.50	nc	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	$_{s11}$[A]	<0.30	<0.30	nc	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	$_{s11}$[A]	<0.40	<0.40	nc	<0.40	<0.40
Ethylbenzene	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	0.2[A]	<0.20	<0.20	nc	<0.20	<0.20
Hexane (n-Hexane)	µg/L	5[A]	<1.0	<1.0	nc	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	400[A]	<10	<10	nc	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	640[A]	<5.0	<5.0	nc	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15[A]	<0.50	<0.50	nc	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	5[A]	<2.0	<2.0	nc	<2.0	<2.0
Styrene	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	1.1[A]	<0.50	<0.50	nc	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Toluene	µg/L	0.8[A]	0.33	0.37	nc	0.26	0.43
Trichloroethane, 1,1,1-	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	0.5[A]	<0.50	<0.50	nc	<0.50	<0.50
Trichloroethene (TCE)	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	150[A]	<0.50	<0.50	nc	<0.50	<0.50
Vinyl Chloride	µg/L	0.5[A]	<0.20	<0.20	nc	<0.20	<0.20
Xylene, m & p-	µg/L	$_{s1}$[A]	0.23	0.25	nc	<0.20	0.29
Xylene, o-	µg/L	$_{s1}$[A]	<0.20	<0.20	nc	<0.20	<0.20
Xylenes, Total	µg/L	72$_{s1}$[A]	0.23	0.25	nc	<0.20	0.29

Notes:

Ontario SCS Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)

[A]	Table 1 - All Types of Property Uses
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
s3	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
s8	Standard is applicable to PHC in the F3 range, minus PAHs (other than naphthalene). If PAHs were not analyzed, the standard is applied to F3.
s10	If baseline is not reached during F4 analysis, then gravimetric analysis is to be performed, and the standard is applied to the higher of the two results.
s11	Standard is applicable to 1,3-Dichloropropene, and the individual isomers (cis + trans) should be added for comparison.
s15	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.
RPD	Relative Percent Difference.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 3
Summary of Surface Water Analytical Results
Hydrogeological Assessment
5783 Bloomington Road, Whitchurch-Stouffville, Ontario
1398493 Ontario Inc.

Sample Location			NORTH POND	SOUTH POND
Sample Date			17-Jul-24	17-Jul-24
Sample ID			NORTH POND	SOUTH POND
Sampling Company			STANTEC	STANTEC
Laboratory			BV	BV
Laboratory Work Order			C4L9244	C4L9244
Laboratory Sample ID			ZTI186	ZTI187
Sample Type	Units	Ontario SCS		
Petroleum Hydrocarbons				
PHC F1 (C6-C10 range)	µg/L	$_{s7}$[A]	<25	<25
PHC F1 (C6-C10 range) minus BTEX	µg/L	420$_{s7}$[A]	<25	<25
PHC F2 (>C10-C16 range)	µg/L	150$_{s15}$[A]	<100	<100
PHC F3 (>C16-C34 range)	µg/L	500$_{s8}$[A]	<200	<200
PHC F4 (>C34-C50 range)	µg/L	500$_{s10}$[A]	<200	<200
Chromatogram to baseline at C50	none	n/v	YES	YES
Metals				
Antimony	µg/L	1.5[A]	<0.50	<0.50
Arsenic	µg/L	13[A]	<1.0	<1.0
Barium	µg/L	610[A]	14	21
Beryllium	µg/L	0.5[A]	<0.40	<0.40
Boron	µg/L	1,700[A]	<10	10
Cadmium	µg/L	0.5[A]	<0.090	<0.090
Chromium	µg/L	11[A]	<5.0	<5.0
Cobalt	µg/L	3.8[A]	<0.50	<0.50
Copper	µg/L	5[A]	<0.90	<0.90
Lead	µg/L	1.9[A]	<0.50	<0.50
Molybdenum	µg/L	23[A]	<0.50	<0.50
Nickel	µg/L	14[A]	<1.0	<1.0
Selenium	µg/L	5[A]	<2.0	<2.0
Silver	µg/L	0.3[A]	<0.090	<0.090
Sodium	µg/L	490,000[A]	17,000	13,000
Thallium	µg/L	0.5[A]	<0.050	<0.050
Uranium	µg/L	8.9[A]	0.15	0.25
Vanadium	µg/L	3.9[A]	<0.50	<0.50
Zinc	µg/L	160[A]	<5.0	<5.0
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	µg/L	4.1[A]	<0.050	<0.050
Acenaphthylene	µg/L	1[A]	<0.050	<0.050
Anthracene	µg/L	0.1[A]	<0.050	<0.050
Benzo(a)anthracene	µg/L	0.2[A]	<0.050	<0.050
Benzo(a)pyrene	µg/L	0.01[A]	<0.0090	<0.0090
Benzo(b/j)fluoranthene	µg/L	0.1$_{s2}$[A]	<0.050	<0.050
Benzo(g,h,i)perylene	µg/L	0.2[A]	<0.050	<0.050
Benzo(k)fluoranthene	µg/L	0.1[A]	<0.050	<0.050
Chrysene	µg/L	0.1[A]	<0.050	<0.050
Dibenzo(a,h)anthracene	µg/L	0.2[A]	<0.050	<0.050
Fluoranthene	µg/L	0.4[A]	<0.050	<0.050
Fluorene	µg/L	120[A]	<0.050	<0.050
Indeno(1,2,3-cd)pyrene	µg/L	0.2[A]	<0.050	<0.050
Methylnaphthalene (Total)	µg/L	2$_{s3}$[A]	<0.071	<0.071
Methylnaphthalene, 1-	µg/L	2$_{s3}$[A]	<0.050	<0.050
Methylnaphthalene, 2-	µg/L	2$_{s3}$[A]	<0.050	<0.050
Naphthalene	µg/L	7[A]	<0.050	<0.050
Phenanthrene	µg/L	0.1[A]	<0.030	<0.030
Pyrene	µg/L	0.2[A]	<0.050	<0.050
Volatile Organic Compounds				
Acetone	µg/L	2,700[A]	<10	<10
Benzene	µg/L	0.5[A]	<0.17	<0.17
Bromodichloromethane	µg/L	2[A]	<0.50	<0.50
Bromoform (Tribromomethane)	µg/L	5[A]	<1.0	<1.0
Bromomethane (Methyl bromide)	µg/L	0.89[A]	<0.50	<0.50
Carbon Tetrachloride (Tetrachloromethane)	µg/L	0.2[A]	<0.20	<0.20
Chlorobenzene (Monochlorobenzene)	µg/L	0.5[A]	<0.20	<0.20
Chloroform (Trichloromethane)	µg/L	2[A]	<0.20	<0.20
Dibromochloromethane	µg/L	2[A]	<0.50	<0.50
Dichlorobenzene, 1,2-	µg/L	0.5[A]	<0.50	<0.50
Dichlorobenzene, 1,3-	µg/L	0.5[A]	<0.50	<0.50
Dichlorobenzene, 1,4-	µg/L	0.5[A]	<0.50	<0.50
Dichlorodifluoromethane (Freon 12)	µg/L	590[A]	<1.0	<1.0
Dichloroethane, 1,1-	µg/L	0.5[A]	<0.20	<0.20
Dichloroethane, 1,2-	µg/L	0.5[A]	<0.50	<0.50
Dichloroethene, 1,1-	µg/L	0.5[A]	<0.20	<0.20
Dichloroethene, cis-1,2-	µg/L	1.6[A]	<0.50	<0.50
Dichloroethene, trans-1,2-	µg/L	1.6[A]	<0.50	<0.50
Dichloropropane, 1,2-	µg/L	0.5[A]	<0.20	<0.20
Dichloropropene, 1,3- (sum of isomers cis + trans)	µg/L	0.5$_{s11}$[A]	<0.50	<0.50
Dichloropropene, cis-1,3-	µg/L	$_{s11}$[A]	<0.30	<0.30
Dichloropropene, trans-1,3-	µg/L	$_{s11}$[A]	<0.40	<0.40
Ethylbenzene	µg/L	0.5[A]	<0.20	<0.20
Ethylene Dibromide (Dibromoethane, 1,2-)	µg/L	0.2[A]	<0.20	<0.20
Hexane (n-Hexane)	µg/L	5[A]	<1.0	<1.0
Methyl Ethyl Ketone (MEK) (2-Butanone)	µg/L	400[A]	<10	<10
Methyl Isobutyl Ketone (MIBK)	µg/L	640[A]	<5.0	<5.0
Methyl tert-butyl ether (MTBE)	µg/L	15[A]	<0.50	<0.50
Methylene Chloride (Dichloromethane)	µg/L	5[A]	<2.0	<2.0
Styrene	µg/L	0.5[A]	<0.50	<0.50
Tetrachloroethane, 1,1,1,2-	µg/L	1.1[A]	<0.50	<0.50
Tetrachloroethane, 1,1,2,2-	µg/L	0.5[A]	<0.50	<0.50
Tetrachloroethene (PCE)	µg/L	0.5[A]	<0.20	<0.20
Toluene	µg/L	0.8[A]	<0.20	<0.20
Trichloroethane, 1,1,1-	µg/L	0.5[A]	<0.20	<0.20
Trichloroethane, 1,1,2-	µg/L	0.5[A]	<0.50	<0.50
Trichloroethene (TCE)	µg/L	0.5[A]	<0.20	<0.20
Trichlorofluoromethane (Freon 11)	µg/L	150[A]	<0.50	<0.50
Vinyl Chloride	µg/L	0.5[A]	<0.20	<0.20
Xylene, m & p-	µg/L	$_{s1}$[A]	<0.20	<0.20
Xylene, o-	µg/L	$_{s1}$[A]	<0.20	<0.20
Xylenes, Total	µg/L	72$_{s1}$[A]	<0.20	<0.20

Notes:

Ontario SCS	Soil, Ground Water and Sediment Standards for Use under Part XV.I of the Environmental Protection Act (MOE, 2011) Site Condition Standards (SCS)
[A]	Table 1 - All Types of Property Uses
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	Standard is for benzo(b)fluoranthene; however, the analytical laboratory can not distinguish between benzo(b)fluoranthene and benzo(j)fluoranthene, and therefore, the result is a combination of the two isomers, against which the standard has been compared.
s3	Standard is applicable to both 1-methylnaphthalene and 2-methylnaphthalene, with the provision that if both are detected the sum of the two must not exceed the standard.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
s8	Standard is applicable to PHC in the F3 range, minus PAHs (other than naphthalene). If PAHs were not analyzed, the standard is applied to F3.
s10	If baseline is not reached during F4 analysis, then gravimetric analysis is to be performed, and the standard is applied to the higher of the two results.
s11	Standard is applicable to 1,3-Dichloropropene, and the individual isomers (cis + trans) should be added for comparison.
s15	Standard is applicable to PHC in the F2 range minus naphthalene. If naphthalene was not analyzed, the standard is applied to F2.

Appendix C Borehole Logs

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW201

SHEET 1 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		330.88							
0	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	TOPSOIL (FILL)		0.00							
		(ML) sandy SILT, trace gravel, trace roots; brown (FILL); moist, compact		0.15	1	50 DO	11				Concrete and Casing
1				329.81							
		(SM/ML) SAND and SILT, trace gravel; brown (PROBABLY FILL); moist, compact		1.07	2	50 DO	12				
2				328.37							
		(SM) SILTY SAND, trace gravel, zones of fine to medium sand; moist, dense		2.51	3	50 DO	40				
3											
4				326.08							
		(SW) SAND, fine to medium, trace gravel, trace to some fines; brown; moist, dense		4.80							Bentonite Seal
5					4	50 DO	44				
6											
7											
8											
9					5	50 DO	31				
10		*CONTINUED NEXT PAGE*									

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AZ

CHECKED: AH

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW201

SHEET 2 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
10	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(SW) SAND, fine to medium, trace gravel, trace to some fines; brown; moist, dense		319.91							
11		(SW/GW) SAND and GRAVEL, trace to some fines; brown, cobbles/ boulders; moist, very dense		10.97							
12					6	50 DO	53/ .15				
13											
14											Bentonite Seal
15					7	50 DO	50/ .1				
16											
17		(SW) SAND, medium to coarse, trace gravel, trace to some fines; brown; wet, very dense		314.12 16.76							
18											May 8, 2012
19					8	50 DO	76				Silica Sand Filter
20		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AZ

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW201

SHEET 3 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		*--- CONTINUED FROM PREVIOUS PAGE ---*									
20	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(ML) SILT, trace fine sand; grey; wet, compact to dense		329.84 20.84							Silica Sand Filter
21											
22					9	50 DO	30				
				308.93							
		END OF BOREHOLE		21.95							Water encountered during drilling at a depth of 18.3 m below ground surface, Apr. 13/12 Water level in monitoring well at a depth of 17.74 m below ground surface, May 8/12
23											
24											
25											
26											
27											
28											
29											
30											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AZ

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW202

SHEET 1 OF 2

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		323.76							
0	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	TOPSOIL (FILL)		0.00 / 323.58							
		(SM) SILTY SAND, trace gravel; dark brown to brown (FILL); moist, loose		0.18	1	50 DO	9		○		
1				322.69							
		(CL) SILTY CLAY, low plasticity, some sand, trace to some gravel; brown (PROBABLY FILL); Wn>PL, hard to firm		1.07							
					2	50 DO	31		○		
2											
3					3	50 DO	7		○		
											Bentonite Seal
4				319.65							
		(CL) SILTY CLAY, low plasticity, some sand, trace to some gravel; brown (TILL); Wn~PL to Wn<PL, very stiff to hard		4.11							
					4	50 DO	18		○		
5											
6					5	50 DO	50/ .13		○		
		Stone obstruction at a depth of 6.22 m below ground surface									
7											
8				315.63							
		(SW/GW) SAND and GRAVEL, trace to some fines; cobbles/ boulders; moist, very dense		8.13							
9					6	50 DO	50/ .13		○		Silica Sand Filter
10		*CONTINUED NEXT PAGE*									

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AM

CHECKED: AH

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW202

SHEET 2 OF 2

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(SW/GW) SAND and GRAVEL, trace to some fines; cobbles/ boulders; moist, very dense		312.79							May 8, 2012
11		(ML) sandy SILT, some gravel; brown, cobbles/ boulders (TILL); moist		10.97							Silica Sand Filter
12					7	AS	-		○		
13											
14				309.74							Cave
		(SW/GW) SAND and GRAVEL, trace to some fines; brown, containing cobbles and boulders; wet, very dense		14.02							
15											
				308.47	8	50 DO	50/ .05		○		
		END OF BOREHOLE		15.29							
16											Water encountered during drilling at a depth of 13.7 m below ground surface, Apr. 13/12
17											Water level measured in open borehole at a depth of 10.7 m below ground surface upon completion of drilling, Apr. 13/12
18											Water level in monitoring well at a depth of 10.66 m below ground surface, May 8/12
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AM

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW203

SHEET 1 OF 2

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		321.56							
0	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	TOPSOIL (FILL)		0.00 / 321.26	1	50 DO	13				
		(ML) sandy SILT, trace to some gravel; dark brown to brown, organic inclusions (FILL); moist, compact		0.30 / 320.49							
1		(CL) SILTY CLAY, low plasticity, some sand, some gravel; brown (PROBABLY FILL); Wn~PL, stiff		1.07 / 318.97	2	50 DO	11				
2		(CL) SILTY CLAY, low plasticity, some sand, trace gravel; brown (TILL); Wn~PL, hard		2.59 / 317.45	3	50 DO	32				
3		(SM) SILTY SAND, some gravel, zones of sand and gravel; brown; moist, compact		4.11 / 315.16	4	50 DO	26				Bentonite Seal
4		(SW/GW) SAND and GRAVEL, trace to some fines; brown, cobbles/ boulders; moist, very dense		6.40 / 312.11	5	50 DO	50/ .1				
5		(GW) sandy GRAVEL, trace to some fines; brown, cobbles/ boulders; wet, very dense		9.45							Silica Sand Filter
6		*CONTINUED NEXT PAGE*									
7											
8											
9											
10											

DEPTH SCALE

1 : 50

LOGGED: AM

CHECKED: AH

Golder Associates

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW203

SHEET 2 OF 2

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
10	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(GW) sandy GRAVEL, trace to some fines; brown, cobbles/ boulders; wet, very dense			6	50 DO	50/ .13				May 8, 2012 Silica Sand Filter Cave
13					7	50 DO	50/ .05				
14		END OF BOREHOLE		307.64 13.92							Water encountered during drilling at a depth of 10.4 m below ground surface, Apr. 13/13 Water level measured in open portion of the borehole at a depth of 10.1 m below ground surface upon completion of drilling, Apr. 13/13 Borehole caved at a depth of 12.5 m below ground surface upon completion of driling, Apr. 13/13 Water level in monitoring well at a depth of 9.96 m below ground surface, May 8/12
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AM

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW204

SHEET 1 OF 2

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		320.95							
0	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	TOPSOIL (FILL)		0.00 / 320.70							
		(ML) sandy SILT, trace gravel; dark brown to brown (FILL); moist, loose		0.25 / 319.88	1	50 DO	9				
1		(CL) SILTY CLAY, low plasticity, some sand, trace to some gravel, zones of silty sand; brown (TILL); moist, very stiff to hard		1.07	2	50 DO	19				
2											
3					3A	50 DO	33				
					3B						
4					4A						
5				315.92							Bentonite Seal
		(SM) SILTY SAND, some gravel; brown (TILL); moist, very dense		5.03	4B	50 DO	53				
6				314.55							
		(SW/GW) SAND and GRAVEL, trace to some fines; brown, cobbles and boulders; moist to wet, very dense		6.40							
7											
8					5	50 DO	50/ .15				
9											
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AM

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW204

SHEET 2 OF 2

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
10	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(SW/GW) SAND and GRAVEL, trace to some fines; brown, cobbles and boulders; moist to wet, very dense			6	50 DO	50/ .13				May 8, 2012 ▽
11											
12											Silica Sand Filter
13											
14				306.93	7	50 DO	50/ .13				
14		END OF BOREHOLE		14.02							Water encountered during drilling at a depth of 10.1 m below gorund surface, Apr. 13/12 Water level measured in open borehole at a depth of 10.7 m below ground surface upon completion of drilling, Apr. 13/12 Water level in monitoring well at a depth of 10.40 m below ground surface, May 8/12
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AM

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW205

SHEET 1 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		325.63							
0	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	TOPSOIL (FILL)		0.00							
		(ML) sandy SILT, trace gravel, trace roots, topsoil pockets; brown (FILL); moist, very loose to compact		0.15	1	50 DO	13				Concrete and Casing
1											
2					2	50 DO	4				
3					3	50 DO	12				
4				321.52							
		(ML) CLAYEY SILT, some sand, trace gravel; brown (TILL); cohesive, W~PL, stiff to very stiff		4.11	4	50 DO	15				Bentonite Seal
5											
6				319.23							
		(CL) SILTY CLAY, some sand, trace to some gravel; grey (TILL); cohesive, W>PL, stiff to very stiff		6.40							
7											
8					5	50 DO	15				
9											
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AZ

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW205

SHEET 2 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
10	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(CL) SILTY CLAY, some sand, trace to some gravel; grey (TILL); cohesive, W>PL, stiff to very stiff									
11					6	50 DO	21				
12											
13				312.52							
		(SM) SILTY SAND, zones of silt; brown; wet, dense to very dense		13.11							Bentonite Seal
14					7	50 DO	44				
15											
16					8	50 DO	56				May 8, 2012
17				308.64							
		(SP) SAND, fine, trace to some fines; brown; wet, very dense to compact		16.99							
18											
					9	50 DO	66				
19											Silica Sand Filter
20		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: AZ

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

PROJECT: 12-1111-0008

RECORD OF BOREHOLE: MW205

SHEET 3 OF 3

LOCATION: SEE FIGURE 2

BORING DATE: April 13, 2012

DATUM: Geodetic

HAMMER TYPE: AUTOMATIC

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		*--- CONTINUED FROM PREVIOUS PAGE ---*									
20	TRACK-MOUNTED POWER AUGER 200 mm Diameter Hollow Stem Auger	(SP) SAND, fine, trace to some fines; brown; wet, very dense to compact		303.84	10	50 DO	26		W		Silica Sand Filter
21		END OF BORHOLE		21.79							Water level in monitoring well at a depth of 15.59 m below ground surface, May 8/12
22											
23											
24											
25											
26											
27											
28											
29											
30											

DEPTH SCALE

1 : 50

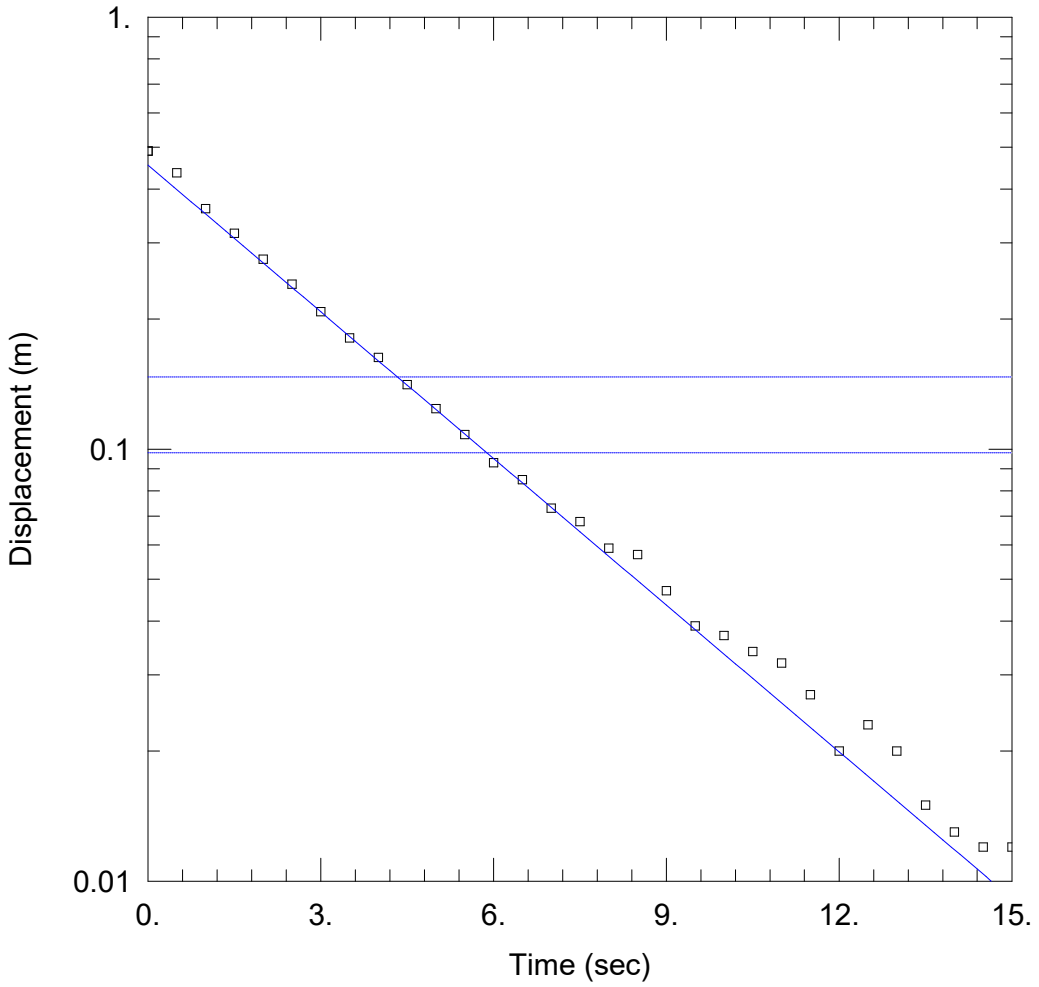
Golder Associates

LOGGED: AZ

CHECKED: AH

GTA-BHS 001 1211110008.GPJ GAL-MIS.GDT 6/14/12

Appendix D Hydraulic Conductivity Tests



RISING HEAD TEST #2

Data Set: \...\MW201_#2_JM_JK.aqt
Date: 08/12/24 Time: 14:04:43

PROJECT INFORMATION

Company: Stantec Consulting Ltd
Client: 1398493 Ontario Inc.
Project: 122120514
Location: Stouffville, ON
Test Well: MW201
Test Date: July 19, 2024

AQUIFER DATA

Saturated Thickness: 3.41 m Anisotropy Ratio (Kz/Kr): 0.3

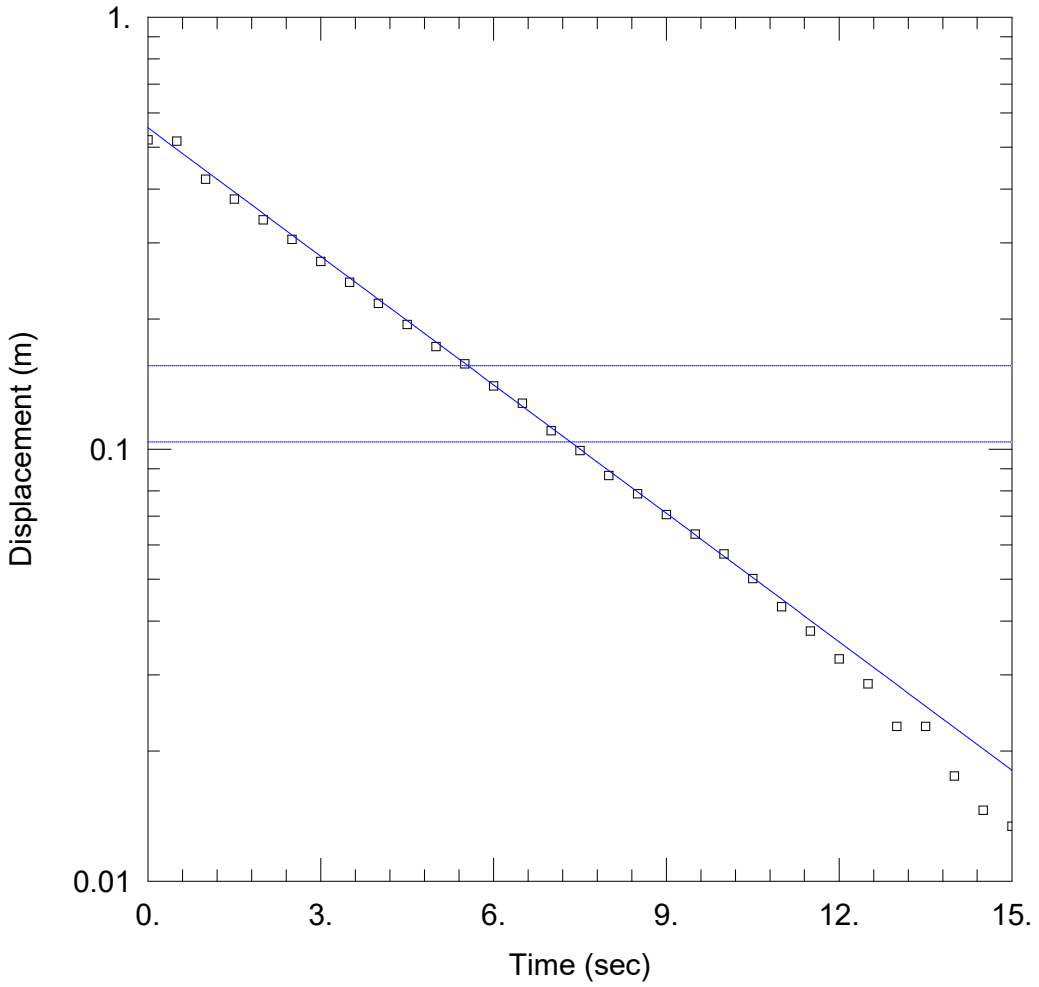
WELL DATA (MW201)

Initial Displacement: 0.49 m
Total Well Penetration Depth: 3.41 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.41 m
Screen Length: 3.05 m
Well Radius: 0.105 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005 m/sec y0 = 0.4544 m



RISING HEAD TEST #2

Data Set: \...\MW203_#2_JM_JK.aqt
Date: 08/12/24 Time: 14:50:06

PROJECT INFORMATION

Company: Stantec Consulting Ltd
Client: 1398493 Ontario Inc.
Project: 122120514
Location: Stouffville, ON
Test Well: MW203
Test Date: July 19, 2024

AQUIFER DATA

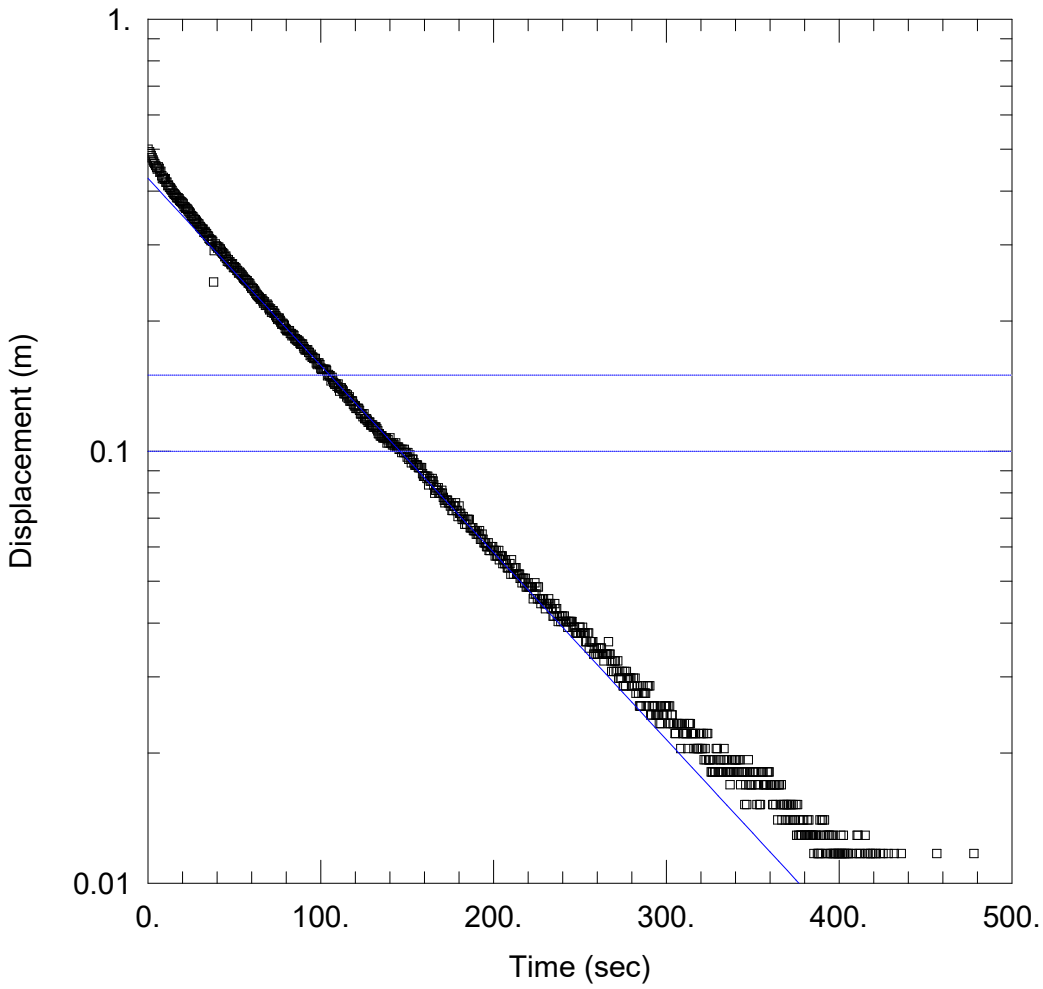
Saturated Thickness: 2.13 m
Anisotropy Ratio (Kz/Kr): 0.3

WELL DATA (MW203)

Initial Displacement: 0.52 m
Total Well Penetration Depth: 2.13 m
Casing Radius: 0.0254 m
Static Water Column Height: 2.13 m
Screen Length: 2.13 m
Well Radius: 0.105 m
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.00045 m/sec
y0 = 0.5544 m



RISING HEAD TEST #1

Data Set: \...\MW205_#1_JM_JK.aqt
Date: 08/12/24 Time: 15:08:59

PROJECT INFORMATION

Company: Stantec Consulting Ltd
Client: 1398493 Ontario Inc.
Project: 122120514
Location: Stouffville, ON
Test Well: MW205
Test Date: July 19, 2024

AQUIFER DATA

Saturated Thickness: 4.24 m Anisotropy Ratio (Kz/Kr): 0.2

WELL DATA (MW205)

Initial Displacement: 0.5 m
Total Well Penetration Depth: 4.24 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.24 m
Screen Length: 3.05 m
Well Radius: 0.105 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.6E-6 m/sec y0 = 0.4279 m

APPENDIX D - SUMMARY OF INPUT PARAMETERS AND CALCULATIONS
POND DEWATERING

		Short Term Discharge (Construction)			
Site		Bloomington Road			
Dewatering Location		North Pond		South Pond	
Water Bearing Unit		Fine Sand		Fine Sand	
		m/sec	μ/sec	m/sec	μ/sec
Hydraulic Conductivity	K =	5.00E-04	500	5.00E-04	500
		m		m	
High Groundwater Elevation		313.4		312.7	
		m		m	
Elevation of Excavation Base		313		312.3	
		m		m	
Elevation of Base of Unit		310.4		309.7	
		m		m	
Height of Static	H =	3		3	
		m		m	
Height at Drawdown	h =	2.6		2.6	
		m		m	
Dewatered Area - x-direction	x =	80		70	
		m		m	
Dewatered Area - y-direction	y =	220		186	
		m		m	
Equivalent Sump Radius	r_w =	74.85		64.38	
		m		m	
Radius of Influence	R_o =	209.58		199.10	
		m^2/sec	mμ/sec	m^2/sec	mμ/sec
Transmissivity	T =	1.5E-03	1500	1.5E-03	1500
		days	Sec	days	Sec
Duration of Dewatering to Achieve L and R_o	t =	7	604800	7	604800
Specific Yield	Sy =	0.3		0.3	

$$R_o = 2.45\sqrt{\frac{H \cdot K \cdot t}{S_y}}$$

$$Q = \frac{\pi \cdot K\left(H^2 - h^2\right)}{\ln\left(\frac{R_o}{r_w}\right)}$$

$$Q = \frac{A}{B}$$

A =	3.52E-03		3.52E-03		
B =	1.03E+00		1.13E+00		
Q =	3.42E-03	m^3/sec	3.12E-03	m^3/sec	
	295259	litres/day	269252	litres/day	
with 50% safety factor	442,888	litres/day	403,878	litres/day	

Appendix E Laboratory Certificates of Analysis

Your Project #: 122120514
Your C.O.C. #: C#1001703-01-01

Attention: Joel van Popta

Stantec Consulting Ltd
835 Paramount Drive, Suite 200
Stoney Creek, ON
CANADA L8J 0B4

Report Date: 2024/07/25
Report #: R8249305
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4L9244
Received: 2024/07/17, 18:30

Sample Matrix: Water
Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	6	N/A	2024/07/22	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	6	N/A	2024/07/24		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	6	2024/07/21	2024/07/21	CAM SOP-00316	CCME PHC-CWS m
Lab Filtered Metals by ICPMS	2	2024/07/22	2024/07/23	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	1	N/A	2024/07/22	CAM SOP-00447	EPA 6020B m
Dissolved Metals by ICPMS	3	N/A	2024/07/23	CAM SOP-00447	EPA 6020B m
PAH Compounds in Water by GC/MS (SIM)	6	2024/07/21	2024/07/21	CAM SOP-00318	EPA 8270E
Volatile Organic Compounds and F1 PHCs	6	N/A	2024/07/22	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Your Project #: 122120514
Your C.O.C. #: C#1001703-01-01

Attention: Joel van Popta

Stantec Consulting Ltd
835 Paramount Drive, Suite 200
Stoney Creek, ON
CANADA L8J 0B4

Report Date: 2024/07/25
Report #: R8249305
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4L9244

Received: 2024/07/17, 18:30

Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Bureau Veritas
25 Jul 2024 11:17:15

Please direct all questions regarding this Certificate of Analysis to:
Julie Clement, Technical Account Manager
Email: Julie.CLEMENT@bureauveritas.com
Phone# (613)868-6079

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This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

O.REG 153 ICPMS METALS (LAB FILTERED)

Bureau Veritas ID		ZTI186	ZTI187		
Sampling Date		2024/07/17 10:20	2024/07/17 14:30		
COC Number		C#1001703-01-01	C#1001703-01-01		
	UNITS	NORTH POND	SOUTH POND	RDL	QC Batch
Metals					
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	0.50	9529972
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	9529972
Dissolved Barium (Ba)	ug/L	14	21	2.0	9529972
Dissolved Beryllium (Be)	ug/L	<0.40	<0.40	0.40	9529972
Dissolved Boron (B)	ug/L	<10	10	10	9529972
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	0.090	9529972
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	9529972
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.50	9529972
Dissolved Copper (Cu)	ug/L	<0.90	<0.90	0.90	9529972
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	9529972
Dissolved Molybdenum (Mo)	ug/L	<0.50	<0.50	0.50	9529972
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	1.0	9529972
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	2.0	9529972
Dissolved Silver (Ag)	ug/L	<0.090	<0.090	0.090	9529972
Dissolved Sodium (Na)	ug/L	17000	13000	100	9529972
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	0.050	9529972
Dissolved Uranium (U)	ug/L	0.15	0.25	0.10	9529972
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	0.50	9529972
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	9529972

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

O.REG 153 DISSOLVED ICPMS METALS (WATER)

Bureau Veritas ID		ZTI182	ZTI183	ZTI184		ZTI185		
Sampling Date		2024/07/17 13:25	2024/07/17 14:50	2024/07/17 16:25		2024/07/17		
COC Number		C#1001703-01-01	C#1001703-01-01	C#1001703-01-01		C#1001703-01-01		
	UNITS	MW 205	MW 203	MW 201	QC Batch	QC-01	RDL	QC Batch
Metals								
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	9526371	<0.50	0.50	9528122
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	9526371	<1.0	1.0	9528122
Dissolved Barium (Ba)	ug/L	98	85	240	9526371	250	2.0	9528122
Dissolved Beryllium (Be)	ug/L	<0.40	<0.40	<0.40	9526371	<0.40	0.40	9528122
Dissolved Boron (B)	ug/L	11	11	10	9526371	<10	10	9528122
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	<0.090	9526371	<0.090	0.090	9528122
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	9526371	<5.0	5.0	9528122
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	0.58	9526371	0.73	0.50	9528122
Dissolved Copper (Cu)	ug/L	<0.90	<0.90	<0.90	9526371	<0.90	0.90	9528122
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	9526371	<0.50	0.50	9528122
Dissolved Molybdenum (Mo)	ug/L	<0.50	0.53	<0.50	9526371	<0.50	0.50	9528122
Dissolved Nickel (Ni)	ug/L	<1.0	1.2	1.2	9526371	1.4	1.0	9528122
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	<2.0	9526371	<2.0	2.0	9528122
Dissolved Silver (Ag)	ug/L	<0.090	<0.090	<0.090	9526371	<0.090	0.090	9528122
Dissolved Sodium (Na)	ug/L	5800	35000	240000	9526371	230000	100	9528122
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	9526371	<0.050	0.050	9528122
Dissolved Uranium (U)	ug/L	0.88	1.1	0.68	9526371	0.73	0.10	9528122
Dissolved Vanadium (V)	ug/L	<0.50	<0.50	<0.50	9526371	<0.50	0.50	9528122
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	9526371	<5.0	5.0	9528122

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 PAHS (WATER)

Bureau Veritas ID		ZTI182	ZTI183	ZTI184	ZTI185	ZTI186		
Sampling Date		2024/07/17 13:25	2024/07/17 14:50	2024/07/17 16:25	2024/07/17	2024/07/17 10:20		
COC Number		C#1001703-01-01	C#1001703-01-01	C#1001703-01-01	C#1001703-01-01	C#1001703-01-01		
	UNITS	MW 205	MW 203	MW 201	QC-01	NORTH POND	RDL	QC Batch
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/L	<0.071	<0.071	<0.071	0.12	<0.071	0.071	9523478
Polyaromatic Hydrocarbons								
Acenaphthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Acenaphthylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Benzo(a)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Benzo(a)pyrene	ug/L	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	9528428
Benzo(b/j)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Chrysene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Dibenzo(a,h)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Fluorene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
1-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	0.054	<0.050	0.050	9528428
2-Methylnaphthalene	ug/L	<0.050	<0.050	<0.050	0.066	<0.050	0.050	9528428
Naphthalene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Phenanthrene	ug/L	<0.030	<0.030	0.030	0.036	<0.030	0.030	9528428
Pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	9528428
Surrogate Recovery (%)								
D10-Anthracene	%	115	57	106	93	121		9528428
D14-Terphenyl (FS)	%	62	86	56	48 (1)	120		9528428
D8-Acenaphthylene	%	107	103	104	102	104		9528428

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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O.REG 153 PAHS (WATER)

Bureau Veritas ID		ZTI187		
Sampling Date		2024/07/17 14:30		
COC Number		C#1001703-01-01		
	UNITS	SOUTH POND	RDL	QC Batch
Calculated Parameters				
Methylnaphthalene, 2-(1-)	ug/L	<0.071	0.071	9523478
Polyaromatic Hydrocarbons				
Acenaphthene	ug/L	<0.050	0.050	9528428
Acenaphthylene	ug/L	<0.050	0.050	9528428
Anthracene	ug/L	<0.050	0.050	9528428
Benzo(a)anthracene	ug/L	<0.050	0.050	9528428
Benzo(a)pyrene	ug/L	<0.0090	0.0090	9528428
Benzo(b/j)fluoranthene	ug/L	<0.050	0.050	9528428
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	9528428
Benzo(k)fluoranthene	ug/L	<0.050	0.050	9528428
Chrysene	ug/L	<0.050	0.050	9528428
Dibenzo(a,h)anthracene	ug/L	<0.050	0.050	9528428
Fluoranthene	ug/L	<0.050	0.050	9528428
Fluorene	ug/L	<0.050	0.050	9528428
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	9528428
1-Methylnaphthalene	ug/L	<0.050	0.050	9528428
2-Methylnaphthalene	ug/L	<0.050	0.050	9528428
Naphthalene	ug/L	<0.050	0.050	9528428
Phenanthrene	ug/L	<0.030	0.030	9528428
Pyrene	ug/L	<0.050	0.050	9528428
Surrogate Recovery (%)				
D10-Anthracene	%	123		9528428
D14-Terphenyl (FS)	%	122		9528428
D8-Acenaphthylene	%	108		9528428

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZTI182	ZTI183	ZTI184	ZTI185		
Sampling Date		2024/07/17 13:25	2024/07/17 14:50	2024/07/17 16:25	2024/07/17		
COC Number		C#1001703-01-01	C#1001703-01-01	C#1001703-01-01	C#1001703-01-01		
	UNITS	MW 205	MW 203	MW 201	QC-01	RDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9524424
Volatile Organics							
Acetone (2-Propanone)	ug/L	<10	<10	<10	<10	10	9527655
Benzene	ug/L	<0.17	<0.17	<0.17	<0.17	0.17	9527655
Bromodichloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Bromoform	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	9527655
Bromomethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Carbon Tetrachloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Chlorobenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Chloroform	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Dibromochloromethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	9527655
1,1-Dichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
1,2-Dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
1,1-Dichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
1,2-Dichloropropane	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	<0.30	<0.30	0.30	9527655
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	9527655
Ethylbenzene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Hexane	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	9527655
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	9527655
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	<10	<10	10	9527655
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	9527655
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Styrene	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZTI182	ZTI183	ZTI184	ZTI185		
Sampling Date		2024/07/17 13:25	2024/07/17 14:50	2024/07/17 16:25	2024/07/17		
COC Number		C#1001703-01-01	C#1001703-01-01	C#1001703-01-01	C#1001703-01-01		
	UNITS	MW 205	MW 203	MW 201	QC-01	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Tetrachloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Toluene	ug/L	0.43	0.26	0.33	0.37	0.20	9527655
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Trichloroethylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	9527655
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
p+m-Xylene	ug/L	0.29	<0.20	0.23	0.25	0.20	9527655
o-Xylene	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	9527655
Total Xylenes	ug/L	0.29	<0.20	0.23	0.25	0.20	9527655
F1 (C6-C10)	ug/L	<25	<25	<25	<25	25	9527655
F1 (C6-C10) - BTEX	ug/L	<25	<25	<25	<25	25	9527655
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	<100	100	9528430
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	<200	200	9528430
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	<200	200	9528430
Reached Baseline at C50	ug/L	Yes	Yes	Yes	Yes		9528430
Surrogate Recovery (%)							
o-Terphenyl	%	92	90	88	90		9528430
4-Bromofluorobenzene	%	96	96	97	98		9527655
D4-1,2-Dichloroethane	%	105	105	104	105		9527655
D8-Toluene	%	90	90	88	89		9527655

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZTI186	ZTI187		
Sampling Date		2024/07/17 10:20	2024/07/17 14:30		
COC Number		C#1001703-01-01	C#1001703-01-01		
	UNITS	NORTH POND	SOUTH POND	RDL	QC Batch
Calculated Parameters					
1,3-Dichloropropene (cis+trans)	ug/L	<0.50	<0.50	0.50	9524424
Volatile Organics					
Acetone (2-Propanone)	ug/L	<10	<10	10	9527655
Benzene	ug/L	<0.17	<0.17	0.17	9527655
Bromodichloromethane	ug/L	<0.50	<0.50	0.50	9527655
Bromoform	ug/L	<1.0	<1.0	1.0	9527655
Bromomethane	ug/L	<0.50	<0.50	0.50	9527655
Carbon Tetrachloride	ug/L	<0.20	<0.20	0.20	9527655
Chlorobenzene	ug/L	<0.20	<0.20	0.20	9527655
Chloroform	ug/L	<0.20	<0.20	0.20	9527655
Dibromochloromethane	ug/L	<0.50	<0.50	0.50	9527655
1,2-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9527655
1,3-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9527655
1,4-Dichlorobenzene	ug/L	<0.50	<0.50	0.50	9527655
Dichlorodifluoromethane (FREON 12)	ug/L	<1.0	<1.0	1.0	9527655
1,1-Dichloroethane	ug/L	<0.20	<0.20	0.20	9527655
1,2-Dichloroethane	ug/L	<0.50	<0.50	0.50	9527655
1,1-Dichloroethylene	ug/L	<0.20	<0.20	0.20	9527655
cis-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	9527655
trans-1,2-Dichloroethylene	ug/L	<0.50	<0.50	0.50	9527655
1,2-Dichloropropane	ug/L	<0.20	<0.20	0.20	9527655
cis-1,3-Dichloropropene	ug/L	<0.30	<0.30	0.30	9527655
trans-1,3-Dichloropropene	ug/L	<0.40	<0.40	0.40	9527655
Ethylbenzene	ug/L	<0.20	<0.20	0.20	9527655
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	9527655
Hexane	ug/L	<1.0	<1.0	1.0	9527655
Methylene Chloride(Dichloromethane)	ug/L	<2.0	<2.0	2.0	9527655
Methyl Ethyl Ketone (2-Butanone)	ug/L	<10	<10	10	9527655
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	5.0	9527655
Methyl t-butyl ether (MTBE)	ug/L	<0.50	<0.50	0.50	9527655
Styrene	ug/L	<0.50	<0.50	0.50	9527655

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID		ZTI186	ZTI187		
Sampling Date		2024/07/17 10:20	2024/07/17 14:30		
COC Number		C#1001703-01-01	C#1001703-01-01		
	UNITS	NORTH POND	SOUTH POND	RDL	QC Batch
1,1,1,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	9527655
1,1,2,2-Tetrachloroethane	ug/L	<0.50	<0.50	0.50	9527655
Tetrachloroethylene	ug/L	<0.20	<0.20	0.20	9527655
Toluene	ug/L	<0.20	<0.20	0.20	9527655
1,1,1-Trichloroethane	ug/L	<0.20	<0.20	0.20	9527655
1,1,2-Trichloroethane	ug/L	<0.50	<0.50	0.50	9527655
Trichloroethylene	ug/L	<0.20	<0.20	0.20	9527655
Trichlorofluoromethane (FREON 11)	ug/L	<0.50	<0.50	0.50	9527655
Vinyl Chloride	ug/L	<0.20	<0.20	0.20	9527655
p+m-Xylene	ug/L	<0.20	<0.20	0.20	9527655
o-Xylene	ug/L	<0.20	<0.20	0.20	9527655
Total Xylenes	ug/L	<0.20	<0.20	0.20	9527655
F1 (C6-C10)	ug/L	<25	<25	25	9527655
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	9527655
F2-F4 Hydrocarbons					
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	9528430
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	9528430
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	9528430
Reached Baseline at C50	ug/L	Yes	Yes		9528430
Surrogate Recovery (%)					
o-Terphenyl	%	90	90		9528430
4-Bromofluorobenzene	%	97	99		9527655
D4-1,2-Dichloroethane	%	107	105		9527655
D8-Toluene	%	88	87		9527655

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TEST SUMMARY

Bureau Veritas ID: ZTI182
Sample ID: MW 205
Matrix: Water

Collected: 2024/07/17
Shipped:
Received: 2024/07/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9523478	N/A	2024/07/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	9524424	N/A	2024/07/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9528430	2024/07/21	2024/07/21	Mohammed Abdul Nafay Shoeb
Dissolved Metals by ICPMS	ICP/MS	9526371	N/A	2024/07/23	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9528428	2024/07/21	2024/07/21	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9527655	N/A	2024/07/22	Gladys Guerrero

Bureau Veritas ID: ZTI183
Sample ID: MW 203
Matrix: Water

Collected: 2024/07/17
Shipped:
Received: 2024/07/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9523478	N/A	2024/07/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	9524424	N/A	2024/07/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9528430	2024/07/21	2024/07/21	Mohammed Abdul Nafay Shoeb
Dissolved Metals by ICPMS	ICP/MS	9526371	N/A	2024/07/23	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9528428	2024/07/21	2024/07/21	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9527655	N/A	2024/07/22	Gladys Guerrero

Bureau Veritas ID: ZTI184
Sample ID: MW 201
Matrix: Water

Collected: 2024/07/17
Shipped:
Received: 2024/07/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9523478	N/A	2024/07/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	9524424	N/A	2024/07/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9528430	2024/07/21	2024/07/21	Mohammed Abdul Nafay Shoeb
Dissolved Metals by ICPMS	ICP/MS	9526371	N/A	2024/07/23	Nan Raykha
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9528428	2024/07/21	2024/07/21	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9527655	N/A	2024/07/22	Gladys Guerrero

Bureau Veritas ID: ZTI185
Sample ID: QC-01
Matrix: Water

Collected: 2024/07/17
Shipped:
Received: 2024/07/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9523478	N/A	2024/07/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	9524424	N/A	2024/07/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9528430	2024/07/21	2024/07/21	Mohammed Abdul Nafay Shoeb
Dissolved Metals by ICPMS	ICP/MS	9528122	N/A	2024/07/22	Azita Fazaeli
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9528428	2024/07/21	2024/07/21	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9527655	N/A	2024/07/22	Gladys Guerrero

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TEST SUMMARY

Bureau Veritas ID: ZTI186
Sample ID: NORTH POND
Matrix: Water

Collected: 2024/07/17
Shipped:
Received: 2024/07/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9523478	N/A	2024/07/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	9524424	N/A	2024/07/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9528430	2024/07/21	2024/07/21	Mohammed Abdul Nafay Shoeb
Lab Filtered Metals by ICPMS	ICP/MS	9529972	2024/07/22	2024/07/23	Indira HarryPaul
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9528428	2024/07/21	2024/07/21	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9527655	N/A	2024/07/22	Gladys Guerrero

Bureau Veritas ID: ZTI187
Sample ID: SOUTH POND
Matrix: Water

Collected: 2024/07/17
Shipped:
Received: 2024/07/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9523478	N/A	2024/07/22	Automated Statchk
1,3-Dichloropropene Sum	CALC	9524424	N/A	2024/07/24	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	9528430	2024/07/21	2024/07/21	Mohammed Abdul Nafay Shoeb
Lab Filtered Metals by ICPMS	ICP/MS	9529972	2024/07/22	2024/07/23	Indira HarryPaul
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9528428	2024/07/21	2024/07/21	Jett Wu
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9527655	N/A	2024/07/22	Gladys Guerrero

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9526371	N_R	Matrix Spike	Dissolved Antimony (Sb)	2024/07/23		108	%	80 - 120
			Dissolved Arsenic (As)	2024/07/23		100	%	80 - 120
			Dissolved Barium (Ba)	2024/07/23		100	%	80 - 120
			Dissolved Beryllium (Be)	2024/07/23		100	%	80 - 120
			Dissolved Boron (B)	2024/07/23		95	%	80 - 120
			Dissolved Cadmium (Cd)	2024/07/23		101	%	80 - 120
			Dissolved Chromium (Cr)	2024/07/23		98	%	80 - 120
			Dissolved Cobalt (Co)	2024/07/23		97	%	80 - 120
			Dissolved Copper (Cu)	2024/07/23		102	%	80 - 120
			Dissolved Lead (Pb)	2024/07/23		99	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/07/23		106	%	80 - 120
			Dissolved Nickel (Ni)	2024/07/23		95	%	80 - 120
			Dissolved Selenium (Se)	2024/07/23		98	%	80 - 120
			Dissolved Silver (Ag)	2024/07/23		94	%	80 - 120
			Dissolved Sodium (Na)	2024/07/23		NC	%	80 - 120
			Dissolved Thallium (Tl)	2024/07/23		100	%	80 - 120
			Dissolved Uranium (U)	2024/07/23		101	%	80 - 120
			Dissolved Vanadium (V)	2024/07/23		103	%	80 - 120
			Dissolved Zinc (Zn)	2024/07/23		99	%	80 - 120
9526371	N_R	Spiked Blank	Dissolved Antimony (Sb)	2024/07/23		105	%	80 - 120
			Dissolved Arsenic (As)	2024/07/23		99	%	80 - 120
			Dissolved Barium (Ba)	2024/07/23		100	%	80 - 120
			Dissolved Beryllium (Be)	2024/07/23		95	%	80 - 120
			Dissolved Boron (B)	2024/07/23		91	%	80 - 120
			Dissolved Cadmium (Cd)	2024/07/23		100	%	80 - 120
			Dissolved Chromium (Cr)	2024/07/23		96	%	80 - 120
			Dissolved Cobalt (Co)	2024/07/23		97	%	80 - 120
			Dissolved Copper (Cu)	2024/07/23		102	%	80 - 120
			Dissolved Lead (Pb)	2024/07/23		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/07/23		99	%	80 - 120
			Dissolved Nickel (Ni)	2024/07/23		96	%	80 - 120
			Dissolved Selenium (Se)	2024/07/23		97	%	80 - 120
			Dissolved Silver (Ag)	2024/07/23		91	%	80 - 120
			Dissolved Sodium (Na)	2024/07/23		98	%	80 - 120
			Dissolved Thallium (Tl)	2024/07/23		102	%	80 - 120
			Dissolved Uranium (U)	2024/07/23		98	%	80 - 120
			Dissolved Vanadium (V)	2024/07/23		98	%	80 - 120
			Dissolved Zinc (Zn)	2024/07/23		99	%	80 - 120
9526371	N_R	Method Blank	Dissolved Antimony (Sb)	2024/07/23	<0.50		ug/L	
			Dissolved Arsenic (As)	2024/07/23	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/07/23	<2.0		ug/L	
			Dissolved Beryllium (Be)	2024/07/23	<0.40		ug/L	
			Dissolved Boron (B)	2024/07/23	<10		ug/L	
			Dissolved Cadmium (Cd)	2024/07/23	<0.090		ug/L	
			Dissolved Chromium (Cr)	2024/07/23	<5.0		ug/L	
			Dissolved Cobalt (Co)	2024/07/23	<0.50		ug/L	
			Dissolved Copper (Cu)	2024/07/23	<0.90		ug/L	
			Dissolved Lead (Pb)	2024/07/23	<0.50		ug/L	
			Dissolved Molybdenum (Mo)	2024/07/23	<0.50		ug/L	
			Dissolved Nickel (Ni)	2024/07/23	<1.0		ug/L	
			Dissolved Selenium (Se)	2024/07/23	<2.0		ug/L	
			Dissolved Silver (Ag)	2024/07/23	<0.090		ug/L	

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Sodium (Na)	2024/07/23	<100		ug/L	
			Dissolved Thallium (Tl)	2024/07/23	<0.050		ug/L	
			Dissolved Uranium (U)	2024/07/23	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/07/23	<0.50		ug/L	
			Dissolved Zinc (Zn)	2024/07/23	<5.0		ug/L	
9526371	N_R	RPD	Dissolved Antimony (Sb)	2024/07/23	NC		%	20
			Dissolved Arsenic (As)	2024/07/23	NC		%	20
			Dissolved Barium (Ba)	2024/07/23	2.2		%	20
			Dissolved Beryllium (Be)	2024/07/23	NC		%	20
			Dissolved Boron (B)	2024/07/23	1.6		%	20
			Dissolved Cadmium (Cd)	2024/07/23	12		%	20
			Dissolved Chromium (Cr)	2024/07/23	NC		%	20
			Dissolved Cobalt (Co)	2024/07/23	NC		%	20
			Dissolved Copper (Cu)	2024/07/23	NC		%	20
			Dissolved Lead (Pb)	2024/07/23	NC		%	20
			Dissolved Molybdenum (Mo)	2024/07/23	NC		%	20
			Dissolved Nickel (Ni)	2024/07/23	1.3		%	20
			Dissolved Selenium (Se)	2024/07/23	NC		%	20
			Dissolved Silver (Ag)	2024/07/23	NC		%	20
			Dissolved Sodium (Na)	2024/07/23	1.1		%	20
			Dissolved Thallium (Tl)	2024/07/23	NC		%	20
			Dissolved Uranium (U)	2024/07/23	3.3		%	20
			Dissolved Vanadium (V)	2024/07/23	NC		%	20
			Dissolved Zinc (Zn)	2024/07/23	5.8		%	20
9527655	GGU	Matrix Spike	4-Bromofluorobenzene	2024/07/23		101	%	70 - 130
			D4-1,2-Dichloroethane	2024/07/23		101	%	70 - 130
			D8-Toluene	2024/07/23		100	%	70 - 130
			Acetone (2-Propanone)	2024/07/23		97	%	60 - 140
			Benzene	2024/07/23		95	%	70 - 130
			Bromodichloromethane	2024/07/23		98	%	70 - 130
			Bromoform	2024/07/23		108	%	70 - 130
			Bromomethane	2024/07/23		76	%	60 - 140
			Carbon Tetrachloride	2024/07/23		95	%	70 - 130
			Chlorobenzene	2024/07/23		97	%	70 - 130
			Chloroform	2024/07/23		97	%	70 - 130
			Dibromochloromethane	2024/07/23		103	%	70 - 130
			1,2-Dichlorobenzene	2024/07/23		96	%	70 - 130
			1,3-Dichlorobenzene	2024/07/23		91	%	70 - 130
			1,4-Dichlorobenzene	2024/07/23		91	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2024/07/23		74	%	60 - 140
			1,1-Dichloroethane	2024/07/23		95	%	70 - 130
			1,2-Dichloroethane	2024/07/23		100	%	70 - 130
			1,1-Dichloroethylene	2024/07/23		90	%	70 - 130
			cis-1,2-Dichloroethylene	2024/07/23		98	%	70 - 130
			trans-1,2-Dichloroethylene	2024/07/23		88	%	70 - 130
			1,2-Dichloropropane	2024/07/23		98	%	70 - 130
			cis-1,3-Dichloropropene	2024/07/23		82	%	70 - 130
			trans-1,3-Dichloropropene	2024/07/23		80	%	70 - 130
			Ethylbenzene	2024/07/23		95	%	70 - 130
			Ethylene Dibromide	2024/07/23		105	%	70 - 130
			Hexane	2024/07/23		91	%	70 - 130
			Methylene Chloride(Dichloromethane)	2024/07/23		95	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Methyl Ethyl Ketone (2-Butanone)	2024/07/23		101	%	60 - 140
			Methyl Isobutyl Ketone	2024/07/23		103	%	70 - 130
			Methyl t-butyl ether (MTBE)	2024/07/23		97	%	70 - 130
			Styrene	2024/07/23		97	%	70 - 130
			1,1,1,2-Tetrachloroethane	2024/07/23		102	%	70 - 130
			1,1,2,2-Tetrachloroethane	2024/07/23		104	%	70 - 130
			Tetrachloroethylene	2024/07/23		91	%	70 - 130
			Toluene	2024/07/23		96	%	70 - 130
			1,1,1-Trichloroethane	2024/07/23		96	%	70 - 130
			1,1,2-Trichloroethane	2024/07/23		104	%	70 - 130
			Trichloroethylene	2024/07/23		94	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2024/07/23		94	%	70 - 130
			Vinyl Chloride	2024/07/23		83	%	70 - 130
			p+m-Xylene	2024/07/23		93	%	70 - 130
			o-Xylene	2024/07/23		97	%	70 - 130
			F1 (C6-C10)	2024/07/23		82	%	60 - 140
9527655	GGU	Spiked Blank	4-Bromofluorobenzene	2024/07/23		100	%	70 - 130
			D4-1,2-Dichloroethane	2024/07/23		96	%	70 - 130
			D8-Toluene	2024/07/23		103	%	70 - 130
			Acetone (2-Propanone)	2024/07/23		90	%	60 - 140
			Benzene	2024/07/23		91	%	70 - 130
			Bromodichloromethane	2024/07/23		90	%	70 - 130
			Bromoform	2024/07/23		90	%	70 - 130
			Bromomethane	2024/07/23		78	%	60 - 140
			Carbon Tetrachloride	2024/07/23		95	%	70 - 130
			Chlorobenzene	2024/07/23		94	%	70 - 130
			Chloroform	2024/07/23		90	%	70 - 130
			Dibromochloromethane	2024/07/23		92	%	70 - 130
			1,2-Dichlorobenzene	2024/07/23		92	%	70 - 130
			1,3-Dichlorobenzene	2024/07/23		93	%	70 - 130
			1,4-Dichlorobenzene	2024/07/23		93	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2024/07/23		80	%	60 - 140
			1,1-Dichloroethane	2024/07/23		92	%	70 - 130
			1,2-Dichloroethane	2024/07/23		92	%	70 - 130
			1,1-Dichloroethylene	2024/07/23		95	%	70 - 130
			cis-1,2-Dichloroethylene	2024/07/23		93	%	70 - 130
			trans-1,2-Dichloroethylene	2024/07/23		92	%	70 - 130
			1,2-Dichloropropane	2024/07/23		90	%	70 - 130
			cis-1,3-Dichloropropene	2024/07/23		89	%	70 - 130
			trans-1,3-Dichloropropene	2024/07/23		89	%	70 - 130
			Ethylbenzene	2024/07/23		96	%	70 - 130
			Ethylene Dibromide	2024/07/23		92	%	70 - 130
			Hexane	2024/07/23		97	%	70 - 130
			Methylene Chloride(Dichloromethane)	2024/07/23		89	%	70 - 130
			Methyl Ethyl Ketone (2-Butanone)	2024/07/23		88	%	60 - 140
			Methyl Isobutyl Ketone	2024/07/23		87	%	70 - 130
			Methyl t-butyl ether (MTBE)	2024/07/23		92	%	70 - 130
			Styrene	2024/07/23		93	%	70 - 130
			1,1,1,2-Tetrachloroethane	2024/07/23		94	%	70 - 130
			1,1,2,2-Tetrachloroethane	2024/07/23		90	%	70 - 130
			Tetrachloroethylene	2024/07/23		95	%	70 - 130
			Toluene	2024/07/23		94	%	70 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			1,1,1-Trichloroethane	2024/07/23		95	%	70 - 130
			1,1,2-Trichloroethane	2024/07/23		95	%	70 - 130
			Trichloroethylene	2024/07/23		93	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2024/07/23		97	%	70 - 130
			Vinyl Chloride	2024/07/23		90	%	70 - 130
			p+m-Xylene	2024/07/23		95	%	70 - 130
			o-Xylene	2024/07/23		95	%	70 - 130
			F1 (C6-C10)	2024/07/23		91	%	60 - 140
9527655	GGU	Method Blank	4-Bromofluorobenzene	2024/07/23		100	%	70 - 130
			D4-1,2-Dichloroethane	2024/07/23		102	%	70 - 130
			D8-Toluene	2024/07/23		96	%	70 - 130
			Acetone (2-Propanone)	2024/07/23	<10		ug/L	
			Benzene	2024/07/23	<0.17		ug/L	
			Bromodichloromethane	2024/07/23	<0.50		ug/L	
			Bromoform	2024/07/23	<1.0		ug/L	
			Bromomethane	2024/07/23	<0.50		ug/L	
			Carbon Tetrachloride	2024/07/23	<0.20		ug/L	
			Chlorobenzene	2024/07/23	<0.20		ug/L	
			Chloroform	2024/07/23	<0.20		ug/L	
			Dibromochloromethane	2024/07/23	<0.50		ug/L	
			1,2-Dichlorobenzene	2024/07/23	<0.50		ug/L	
			1,3-Dichlorobenzene	2024/07/23	<0.50		ug/L	
			1,4-Dichlorobenzene	2024/07/23	<0.50		ug/L	
			Dichlorodifluoromethane (FREON 12)	2024/07/23	<1.0		ug/L	
			1,1-Dichloroethane	2024/07/23	<0.20		ug/L	
			1,2-Dichloroethane	2024/07/23	<0.50		ug/L	
			1,1-Dichloroethylene	2024/07/23	<0.20		ug/L	
			cis-1,2-Dichloroethylene	2024/07/23	<0.50		ug/L	
			trans-1,2-Dichloroethylene	2024/07/23	<0.50		ug/L	
			1,2-Dichloropropane	2024/07/23	<0.20		ug/L	
			cis-1,3-Dichloropropene	2024/07/23	<0.30		ug/L	
			trans-1,3-Dichloropropene	2024/07/23	<0.40		ug/L	
			Ethylbenzene	2024/07/23	<0.20		ug/L	
			Ethylene Dibromide	2024/07/23	<0.20		ug/L	
			Hexane	2024/07/23	<1.0		ug/L	
			Methylene Chloride(Dichloromethane)	2024/07/23	<2.0		ug/L	
			Methyl Ethyl Ketone (2-Butanone)	2024/07/23	<10		ug/L	
			Methyl Isobutyl Ketone	2024/07/23	<5.0		ug/L	
			Methyl t-butyl ether (MTBE)	2024/07/23	<0.50		ug/L	
			Styrene	2024/07/23	<0.50		ug/L	
			1,1,1,2-Tetrachloroethane	2024/07/23	<0.50		ug/L	
			1,1,2,2-Tetrachloroethane	2024/07/23	<0.50		ug/L	
			Tetrachloroethylene	2024/07/23	<0.20		ug/L	
			Toluene	2024/07/23	<0.20		ug/L	
			1,1,1-Trichloroethane	2024/07/23	<0.20		ug/L	
			1,1,2-Trichloroethane	2024/07/23	<0.50		ug/L	
			Trichloroethylene	2024/07/23	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2024/07/23	<0.50		ug/L	
			Vinyl Chloride	2024/07/23	<0.20		ug/L	
			p+m-Xylene	2024/07/23	<0.20		ug/L	
			o-Xylene	2024/07/23	<0.20		ug/L	
			Total Xylenes	2024/07/23	<0.20		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			F1 (C6-C10)	2024/07/23	<25		ug/L	
			F1 (C6-C10) - BTEX	2024/07/23	<25		ug/L	
9527655	GGU	RPD	Acetone (2-Propanone)	2024/07/23	NC		%	30
			Benzene	2024/07/23	NC		%	30
			Bromodichloromethane	2024/07/23	NC		%	30
			Bromoform	2024/07/23	NC		%	30
			Bromomethane	2024/07/23	NC		%	30
			Carbon Tetrachloride	2024/07/23	NC		%	30
			Chlorobenzene	2024/07/23	NC		%	30
			Chloroform	2024/07/23	NC		%	30
			Dibromochloromethane	2024/07/23	NC		%	30
			1,2-Dichlorobenzene	2024/07/23	NC		%	30
			1,3-Dichlorobenzene	2024/07/23	NC		%	30
			1,4-Dichlorobenzene	2024/07/23	NC		%	30
			Dichlorodifluoromethane (FREON 12)	2024/07/23	NC		%	30
			1,1-Dichloroethane	2024/07/23	NC		%	30
			1,2-Dichloroethane	2024/07/23	NC		%	30
			1,1-Dichloroethylene	2024/07/23	NC		%	30
			cis-1,2-Dichloroethylene	2024/07/23	NC		%	30
			trans-1,2-Dichloroethylene	2024/07/23	NC		%	30
			1,2-Dichloropropane	2024/07/23	NC		%	30
			cis-1,3-Dichloropropene	2024/07/23	NC		%	30
			trans-1,3-Dichloropropene	2024/07/23	NC		%	30
			Ethylbenzene	2024/07/23	1.8		%	30
			Ethylene Dibromide	2024/07/23	NC		%	30
			Hexane	2024/07/23	NC		%	30
			Methylene Chloride(Dichloromethane)	2024/07/23	NC		%	30
			Methyl Ethyl Ketone (2-Butanone)	2024/07/23	NC		%	30
			Methyl Isobutyl Ketone	2024/07/23	NC		%	30
			Methyl t-butyl ether (MTBE)	2024/07/23	NC		%	30
			Styrene	2024/07/23	NC		%	30
			1,1,1,2-Tetrachloroethane	2024/07/23	NC		%	30
			1,1,2,2-Tetrachloroethane	2024/07/23	NC		%	30
			Tetrachloroethylene	2024/07/23	NC		%	30
			Toluene	2024/07/23	NC		%	30
			1,1,1-Trichloroethane	2024/07/23	NC		%	30
			1,1,2-Trichloroethane	2024/07/23	NC		%	30
			Trichloroethylene	2024/07/23	NC		%	30
			Trichlorofluoromethane (FREON 11)	2024/07/23	NC		%	30
			Vinyl Chloride	2024/07/23	NC		%	30
			p+m-Xylene	2024/07/23	4.4		%	30
			o-Xylene	2024/07/23	2.3		%	30
			Total Xylenes	2024/07/23	3.6		%	30
			F1 (C6-C10)	2024/07/23	NC		%	30
			F1 (C6-C10) - BTEX	2024/07/23	NC		%	30
9528122	AFZ	Matrix Spike	Dissolved Antimony (Sb)	2024/07/22		104	%	80 - 120
			Dissolved Arsenic (As)	2024/07/22		100	%	80 - 120
			Dissolved Barium (Ba)	2024/07/22		99	%	80 - 120
			Dissolved Beryllium (Be)	2024/07/22		96	%	80 - 120
			Dissolved Boron (B)	2024/07/22		95	%	80 - 120
			Dissolved Cadmium (Cd)	2024/07/22		101	%	80 - 120
			Dissolved Chromium (Cr)	2024/07/22		96	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Cobalt (Co)	2024/07/22		96	%	80 - 120
			Dissolved Copper (Cu)	2024/07/22		101	%	80 - 120
			Dissolved Lead (Pb)	2024/07/22		98	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/07/22		103	%	80 - 120
			Dissolved Nickel (Ni)	2024/07/22		95	%	80 - 120
			Dissolved Selenium (Se)	2024/07/22		99	%	80 - 120
			Dissolved Silver (Ag)	2024/07/22		62 (1)	%	80 - 120
			Dissolved Sodium (Na)	2024/07/22		89	%	80 - 120
			Dissolved Thallium (Tl)	2024/07/22		101	%	80 - 120
			Dissolved Uranium (U)	2024/07/22		98	%	80 - 120
			Dissolved Vanadium (V)	2024/07/22		97	%	80 - 120
			Dissolved Zinc (Zn)	2024/07/22		98	%	80 - 120
9528122	AFZ	Spiked Blank	Dissolved Antimony (Sb)	2024/07/22		101	%	80 - 120
			Dissolved Arsenic (As)	2024/07/22		98	%	80 - 120
			Dissolved Barium (Ba)	2024/07/22		98	%	80 - 120
			Dissolved Beryllium (Be)	2024/07/22		94	%	80 - 120
			Dissolved Boron (B)	2024/07/22		93	%	80 - 120
			Dissolved Cadmium (Cd)	2024/07/22		99	%	80 - 120
			Dissolved Chromium (Cr)	2024/07/22		95	%	80 - 120
			Dissolved Cobalt (Co)	2024/07/22		95	%	80 - 120
			Dissolved Copper (Cu)	2024/07/22		99	%	80 - 120
			Dissolved Lead (Pb)	2024/07/22		97	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/07/22		100	%	80 - 120
			Dissolved Nickel (Ni)	2024/07/22		95	%	80 - 120
			Dissolved Selenium (Se)	2024/07/22		99	%	80 - 120
			Dissolved Silver (Ag)	2024/07/22		99	%	80 - 120
			Dissolved Sodium (Na)	2024/07/22		94	%	80 - 120
			Dissolved Thallium (Tl)	2024/07/22		98	%	80 - 120
			Dissolved Uranium (U)	2024/07/22		95	%	80 - 120
			Dissolved Vanadium (V)	2024/07/22		96	%	80 - 120
			Dissolved Zinc (Zn)	2024/07/22		94	%	80 - 120
9528122	AFZ	Method Blank	Dissolved Antimony (Sb)	2024/07/22	<0.50		ug/L	
			Dissolved Arsenic (As)	2024/07/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/07/22	<2.0		ug/L	
			Dissolved Beryllium (Be)	2024/07/22	<0.40		ug/L	
			Dissolved Boron (B)	2024/07/22	<10		ug/L	
			Dissolved Cadmium (Cd)	2024/07/22	<0.090		ug/L	
			Dissolved Chromium (Cr)	2024/07/22	<5.0		ug/L	
			Dissolved Cobalt (Co)	2024/07/22	<0.50		ug/L	
			Dissolved Copper (Cu)	2024/07/22	<0.90		ug/L	
			Dissolved Lead (Pb)	2024/07/22	<0.50		ug/L	
			Dissolved Molybdenum (Mo)	2024/07/22	<0.50		ug/L	
			Dissolved Nickel (Ni)	2024/07/22	<1.0		ug/L	
			Dissolved Selenium (Se)	2024/07/22	<2.0		ug/L	
			Dissolved Silver (Ag)	2024/07/22	<0.090		ug/L	
			Dissolved Sodium (Na)	2024/07/22	<100		ug/L	
			Dissolved Thallium (Tl)	2024/07/22	<0.050		ug/L	
			Dissolved Uranium (U)	2024/07/22	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/07/22	<0.50		ug/L	
			Dissolved Zinc (Zn)	2024/07/22	<5.0		ug/L	
9528122	AFZ	RPD	Dissolved Lead (Pb)	2024/07/22	NC		%	20
9528428	JET	Matrix Spike	D10-Anthracene	2024/07/21		116	%	50 - 130

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			D14-Terphenyl (FS)	2024/07/21		120	%	50 - 130
			D8-Acenaphthylene	2024/07/21		109	%	50 - 130
			Acenaphthene	2024/07/21		96	%	50 - 130
			Acenaphthylene	2024/07/21		99	%	50 - 130
			Anthracene	2024/07/21		101	%	50 - 130
			Benzo(a)anthracene	2024/07/21		105	%	50 - 130
			Benzo(a)pyrene	2024/07/21		99	%	50 - 130
			Benzo(b/j)fluoranthene	2024/07/21		99	%	50 - 130
			Benzo(g,h,i)perylene	2024/07/21		95	%	50 - 130
			Benzo(k)fluoranthene	2024/07/21		95	%	50 - 130
			Chrysene	2024/07/21		104	%	50 - 130
			Dibenzo(a,h)anthracene	2024/07/21		91	%	50 - 130
			Fluoranthene	2024/07/21		108	%	50 - 130
			Fluorene	2024/07/21		100	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2024/07/21		96	%	50 - 130
			1-Methylnaphthalene	2024/07/21		91	%	50 - 130
			2-Methylnaphthalene	2024/07/21		93	%	50 - 130
			Naphthalene	2024/07/21		88	%	50 - 130
			Phenanthrene	2024/07/21		104	%	50 - 130
			Pyrene	2024/07/21		107	%	50 - 130
9528428	JET	Spiked Blank	D10-Anthracene	2024/07/21		114	%	50 - 130
			D14-Terphenyl (FS)	2024/07/21		123	%	50 - 130
			D8-Acenaphthylene	2024/07/21		107	%	50 - 130
			Acenaphthene	2024/07/21		92	%	50 - 130
			Acenaphthylene	2024/07/21		95	%	50 - 130
			Anthracene	2024/07/21		101	%	50 - 130
			Benzo(a)anthracene	2024/07/21		104	%	50 - 130
			Benzo(a)pyrene	2024/07/21		98	%	50 - 130
			Benzo(b/j)fluoranthene	2024/07/21		102	%	50 - 130
			Benzo(g,h,i)perylene	2024/07/21		95	%	50 - 130
			Benzo(k)fluoranthene	2024/07/21		89	%	50 - 130
			Chrysene	2024/07/21		103	%	50 - 130
			Dibenzo(a,h)anthracene	2024/07/21		92	%	50 - 130
			Fluoranthene	2024/07/21		107	%	50 - 130
			Fluorene	2024/07/21		96	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2024/07/21		97	%	50 - 130
			1-Methylnaphthalene	2024/07/21		88	%	50 - 130
			2-Methylnaphthalene	2024/07/21		89	%	50 - 130
			Naphthalene	2024/07/21		86	%	50 - 130
			Phenanthrene	2024/07/21		101	%	50 - 130
			Pyrene	2024/07/21		106	%	50 - 130
9528428	JET	Method Blank	D10-Anthracene	2024/07/21		123	%	50 - 130
			D14-Terphenyl (FS)	2024/07/21		122	%	50 - 130
			D8-Acenaphthylene	2024/07/21		104	%	50 - 130
			Acenaphthene	2024/07/21	<0.050		ug/L	
			Acenaphthylene	2024/07/21	<0.050		ug/L	
			Anthracene	2024/07/21	<0.050		ug/L	
			Benzo(a)anthracene	2024/07/21	<0.050		ug/L	
			Benzo(a)pyrene	2024/07/21	<0.0090		ug/L	
			Benzo(b/j)fluoranthene	2024/07/21	<0.050		ug/L	
			Benzo(g,h,i)perylene	2024/07/21	<0.050		ug/L	
			Benzo(k)fluoranthene	2024/07/21	<0.050		ug/L	

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Chrysene	2024/07/21	<0.050		ug/L	
			Dibenzo(a,h)anthracene	2024/07/21	<0.050		ug/L	
			Fluoranthene	2024/07/21	<0.050		ug/L	
			Fluorene	2024/07/21	<0.050		ug/L	
			Indeno(1,2,3-cd)pyrene	2024/07/21	<0.050		ug/L	
			1-Methylnaphthalene	2024/07/21	<0.050		ug/L	
			2-Methylnaphthalene	2024/07/21	<0.050		ug/L	
			Naphthalene	2024/07/21	<0.050		ug/L	
			Phenanthrene	2024/07/21	<0.030		ug/L	
			Pyrene	2024/07/21	<0.050		ug/L	
9528428	JET	RPD	Acenaphthene	2024/07/21	NC		%	30
			Acenaphthylene	2024/07/21	NC		%	30
			Anthracene	2024/07/21	NC		%	30
			Benzo(a)anthracene	2024/07/21	NC		%	30
			Benzo(a)pyrene	2024/07/21	NC		%	30
			Benzo(b/j)fluoranthene	2024/07/21	NC		%	30
			Benzo(g,h,i)perylene	2024/07/21	NC		%	30
			Benzo(k)fluoranthene	2024/07/21	NC		%	30
			Chrysene	2024/07/21	NC		%	30
			Dibenzo(a,h)anthracene	2024/07/21	NC		%	30
			Fluoranthene	2024/07/21	NC		%	30
			Fluorene	2024/07/21	NC		%	30
			Indeno(1,2,3-cd)pyrene	2024/07/21	NC		%	30
			1-Methylnaphthalene	2024/07/21	NC		%	30
			2-Methylnaphthalene	2024/07/21	NC		%	30
			Naphthalene	2024/07/21	NC		%	30
			Phenanthrene	2024/07/21	NC		%	30
			Pyrene	2024/07/21	NC		%	30
9528430	MSZ	Matrix Spike	o-Terphenyl	2024/07/21		92	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2024/07/21		97	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2024/07/21		102	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2024/07/21		93	%	60 - 140
9528430	MSZ	Spiked Blank	o-Terphenyl	2024/07/21		91	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2024/07/21		95	%	60 - 140
			F3 (C16-C34 Hydrocarbons)	2024/07/21		100	%	60 - 140
			F4 (C34-C50 Hydrocarbons)	2024/07/21		91	%	60 - 140
9528430	MSZ	Method Blank	o-Terphenyl	2024/07/21		95	%	60 - 140
			F2 (C10-C16 Hydrocarbons)	2024/07/21	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2024/07/21	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2024/07/21	<200		ug/L	
9528430	MSZ	RPD	F2 (C10-C16 Hydrocarbons)	2024/07/21	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2024/07/21	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2024/07/21	NC		%	30
9529972	IHP	Matrix Spike	Dissolved Antimony (Sb)	2024/07/23		107	%	80 - 120
			Dissolved Arsenic (As)	2024/07/23		98	%	80 - 120
			Dissolved Barium (Ba)	2024/07/23		100	%	80 - 120
			Dissolved Beryllium (Be)	2024/07/23		92	%	80 - 120
			Dissolved Boron (B)	2024/07/23		93	%	80 - 120
			Dissolved Cadmium (Cd)	2024/07/23		99	%	80 - 120
			Dissolved Chromium (Cr)	2024/07/23		93	%	80 - 120
			Dissolved Cobalt (Co)	2024/07/23		98	%	80 - 120
			Dissolved Copper (Cu)	2024/07/23		108	%	80 - 120

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Lead (Pb)	2024/07/23		91	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/07/23		108	%	80 - 120
			Dissolved Nickel (Ni)	2024/07/23		93	%	80 - 120
			Dissolved Selenium (Se)	2024/07/23		95	%	80 - 120
			Dissolved Silver (Ag)	2024/07/23		92	%	80 - 120
			Dissolved Sodium (Na)	2024/07/23		NC	%	80 - 120
			Dissolved Thallium (Tl)	2024/07/23		92	%	80 - 120
			Dissolved Uranium (U)	2024/07/23		102	%	80 - 120
			Dissolved Vanadium (V)	2024/07/23		101	%	80 - 120
			Dissolved Zinc (Zn)	2024/07/23		90	%	80 - 120
9529972	IHP	Spiked Blank	Dissolved Antimony (Sb)	2024/07/23		101	%	80 - 120
			Dissolved Arsenic (As)	2024/07/23		99	%	80 - 120
			Dissolved Barium (Ba)	2024/07/23		99	%	80 - 120
			Dissolved Beryllium (Be)	2024/07/23		92	%	80 - 120
			Dissolved Boron (B)	2024/07/23		93	%	80 - 120
			Dissolved Cadmium (Cd)	2024/07/23		99	%	80 - 120
			Dissolved Chromium (Cr)	2024/07/23		94	%	80 - 120
			Dissolved Cobalt (Co)	2024/07/23		102	%	80 - 120
			Dissolved Copper (Cu)	2024/07/23		103	%	80 - 120
			Dissolved Lead (Pb)	2024/07/23		95	%	80 - 120
			Dissolved Molybdenum (Mo)	2024/07/23		98	%	80 - 120
			Dissolved Nickel (Ni)	2024/07/23		98	%	80 - 120
			Dissolved Selenium (Se)	2024/07/23		97	%	80 - 120
			Dissolved Silver (Ag)	2024/07/23		96	%	80 - 120
			Dissolved Sodium (Na)	2024/07/23		99	%	80 - 120
			Dissolved Thallium (Tl)	2024/07/23		99	%	80 - 120
			Dissolved Uranium (U)	2024/07/23		100	%	80 - 120
			Dissolved Vanadium (V)	2024/07/23		97	%	80 - 120
			Dissolved Zinc (Zn)	2024/07/23		99	%	80 - 120
9529972	IHP	Method Blank	Dissolved Antimony (Sb)	2024/07/23	<0.50		ug/L	
			Dissolved Arsenic (As)	2024/07/23	<1.0		ug/L	
			Dissolved Barium (Ba)	2024/07/23	<2.0		ug/L	
			Dissolved Beryllium (Be)	2024/07/23	<0.40		ug/L	
			Dissolved Boron (B)	2024/07/23	<10		ug/L	
			Dissolved Cadmium (Cd)	2024/07/23	<0.090		ug/L	
			Dissolved Chromium (Cr)	2024/07/23	<5.0		ug/L	
			Dissolved Cobalt (Co)	2024/07/23	<0.50		ug/L	
			Dissolved Copper (Cu)	2024/07/23	<0.90		ug/L	
			Dissolved Lead (Pb)	2024/07/23	<0.50		ug/L	
			Dissolved Molybdenum (Mo)	2024/07/23	<0.50		ug/L	
			Dissolved Nickel (Ni)	2024/07/23	<1.0		ug/L	
			Dissolved Selenium (Se)	2024/07/23	<2.0		ug/L	
			Dissolved Silver (Ag)	2024/07/23	<0.090		ug/L	
			Dissolved Sodium (Na)	2024/07/23	<100		ug/L	
			Dissolved Thallium (Tl)	2024/07/23	<0.050		ug/L	
			Dissolved Uranium (U)	2024/07/23	<0.10		ug/L	
			Dissolved Vanadium (V)	2024/07/23	<0.50		ug/L	
			Dissolved Zinc (Zn)	2024/07/23	<5.0		ug/L	
9529972	IHP	RPD	Dissolved Antimony (Sb)	2024/07/23	NC		%	20
			Dissolved Arsenic (As)	2024/07/23	0.76		%	20
			Dissolved Barium (Ba)	2024/07/23	1.3		%	20
			Dissolved Beryllium (Be)	2024/07/23	NC		%	20

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Boron (B)	2024/07/23	3.5		%	20
			Dissolved Cadmium (Cd)	2024/07/23	NC		%	20
			Dissolved Chromium (Cr)	2024/07/23	NC		%	20
			Dissolved Cobalt (Co)	2024/07/23	3.9		%	20
			Dissolved Copper (Cu)	2024/07/23	1.6		%	20
			Dissolved Lead (Pb)	2024/07/23	NC		%	20
			Dissolved Molybdenum (Mo)	2024/07/23	4.8		%	20
			Dissolved Nickel (Ni)	2024/07/23	0.057		%	20
			Dissolved Selenium (Se)	2024/07/23	NC		%	20
			Dissolved Silver (Ag)	2024/07/23	NC		%	20
			Dissolved Sodium (Na)	2024/07/23	2.5		%	20
			Dissolved Thallium (Tl)	2024/07/23	NC		%	20
			Dissolved Uranium (U)	2024/07/23	2.3		%	20
			Dissolved Vanadium (V)	2024/07/23	NC		%	20
			Dissolved Zinc (Zn)	2024/07/23	1.1		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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17-Jul-24 18:30
Julie Clement
C4L9244

GIK ENV 570

Presence of Visible Particulate/Sediment

Maxxam Analytics
CAM FCD-01013/5

When there is >1cm of visible particulate/sediment, the amount will be recorded in the field below

Bottle Types

			Inorganics					Organics											Hydrocarbons							Volatiles				Other
	Sample ID	All	CrVI	CN	General	Hg	Metals (Diss.)	Organic 1 of 2	Organic 2 of 2	PCB 1 of 2	PCB 2 of 2	Pest/ Herb 1 of 2	Pest/ Herb 2 of 2	SVOC/ ABN 1 of 2	SVOC/ ABN 2 of 2	PAH 1 of 2	PAH 2 of 2	Dioxin /Furan	F1 Vial 1	F1 Vial 2	F1 Vial 3	F1 Vial 4	F2-F4 1 of 2	F2-F4 2 of 2	F4G	VOC Vial 1	VOC Vial 2	VOC Vial 3	VOC Vial 4	
1	MW205	TS																											
2	MW 203	TS																											
3	MW 201	TS																											
4	QC 01	TS																											
5																													
6																													
7																													
8																													
9																													
10																													

Comments: Except metal bottles.

Legend:	
P	Suspended Particulate
TS	Trace Settled Sediment (just covers bottom of container or less)
S	Sediment greater than (>) Trace, but less than (<) 1 cm

Recorded By: (signature/print) Manpreet Kaur (GIK)

C4L9244
2024/07/17 18:30

Bureau Veritas
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvna.com

STANTEC (

NONT-2024-07-2198

Bottle Order #: 1001703

INVOICE INFORMATION:		REPORT INFORMATION(if differs from invoice):		PROJECT INFORMATION:	
Company Name:	#50575 Stantec Consulting Ltd	Company Name:		Quotation #:	C41673
Contact Name:	Accounts Payable	Contact Name:	Joel van Popta	Task #:	
Address:	835 Paramount Drive, Suite 200	Address:		Project #:	122120514
	Stoney Creek ON L8J 0B4			Profit Centre:	1221
Phone:	(905) 381-3211 Fax: (905) 631-8960	Phone:	(905) 381-3273 Fax:	Site #:	
Email:	SAPinvoices@Stantec.com	Email:	Joel.VanPopta@stantec.com	Sampled By:	Jasper Koo / Josiah Esau

COC #: C#1001703-01-01

Project Manager: Julie Clement

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☑ Table 2 ☐ Ind/Comm ☑ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558. ☐ Storm Sewer Bylaw
- ☐ MISA Municipality ___
- ☐ PWQO ☐ Reg 406 Table ___
- ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): (details) Hg / Cr VI	O.Reg 153 VOCs by HS & F1-F4	O.Reg 153 PAHs	O.Reg 153 Dissolved ICPMS Metals	Mercury (Inorganic) - Total						# of Bottles	Comments
1		MW 205	2024/07/17	13 25	WG	✓	✓	✓	✓							5	
2		MW 203		14 50	WG	✓	✓	✓	✓							5	
3		MW 201		16 25	WG	✓	✓	✓	✓							5	
4		QC-01		–	WG	✓	✓	✓	✓							5	
5		North Pond		10 20	SW	✓	✓	✓	✓	/						5	- Not field filtered - Unpreserved
6		South Pond		14 30	SW	✓	✓	✓	✓	/						5	- Not filtered - Unpreserved
7																	
8																	
9																	
10																	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Josiah Esau	24/07/17	18:29	BYRHO	24/07/17	18:30	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Present	Yes	No
	2 / 4 / 0	Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

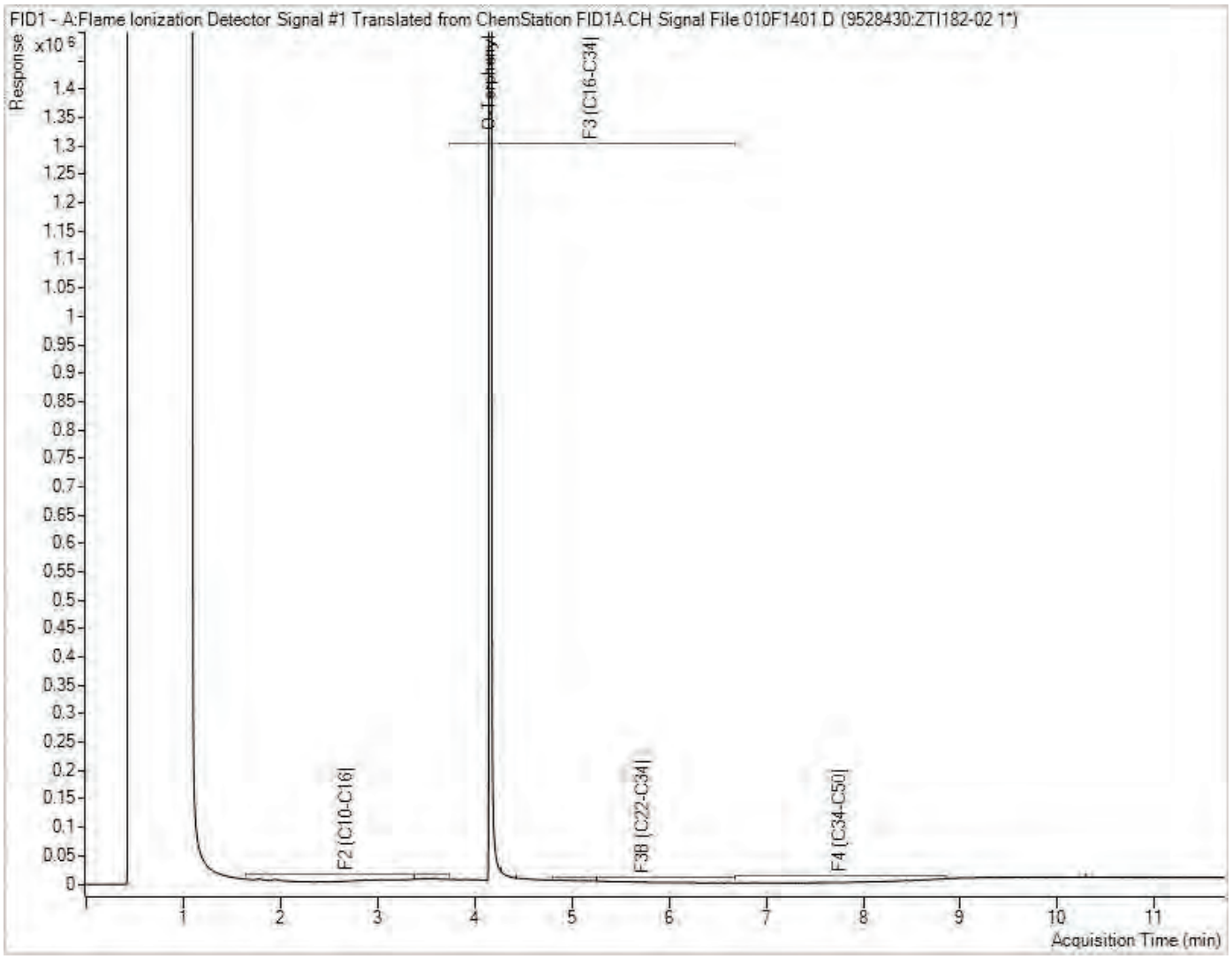
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

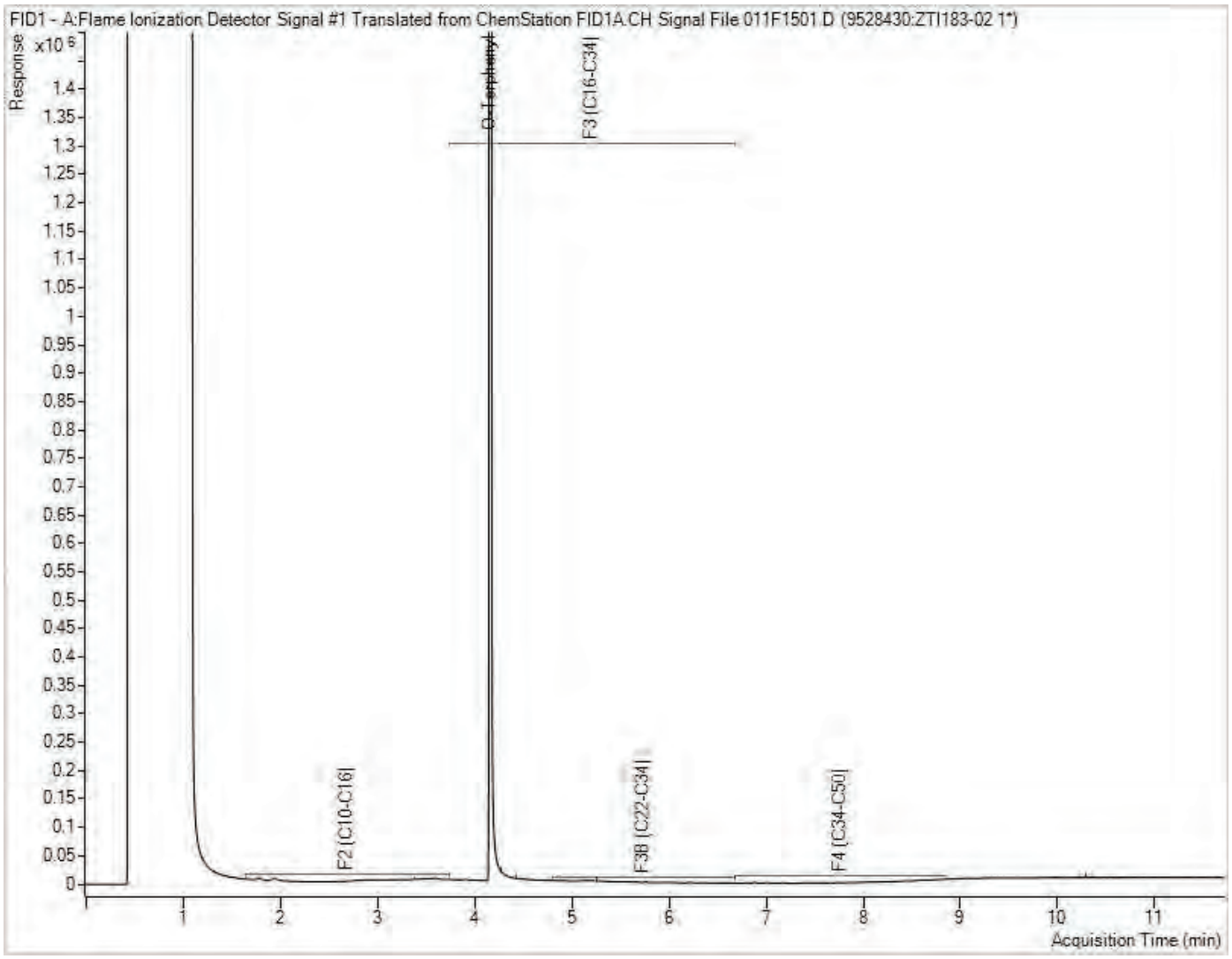
Bureau Veritas Canada (2019) Inc.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



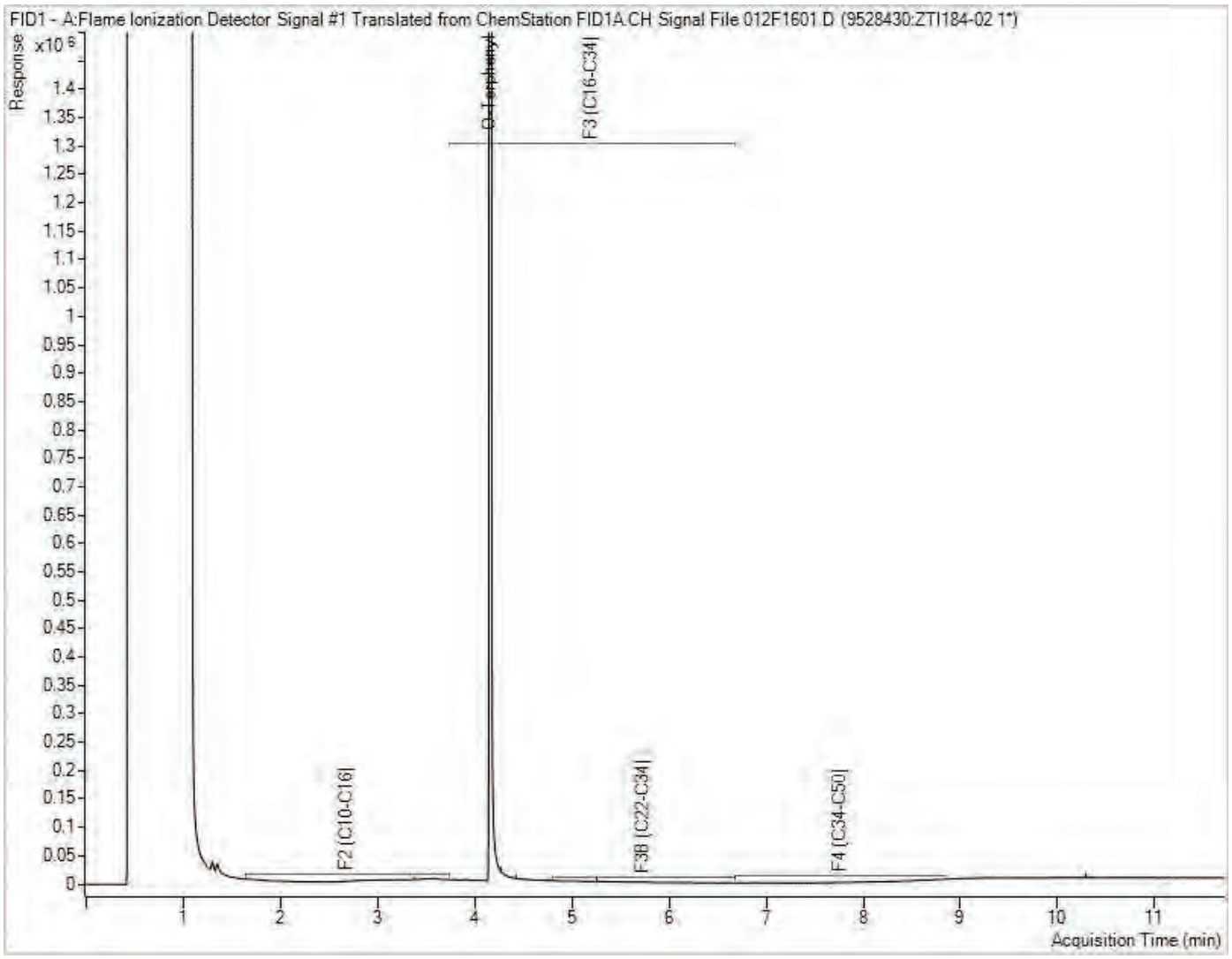
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



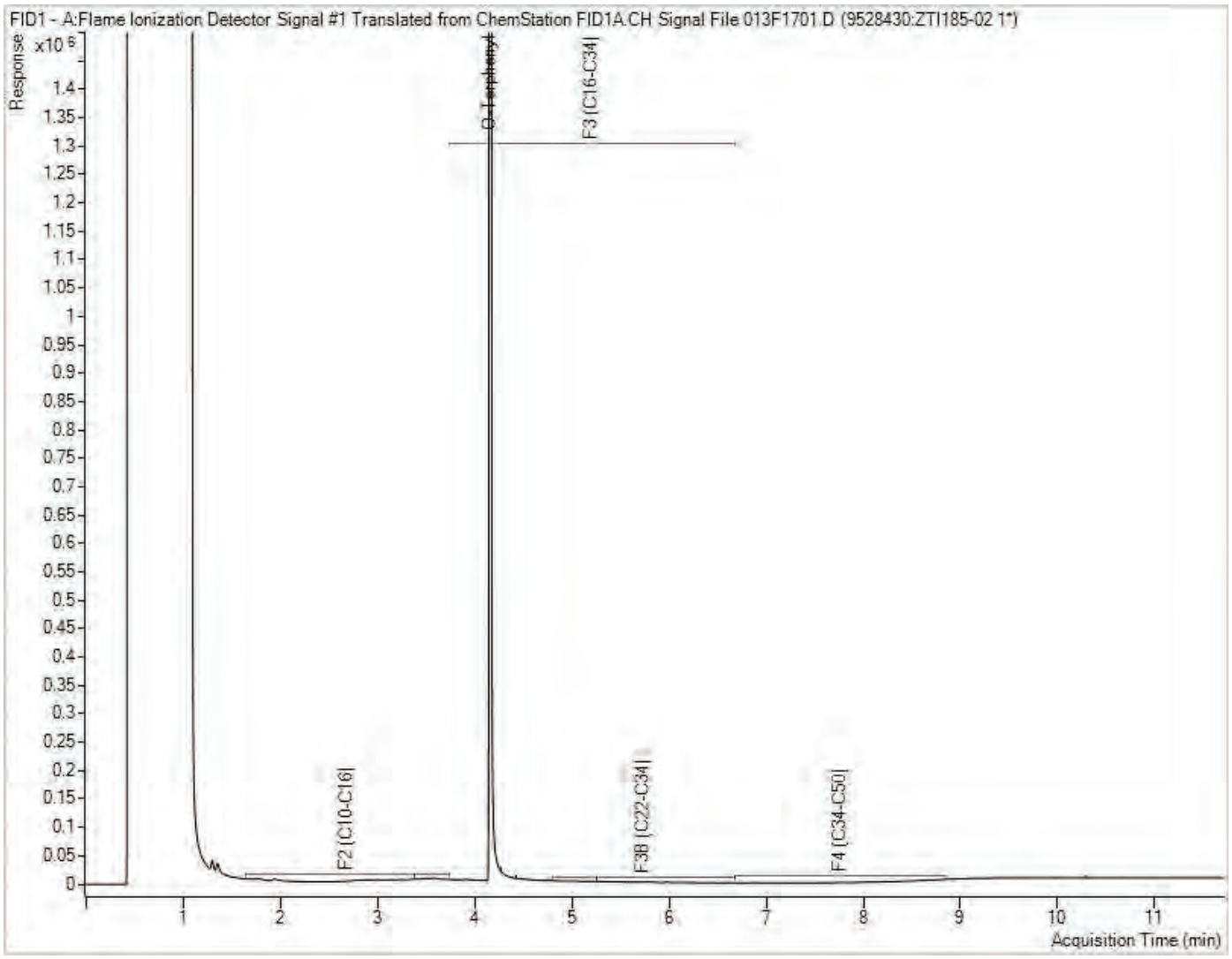
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



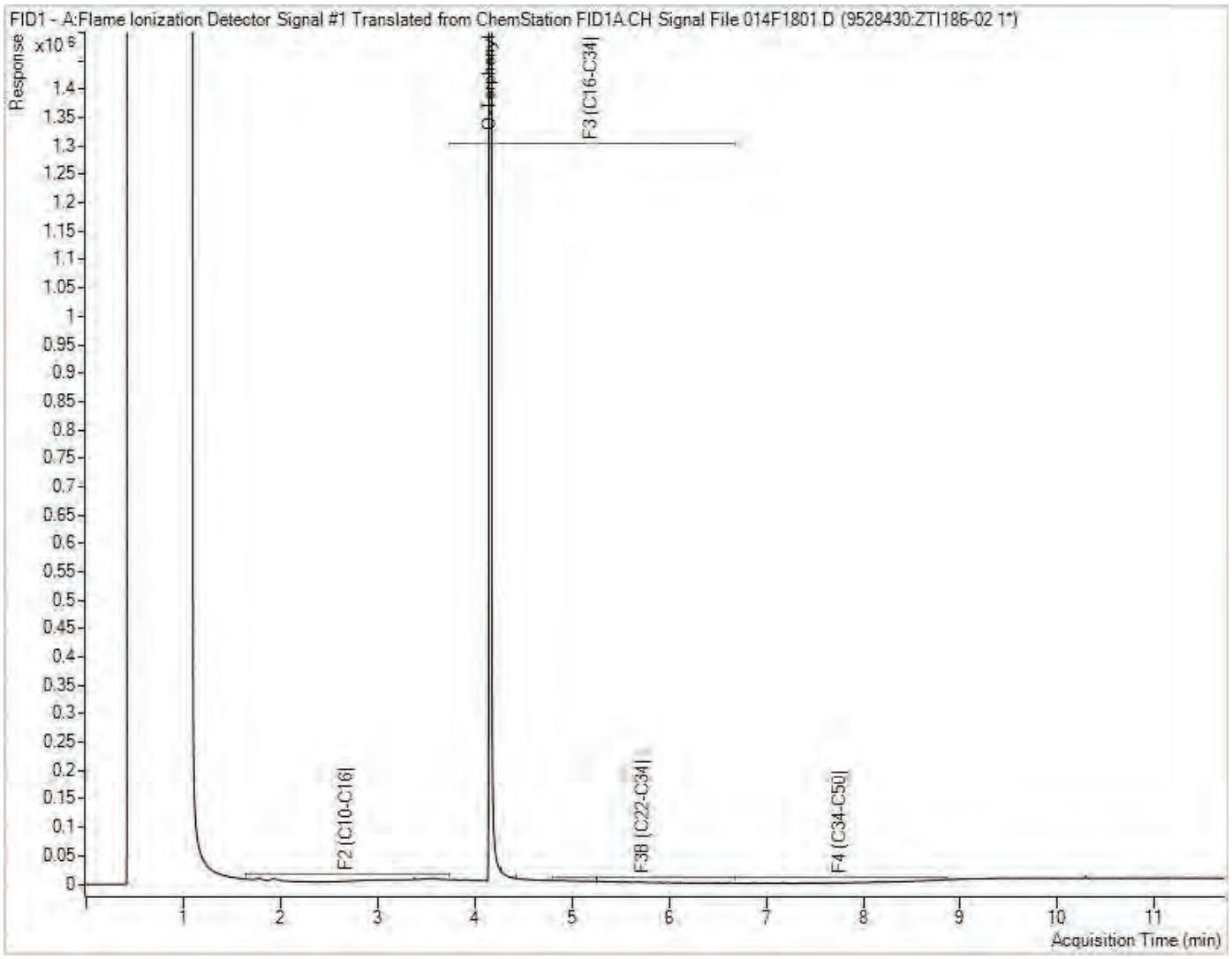
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



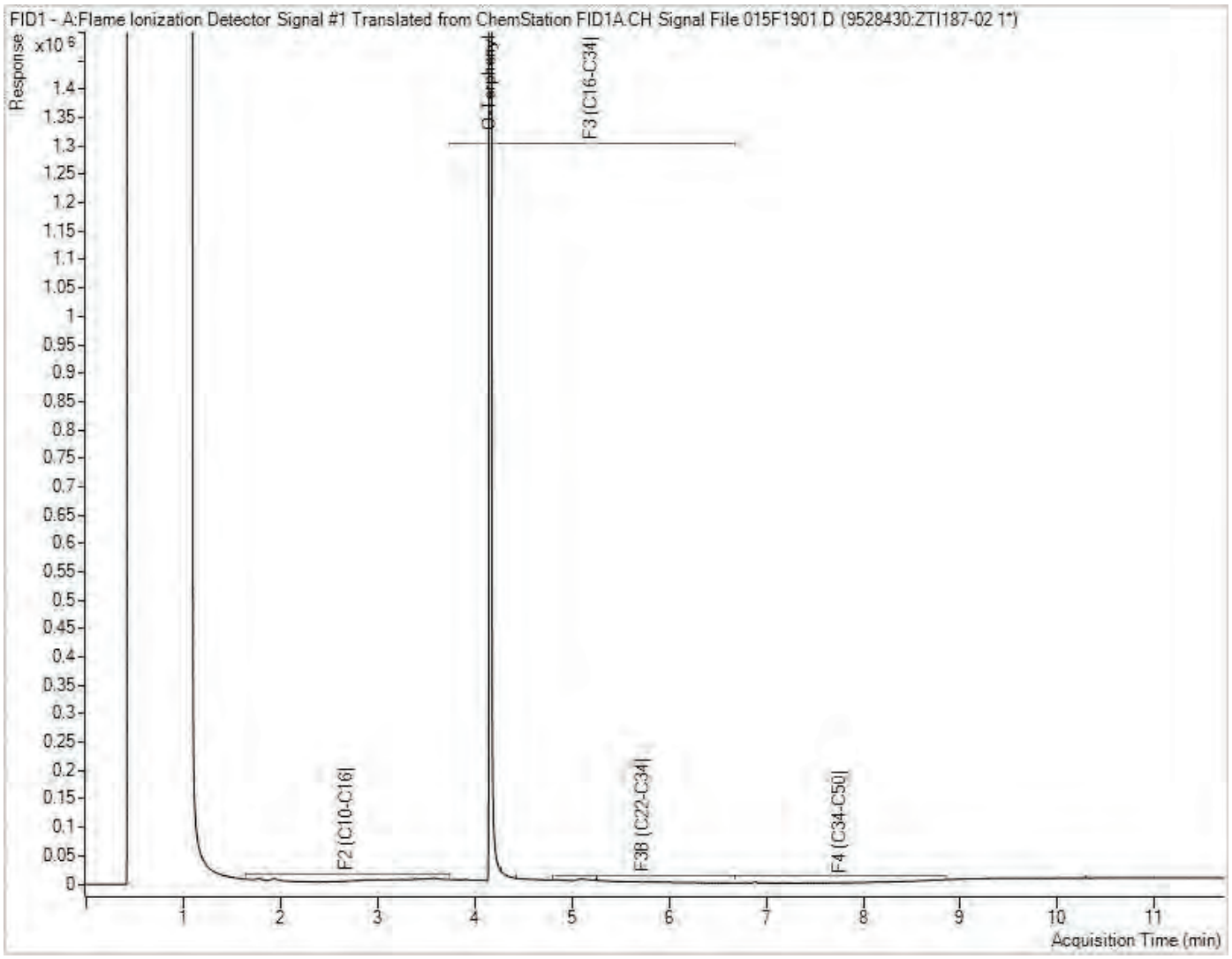
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

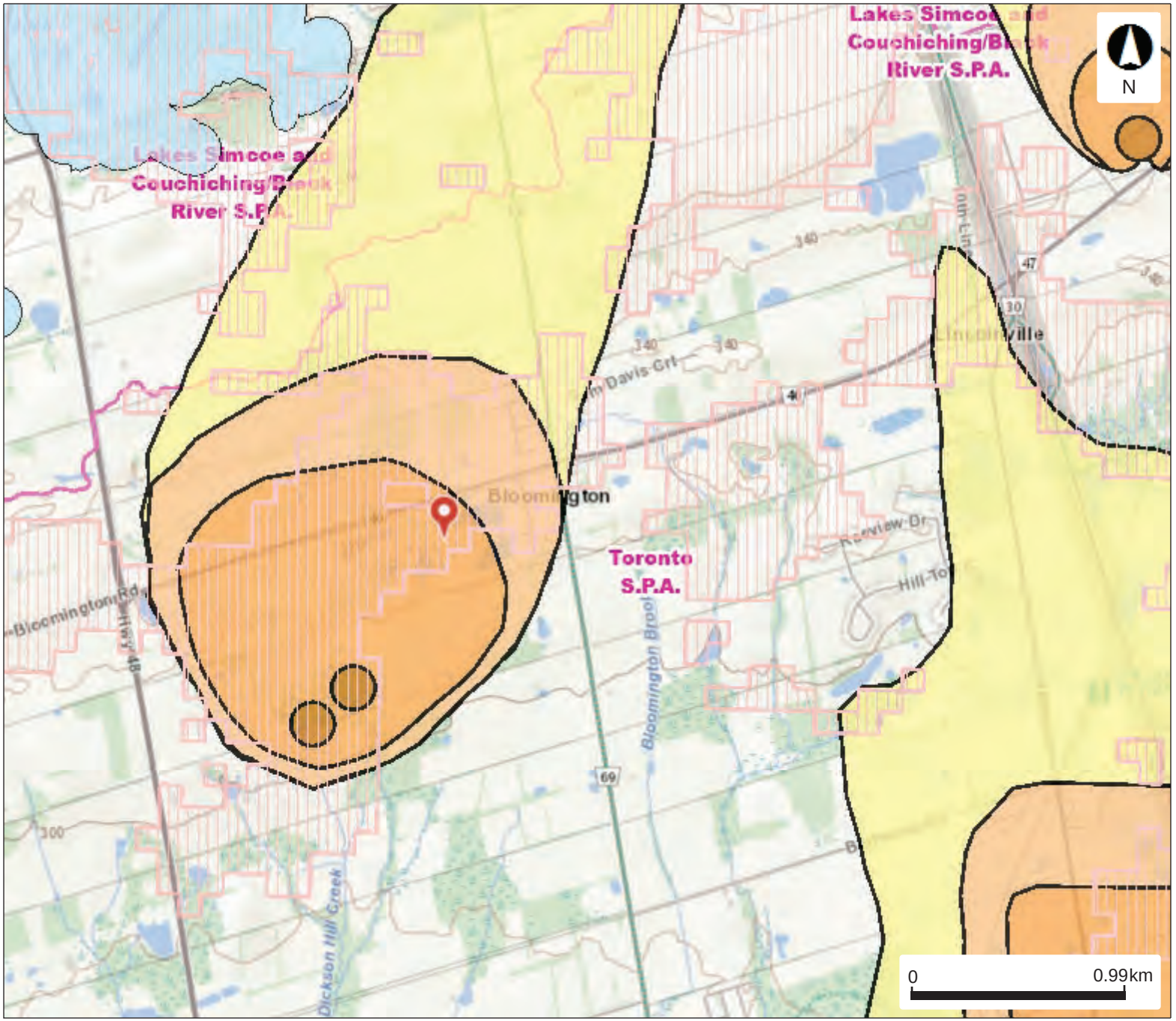
Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Appendix F Source Water Protection

MAP A - Source Water Protection - 5783 Bloomington Road, Stoufville



Legend

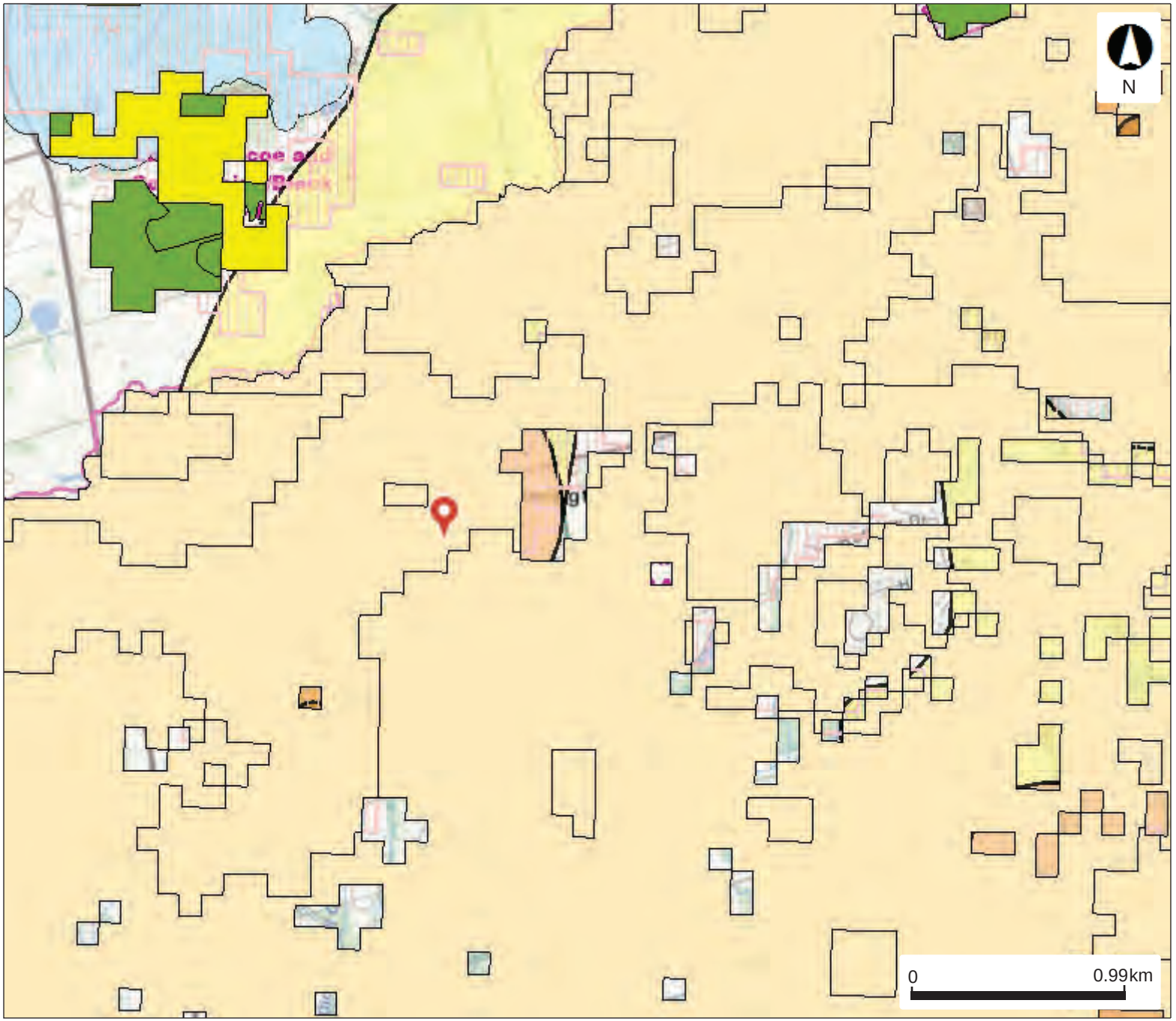
- Issue Contributing Areas
- Highly Vulnerable Aquifers
- WHPA-E
- Wellhead Protection Area
  - A
  - B
  - C
  - C1
  - D
  - F
- Intake Protection Zone 1
- Event Based Areas
- Intake Protection Zone 2
- Intake Protection Zone 3
- Vulnerable Scoring Area - Groundwater
  - 2
  - 4
  - 6
  - 8
  - 10
- Source Protection Areas

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Ontario

Map Created: 8/16/2024
Map Center: 44.00442 N, -79.26237 W

MAP B - Source Water Protection - 5783 Bloomington Road, Stoufville



Legend

- Significant Groundwater Recharge Area
  - N/A
  - 0
  - 2
  - 4
  - 6
- Issue Contributing Areas
- Highly Vulnerable Aquifers
- WHPA-E
- Wellhead Protection Area
  - A
  - B
  - C
  - C1
  - D
  - F
- Intake Protection Zone 1
- Event Based Areas
- Intake Protection Zone 2
- Intake Protection Zone 3
- Vulnerable Scoring Area - Groundwater
  - 2
  - 4
  - 6
  - 8
  - 10
- Source Protection Areas

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Ontario

Map Created: 8/16/2024
Map Center: 44.00442 N, -79.26237 W