Hydrogeological Assessment

FINAL REPORT

Auburn Developments

Project Name:
Hunter Farm Development
Marion Street
Dorchester, Ontario

Project Number:
LON-21008138-A0

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Date Submitted:
June 14, 2022

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Executive Summary

EXP Services Inc. (EXP) was retained by **Auburn Developments** to conduct a hydrogeological assessment of the proposed development to be located south of Marion Street and to the east and west of Richmond Street in Dorchester, Ontario, hereinafter referred to as the 'Site'.

The objective of the hydrogeological assessment was to examine the hydrogeological characteristics of the Site by reviewing the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWR), reviewing the soils and groundwater information provided from a series of sampled boreholes and monitoring wells at the Site, compiling a site wide monthly water balance, collecting a full year of groundwater elevations to identify any seasonal variations, and assess the natural heritage features on the property. It is understood that the hydrogeological assessment will be submitted for review and approval by the County of Middlesex (Thames Centre) and the Upper Thames River Conservation Authority (UTRCA).

Based on the results of the hydrogeological assessment, the following findings are presented:

- There are several mapped surface water features across the Site including the Sandusky Drain, the Porter Subdivision Drain and the Hunter Branch which all drain to the south into the Hunt Drain. In addition, three (3) unmapped wetlands are located on the Site which are all considered regulated lands of the UTRCA (Wetland A to the west of the Sandusky Drain and Wetlands B and C in the northeast portion of the Site);

- Surface drainage follows Site topography and generally flows towards the Drains to the southwest and eventually south to Thames River;

- The stratigraphy at the Site is heterogenous with silt, sandy silt/silty sand clayey silt/till at surface overlying sand/ sand and gravel which is discontinuous in nature. The sand is present mostly in the western portion of the Site and becomes exposed at surface in the southwest corner of the Site. Based on borehole logs, the sand layer is up to 4.5 m thick. Surficial organic deposits were noted in the vicinity of Wetland A west of the Sandusky Drain;

- Overall, groundwater levels across the Site are relatively high and near ground surface with groundwater levels measured within 1 meter below ground surface (bgs). Groundwater elevations in the majority of the wells were elevated in the spring and showed a direct response to precipitation events;

- Portions of the Site are mapped as a significant groundwater recharge area and a highly vulnerable aquifer;

- Single Well Response Tests (SWRT) were completed on four (4) of the monitoring wells. Based on the test results, the estimated hydraulic conductivities are 8.2 x 10^{-4} m/s for sand and between 3.2 x 10^{-8} m/s and 9.0 x 10^{-7} m/s for silt;

- Three (3) grain size analyses were carried out on samples of the sand and gravel till, silt till and sand. The hydraulic conductivity ranged from 3.1 x 10^{-7} m/s in silty sand till, to 4.5 x 10^{-5} m/s in sand (BH9);

- Groundwater chemistry results did not exceed the Ontario Drinking Water Quality Standards, Objectives and Guidelines (ODWQS) for any of the analyzed parameters with the exception of uranium which exceeded the

ODWQS of 20 ug/L with a concentration of 35 ug/L at BH7/MW-A on March 17, 2022. The Ontario Provincial Water Quality Objectives (PWQO) guidelines were exceeded for several analyzed parameters in surface water;

- The monitoring wells on Site have been maintained for ongoing study past the completion of this report. When the wells are no longer required, they should be decommissioned in accordance with O. Reg. 903;

- The post development infiltration target of 80%, as suggested by the Conservation Ontario Guidelines, can be achieved by redirecting runoff for infiltration using secondary infiltration and run-off reduction techniques;

- Preliminary dewatering calculations suggest a Category 3 Permit to Take Water will be required for construction dewatering, specifically in the southwest portion of the Site, where a shallow saturated sandy aquifer was observed;

- During construction, short term impacts to the shallow groundwater may occur, where excavations crossing the shallow groundwater require construction dewatering; and,

- A total of 45 domestic, one (1) livestock, and one (1) public groundwater supply wells are located within a 500 m radius of the Site. Four of the domestic wells and the public well were installed into the shallow overburden (<10 m bgs). Based on the results from the door-to-door survey, it has been confirmed that a number of residences within 500 m of the Site utilize private well water.

A full year of groundwater elevation monitoring (May 2021 to May 2022) and water quality monitoring was completed in support of the hydrogeological investigation. Based on the hydrogeological data collected from the property, a good understanding has been captured regarding the groundwater conditions related to site development. It is our hope that this Final Report will be sufficient for Site Plan Submission.

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Appendices

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Drawings (Appendix A)

1. Introduction and Background

1.1 Background

EXP Services Inc. (EXP) was retained by Auburn Developments to conduct a hydrogeological study and water balance assessment on the proposed development to be located south of Marion Street and east and west of Richmond Street, in Dorchester, Ontario, hereinafter referred to as the 'Site' (**Appendix A, Drawing 1**).

The proposed development consists of low and medium density residential homes with open space and park areas, as well as stormwater management (SWM) facilities. The preliminary conceptual development plan is included in **Appendix B**.

The objective of the hydrogeological study was to examine the hydrogeological characteristics of the Site by reviewing the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWR), reviewing the soil and groundwater information provided from a series of sampled boreholes and monitoring wells at the Site, compiling a Site wide monthly water balance, collecting a full year of groundwater elevations to identify any seasonal variations; and assess the natural heritage features on the property. The assessment provides comments pertaining to potential impacts on hydrogeological conditions at the Site and provides recommendations and design/construction measures, where applicable, to mitigate this potential for impact. This final report includes a full year of data collection thus fulfilling the requirements in support of the Site Plan Submission.

It is understood that the hydrogeological study and water balance assessment will be submitted for review and approval by the County of Middlesex (Thames Centre) and the Upper Thames River Conservation Authority (UTRCA) as part of the Draft Plan Approval for the proposed development. The study design and report have been compiled in accordance with the City of London Design Specification & Requirements Manual (2019) as well as the Conservation Authority Guidelines for Hydrogeological Assessments (2013).

The Site is located north of the Thames River and contains multiple mapped Drains (Sandusky Drain, the Porter Subdivision Drain, and the Hunter Branch which all drain to the south into the Hunt Drain) as well as unmapped wetlands. EXP staff confirmed the Porter Subdivision Drain does not exist on Site. Wetland A is defined as the wetland west of the Sandusky Drain, Wetland B is defined as the small wetland in the northeast portion of the Site, and Wetland C is defined as the larger wetland in the northeast portion of the Site (**Drawing 2**). These surface water features have been assessed based on their impact to, and dependence on, groundwater resources.

The UTRCA administers a regulation made under Section 28 of the Conservation Authorities Act, known as Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (O.Reg. 157/06). The regulation was approved by the Minister of Natural Resources and Forestry on May 4, 2006. This regulation allows the UTRCA to ensure that proposed development and other activities have regard for natural hazard features. The UTRCA implements the regulation by issuing Section 28 permits for works in or near watercourses, valleys, wetlands, or shorelines, when required.

Property owners must obtain permission and/or a letter of clearance from the local Conservation Authority before beginning any development, site alteration, construction, or placement of fill within the regulated area. Permits are also required for any wetland interference, or for altering, straightening, diverting or interfering in any way with the existing channel of a creek, stream or river. It is EXP's understanding that the Site is subject to this regulation, and requires a Section 28 permit, as the Site contains a water feature.

1.2 Terms of Reference and Scope of Work

The investigation was completed in accordance with the scope of work outlined through email correspondence provided in **Appendix C**. An official scoping meeting with the UTRCA was not completed, however, the study followed standard UTRCA study guidelines as completed for similar projects. An Authorization to proceed with this investigation was received from Mr. Steve Stapleton of **Auburn Developments Inc.** through email correspondence in May 2021.

A geotechnical investigation is also being conducted by EXP for the Site and will be submitted under separate cover. This investigation included excavation of 38 test pits across the Site. Test pit logs from the geotechnical investigation are included in **Appendix D**. Information from the geotechnical study will be incorporated into this report, wherever appropriate.

The purpose of the assessment was to examine the subsoil and groundwater conditions at the Site by advancing a series of boreholes at the locations chosen by EXP and illustrated on the Field Investigation Location Plan (**Drawing 2**).

The scope of work for the Hydrogeological Assessment consisted of the following tasks:

1. Desktop Study: This task consisted of a review of existing information including Site plans, previous reports, geological maps, geological cross sections, groundwater level information, borehole logs, and MECP WWR.

   EXP has completed several Geotechnical Investigations and Hydrogeological Assessments in the vicinity of the Site and relevant details from those studies have been incorporated, where appropriate.

2. Field Program: Installation of ten (10) monitoring wells in nine (9) locations was carried out as part of the field program with one of the locations being completed with a set of nested wells (BH7/MW – A/B). A total of five (5) surface water stations were installed within surface water bodies found across the Site. Water levels have been measured monthly since installation for a twelve (12) month period to identify seasonal fluctuations in the groundwater and surface water features on Site. Single well response tests (SWRT) were completed for the purposes of characterizing the hydrogeological conditions at the Site. Two (2) rounds of groundwater and surface water quality samples were collected and submitted for laboratory analysis. In addition, a door-to-door well survey was completed to confirm whether shallow wells are in use in the vicinity of the Site.

3. Data Evaluation: Evaluation of the available field and laboratory data, assessment of the dewatering requirements and potential dewatering effects on the surrounding environment, as applicable.

4. Water Balance: Preparation of a water balance assessment of the subject Site evaluating pre- and post-development conditions.

5. Reporting: This task consisted of preparing this hydrogeological assessment report. In preparing this report, EXP has considered the guidance material available in the Conservation Ontario Guidelines for Hydrogeological Assessments (Conservation Ontario, 2013) and City of London Design Specification & Requirements Manual (2019).

Reference is made to **Appendix N** of this report, which contains further information necessary for the proper interpretation and use of this report.

1.3 Proposed Development and Stormwater Management Strategies

The proposed development will contain mixed single family and medium density residential properties with local servicing installed to standard depths of approximately 2 to 4 m below grade. The Draft Plan of Subdivision is provided in **Appendix B**. The residential development will also include park and open space areas, two (2) stormwater management (SWM) facilities, as well as interior roadways and sidewalks.

A Stormwater Management Report was completed by Stantec Consulting Ltd. (Stantec) on May 16, 2022 (Stantec, 2022). A map of the proposed storm drainage areas is provided in **Appendix B**. West of Richmond Street, runoff will be directed to the Sandusky Drain with no quantity controls proposed. Additionally, runoff conveyance from external areas (EXT-1 and EXT-2) to the Sandusky Drain will be maintained. East of Richmond Street two (2) SWM facilities are proposed located in block A209 in the north portion of the Site (dry pond) and in block A208b in the southern portion of the Site (wet pond). Runoff east of Richmond Street will be directed partly to the Sandusky Drain, the SWM facilities which ultimately drain west into the Sandusky Drain, Wetland C and to Ida Street southeast of the Site to mitigate peak flows to the Sandusky Drain. Implementation of Low Impact Development (LID) techniques will be considered in the final design stage.

2. Methodology

2.1 Borehole Drilling and Monitoring Well Installations

On May 11 and 12, 2021, ten (10) boreholes were advanced at nine (9) locations at the Site with installation of monitoring wells in all ten (10) boreholes. One (1) location was completed as 'nested' wells to allow for a hydrogeological gradient evaluation (BH7/MW – A/B). The locations of the boreholes are all presented on **Drawing 2**. Borehole drilling and monitoring well installation was completed under the technical supervision of EXP. The location and depth of the boreholes was based on the proposed development plan which was provided to EXP. Boreholes were advanced to depths ranging from 5.0 to 11.1 m below ground surface (bgs).

The boreholes were advanced using a track-mounted drill rig and standard 21 cm (8") OD hollow stem auger drilling techniques with split spoon sampling. During the drilling, the stratigraphy in the boreholes was examined and logged in the field by EXP technical personnel. Representative samples of the soils found in the boreholes were submitted for laboratory testing that included moisture content and gradation. Copies of the field borehole logs are provided in **Appendix D**. Copies of the soil gradation analyses are included in **Appendix E**.

All wells were constructed from 5.1 cm (2") diameter, schedule 40, polyvinyl chloride (PVC), flush-threaded casing. The appropriate number of risers were coupled with screen sections via threaded joints to construct the well. The well screens consisted of PVC pipe with 0.010-inch factory-generated slots. A summary of the well installation details is provided in **Table 1**, with the well locations shown on **Drawing 2**.

A primary filter pack consisting of silica sand was placed around the well screen in the borehole and extended above the top of the well screen. Hole Plug, a swelling bentonite clay that forms an effective barrier to the vertical movement of fluids when installed in a borehole, was used as a seal above the filter pack.

The ground surface and top of well pipe elevations were collected by a Sokkia GPS unit, capable of collecting accurate location and elevation measurements to the mm scale.

Table 1 – Monitoring Well Construction Details

Well ID	Ground Surface Elevation* (m amsl)	Top of Standpipe Elevation* (m amsl)	Completion Depth (m bgs)	Screen Length (m)	Screened Strata
BH1/MW	260.80	261.60	9.1	1.52	Sand and Gravel; Sand
BH2/MW	256.00	256.90	4.6	1.52	Silt
BH3/MW	256.04	256.89	5.3	1.52	Sand; Sandy Silt
BH4/MW	256.03	256.85	4.6	1.52	Sand
BH5/MW	257.64	258.57	3.8	1.52	Sandy Silt; Sand; Silt Lamination; Silt Till
BH6/MW	268.06	268.90	10.7	1.52	Sand; Clayey Silt
BH7/MW-A	264.30	265.08	6.1	1.52	Silt; Silt Till
BH7/MW-B	264.28	265.11	3.0	1.52	Silt; Clayey Silt
BH8/MW	257.53	258.43	3.8	1.52	Sand; Sandy Silt Till
BH9/MW	266.14	266.96	4.6	1.52	Sand

Notes: 1. m amsl denotes metres above mean sea level.
2. m bgs denotes metres below ground surface.
* - elevations were collected by a Sokkia GPS unit

2.2 Piezometer and Staff Gauge Installations

A total of five (5) surface water stations were installed throughout the Site on May 27, 2021, in a combination of surface Drains and wetland features. Each surface water station was installed with a shallow groundwater piezometer and surface water staff gauge. Surface water Station 1 was installed in Wetland A west of the Sandusky Drain and Richmond Street. Surface water Station 2 was installed downstream at the south end of the Sandusky Drain and surface water Station 3 was installed upstream within the northern end of the Sandusky Drain. Surface water stations 4 and 5 were installed within the two (2) wetlands located in the northeast corner of the Site in Wetland B and Wetland C, respectively. The locations of each station are shown on **Drawing 2**. The following **Table 2** outlines the surface water station details.

The piezometers were installed with a 6-inch Solinst drive point end (6-inch screen length). The Solinst drive point piezometer ends have a stainless steel, 50 mesh cylindrical filter screen, within a ¾" (20mm) stainless steel drive-point body.

A staff gauge was installed at each surface water station within the surface water body in order to capture monthly surface water elevations. This staff gauges are referred to as SG1 to SG5.

Each piezometer and staff gauge was surveyed using a Sokkia GPS unit, capable of collecting accurate location and elevation measurements to the mm scale.

Table 2 – Surface Water Station Details

Station ID	Piezometer ID	Ground Surface Elevation (m amsl)	Top of Piezometer Elevation (m amsl)	Completion Depth (m bgs)	Screen Length (m)	Screened Strata	Staff Gauge Installed
Station 1	**P-1**	255.52	256.56	1.02	0.15	Soft Soil (likely organic)	Yes (SG1)
Station 2	**P-2**	254.58	255.88	0.7	0.15	Soft Soil (likely organic); Sand and Gravel	Yes (SG2)
Station 3	**P-3**	256.21	257.55	1.08	0.15	Sand and Gravel	Yes (SG3)
Station 4	**P-4**	263.57*	264.67	1.03	0.15	Silt/Clay	Yes (SG4)
Station 5	**P-5**	264.43	265.68	1.03	0.15	Soft Soil (likely organic)	Yes (SG5)

Notes: 1. m amsl denotes metres above mean sea level.
2. m bgs denotes metres below ground surface.
3. * - assumed elevation based on SG elevation

2.3 Well Development and Groundwater Sampling

Monitoring wells were developed following installation. The wells were developed to:

- remove fine soil particles adjacent to the well screen that may otherwise interfere with water quality analyses;
- restore the groundwater properties that may have been disturbed during the drilling process;
- improve the hydraulic communication between the well and the geologic materials; and,
- remove water, if any, added during the drilling process.

Wells were generally developed by removing a minimum of ten times the volume of water contained in the well casing (casing volume) where possible using rigid high-density polyethylene (HDPE) tubing fitted with Waterra™ inertial pumps.

Groundwater samples were collected from four (4) selected monitoring wells on September 28, 2021 and March 17, 2022 for analysis of groundwater quality. Groundwater chemistry results are presented and discussed in **Section 4.4**.

2.4 Surface Water Sampling

Surface water samples were collected from four (4) selected surface water stations on September 28, 2021 and March 17, 2022 in order to establish baseline surface water quality. Surface water chemistry results are presented and discussed in **Section 4.4**.

2.5 Long-Term Groundwater Elevation Monitoring

Water level monitoring in all monitoring wells and piezometers installed on Site has been completed on a monthly basis (with the exception of the month of June) since installation in May 2021 until the end of April 2022 for a one-year period. Measurements were manually collected using a battery-signal water level tape.

Water level dataloggers were installed in four (4) monitoring wells (BH3/MW, BH7/MW-A, BH7/MW-B, BH9/MW) and within the shallow groundwater piezometers at surface water stations SW1, SW2, SW4 and SW5 to assist in the evaluation of seasonal water level fluctuation, groundwater/surface water interactions, and the influence of precipitation on surface water and groundwater levels across the Site. An additional logger was placed at surface and used for barometric compensation. The dataloggers were installed in the monitoring wells on May 18, 2021 and in the piezometers on May 27, 2021 and remained in place for continued monitoring until the monitoring period was completed at the end of April, 2022. Water level measurements were logged every 24 hours.

2.6 Hydraulic Conductivity Testing

Hydraulic conductivity estimates for the soils were determined using two methods. The first method is applicable to saturated soils at depth and involves single well recovery tests (SWRT) within the installed monitoring wells. The second method involves a calculated estimation of hydraulic conductivity based on soil sample particle size analysis.

2.6.1 Single Well Response Tests (SWRTs)

Single Well Response Tests (SWRTs) were completed in monitoring wells BH2/MW, BH4/MW, BH7/MW-A and BH8/MW on May 17, 2021 to estimate hydraulic conductivity of the subsurface soils. The test method consisted of an initial purging of the well and subsequent monitoring of the rise in the water level in the well over time. This method is applicable to saturated soils at depth.

The results from the SWRTs were analyzed using the mathematical solution by Hvorslev (1951) for unconfined aquifer as provided in the software AQTESOLV ™ Pro v. 4.5 and involved matching a straight-line solution to water-level displacement data collected during the recovery test. The following equation was used to estimate the hydraulic conductivity (K);

$$\mathbf{K\ (m/s) = [r^2\ ln(L/R)]\ /\ [2\ L\ T_o]}$$

where: (T_o) is the initial change
r is the radius of the well casing;
R is the radius of the well screen; and,
L is the length of the well screen.

2.6.2 Grain Size Analyses

A total of three (3) soil samples were selected for grain size distribution analysis testing. Due to the nature of the Site soils, estimated hydraulic conductivity (K) values were determined using different methods depending on the soil sample characteristics including the Kaubisch, Kozeny-Carman, and Beyer methodologies.

3. Site Description and Geologic Setting

3.1 Site Location and Description

The Site is located south of Marion Street, and to the east and west of Richmond Street in Dorchester, Ontario. The Site is currently occupied by agricultural fields and farming structures to the east side of Richmond Street. The Site is irregular in shape and measures approximately 45.31 hectares in total area. The site is bounded by Canadian National Railway tracks to the south, undeveloped land/residential development to the east, and residential development to the north and west (**Drawing 1**).

The proposed development consists of low and medium-density residential homes with open space and park areas, as well as two (2) stormwater management (SWM) facilities. The conceptual development plan is included in **Appendix B**.

3.2 Topography and Drainage

Based on topographic mapping, the area is generally hilly with a topographic high of approximately 275 m above mean sea level (amsl) located at the northeast corner of the Site and a topographic low of 256 m amsl located in the western portion of the Site associated with a surface water feature.

There are several surface water features across the Site which flow south towards the Thames River. These features include the Sandusky Drain, the Porter Subdivision Drain and the Hunter Branch which all drain south into the Hunt Drain. EXP staff noted that the mapped Porter Subdivision Drain does not exist on Site. According to MTE Consultants Inc. who completed the ecology study for the Site, the unnamed drain south of TP15 and TP16 does not exist as well. Additionally, there are unmapped wetlands including wetland A west of the Sandusky Drain and Wetland B and Wetland C in the northeast portion of the Site. Maps of the surface water features and drainage on Site are provided in **Drawing 2** and **Drawing 3**.

The Site is located in the Dorchester watershed. The areas surrounding the drains and Wetlands B and C in the northeast portion of the Site are regulated by the UTRCA, as shown on **Drawing 4**. Surface runoff from the Site generally flows toward the drains to the southwest and eventually south to Thames River. A detailed description of the drainage areas on Site is provided in Section 5.2.

3.3 Wetlands and Ecology

A detailed ecology study for the Site was completed by MTE Consultants Inc. A map of the ecological land classification and vegetation communities is provided in **Appendix B**. Below is a brief description of the vegetation communities on Site:

- Community 1 is a Mineral Cultural Meadow (CUM1) consisting of Sugar Maple, Manitoba Maple with some Black Locust and Eastern Cottonwood. The regionally-rare species Cockspur Hawthorn was also observed in Community 1.

- Community 2 (Wetland C) is an Organic Shallow Marsh (MAS3) consisting of Tamarack with Goldenrod and Dogwood, Sedge, Cattail, Reed Canary Grass, Skunk Cabbage (a medium sensitivity groundwater indicator plant) and Common Boneset (a low sensitivity groundwater indicator plant).

- Community 3 (Wetland C) is a White Cedar Organic Coniferous Swamp (SWC3) consisting of Eastern White Cedar. Groundwater indicators observed in Community 3 include Jack-in-the-Pulpit (medium sensitivity), Spotted Joe-Pye weed (low sensitivity), Skunk Cabbage (medium sensitivity), Great Blue Lobeila (medium sensitivity), Naked Mitrewort (medium sensitivity) and Sensitive Fern (medium sensitivity). Regionally-rare species observed in Community 3 include Evergreen Wood Fern, Downy Willowherb, Bristly Dewberry and Purple Meadow-rue.

- Community 4 is a Mineral Cultural Woodland (CUW1) consisting of Apple and Manitoba Maple with some occasional Ash and Skunk Cabbage (a medium sensitivity groundwater indicator).

- Community 5 (Wetland B) is a Shallow Marsh (MAS) consisting of Willow, Eastern Cottonwood, White Elm Bitter Nightshade, Willow and Manitoba Maple.

- Community 6 is a combination of a Mineral Meadow Marsh (MAM2) and a Mineral Cultural Meadow (CUM1). Groundwater indicators observed in Community 6 include Spotted Joe-Pye weed (low sensitivity), Skunk Cabbage (medium sensitivity), Common Boneset (low sensitivity) and Great Blue Lobeila (medium sensitivity). Regionally-rare species observed in Community 6 include Downy Willowherb and Purple Meadow-rue.

- Community 7 is a Mineral Cultural Meadow (CUM1) consisting of Eastern Cottonwood, Ash, Manitoba Maple, Freeman Maple, Willow, Norway Maple, Eastern Redcedar, Spirea and Dogwood. Skunk Cabbage and Turtlehead medium sensitivity groundwater indicator plants were also observed in Community 7.

- Community 8 (Wetland A) is a Mineral Meadow Marsh (MAM2) consisting of groundwater indicators including Tussock Sedge (medium sensitivity), Spotted Joe-Pye weed (low sensitivity), Skunk Cabbage (medium sensitivity), Common Boneset (low Sensitivity), Great Blue Lobeila (medium sensitivity) and Sensitive Fern (medium sensitivity). Regionally-rare species in Community 8 include Water Sedge, Downy Willowherb and Purple Meadow-rue.

- Community 9 is a Mineral Cultural Meadow (CUM1) consisting of Manitoba Maple, Willow and Trembling Aspen with occasional European White Poplar. Spotted Joe-Pye weed a low sensitivity groundwater indicator plant and Great Blue Lobeila a medium sensitivity groundwater indicator plant were also observed in Community 9. Regionally-rare species observed in Community 6 include Downy Willowherb and Purple Meadow-rue.

- Community 10 is a Residential Farmyard. Northern Catalpa, Hackberry, Silver, Freeman and Manitoba Maple, Ailanthus, Willow and Norway Spruce are found within this Community.

Wetland B (Community 5) is proposed to be removed and may be either compensated on-site, adjacent to Wetland C (community 2), or may be compensated off-site. Wetland A (Community 8) will be predominantly retained as Park space. Buffer areas to be implemented around Wetlands A and C are still in discussion and will be finalized in the final design stage.

3.4 Site Geology

3.4.1 Bedrock Geology

The Site is underlain by limestone, dolostone and shale of the Dundee Formation (OGS, 2011). This formation consists of 60 to 160 feet (18 to 49 m) of light brown, medium-grained with some minor chert (Hewitt, 1972), and is part of the Algonquin Arch, which forms a ridge along the southwestern Ontario peninsula between the Michigan Basin (to the northwest) and the Appalachian Basin (to the southwest). Bedrock is generally not exposed in the area.

Review of bedrock topography mapping (**Drawing 5**; OGS, 1978) indicates the bedrock surface is found at an elevation of approximately 236 m amsl in the vicinity of the Site. The bedrock surface generally slopes to the south in this area. Review of MECP Well records within 1000 m from the centre of the Site (**Appendix F**) indicates an overburden thickness of approximately 11 to 37 m. Bedrock was not encountered during the drilling program completed as part of this investigation.

3.4.2 Overburden Geology

The physiography of Southwestern Ontario was altered significantly by the glacial and interglacial periods that took place throughout the Quaternary period. The overburden deposits which are present in the study area were formed by numerous glacial events during the late Wisconsinan glacial stage approximately 10,000 to 23,000 years before present. There were two distinct glacial lobes present in Southwestern Ontario during this period. The Huron Lobe advanced from Lake Huron southwards, and the Erie Lobe advanced from the northeast, receding to the east.

During the advancement of the glacial ice sheets, bedrock and unconsolidated sediments were eroded. During the recession of the glaciers, the eroded materials were deposited in lakes, rivers and along spillways, contributing to the present configuration of moraines, abandoned spillways, drumlins, eskers, abandoned shorelines, and various still-water sediment deposits.

Deposits in the area can be contributed to the Port Bruce Stadial period. In the London area, a series of east-west recessional and end moraines were formed, along with the Port Stanley Till Plain. Deposition of the basal portion of the Port Stanley Till was formed during the initial advance of the Erie Lobe. Overlying till was deposited during subsequent cycles of advance and retreat, resulting in silt and sand layering within the till plain.

The surficial deposits were mapped and categorized into a number of physiographic regions by Chapman and Putnam (1984). The northern portion of the Site is part of a physiographic region known as the Oxford Till Plain and is also mapped as an undrumlinized till plains landform. The physiographic region in the southern portion of the Site is part of a physiographic region known as Mount Elgin Ridges and is also mapped as a spillway landform. Mapping of the physiographic regions and landforms at the Site is provided in **Drawing 6** and **Drawing 7**, respectively.

Quaternary mapping indicates that the Site consists of the Catfish Creek Till characterized by sandy silt to silt (OGS, 2000).

A review of surficial geological mapping by the Ontario Geological Survey (OGS, 2010) shows the northern portion of the Site is mapped primarily as sandy silt to silty sand textured till on Paleozoic terrain and the southern portion of the Site is primarily mapped as glaciofluvial deposits. Modern alluvial deposits of clay, silt sand and gravel with minor organic remains are mapped west of Richmond Street and are associated with the mapped drains. Minor coarse

textured glaciolacustrine deposits of sand, gravel, minor silt and clay are mapped along the eastern Site boundary (**Drawing 8**).

3.4.3 Site Specific Surficial Geology

Ten (10) boreholes were completed by EXP in nine (9) locations across the Site, with installation of monitoring wells in all borehole locations. One (1) of the locations was completed as a 'nested' well set to allow for hydrogeological evaluation of potential vertical gradients. The locations of the boreholes are provided in **Drawing 2**. The boreholes were terminated at a maximum depth of between 5.0 and 11.1 m bgs. Borehole logs are provided in **Appendix D**.

Generalized stratigraphic cross sections through the Site, as shown in **Drawing 9**, are provided in **Drawings 10** to **12**. The following is a general description of the stratigraphy at the Site as shown in the cross sections.

As shown in cross section A-A' (**Drawing 10**), the northwest portion of the Site consists of surficial silt and clayey silt/till overlying a discontinuous layer of sand and gravel. The silt layer is also discontinuous and truncates the clayey silt/ till layer in the area of BH2/MW. Further to the east, silty sand to sandy silt is found at surface overlying silt and clayey silt/till with a localized sand layer noted in BH9/MW.

As shown in cross section B-B' (**Drawing 11**), the southwest portion of the Site consists of surficial discontinuous sand and sand and gravel overlying silty sand to sandy silt. Further to the east the stratigraphy is more homogenous characterized by predominantly clayey silt/ till with a discontinuous sand lens noted at BH8/MW.

As shown in cross section C-C' (**Drawing 12**), the western portion of the Site consists of surficial silt, silty sand/sandy silt and silt clayey/till overlying sand and sand and gravel. This sand layer becomes exposed at surface at the southwest portion of the Site around BH3/MW. Based on borehole logs, the sand layer is up to 4.5 m thick (BH3/MW). Surficial organic deposits were noted in the vicinity of Wetland A.

4. Hydrogeologic Setting

In addition to the groundwater information collected from the monitoring wells installed at the Site, the following documents were reviewed to gain an understanding of the hydrogeological conditions in the area:

- Goff, K and D.R. Brown, 1981. Ground-Water Resources – Summary. Thames River Basin Water Management Study Technical Report. Ontario Ministry of the Environment, Water Resources Report 14;
- Thames-Sydenham and Region Source Protection Committee. 2011. Upper Thames River Source Protection Area, Approved Updated Assessment Report. 12 August; and,
- MECP WWR within 1000 m of the centre of the Site.

4.1 Regional Aquifer

Goff and Brown (1981) described the potential for four regional aquifers in the study area; shallow unconfined overburden aquifer, intermediate and deep confined aquifers and a bedrock aquifer.

4.1.1 Overburden Aquifers

The uppermost shallow and unconfined overburden aquifer was described as consisting of lacustrine or glacio-fluvial sands that may, in some locations, be overlain by lower permeability silts and clays. Regionally, the shallow aquifer is generally associated with the Stratford Till Plain and glacial deposits and are typically less than 15 m in thickness. Shallow overburden aquifers are discontinuous in nature and are expected to be linked more directly to precipitation and recharge compared to the intermediate and deep overburden aquifers.

Intermediate depth (15 to 30 m bgs) and deep overburden aquifers (>30 m bgs) aquifers generally consist of saturated sand and gravel deposits in the overburden and are very discontinuous in nature due to the heterogeneous nature of glacial deposits. Sand and gravel layers are present in the Port Stanley and Catfish Creek glacial till sheets. The intermediate depth and deep overburden aquifers are generally confined by overlying silt, clay and glacial till deposits which limit vertical migration of shallow groundwater.

Locally, shallow groundwater flow is expected to follow the local topography, and generally drain southwest towards the Thames River. Similarly, on a regional scale, the deep overburden aquifer flow direction is reported to be towards the south-southwest (Dillon and Golder, 2004).

4.1.2 Bedrock Aquifer

The bedrock aquifer is contained within limestone of the Dundee Formation. The water quality is generally good with elevated levels of iron, sodium and chloride in some wells. As with the intermediate and deep overburden aquifers, the bedrock aquifer is confined by the overlying till material, which generally ranges in thickness up to 37 m in the vicinity of the Site. Wells extending into the shallow fractured bedrock (up to about 3 m) are typically considered to be hydraulically connected to the overlying sand and gravel deposits that are present at the bedrock-overburden interface.

Flow direction in the deeper confined aquifer(s) and regional groundwater system has not been assessed as part of this investigation. However, as part of the Middlesex-Elgin Groundwater Study (Dillon and Golder, 2004), groundwater flow within the deeper aquifer is generally in a south-southwest direction towards Lake Erie.

4.2 Site Specific Groundwater Elevations and Flow

4.2.1 Monitoring Wells

Manual water levels in the monitoring wells have been collected monthly from May 2021 until the end of April 2022. Details of the monthly water levels are summarized in **Appendix G**.

Overall, shallow groundwater levels of less than 1 m bgs were noted in monitoring wells BH2/MW and BH5/MW. These are shallow wells located along the Sandusky Drain. Shallow groundwater levels were also noted in BH7/MW-A/B located in the vicinity of Wetland B and BH8/MW located at the southern portion of the Site. The deepest groundwater levels were noted in BH1/MW (ranging from 4.21 m to 4.83 m bgs) and in BH6/MW (ranging from 8.68 m to 9.67 m bgs). These are the deepest wells onsite installed to depths of 9.1 m bgs and 10.7 m bgs, respectively.

Dataloggers were installed in monitoring wells BH3/MW, BH7/MW-A, BH7/MW-B, BH9/MW and within the shallow groundwater piezometers at surface water stations SW1, SW2, SW4 and SW5 to provide continuous water elevation monitoring. Dataloggers were installed in the monitoring wells on May 18, 2021, and within the piezometers on May 27, 2021, and have been collecting daily measurement since. Results collected to date are presented in **Appendix G** with precipitation data from weather station London CS (ID 6144478) located approximately 7.7 km northwest of the Site.

The hydrograph for monitoring well BH3/MW, screened in sand/sandy silt from 3.8 m to 5.3 m bgs, shows a gradual decline from May to September 2021 with groundwater elevation increasing as a direct response to significant precipitation events on September 22, 2021 (67 mm) and again on February 17, 2022 (38 mm). Static groundwater levels remained relatively stable between September 2021 and April 2022. Overall, groundwater elevation ranged from 254.21 m to 255.45 m amsl. These groundwater elevations correspond with groundwater levels of 1.83 m and 0.59 m bgs, respectively. Discrepancies between the datalogger and the manual measurements were noted between November 2021 and January 2022 and in April 2022.

Monitoring well BH7/MW-A (deep) is screened in silt/silt till from 4.6 m to 6.1 m bgs and monitoring well BH7/MW-B (shallow) is screened in silt/clayey silt from 1.5 m to 3.0 m bgs. The hydrographs for these nested monitoring wells are nearly identical indicating they are screened within hydraulically connected soils. Groundwater elevations within these wells declined from May to September 2021, increased from September to October 2021 following the September 2021 significant precipitation event and remained relatively stable from October 2021 to April 2022. Overall, groundwater elevations in these wells ranged from 262.74 m to 264.62 m amsl. These groundwater elevations correspond with groundwater levels of 1.54 m bgs and 0.32 m above grade, respectively. Direct responses to precipitation events were noted throughout the monitoring period.

The hydrograph for monitoring well BH9/MW, screened in sand from 3.0 m to 4.5 m bgs, shows a minor decline in groundwater elevations between May and September 2021, followed by an increase in September as a direct response to the September 2021 significant precipitation event. Groundwater elevations remained relatively stable between September 2021 and April 2022. Overall, groundwater elevations ranged from 264.50 m to 265.69 m amsl. These groundwater elevations correspond with groundwater levels of 1.64 m bgs and 0.45 m bgs, respectively. Direct responses to precipitation events were noted throughout the monitoring period.

A decrease in groundwater elevations during the monitoring period from May to September was noted in all the monitoring wells. This observation is consistent with groundwater trends observed in southern Ontario in which higher groundwater levels in early spring correspond with spring freshet. Seasonal fluctuations with elevated

groundwater elevations as a result of significant rain events were observed in all the monitoring wells. Significant precipitation events during the monitoring period were noted on June 25, 2021 (33 mm), August 26, 2021 (57 mm), September 22, 2021 (67 mm) and February 17, 2021 (38 mm).

4.3 Shallow Groundwater and Surface Water Stations

Surface water (SW) Stations 1 to 5 were established across the Site. Dataloggers were installed in four (4) of the shallow groundwater piezometers (P-1, P-2, P-4 and P-5) in order to capture readings on a daily basis. Results from the dataloggers are presented in hydrographs presented in **Appendix G**.

Surface water Station 1 is located within Wetland A west of the Sandusky Drain. The hydrograph for piezometer P-1 shows a gradual increase in groundwater elevations between May and September 2021. Levels remained relatively stable between September 2021 and April 2022 with fluctuations of approximately 0.25 m. Overall, groundwater elevations in P-1 ranged from 254.73 m to 256.03 m amsl. These groundwater elevations correspond with groundwater levels of 0.79 m bgs and 0.51 m above grade, respectively. The gradual increase in groundwater elevations between installation to roughly September 2021 is likely due to slow recovery following piezometer installation. Above ground water levels in P-1 were observed between October 2021 and April 2022. Surface water readings from the staff gauge, SG1 were generally higher than the piezometer reading indicating downward vertical gradient and recharge conditions. Little to no direct response to precipitation events were observed in piezometer P-1.

Surface water Station 2 is located within the Sandusky Drain west of Richmond Street. The hydrograph for piezometer P-2 shows relatively consistent groundwater elevations throughout the monitoring period with fluctuations of about 0.25 m. Groundwater elevations in P-2 ranged from 254.47 m to 255.49 m amsl. These groundwater elevations correspond with groundwater levels of 0.11 m bgs and 0.91 m above grade, respectively. Above ground water levels and direct responses to precipitation events in P-2 were observed throughout the monitoring period. Surface water readings at the staff gauge, SG2, were found to be generally similar to the shallow groundwater measured within the piezometer, suggesting a close interaction between the surface water and groundwater at this location.

Surface water Station 3 is located within the Sandusky Drain east of Richmond Street. The hydrograph shows consistent water levels in both piezometer P-3 and the staff gauge SG3. Water levels in piezometer P-3 were consistently above grade and higher than the readings at staff gauge SG3. These conditions suggest an upward gradient and groundwater discharge conditions to surface water at this location. Groundwater elevations in P-3 ranged from 256.25 m to 256.71 m amsl corresponding to water levels of 0.04 m to 0.5 m above grade.

Surface water Station 4 is located within Wetland B. Similar to the hydrograph of BH7/MW, groundwater elevations in piezometer P-4 declined from May to September 2021, increased from September to November 2021 following the September 2021 significant precipitation event, and remained relatively stable from November 2021 to March 2022. Groundwater elevations in P-4 fluctuated by approximately 0.25 m and ranged from 262.70 m amsl to 264.16 m amsl. These groundwater elevations correspond with groundwater levels of 0.87 m bgs and 0.60 m above grade, respectively. Dry surface conditions were noted at the staff gauge SG4 between July and October 2021. Between October 2021 and April 2022 water levels at SG4 were consistently above groundwater levels in P-4 indicating downward vertical gradient and recharge conditions at this location.

Surface water Station 5 is located within Wetland C. Similar to piezometer P-1, the hydrograph for piezometer P-5 shows a gradual increase in groundwater elevations between May and June 2021 due to slow recovery following piezometer installation. Water levels in P-5 remained relatively stable between June 2021 and September 2021.

Following the September 2021 significant precipitation event, water levels in P-5 stabilized with fluctuations of approximately 0.25 m and increases as direct responses to precipitation events. Overall, groundwater elevations in P-5 ranged from 263.91 m to 265.11 m amsl. These groundwater elevations correspond with groundwater levels of 0.52 m bgs and 0.68 m above grade, respectively. Above ground water levels in P-5 were observed throughout the monitoring period. Surface water readings from the staff gauge, SG5 were generally similar to the piezometer levels indicating a close interaction between the surface water and groundwater at this location.

4.4 Hydroperiod and Recharge

Data Reference is made to the TRCA document Stormwater Management Criteria, Appendix D: Water Balance for Protection of Natural Features (August 2012). By definition, the hydroperiod is the seasonal pattern of water level fluctuation. It is the result of inflow and outflow, surface contours of the landscape, substrate and groundwater conditions. Defining the existing surface water and groundwater conditions in the area is essential in order to provide recommendations, mitigation strategies and contingency measures during the development of the property.

The range in water elevations measured across the Site (a measurable component of a hydroperiod) throughout the monitoring period is shown in **Table 3** below.

Table 3 – Hydroperiod as defined by Groundwater and Surface Water Elevations

Location ID	Minimum Water Elevation (m amsl)	Maximum Water Elevation (m amsl)	Range (m)
BH1/MW	255.97	256.59	0.62
BH2/MW	254.99	255.46	0.47
BH3/MW*	254.21	255.45	1.24
BH4/MW	254.59	255.09	0.5
BH5/MW	256.82	257.27	0.45
BH6/MW	258.38	259.37	0.99
BH7/MW-A*	262.75	264.62	1.87
BH7/MW-B*	262.74	264.60	1.86
BH8/MW	256.95	257.25	0.3
BH9/MW*	264.50	265.69	1.19
P-1*	254.73	256.03	1.3
SG1	255.59	255.75	0.16
P-2*	254.47	255.49	1.02
SG2	254.71	254.94	0.23
P-3	256.25	256.71	0.46
SG3	256.01 (Dry)	256.48	0.47
P-4**	262.70	264.16	1.46
SG4	263.57 (Dry)	264.50	0.93
P-5	263.91	265.11	1.2
SG5	264.56	265.06	0.5

Note: * - Measurements obtained from datalogger
** - Measurements collected from May 2021 to March 2022

As shown in **Table 3**, the largest variation in water elevations occurred at BH7/MW-A and BH7/MW-B with a range of 1.87 m and 1.86 m respectively.

Typically, groundwater recharging conditions occur on Site from approximately October to April, as observed in the hydrographs. Based on available logger data the most notable significant recharge surges were in monitoring wells BH7/MW-A/B, located adjacent to Wetland B. There were approximately three significant (3) separate surges of recharge. The maximum magnitude of groundwater increase during these surges was as follows:

- June 25 to June 26, 2021, recharge of 0.8 m in a day;

- September 22 to September 23, 2021, recharge of 1.12 m in a day;
- February 17 to February 23, 2022, recharge of 0.5 m over 6 days (average of 0.08 m per day);

Therefore, during recharging events, the aquifer is found to recharge on the order of 0.08 m to 1.12 m per day.

Groundwater recharge did not occur from approximately May to September 2021 in monitoring wells BH7/MW-A/B, as the groundwater table was decreasing during this time period.

4.5 Hydraulic Gradients and Flow

The horizontal hydraulic gradient across the Site will vary due to the range in topography and resulting range in groundwater elevations. The hydraulic gradient is found to be approximately 0.01 m/m across the Site.

Groundwater elevations collected in nested monitoring wells BH7/MW-A/B were very similar and a vertical hydraulic gradient could not be determined.

Shallow groundwater flow across the Site is affected by hydraulic conductivity, topography, drainage, and geology. Based on the groundwater elevations across the Site it is determined that shallow groundwater is generally flowing in a southwesterly direction. Groundwater elevations and flow direction are presented in **Drawing 13.** The groundwater flow direction map represents seasonal high groundwater elevations from February, 2022. Groundwater discharging conditions are observed within the Sandusky Drain and are represented in the Groundwater Flow map in **Drawing 13**.

4.6 Hydraulic Conductivity

Single well recovery tests (SWRT) were performed on four (4) selected monitoring wells on Site (BH2/MW, BH4/MW, BH7/MW-A and BH8/MW) to evaluate the hydraulic characteristics of the soil on Site. The results of the tests are summarized in **Table 4**, and the calculations are presented in **Appendix H**. The results provide information regarding the hydraulic conductivity of the soils surrounding the well screen.

Based on these tests, the estimated hydraulic conductivities are 8.2×10^{-4} m/s for sand and between 3.2×10^{-8} m/s and 9.0×10^{-7} m/s for silt. These results agree with literature values of hydraulic conductivities for sand ranging from 10^{-5} to 10^{-2} m/s and silt ranging from 10^{-9} to 10^{-5} m/s (Table 2.2, Freeze and Cherry; 1979).

Grain size analyses were carried out on select soil samples collected from the boreholes, with results summarized in **Table 4**, and shown graphically in **Appendix E**. A total of three (3) soil samples from Site were selected for grain size distribution analysis testing. Based on the grain size analyses, the hydraulic conductivity ranged from 3.1×10^{-7} m/s in silty sand till (BH1) to 4.5×10^{-5} m/s in sand (BH9). A hydraulic conductivity of 1.1×10^{-6} m/s was estimated for the silt till (BH8). The results of all hydraulic conductivity testing are compiled in the table below.

Table 4 – Hydraulic Conductivity Results

Sample ID	Lithology	Hydraulic Conductivity (m/s)
BH2/MW	Silt	7.3×10^{-8}
BH4/MW	Sand	8.2×10^{-4}
BH7/MW-A	Silt; Silt Till	9.0×10^{-7}
BH8/MW	Sand; Silt Till	3.2×10^{-8}
Grain Size Analyses		
BH1, SA7	Silty Sand Till, Gravelly	3.1×10^{-7}
BH8, SA4	Silt Till, sandy	1.1×10^{-6}
BH9, SA5	Sand	4.5×10^{-5}

4.7 Groundwater and Surface Water Quality

Groundwater and surface water sampling was completed on September 28, 2021 and March 17, 2022. A total of four (4) groundwater monitoring wells (BH3/MW, BH7/MW-A and BH7/MW-B and BH9/MW) and four (4) surface water locations (SW Station 1, Station 2, Station 4 and Station 5) were selected for sampling. Water quality tables are presented in **Appendix I** and complete laboratory chain of custody results are provided in **Appendix J**.

Groundwater quality was compared to the Ontario Drinking Water Quality Standards, Objectives and Guidelines (ODWQS) (O.Reg. 169/03). Although the groundwater on Site is not planned for use as drinking water, these guidelines are used for comparison's sake only. As demonstrated in the tabulated results in **Appendix I**, no parameters exceeded the ODWQS guidelines for any sampled monitoring wells with the exception of uranium which exceeded the ODWQS of 20 ug/L with a concentration of 35 ug/L at BH7/MW-A on March 17, 2022.

Surface water quality was compared to Ontario Provincial Water Quality Objectives (PWQO) (MOEE 1994). The PWQO guidelines for several parameters were exceeded in the surface water stations. The following table summarizes the detected exceedances (**Table 5**). Total aluminum exceeded the PWQO guideline of 75 ug/L in all surface water stations. Total arsenic exceeded the PWQO guideline of 5 ug/L in surface water Station 1. The metals cobalt, iron and zinc concentrations exceeded the PWQO guideline in surface water Stations 1 and 5 and the PWQO guideline for copper was exceeded only in surface water Station 5.

Table 5 – Surface Water Quality Exceedances

Parameter	PWQO Guideline	Station 1 9/28/21	Station 1 3/17/22	Station 2 9/28/21	Station 2 3/17/22	Station 4 9/28/21	Station 4 3/17/22	Station 5 9/28/21	Station 5 3/17/22
Total Aluminum	75 ug/L	1300	84	*	75	140	100	940	1100
Total Arsenic	5 ug/L	7.3	*	*	*	*	*	*	*
Total Cobalt	0.9 ug/L	2.3	2.4	*	*	*	*	*	1.0
Total Copper	5.0 ug/L	*	*	*	*	*	*	*	7.7
Total Iron	300 ug/L	39000	39000	*	*	*	*	1400	6200
Total Zinc	20 ug/L	26	43	*	*	*	*	*	80

Note: * meets PWQO

All the remaining tested parameters met PWQO guidelines. Complete chain of custody laboratory results are provided in **Appendix J**.

A Piper Diagram was prepared for the groundwater and surface water quality samples and is shown in **Drawing 14**. Both the groundwater and surface water quality results generally plot within the calcium magnesium bicarbonate alkaline zone of the Piper Diagram with a few outliers. SW Station 1 was found to have the highest chloride concentrations, likely due to runoff from Marion Street. SW Station 4 has the highest concentrations of sulfate on September 28, 2021, as a result of its organic wetland composition. BH7/MW-A shows a different chemical signature between the two sampling events with the sample from March, 2022 being an outlier. This sample had a much larger concentration of total dissolved solids (610 mg/L) than the sample collected in September 2021 (230 mg/L) and it is possible that this affected the chemical signature of the March 2022 sample of BH7/MW-A in the piper plot.

Schoeller Diagrams were also prepared for the groundwater and surface water quality samples for major and minor ions (**Drawings 15a to 15d**). Surface water SW Station 1 shows the highest concentrations in NaCl in both sampling events, further suggesting road salt impact from Marion Street. Sulfate concentrations are lower in SW Stations 1, 4 (March, 2022) and 5 compared to all other sampling locations.

5. Monthly Water Balance Assessment

The monthly water balance assessment for the Site was completed in accordance with the recommendations indicated in the guidance document "Hydrogeological Assessment Submissions: Conservation Authority Guidelines to Support Development Applications" (Conservation Ontario, 2013), and using appropriate site condition values obtained from Table 3.1 of the MOE Stormwater Management Planning and Design Manual (MOE, 2003). The results of the water balance are provided in **Appendix K**.

The water balance accounts for all water in and out-flows in the hydrologic cycle. Precipitation (P) falls as rain and snow. It can then run off towards wetlands, ponds, lakes, and streams (R), infiltrate into the ground (I), or evaporate from surface water and vegetation (ET). When long-term average values of P, R, I, and ET are used, then minimal or no net change to groundwater storage (ΔS) is assumed.

The annual water balance can be stated as follows:

$$\mathbf{P = ET + R + I + \Delta S}$$

Where:

P = precipitation (mm/year)

ET = evapotranspiration (mm/year)

R = runoff (mm/year)

I = Infiltration (mm/year)

ΔS = change in groundwater storage (taken as zero) (mm/year)

5.1. Precipitation and Evapotranspiration

The annual total precipitation used for this water balance (1011 mm/yr) is based on data provided by Environment Canada, based on the 30 year average data for climate normals, using the nearest local weather station information (London CS ID 6144478, located approximately 7.7 km northwest of the Site). In this detailed monthly water balance, precipitation as rain and snow are both considered. Snow storage and resulting snow melt in the winter and early spring months is considered as part of the evapotranspiration volumes.

Evapotranspiration combines evaporation and transpiration and refers to the water lost to the atmosphere. The rate of evapotranspiration is a function of the water holding capacity of the soil and varies with soil and vegetation type and amount of impermeable surface cover.

Monthly evapotranspiration volumes were calculated using the monthly water balance graphical interface created by the U.S. Geological Survey (USGS), Open-File report 2007-1088 (McCabe and Markstrom, 2007). This interface uses the principles outlined by Thornthwaite and Mather (1957) and permits the user to easily modify water balance parameters and provide useful estimates of water balance components for a specified location.

The difference between the annual precipitation and the annual evapotranspiration represents the surplus water which is available for infiltration and surface run-off. Distribution of the surplus water to infiltration is based on an infiltration factor based on site conditions for topography, cover vegetation and soil.

5.2 Infiltration and Runoff

The soil water holding capacities and infiltration rate were determined using values presented in Table 3.1 of the MOE Stormwater Management Planning and Design Manual (MOE, 2003) based on the vegetative cover and the hydrologic soil group. The weighted values based on the Site conditions are presented in the calculation sheets provided in **Appendix K**.

Localized infiltration rates will vary based on factors such as the saturated hydraulic conductivity of surface soils, land slope, rainfall intensity, relative soil moisture at the start of a rainfall event, and type of cover on the ground surface.

Based on soil mapping by the Ministry of Agriculture, Food and Rural Affairs, the surficial soils at the Site are predominantly B-type soils (sandy loam) within the eastern portion of the Site and D-A-type soils (clay-fine sand) in the western portion of the Site associated with the drains. This mapping is consistent with borehole and test pit logs from the Site indicating the soil cover is mainly silty sand, sandy silt to clayey silt in the eastern portion of the Site and sandy/organic in the western portion of the sand.

For the water balance analysis, soil moisture capacity for B-type soil was utilized in the eastern portion of the Site and mainly A-type soil in the western portion of the Site.

5.3 Pre-development and Post-development Calculations

Pre-development and Post-development monthly water balance calculations have been carried out and are based on available design data. This water balance will be provided to the stormwater engineer for consideration as part of the design of the proposed SWM strategy for the Site.

In general, the Site comprises a land area of approximately 45.31 hectares. To complete the Pre-development water balance, the Site was divided into four (4) drainage areas. The drainage areas are presented in **Drawing 16**. Area A (19.04 ha) drains directly into the Sandusky Drain. Based on the current development plan dated May 12, 2022 (**Appendix B**), it is understood that the Sandusky Drain and Wetlands A and C will be preserved in the post-development environment. Area B (7.17 ha) drains into Wetland C in the northeast portion of the Site, Area C (2.14 ha) drains to the southeast, and Area D (16.96 ha) drains south to southwest and ultimately reaches the Sandusky Drain through a culvert. It should be noted that Areas A and D both end in the Sandusky Drain and under post-development conditions, these areas are essentially combined as being drainage areas to the Sandusky Drain.

Existing conditions across the Site result in varying water holding capacities and infiltration factors. Each drainage area was individually estimated for the present coverage of vegetation under Pre-development conditions. Calculation worksheets are provided in **Appendix K**.

Water balance calculations were completed in accordance with the conceptual SWM strategy for the Site (Stantec, 2022). A map of the proposed drainage areas is provided in **Appendix B**. Detailed assumptions for the post-development water balance are included in **Appendix K**.

Table 6 provides a summary of the pre and post development water balance calculations.

Table 6: Summary of Water Balance Estimates

	Pre-Development	Post-Development	% Difference (No Mitigation)	Post - Development with Mitigation	% Difference with Mitigation
Drainage to the Sandusky Drain					
Estimated Runoff (m^3/year)	111,228	226,546	204%	135,928	122%
Estimated Infiltration (m^3/year)	69,161	36,354	53%	55,384	80%
Drainage to Wetland C					
Estimated Runoff (m^3/year)	20,779	25,264	122%	10,106	49%
Estimated Infiltration (m^3/year)	14,554	8,223	57%	11,710	80%
Drainage to the southeast (Ida Street)*					
Estimated Runoff (m^3/year)	6,506	3,212	49%	128	2%
Estimated Infiltration (m^3/year)	4,022	448	11%	3,224	80%

*Runoff and infiltration to the southeast (Ida Street) are significantly different due to a substantially smaller drainage area in the post development.

Due to the increased impermeable surfaces (such as rooftops, roadways, sidewalks, driveways), the proposed development is expected to result in a reduction in the post-development infiltration volumes, and a corresponding increase in the estimated run-off. Conservation Ontario Guidelines (Conservation Ontario, 2013) suggest a target of 80% of the pre-development infiltration being maintained in the post-development conditions.

Infiltration volumes to the Sandusky Drain is estimated to be 53% in the post-development environment with no mitigation measures implemented. If an estimated 40% of runoff was reduced and utilized for infiltration, the 80% target can be met in the Sandusky Drain catchment in the post-development environment.

Infiltration volumes to Wetland C is estimated to be 57% in the post-development environment with no mitigation measures implemented. If an estimated 60% of runoff was reduced and utilized for infiltration, the 80% target can be met in the Wetland C catchment in the post-development environment. It is recommended that only clean runoff from rooftops or landscaped areas be used as added mitigation to Wetland C.

Drainage to the southeast (proposed Ida Street) varies from 2.14 ha in the pre-development environment, to 0.54 ha in the post-development. Under post-development conditions, the majority of drainage is re-directed towards the Sandusky Drain. Due to this modified drainage path, the post-development infiltration and runoff volumes are low and would need to be mitigated significantly. At this time, the post-development mitigation measures are recommended across the development and these volume deficits in the southeast are likely to considered as mitigated volumes across the Site.

Due to the infiltration volume deficits observed across the Site in the post-development environment, it is recommended to use secondary infiltration and run-off reduction techniques to improve post development infiltration as described below.

5.4 Secondary Infiltration Opportunities

Low Impact Development (LID) is a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible (TRCA, 2010). Effective management of stormwater is critical to the continued health of our streams, rivers, lakes, fisheries and terrestrial habitats. The primary objectives of stormwater management includes maintaining the hydrologic cycle, protecting water quality, and preventing increased erosion and flooding.

The following list provides some mitigation measures which may be taken into consideration, during the detailed design stage of the development. These measures may include secondary infiltration by directing and capturing run-off water from impervious surfaces into landscaped areas where existing infiltration capacity can be utilized. More specifically, considerations may include the following:

- Landscaped areas should be graded to promote infiltration of surface water. Increased topsoil depth throughout yard and green space areas to reduce runoff. In general, a run-off reduction up to 30% may be possible in areas where increased topsoil thicknesses are utilized depending on final topsoil thickness, storm duration and intensity;
- Collection of rooftop run-off into side yard and rear yard swales and/or vegetative filter strips, which can be directed to infiltration trenches to promote infiltration;
- Installation of linear bioswales to collect and promote infiltration;
- Use of permeable pavers where feasible such as driveways and parking lots;
- Use of pervious pipes to promote infiltration of water collected in the storm sewer system;
- Routing pavement runoff to grassed areas;
- Planting of trees and bushes;
- Installing soakaway areas;
- Implementing rainwater harvesting (i.e. to re-use in toilet flushing and irrigation, etc.);
- Installing green roof technologies;
- Using filters/bio-retention (i.e. islands, parking areas, etc.);
- Installing absorbent landscaping; and,
- Installing oil/grit separators.

It is noted that water quality will need to be accounted for in the design of any mitigation measure, such as permeable pavers and pervious pipes, to account for potential impacts from contaminate sources such as winter maintenance on roads and parking lots.

If LID measures are being considered as part of the post-development design, consideration should be given to conducting field percolation tests, at proposed LID locations.

In terms of maintaining infiltration rates in post-development, the most effective stormwater management practices include installing infiltration trenches, lot grading, roof leader discharge to soakaway pits/pervious areas, using pervious pipes, and installing pervious catch-basins.

It is recommended that some of these practices be utilized in site planning and design in order to mitigate the impact of increased runoff and stormwater pollution. By implementing LID practices during development, infiltration volumes can be effectively stored and returned to the natural environment by various development technologies and methods described above.

6. Sourcewater Protection Considerations

6.1 Significant Groundwater Recharge Areas (SGRA)

Groundwater recharge is largely controlled by soil conditions, and typically occurs in upland areas. The groundwater flow direction has been previously identified as flowing in a southwesterly direction.

As defined in the Clean Water Act (2006), an area is a significant groundwater recharge area if,

1. the area annually recharges water to the underlying aquifer at a rate that is greater than the rate of recharge across the whole of the related groundwater recharge area by a factor of 1.15 or more; or

2. the area annually recharges a volume of water to the underlying aquifer that is 55% or more of the volume determined by subtracting the annual evapotranspiration for the whole of the related groundwater recharge area from the annual precipitation for the whole of the related groundwater recharge area.

An assessment report for the Upper Thames River Source Protection Area was completed by the Thames-Sydenham and Region Source Protection Committee. As defined by the Clean Water Act (2006) and identified by the Thames-Sydenham and Region Source Protection Committee, the eastern half of the Site is located within a SGRA with vulnerability scores of 4 and 6 (**Drawing 17**).

6.2 Highly Vulnerable Aquifers (HVA)

The susceptibility of an aquifer to contamination is a function of the susceptibility of its recharge area to the infiltration of contaminants. As defined in the *Clean Water Act (2006)*, the vulnerability of groundwater within a source protection area shall be assessed using one or more of the following groundwater vulnerability assessment methods:

1. Intrinsic susceptibility index (ISI).

2. Aquifer vulnerability index (AVI).

3. Surface to aquifer advection time (SAAT).

4. Surface to well advection time (SWAT).

In the Thames-Sydenham and Region, HVAs were mapped using the ISI method. The ISI method is an indexing approach using existing provincial Water Well Information System (WWIS) database. The ISI method is described in detail in the MECP's Technical Terms of Reference (2001). However, in short, the ISI method is a scoring system that takes into consideration the unique hydrogeologic conditions at a particular location. The scores are determined using a combination of the saturated thickness of each unit and an index number related to the soil type, and as such, the scores reflect the susceptibility of the aquifer to contamination.

As defined in the MECP's 2001 Technical Rules,

- an area having an ISI score of less than 30 is considered to be an area of high vulnerability;

- an area having an ISI score greater than or equal to 30, but less than or equal to 80, is considered to be an area of medium vulnerability; and,

- an area having an ISI score of greater than 80 is considered to be an area of low vulnerability.

The Thames-Sydenham and Region Source Protection Committee has determined, using the ISI method, that the western half of the Site is located within an HVA with a vulnerability score of 6 (**Drawing 18**).

7. Impact Assessment

7.1 Water Well Users

A search of the Ontario MECP WWR database was completed using a buffer of 1000 m from the centre of the Site to account for the site area. This resulted in the identification of 62 records for an area within approximately 500 m from the eastern and western Site boundaries and approximately 800 m from the northern and eastern site boundaries (**Drawing 19**). The majority of the wells were found to be located along Marion Street north of the Site.

Water uses in the area include the following:

- Domestic or domestic and livestock (45 wells);
- Livestock (1)
- Monitoring, test holes or observation wells (12 wells);
- Public (1);
- Unknown use (1); and
- Abandoned wells (2).

The approximate locations of identified wells are shown on **Drawing 19**, with the MECP WWR Summary provided in **Appendix F**. One of the MECP WWR classified as municipal (MECP Well ID 7115588) is a monitoring well based on the driller's log.

Domestic water supply in the local area wells is generally drawing from the confined intermediate sand and gravel aquifer or from the bedrock aquifer. Four (4) domestic wells and one public well within 500 m of the Site are reported as being less than 10 m deep. These wells were all installed between 1966 and 1979 and may no longer be in use given that much of the surrounding area is now developed and connected to municipal services as evident by the presence of fire hydrants in the area. If construction activities extend into the sand and gravel aquifer, there may be some impact to these shallow wells. A well survey was completed to further assess potential impacts. Results of the well survey are presented below.

Monitoring wells have been installed at the Site as part of the Site investigations to document stabilized groundwater conditions. Prior to the Site grading work, and when the monitoring wells are determined to be no longer required, the wells should be properly decommissioned in accordance with Ontario Regulation 903. Decommissioning a well which is no longer in use helps to ensure the safety of those in the vicinity of the well, prevents surface water infiltration into an aquifer via the well, prevents the vertical movement of water within a well, conserves aquifer yield and hydraulic head and can potentially remove a physical hazard.

7.2 Door to Door Well Survey

A door-to-door survey was completed in the vicinity of the mapped MECP WWR within 500 m of the Site along Marion Street to the north, Clara Street to the east, Catherine Street to the South and Ron Allen Drive to the west to confirm whether the shallow domestic wells are still in use. A total of 87 well survey forms were delivered on April 26, 2022.

To date, 12 responses have been received by EXP, and are summarized in **Table 7**, with full responses provided in **Appendix L**.

Table 7 – Well Survey Questionnaire Response Summary

Address	Response Received
4647 Marion Street	Municipal Water – No well present
4611 Marion Street	Private Well: ~1.8 m bgs shallow well installed more than 60 years ago. Static Water Level: shallow *Based on the MECP WWR Driller Log, this well is dug to 24.4 m bgs (WWR Well ID: 4102895) No connection to municipal water
4984 Marion Street	Private Well- 19.8 m bgs well in use Likely no municipal water
4673 Marion Street	Private Well- 25.9 m bgs drilled well installed in ~1964 Static Water Level: 18.9 m bgs The property is connected to municipal water and the well is no longer in use.
4231 Catherine Street	Municipal Water – No well present
3826 Catherine Street	Private Well- in use well installed in ~1954, depth unknown Likely no municipal water
3832 Catherine Street	Municipal Water – No well present
4216 Catherine Street	Likely municipal water
4218 Catherine Street	Likely municipal water
289 Clara Street	Municipal Water – No well present
268 Clara Street	Private Well: ~2.4 m bgs shallow dug well Static Water Level: approximately 1.8 m bgs The property is connected to municipal water and the well is no longer in use.
272 Clara Street	Municipal Water – No well present

Based on the results from the door-to-door survey, it has been confirmed that a number of residences within 500 m of the Site utilize private well water.

7.3 Surface Water Features

Several drains are mapped within the Site include the Sandusky Drain, the Porter Subdivision Drain and the Hunter Branch which all drain south into the Hunt Drain. EXP staff noted the Porter Subdivision Drain does not exist on Site. Additionally, there are unmapped wetlands including Wetland A to the west of the Sandusky Drain and Wetland B and Wetland C in the northeast portion of the Site. Maps of the surface water features and drainage on Site are provided in **Drawing 2** and **Drawing 3**.

Wetland B is proposed to be removed and may be either compensated on-site in Wetland C or off-site. Wetlands A and C as well as the Sandusky Drain will be predominantly retained.

The current design plan for the Site includes natural heritage buffer areas surrounding each wetland area. During development of catchment areas to wetland features and surface water features, it is important that design features are considered which will provide sufficient quality and quantity of runoff and infiltration to the natural features, in order to maintain existing conditions.

The wetland and surface water features are considered as being vulnerable to contamination from surface sources. During construction, short term impacts to the surface water may be anticipated, particularly where vegetation on nearby land is stripped and area grading works are underway.

The following comments are provided with recommendations to help minimize impact to surface water features observed at the site:

- During the site grading work, suitable sedimentation controls will be required to help control and reduce the turbidity of run-off water which may flow towards the surface water features;
- A Best Management Practice (BMP) and spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities;
- Re-establishing vegetative cover in disturbed areas following the completion of the construction work;
- Limit the use of commercial fertilizers in landscaped areas which border a habitat feature; and,
- Limit the use of salts or other additives for ice and snow control on the roadways and parking areas.

7.3.1 General Comments

As due diligence, the following comments are provided with recommendations to help minimize impact to the surface water features on Site:

- During the site grading work, suitable sedimentation controls will be required to help control and reduce the turbidity of run-off water;
- A Best Management Practice (BMP) and spill contingency plan (including a spill action response plan) should be in place for fuel handling, storage and onsite equipment maintenance activities to minimize the risk of contaminant releases as a result of the proposed construction activities;
- Re-establishing vegetative cover in disturbed areas following the completion of the construction work;
- Limit the use of commercial fertilizers in landscaped areas which border a habitat feature; and,
- Limit the use of salts or other additives for ice and snow control on the roadways and parking areas.

7.4 Construction Dewatering Considerations

Daily construction water takings in excess of 50,000 L/day require an Environmental Activity and Sector Registry (EASR) in accordance with Ontario Regulation 63/16. For volumes of 400,000 litres or more per day, a Category 3 permit to take water (PTTW) applications will need to be approved by the MECP according to Sections 34 and 98 of the Ontario Water Resources Act R.S.O. 1990 and the Water Taking and Transfer Regulation O. Reg. 387/04.

Initial groundwater levels across the Site have been relatively high and near ground surface with groundwater levels up to less than 1 m bgs, with the exception of groundwater levels in monitoring well BH6/MW which is a the deepest

well screened at 10.7 m bgs. For the dewatering calculations, groundwater elevations were assumed at 0.5 m bgs, for the purposes of calculating the 'worst case scenario'. The dewatering calculations are based on existing conditions in the southwest portion of the Site where a shallow saturated sandy aquifer was observed.

Dewatering calculations were completed based on the following conservative assumptions:

- basement excavations of 20 x 20 m;
- sanitary sewer excavations of 5 x 50 m;
- steady state unconfined flow conditions are occurring;
- a groundwater elevation at 0.5 m bgs was assumed based on shallow groundwater levels found seasonally across the Site;
- dewatering target is assumed to be 0.5 m below base of excavation at 3.0 m bgs (basement foundation) and 3.5 m bgs (sanitary sewer);
- the underlying confining layer of sandy silt was encountered at approximately 250 m amsl (6 m bgs);
- the saturated sand is assumed to be encountered at the dewatering target depth; and
- the predominant soil to be encountered is sand with a hydraulic conductivity of 8.2×10^{-4} m/s.

The Dupuit Forcheimer Equation for unconfined flow into a radial excavation for the basement and linear excavation for the sanitary sewer (Powers et al., 2007) were used to estimate lateral flow into the proposed excavations. Based on the assumptions above, the estimated maximum dewatering rate at the proposed excavations is approximately 1,500,000 L/day for the basement and 2,500,000 L/day for the sanitary sewer. Dewatering calculations are provided in **Appendix M**.

Based on available groundwater levels and hydraulic conductivities of soils at the Site and assuming typical foundation depth of 3.5 m bgs for servicing and/or basement construction, a Category 3 PTTW for dewatering purposes is expected to be required. Dewatering estimates will need to be updated once a detailed design for the Site becomes available.

Any collected water from service trenches and temporary excavations should be discharged a sufficient distance away from the excavated area to prevent the discharge water from returning to the excavation. Sediment control measures should be provided at the discharge point of the dewatering system.

During construction, short term impacts to the near surface and shallow groundwater quantity may be anticipated as a result of construction dewatering where wet soils are present in open excavations. The length of time where this impact would occur would be limited to the time when active pumping of the groundwater is being carried out. Once construction activities are complete, the shallow groundwater levels would be expected to stabilize.

Several of the private wells in the area are installed in the shallow sand and gravel aquifer to depths less than 10 m bgs. Residents in the vicinity of the Site should be notified prior to construction activities and contingency measures will need to be in place to mitigate impacts to their water supply, if necessary.

8. Qualifications of Assessors

EXP Services Inc. provides a full range of environmental services through a full-time Earth and Environmental Services Group. EXP's Environmental Services Group has developed a strong working relationship with clients in both the private and public sectors and has developed a positive relationship with the Ontario MECP. Personnel in the numerous branch offices form part of a large network of full-time dedicated environmental professionals in the EXP organization.

This report was authored by Ms. Hagit Blumenthal M.Sc., P.Geo. Ms. Blumenthal has experience in conducting hydrogeological assessments. Ms. Blumenthal is a hydrogeologist and environmental geoscientist with more than 8 years' experience in the environmental field, and is a licensed Professional Geoscientist (P.Geo.) in Ontario. She obtained a Master of Science (M.Sc.) in 2010 from the University of Waterloo and has worked in the Hydrogeological and Environmental fields since then.

This report was reviewed by Ms. Heather Jaggard, M.Sc., P.Geo. Ms. Jaggard is a hydrogeologist and environmental geoscientist with more than 9 years in the environmental field and is a licensed Professional Geoscientist (P.Geo.) in Ontario. She obtained a Master's of Science (M.Sc.) in 2012 from Queen's University in Kingston, and is a Qualified Person (QP) registered with the Ontario MECP. She has worked in the Hydrogeological and Environmental fields since that time. In her professional career for the past few years, Ms. Jaggard has completed numerous hydrogeological assessments and modelling works for land development sites. Environmental site assessments and preparation of submissions for PTTW have been part of her routine assignments.

9. References

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10. General Limitations

The information presented in this report is based on a limited investigation designed to provide information to support an assessment of the current environmental conditions within the subject property. The conclusions and recommendations presented in this report reflect Site conditions existing at the time of the investigation. Consequently, during the future development of the property, conditions not observed during this investigation may become apparent. Should this occur, EXP Services Inc. should be contacted to assess the situation, and the need for additional testing and reporting. EXP has qualified personnel to provide assistance in regard to any future geotechnical and environmental issues related to this property.

Our undertaking at EXP, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the engineering profession. It is intended that the outcome of this investigation assist in reducing the client's risk associated with environmental impairment. Our work should not be considered 'risk mitigation'. No other warranty or representation, either expressed or implied, is included or intended in this report.

The comments given in this report are intended only for the guidance of design engineers. The number of test holes required to determine the localized underground conditions between test holes affecting construction costs, techniques, sequencing, equipment, scheduling, etc. would be much greater than has been carried out for design purposes. Contractors bidding on or undertaking the works should in this light, decide on their own investigations, as well as their own interpretations of the factual borehole results, so that they may draw their own conclusions as to how the subsurface conditions may affect them.

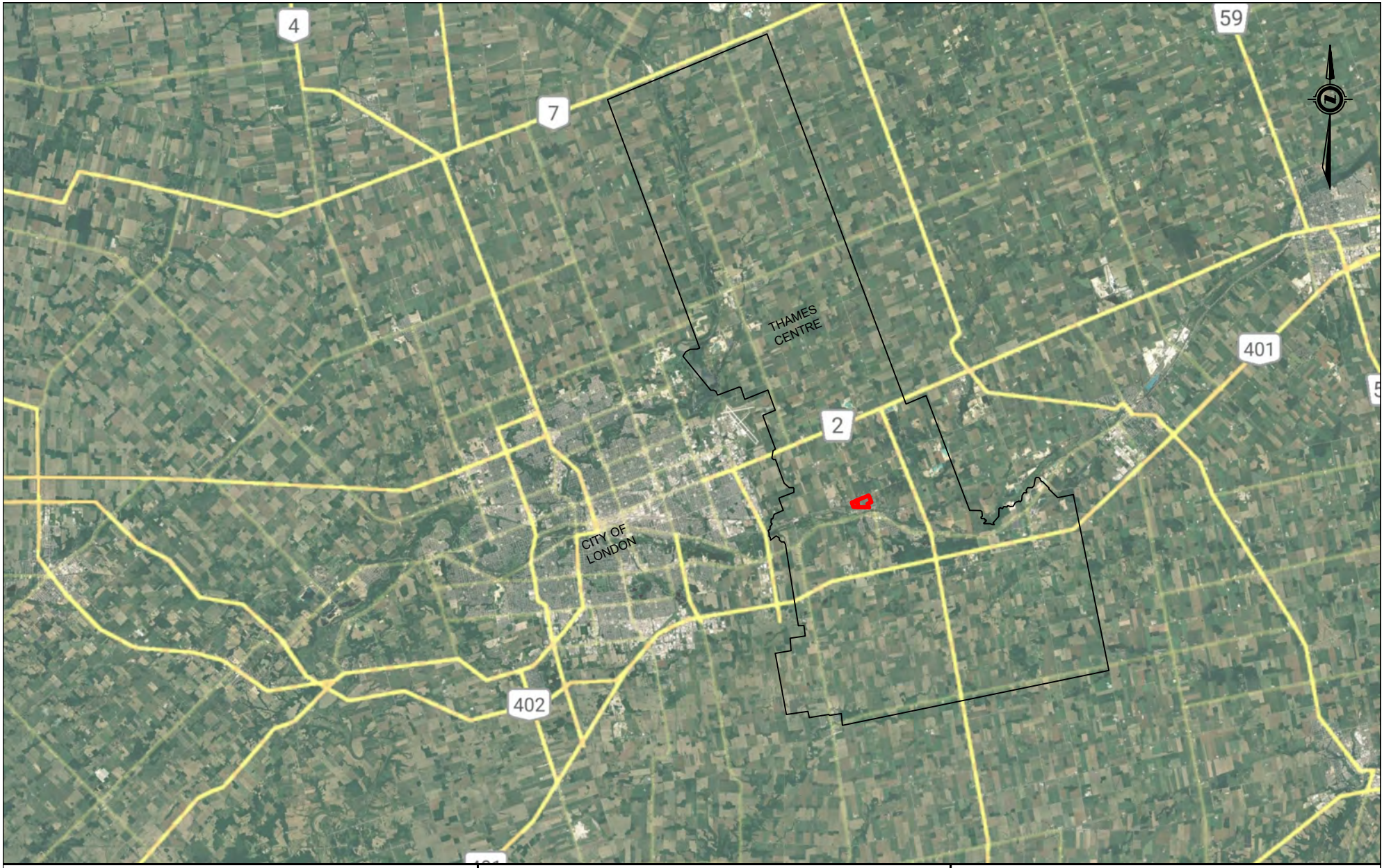
EXP Services Inc. should be retained for a general review of the final design and specifications to verify that this report has been properly interpreted and implemented. If not afforded the privilege of making this review, EXP Services Inc. will assume no responsibility for interpretation of the recommendations in this report

This report was prepared for the exclusive use of **Auburn Developments** and may not be reproduced in whole or in part, without the prior written consent of EXP, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We trust this report is satisfactory for your purposes. Should you have any questions, please do not hesitate to contact this office.

Appendix A - Drawings

6-405 Maple Grove Road | Cambridge, Ontario | Canada
t: +1.519.650.4918 | f: +1.519.650.4603 | exp.com



-LEGEND-

Approximate Site Boundary

Image Source: Google Earth Pro (July 2018)

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Site Location Plan
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

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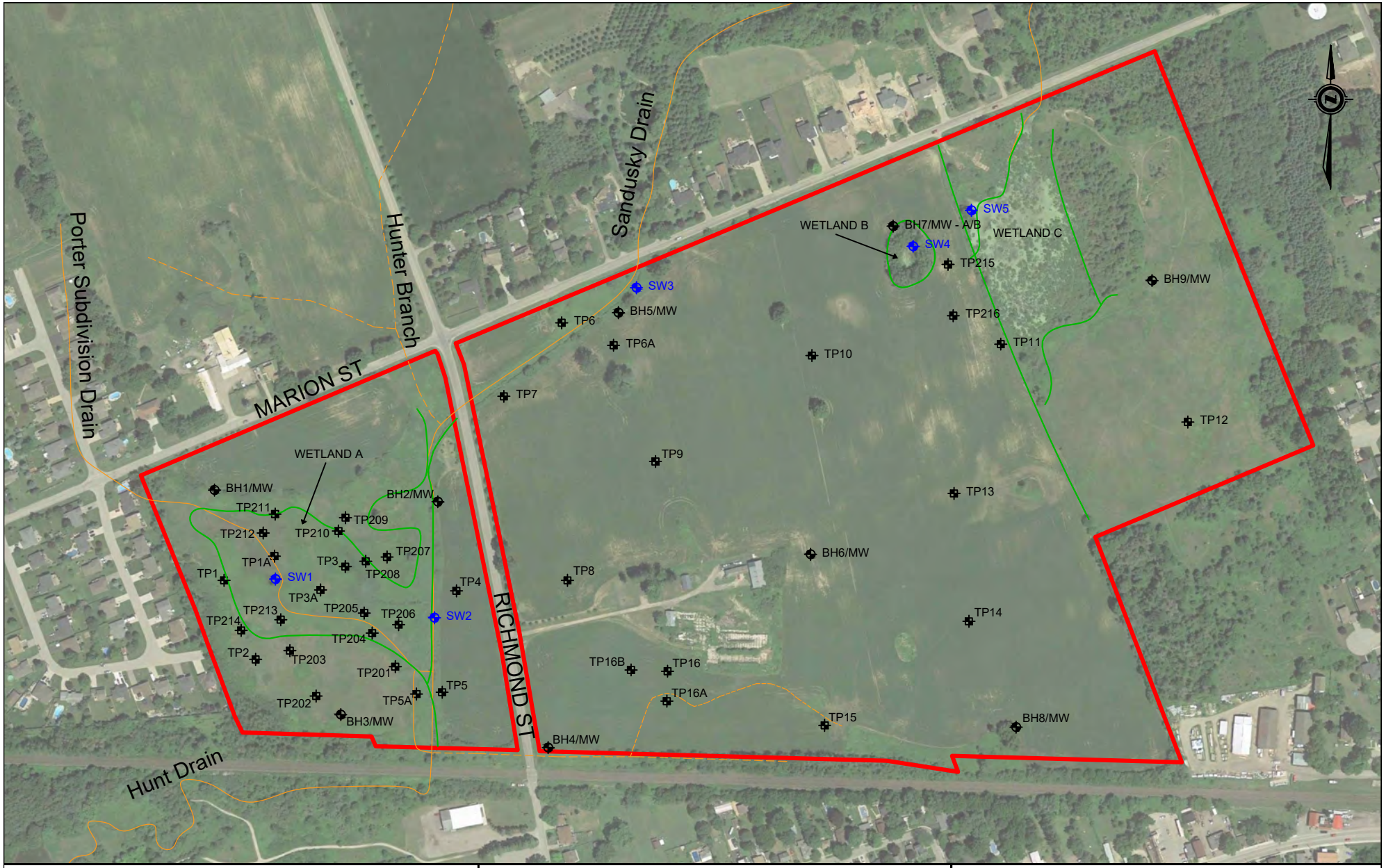

-LEGEND-

- Approximate Site Boundary
- BH1/MW — Approximate Monitoring Well Location
- TP1 — Approximate Test Pit Location
- SW1 — Approximate Surface Water Station Location
- Open or Unknown Drain
- Closed Drain
- WETLAND A — Wetland Areas as Identified by MTE

Image Source: Google Earth Pro (July 2018); Drains from Ontario AgMaps, Ministry of Agriculture, Food and Rural Affairs: lioapplications.lrc.gov.on.ca/AgMaps; Wetland Boundaries from MTE Development Plan (May 2022)

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Field Investigation Location Plan
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
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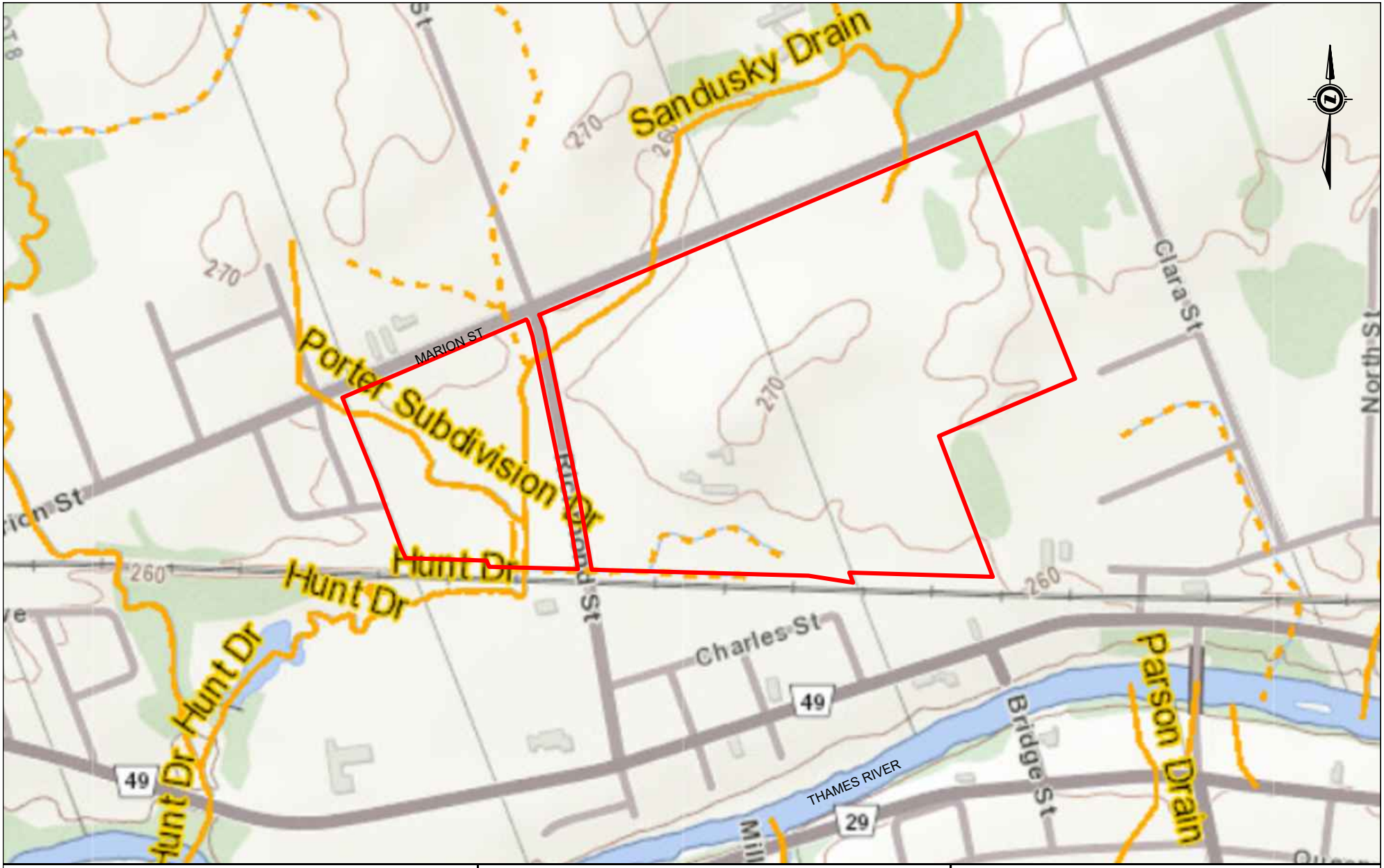

-LEGEND-

- Approximate Site Boundary
- Open or Unknown Drain
- Closed Drain

Image Source: Ontario AgMaps, Ministry of Agriculture, Food and Rural Affairs; lioapplications.lrc.gov.on.ca/AgMaps

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Site Area Drainage
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
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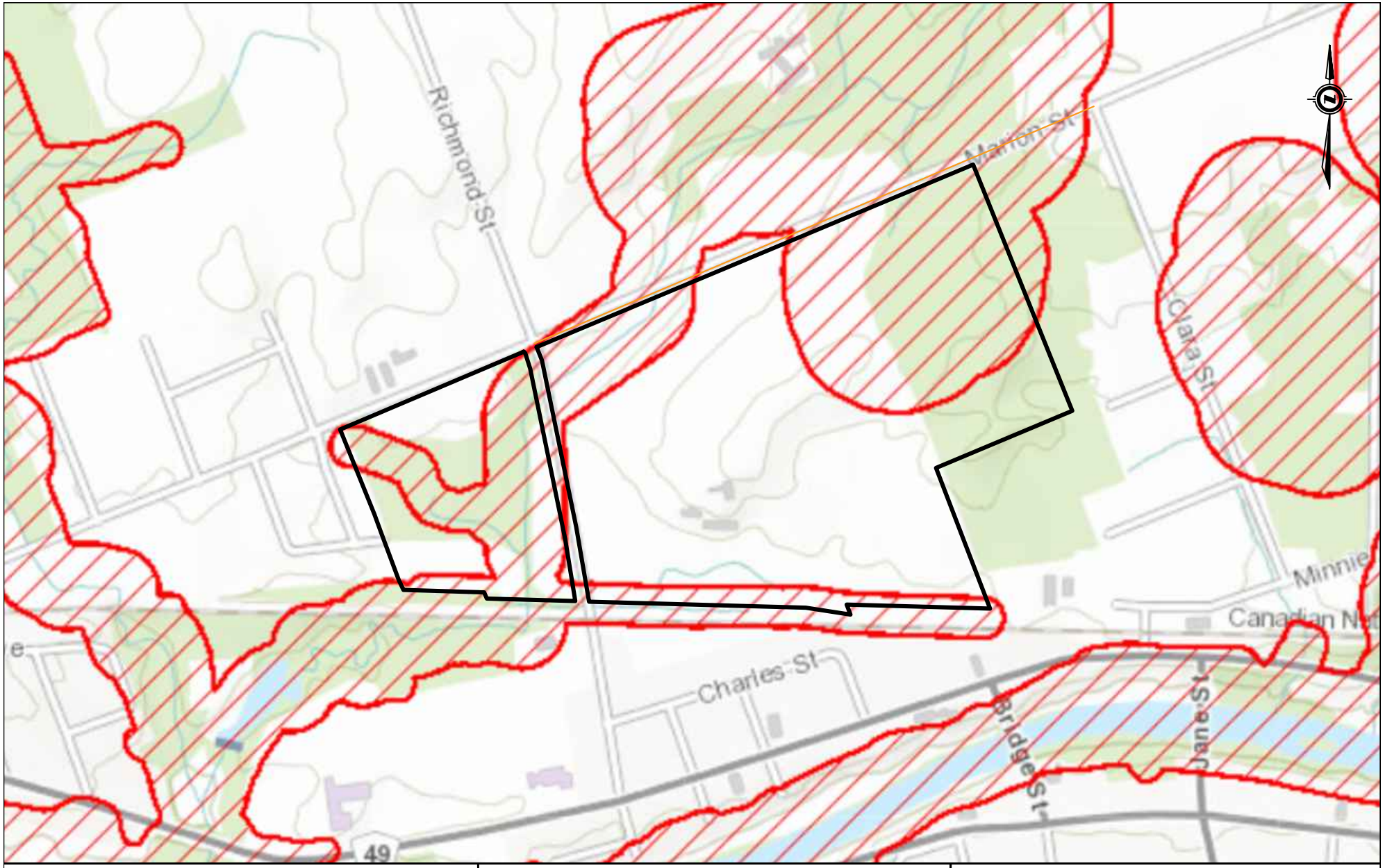

-LEGEND-

Approximate Site Boundary

Regulated Lands of the Upper Thames River Conservation Authority

Image Source: UTRCA Regulated Area Screening Map; maps.thamesriver.on.ca

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Regulated Lands of the UTRCA
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

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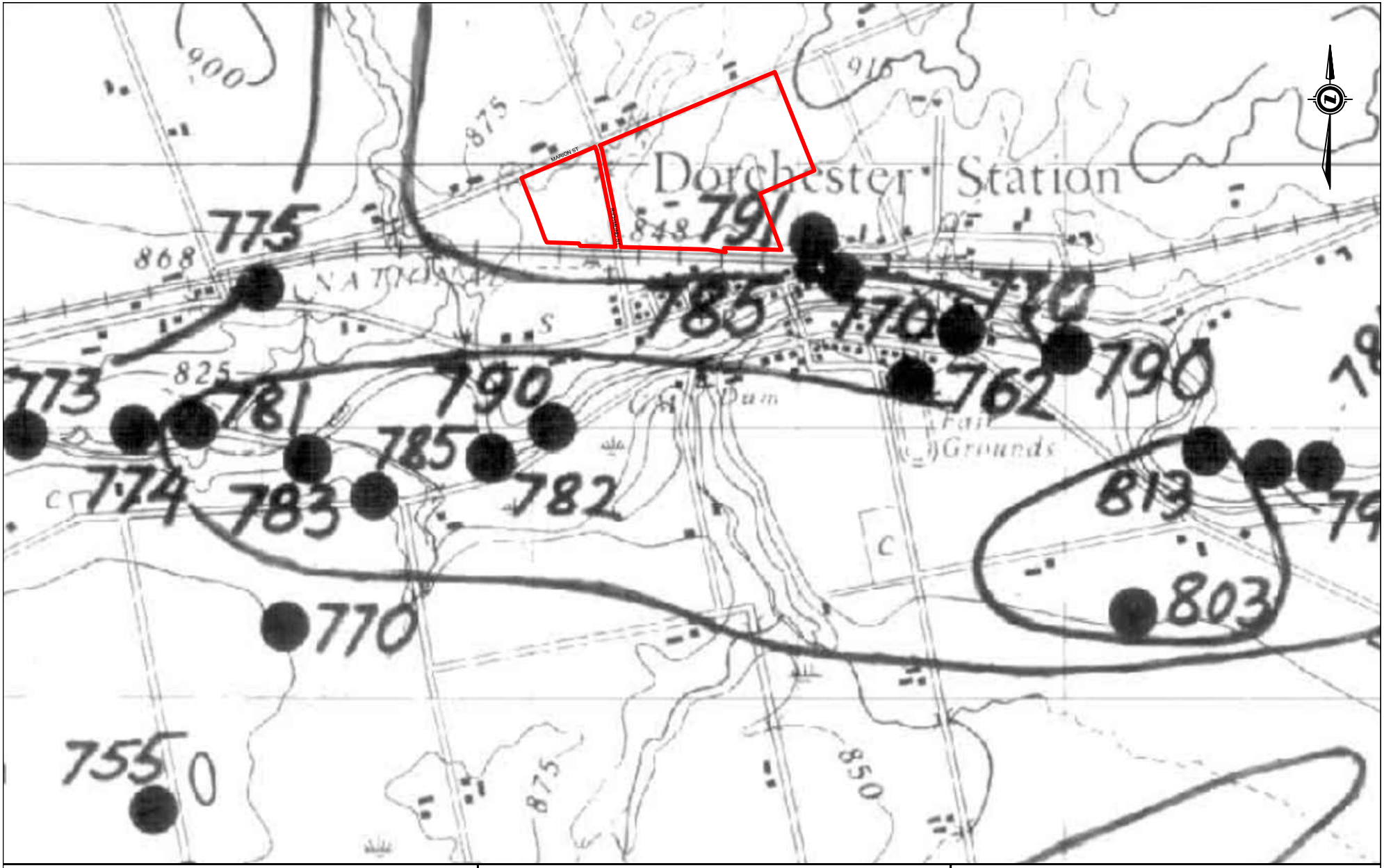

-LEGEND-

- Approximate Site Boundary
- 770 Bedrock Surface Elevation in a Well or Test Hole (feet)
- -770- Contours on Bedrock Surface (feet)

Image Source: Dreimanis, A., Vagners, U.J., and Pinder, G.F., 1968. St. Thomas Sheet, Southern Ontario, Bedrock Topography Series; Ontario Geological Survey, Preliminary Map No. P.482, 1:50,000.

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Bedrock Topography
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

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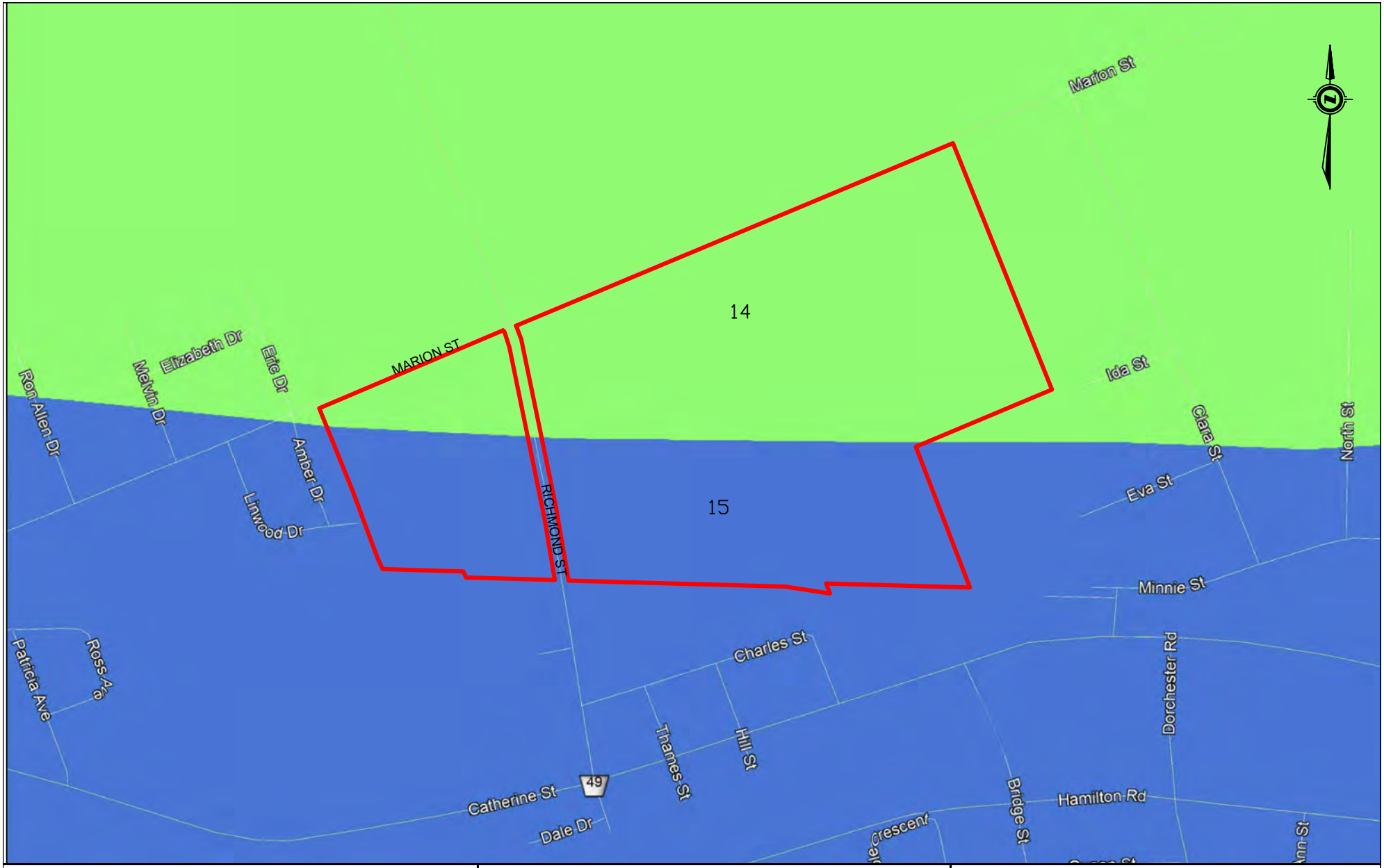

-LEGEND-

- Approximate Site Boundary
- 14 Oxford Till Plain
- 15 Mount Elgin Ridges

Image Source: Chapman, L.J. and Putnam, D.F. 2007. The Physiography of Southern Ontario; Ontario Geological Survey, Miscellaneous Release---Data 228.

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Physiographic Regions
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

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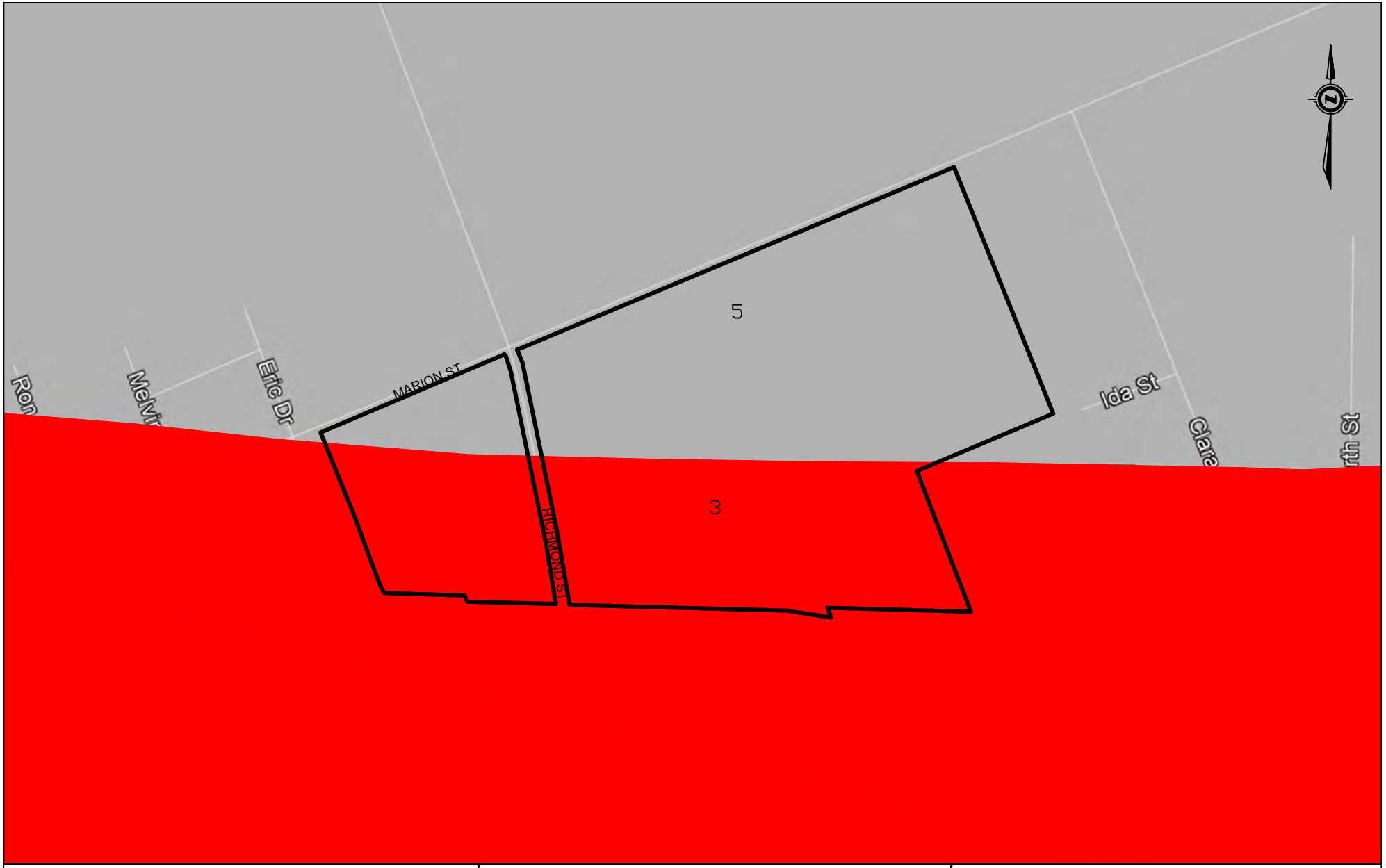
SEPTEMBER 2021	1:8,000	LON-21008138-A0	6



-LEGEND-

- Approximate Site Boundary
- 2 Spillways
- 5 Till Plains (Undrumlinized)

Image Source: Chapman, L.J. and Putnam, D.F. 2007. The Physiography of Southern Ontario; Ontario Geological Survey, Miscellaneous Release---Data 228.

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Physiographic Landforms
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
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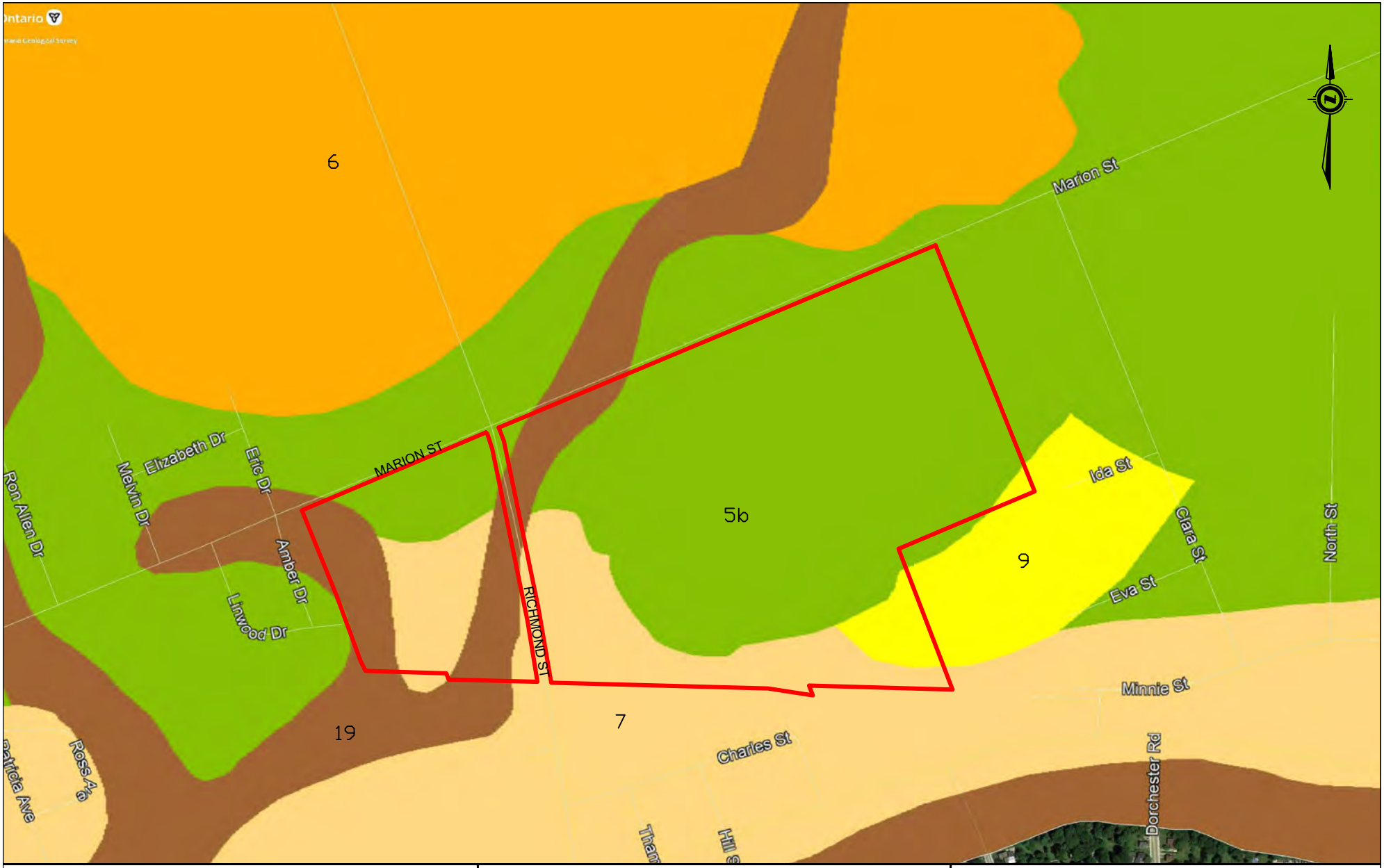

-LEGEND-

- Approximate Site Boundary
- 5b Till
- 6 Ice-contact stratified deposits
- 7 Glaciofluvial deposits
- 9 Coarse-textured glaciolacustrine deposits
- 19 Modern alluvial deposits

Image Source: Ontario Geological Survey 2010. Surficial Geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release---Data 128-REV.

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Surficial Geology
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
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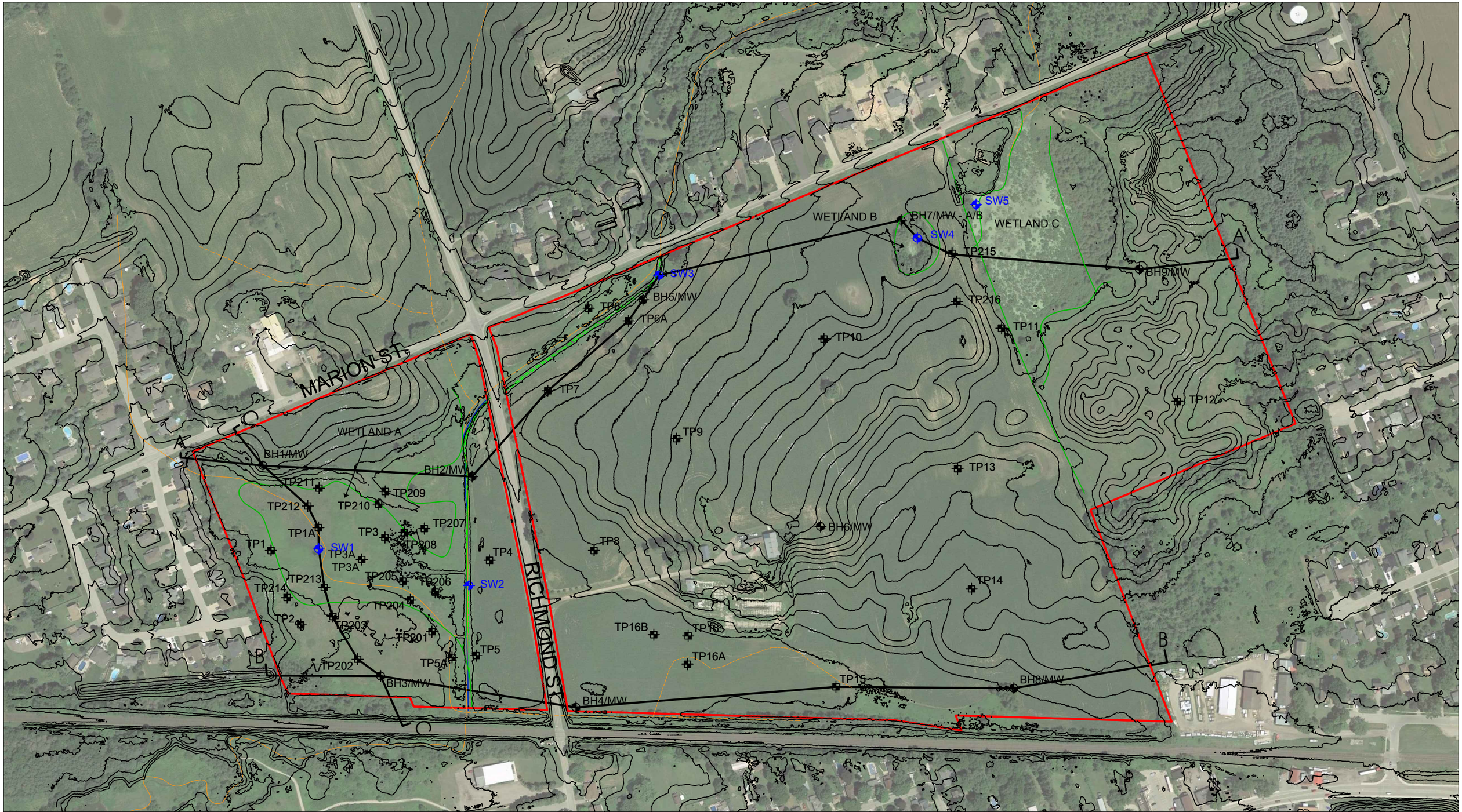


-LEGEND-

- Approximate Site Boundary
- Cross Section Line
- BH1/MW — Approximate Borehole Location
- SW1 — Approximate Surface Water Station Location
- TP1 — Approximate Test Pit Location
- Approximate Wetland Boundary
- Approximate Drain Location

-NOTES-

1. The cross section should be read in conjunction with EXP Hydrogeological Report dated November 2021 (Report No. LON-21008138-A0).

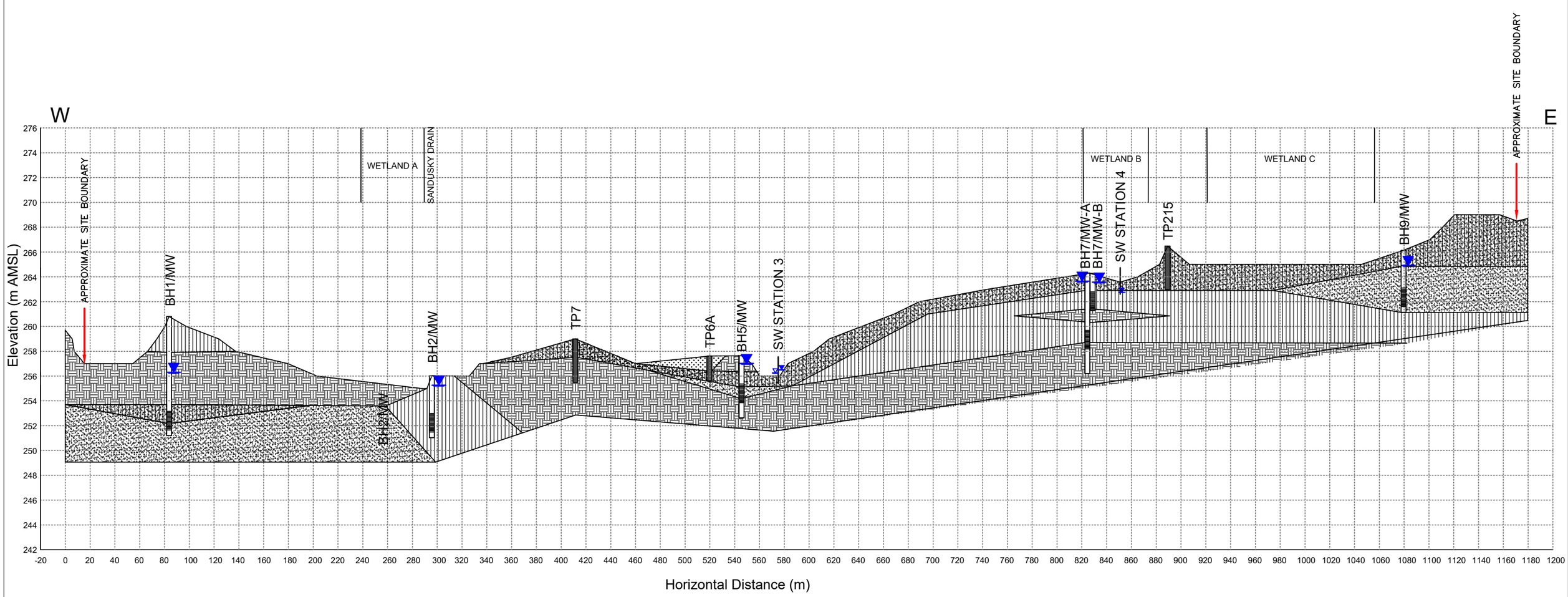
Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Cross Section Location Plan
DRAWN BY: K.D. / REVIEWED BY: H.B. / DATE: MAY 2022	
	EXP Services Inc. 15701 Robin's Hill Road London, ON, N5V 0A5
SCALE: 1:3500 / PROJECT NO.: LON-21008138-A0 / DWG.: 9	

CROSS SECTION A-A'



-LEGEND-

- Stabilized Groundwater Measurement
- Surface Water Elevation
- Fill
- Silt
- Clayey Silt/Till
- Peat/Organics
- Sand
- Sandy Silt/Silty Sand
- Sand and Gravel

-NOTES-

1. The cross section should be read in conjunction with EXP Hydrogeological Report dated November 2021 (Report No. LON-21008138-A0).

2. Water levels in the monitoring wells are based on measurements taken on September 28, 2021.

3. Soil types have been established only at borehole locations. Between boreholes they are assumed and may be subject to considerable error.

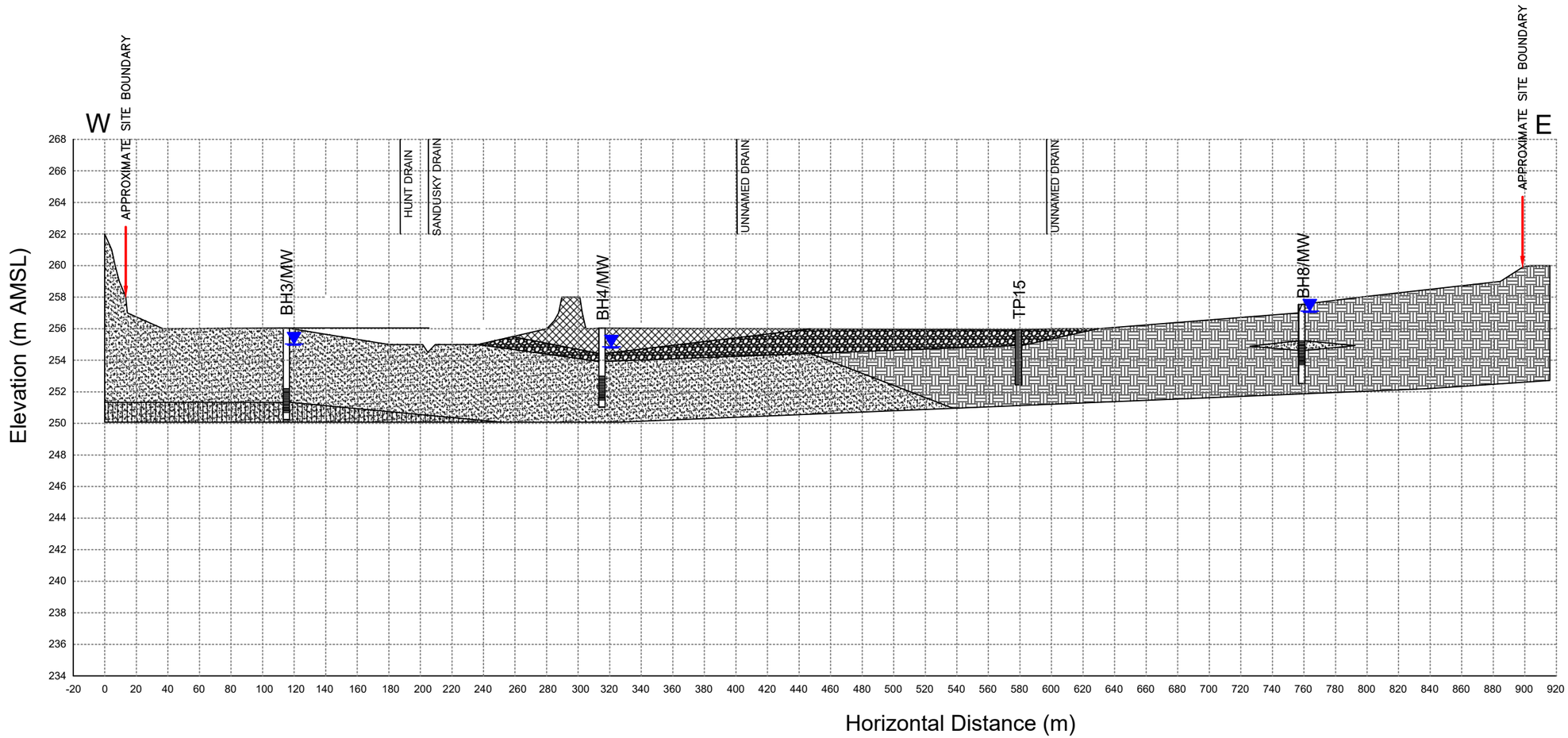
Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Generalized Cross Section A - A'
DRAWN BY: M.B. / REVIEWED BY: H.B. / DATE: NOVEMBER 2021	
	EXP Services Inc. 15701 Robin's Hill Road London, ON, N5V 0A5
SCALE: H=1:3,000, V=1:300 (11x17) / PROJECT NO.: LON-21008138-A0 / DWG.: 10	

CROSS SECTION B-B'



-LEGEND-

- Stabilized Groundwater Measurement
- Surface Water Elevation
- Fill
- Silt
- Clayey Silt/Till
- Peat/Organics
- Sand
- Sandy Silt/Silty Sand
- Sand and Gravel

-NOTES-

1. The cross section should be read in conjunction with EXP Hydrogeological Report dated November 2021 (Report No. LON-21008138-A0).
2. Water levels in the monitoring wells are based on measurements taken on September 28, 2021.
3. Soil types have been established only at borehole locations. Between boreholes they are assumed and may be subject to considerable error.

Hydrogeological Assessment

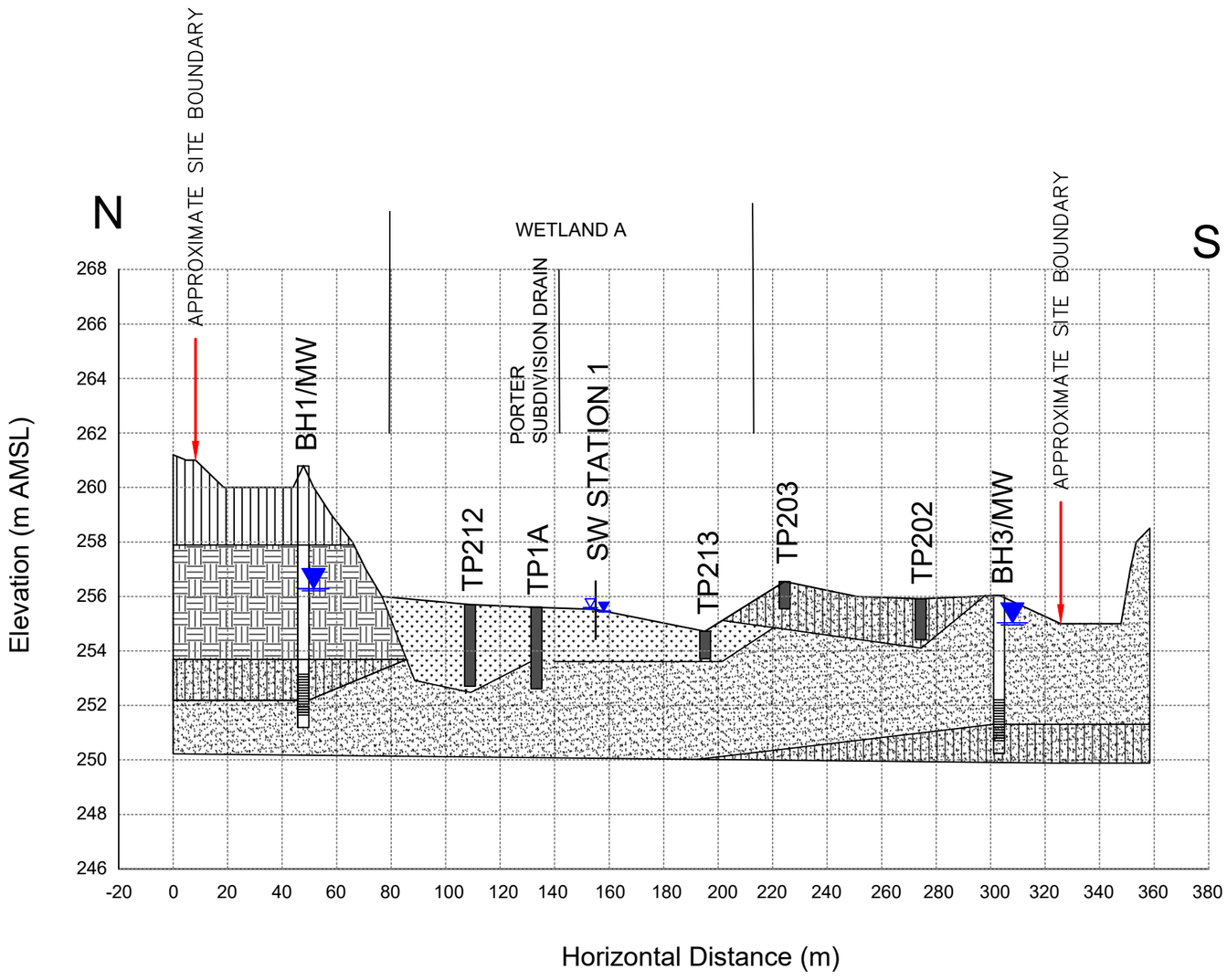
Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Generalized Cross Section B - B'
DRAWN BY: M.B. / REVIEWED BY: H.B. / DATE: NOVEMBER 2021	
SCALE	H=1:3,000, V=1:300 (11x17)
PROJECT NO.	LON-21008138-A0
DWG.	11

EXP Services Inc.
15701 Robin's Hill Road
London, ON, N5V 0A5

CROSS SECTION C-C'



-LEGEND-

- Stabilized Groundwater Measurement
- Surface Water Elevation
- Fill
- Silt
- Clayey Silt/Till
- Peat/Organics
- Sand
- Sandy Silt/Silty Sand
- Sand and Gravel

-NOTES-

1. The cross section should be read in conjunction with EXP Hydrogeological Report dated November 2021 (Report No. LON-21008138-A0).

2. Water levels in the monitoring wells are based on measurements taken on September 28, 2021.

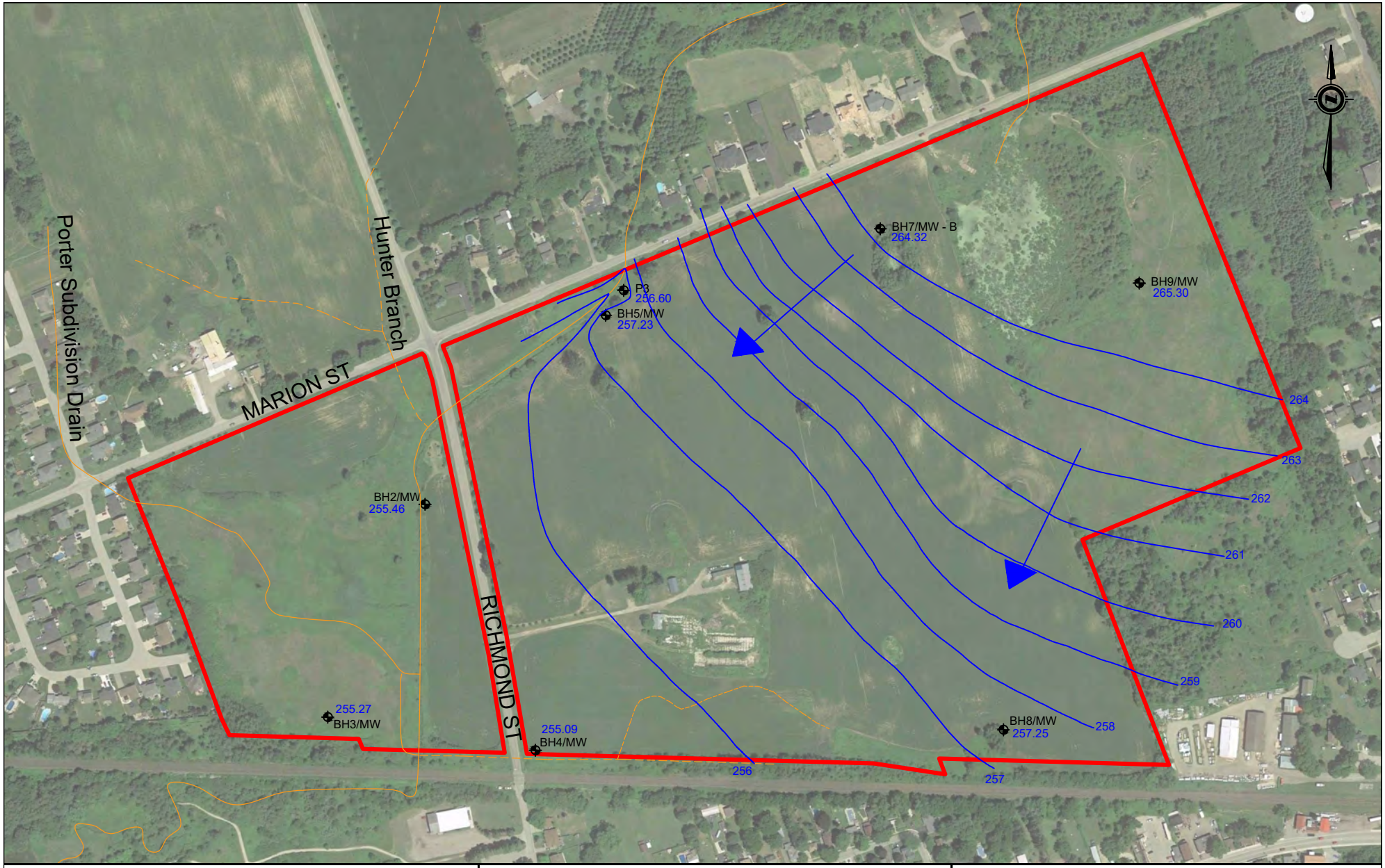
3. Soil types have been established only at borehole locations. Between boreholes they are assumed and may be subject to considerable error.

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Generalized Cross Section C - C'
DRAWN BY: M.B. / REVIEWED BY: H.B. / DATE: NOVEMBER 2021	
	EXP Services Inc. 15701 Robin's Hill Road London, ON, N5V 0A5
SCALE: H=1:2,000, V=1:200 (11x17) / PROJECT NO.: LON-21008138-A0 / DWG.: 12	



-LEGEND-

- Approximate Site Boundary
- BH1/MW — Approximate Monitoring Well Location
- Groundwater Contour - February 24, 2022 (m amsl)
- Groundwater Flow Direction - February 24, 2022 (m amsl)

Image Source: Google Earth Pro (July 2018)

Hydrogeological Assessment

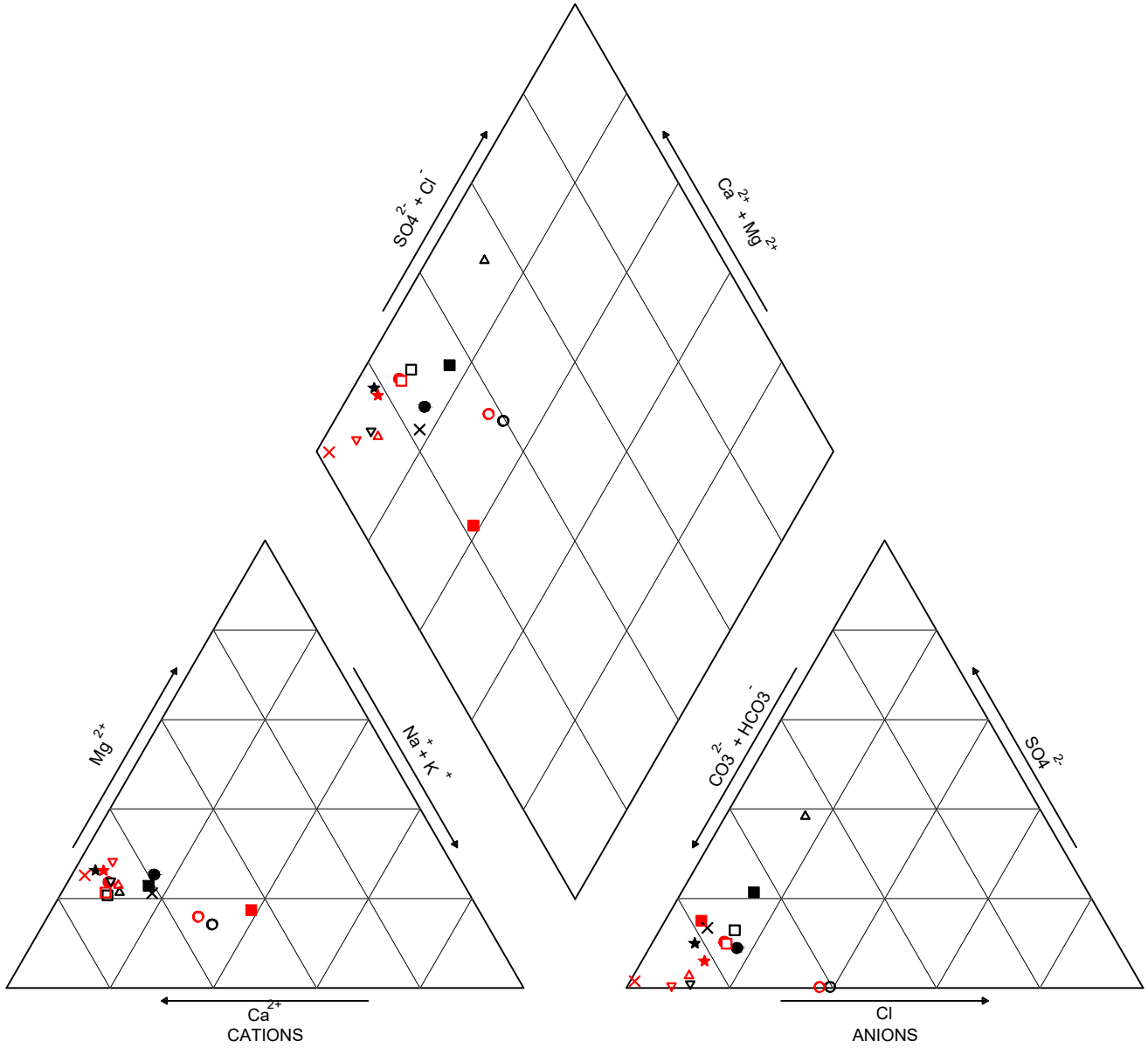
Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Groundwater Flow Direction
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
JUNE 2022	1:5,000	LON-21008138-A0	13



-LEGEND-

- BH3/MW (September 28, 2021)
- BH7/MW-A (September 28, 2021)
- BH7/MW-B (September 28, 2021)
- BH9/MW (September 28, 2021)
- SW Station 1 (September 28, 2021)
- SW Station 2 (September 28, 2021)
- SW Station 4 (September 28, 2021)
- SW Station 5 (September 28, 2021)
- BH3/MW (March 17, 2022)
- BH7/MW-A (March 17, 2022)
- BH7/MW-B (March 17, 2022)
- BH9/MW (March 17, 2022)
- SW Station 1 (March 17, 2022)
- SW Station 2 (March 17, 2022)
- SW Station 4 (March 17, 2022)
- SW Station 5 (March 17, 2022)

Hydrogeological Assessment

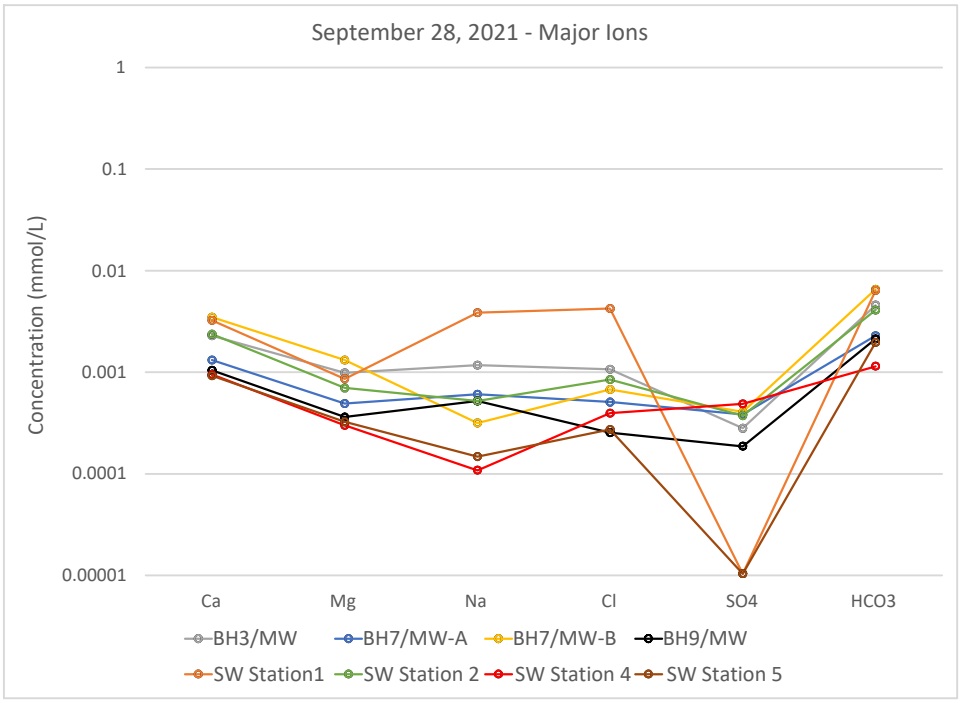
Hunter Farm Development

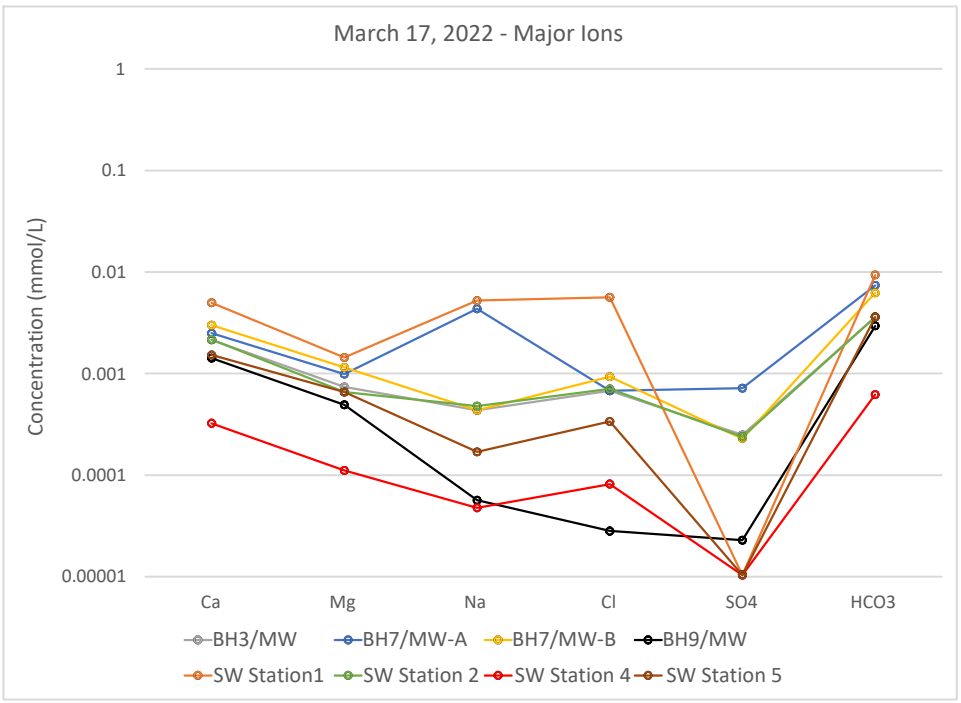
Marion Street, Dorchester, Ontario

CLIENT: Auburn Developments Inc.	
TITLE: Piper Diagram for Water Quality	
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
JUNE 2022	N/A	LON-21008138-A0	14





Hydrogeological Assessment

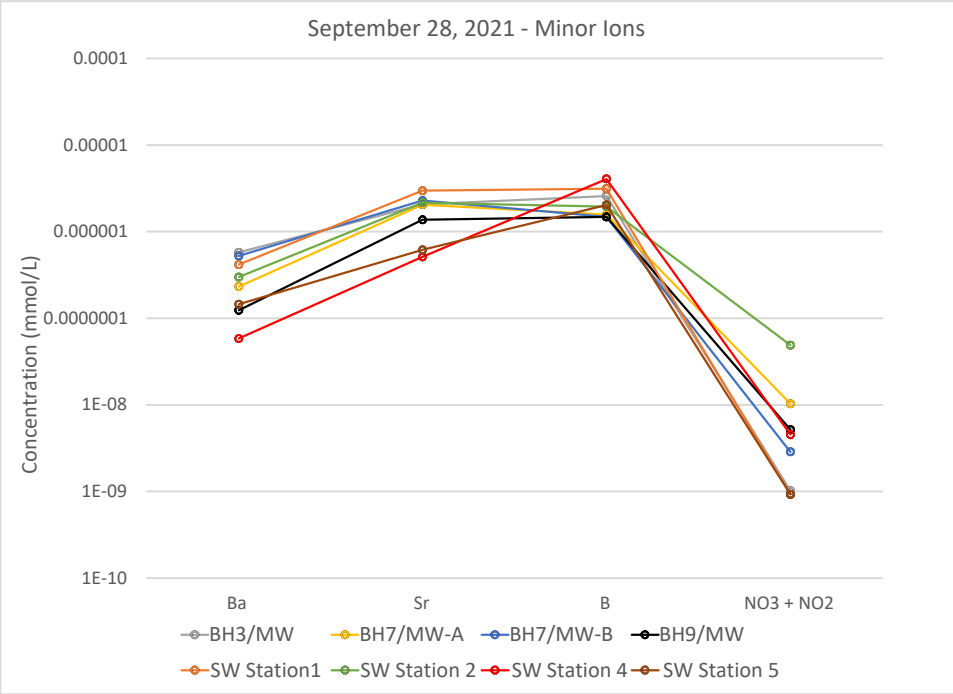
Hunter Farm Development

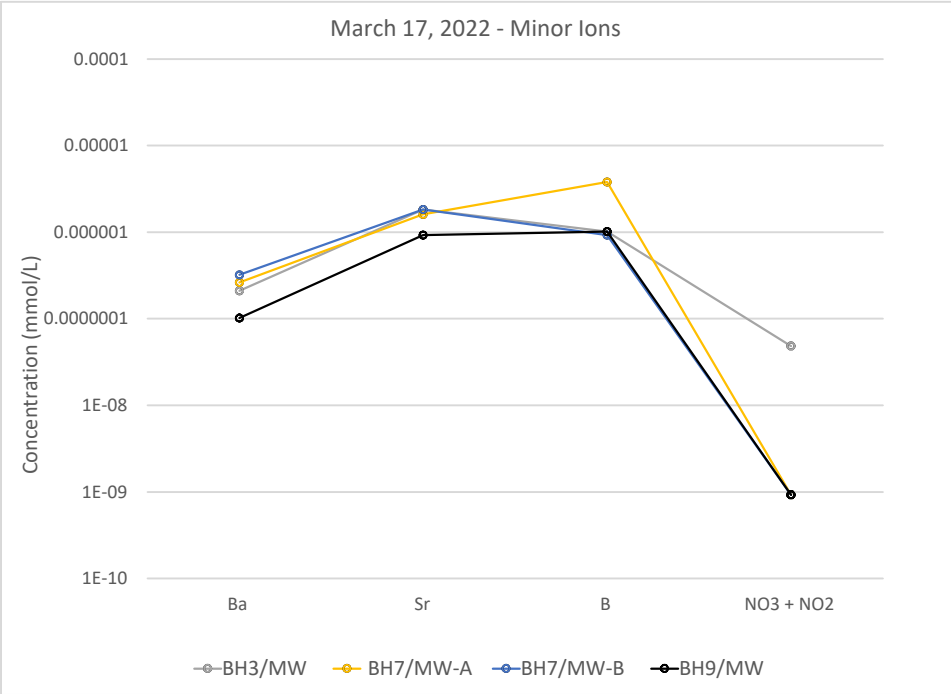
Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Schoeller Diagram for Water Quality (Major Ions)
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
JUNE 2022	N/A	LON-21008138-A0	15a





Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Schoeller Diagram for Water Quality (Minor Ions)
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
JUNE 2022	N/A	LON-21008138-A0	15b

CATCHMENT A
190407 m^2

CATCHMENT B
71714 m^2

CATCHMENT C
21368 m^2

CATCHMENT D
169611 m^2

-LEGEND-

Approximate Site Boundary

Surface Flow Direction

-NOTES-

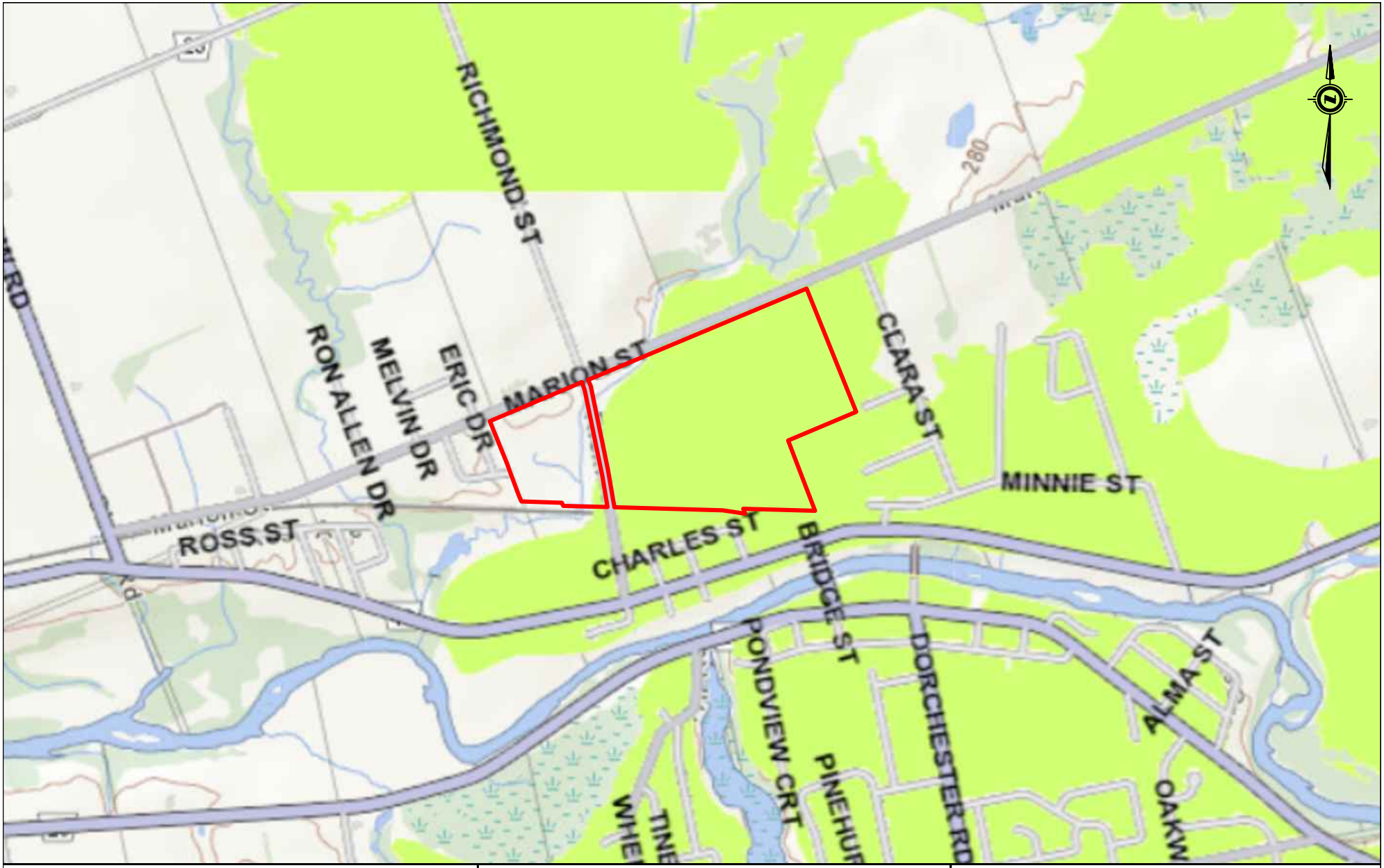
1. The drawing should be read in conjunction with EXP Report dated September 2021 (Report No. LON-21008138-A0).

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Drainage Catchments
DRAWN BY: K.D. / REVIEWED BY: H.B. / DATE: JUNE 2022	
	EXP Services Inc. 15701 Robin's Hill Road London, ON, N5V 0A5
SCALE: 1:3000 / PROJECT NO.: LON-21008138-A0 / DWG.: 16	



-LEGEND-

Approximate Site Boundary

Significant Groundwater Recharge Area - Approved

Image Source: UTRCA online mapping; maps.thamesriver.on.ca

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Significant Groundwater Recharge Areas
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
SEPTEMBER 2021	1:16,000	LON-21008138-A0	17

-LEGEND-

Approximate Site Boundary

Highly Vulnerable Aquifer - Approved

Image Source: UTRCA online mapping; maps.thamesriver.on.ca

Hydrogeological Assessment

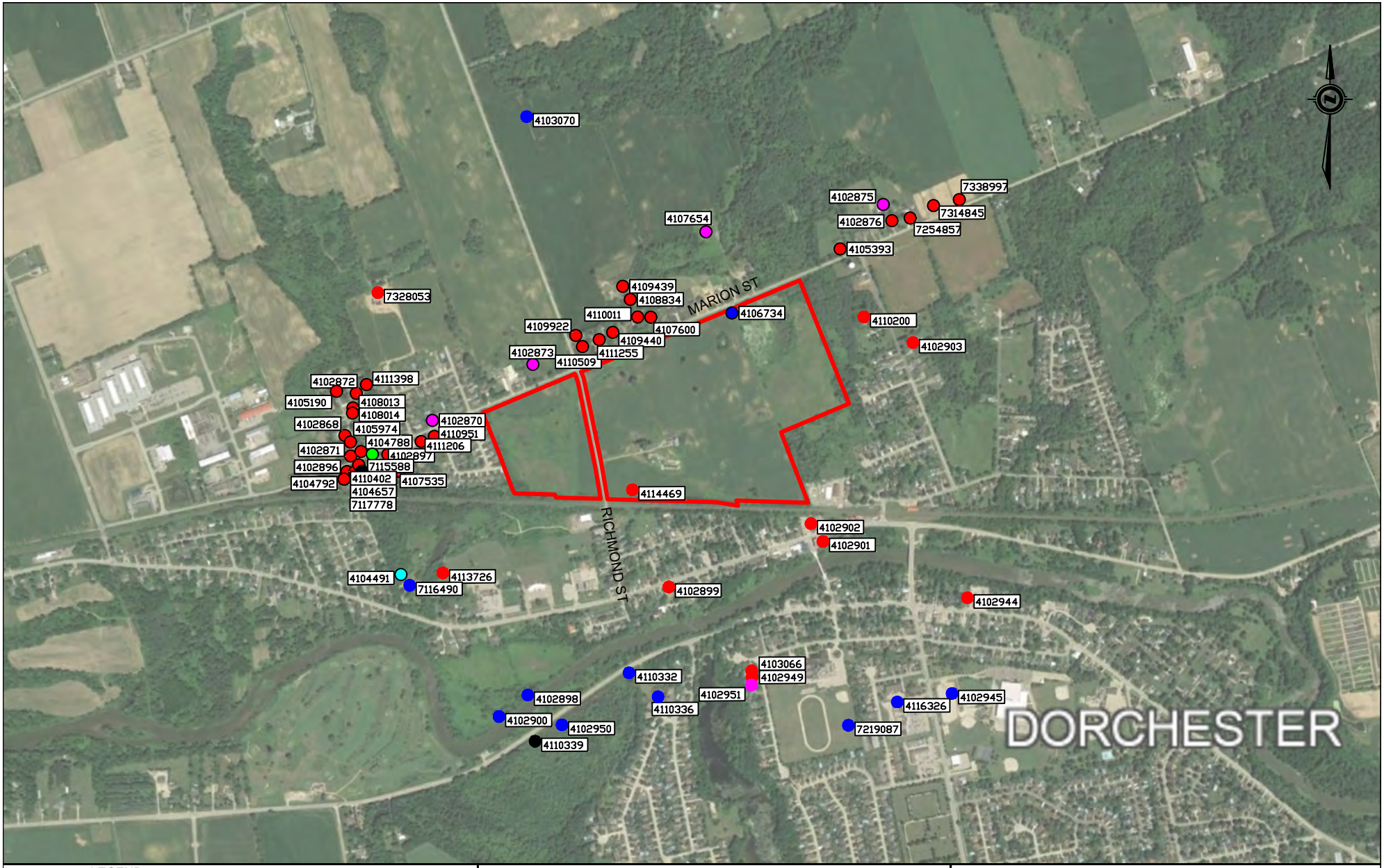
Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Highly Vulnerable Aquifers
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
SEPTEMBER 2021	1:16,000	LON-21008138-A0	18



-LEGEND-

- Approximate Site Boundary
- Domestic Well
- Observation Well or Test Hole
- Livestock Well
- Public Supply Well
- Municipal Well
- Abandoned Well

Image Source: Google Earth Pro (July 2018)

Hydrogeological Assessment

Hunter Farm Development

Marion Street, Dorchester, Ontario

CLIENT	Auburn Developments Inc.
TITLE	Approximate Location of MECP Registered Wells
Prepared By: K.D.	Reviewed By: H.B.

EXP Services Inc.
15701 Robin's Hill Road, London, ON, N5V 0A5

DATE	APPROXIMATE SCALE	PROJECT NO.	DWG.
SEPTEMBER 2021	1:16,000	LON-21008138-A0	19

Appendix B – Development Plan

6-405 Maple Grove Road | Cambridge, Ontario | Canada
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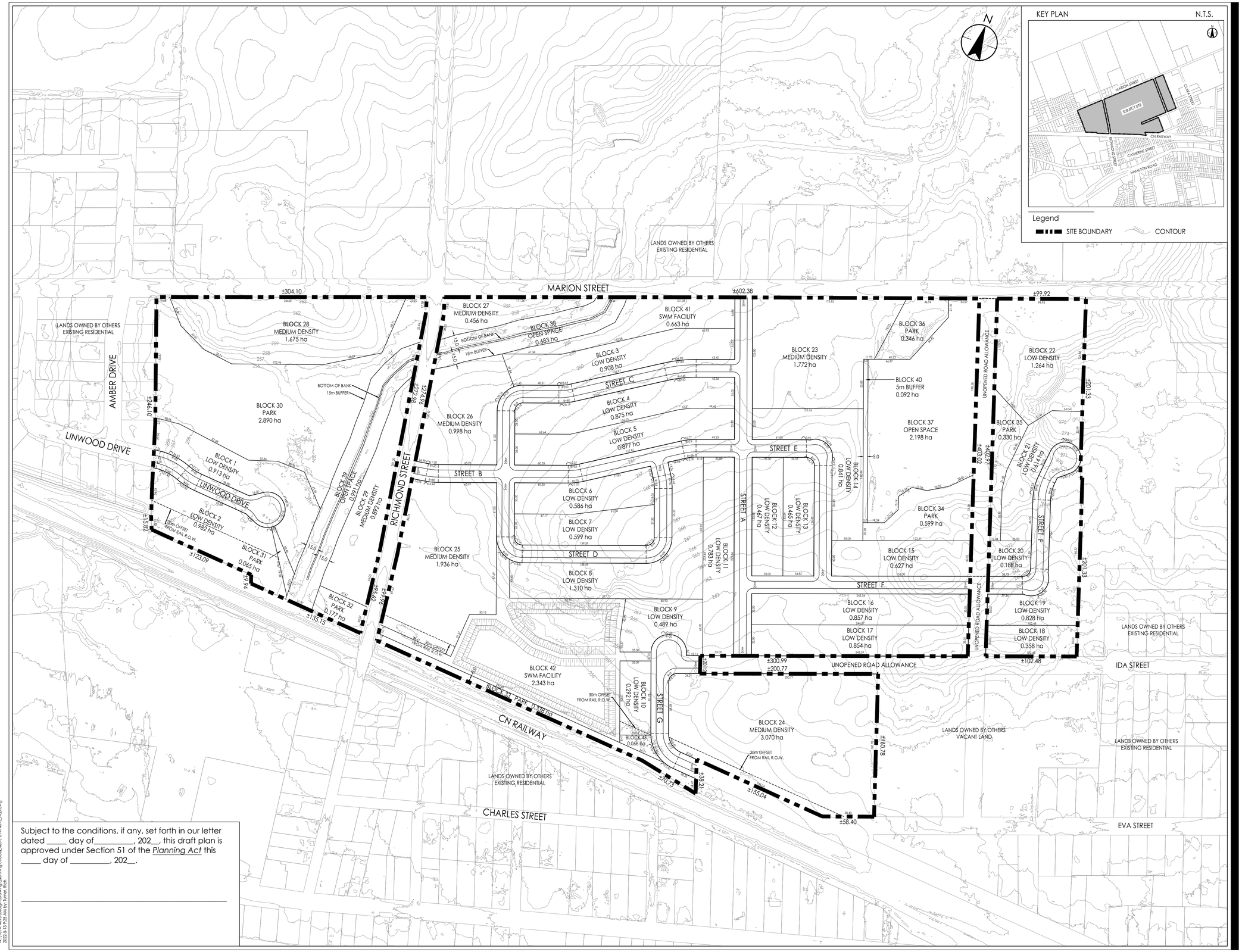


KEY PLAN N.T.S.

Legend

SITE BOUNDARY — CONTOUR

Subject to the conditions, if any, set forth in our letter dated _____ day of_____, 202__, this draft plan is approved under Section 51 of the *Planning Act* this _____ day of _____, 202__.

_____

Stantec
600-171 Queens Avenue
London ON N6A 5J7
Tel. 519-645-2007
www.stantec.com

DRAFT PLAN OF SUBDIVISION HUNTER PROPERTY

PART OF
LOTS 9 & 10
CONCESSION 4
IN THE
TOWN OF DORCHESTER
COUNTY OF MIDDLESEX

INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

- A: AS SHOWN ON DRAFT PLAN
- B: AS SHOWN ON DRAFT AND KEY PLAN
- C: AS SHOWN ON DRAFT AND KEY PLAN
- D: ACCORDING TO LAND USE SCHEDULE
- E: RESIDENTIAL, AGRICULTURAL
- F: AS SHOWN ON DRAFT PLAN
- G: AS SHOWN ON DRAFT AND KEY PLAN
- H: MUNICIPAL PIPED WATER TO BE INSTALLED
- I : T.B.D.
- J: AS SHOWN ON DRAFT PLAN
- K: MUNICIPAL SANITARY AND STORM SEWERS TO BE INSTALLED
- L: AS SHOWN ON PLAN

SCHEDULE OF LAND USE

LOW DENSITY RESIDENTIAL	- BLOCKS 1 - 22	15.977 ha
MEDIUM DENSITY RESIDENTIAL	- BLOCKS 23 - 29	10.799 ha
PARK	- BLOCKS 30 - 36	4.745 ha
OPEN SPACE	- BLOCKS 37 - 39	3.872 ha
5m BUFFER	- BLOCK 40	0.092 ha
SWM FACILITY	- BLOCKS 41 - 42	3.006 ha
PUMPING STATION	- BLOCK 43	0.066 ha
ROADS		5.155 ha
	TOTAL	43.712 ha

OWNER'S AUTHORIZATION

THE UNDERSIGNED AUTHORIZES THE PREPARATION AND SUBMISSION OF THIS DRAFT PLAN OF SUBDIVISION.

JAMIE CRICH, PRESIDENT
AUBURN DEVELOPMENTS INC.
AUTHORIZING AGENT — DATE

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED, AS SHOWN ON THIS PLAN, AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

JEREMY C.E. MATTHEWS O.L.S.
STANTEC GEOMATICS — DATE

File Name: 161414095_r-cp	RT	BB	RT	22.05.12
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Client/Project

AUBURN DEVELOPMENTS INC.

HUNTER PROPERTY

Dorchester, ON Canada

Title

DRAFT PLAN OF SUBDIVISION

Project No.	Scale	Revision
161414095	HORZ – 1 : 2000 (20 0 40m)	
Drawing No.	Sheet	
1	1 of 1	

\\N1.161414095\design\drawing\planning\model_files\161414095_r-cp.dwg
2022-5-13 9:25 AM by: Turner, Rich

EXISTING SERVICES	DRAWING #, SOURCE	DATE	CONSTRUCTED SERVICES	COMPLETION	DETAILS		No.	REVISIONS	DATE	CONSULTANT
					DESIGN	JC				
					DRAWN BY	JC				
					CHECKED	MM				
					APPROVED	MM				
					DATE	2022–03–31				

CONSULTANT OR DIVISION

Stantec

600 - 171 Queens Avenue
London, ON. N6A 5J7
www.stantec.com

ENGINEER'S STAMP

London CANADA

CORPORATION OF THE CITY OF LONDON

SCALE
HORZ – 1 : 2000
20 0 40m

TITLE
1598 RICHMOND STREET
DORCHESTER, ON CANADA

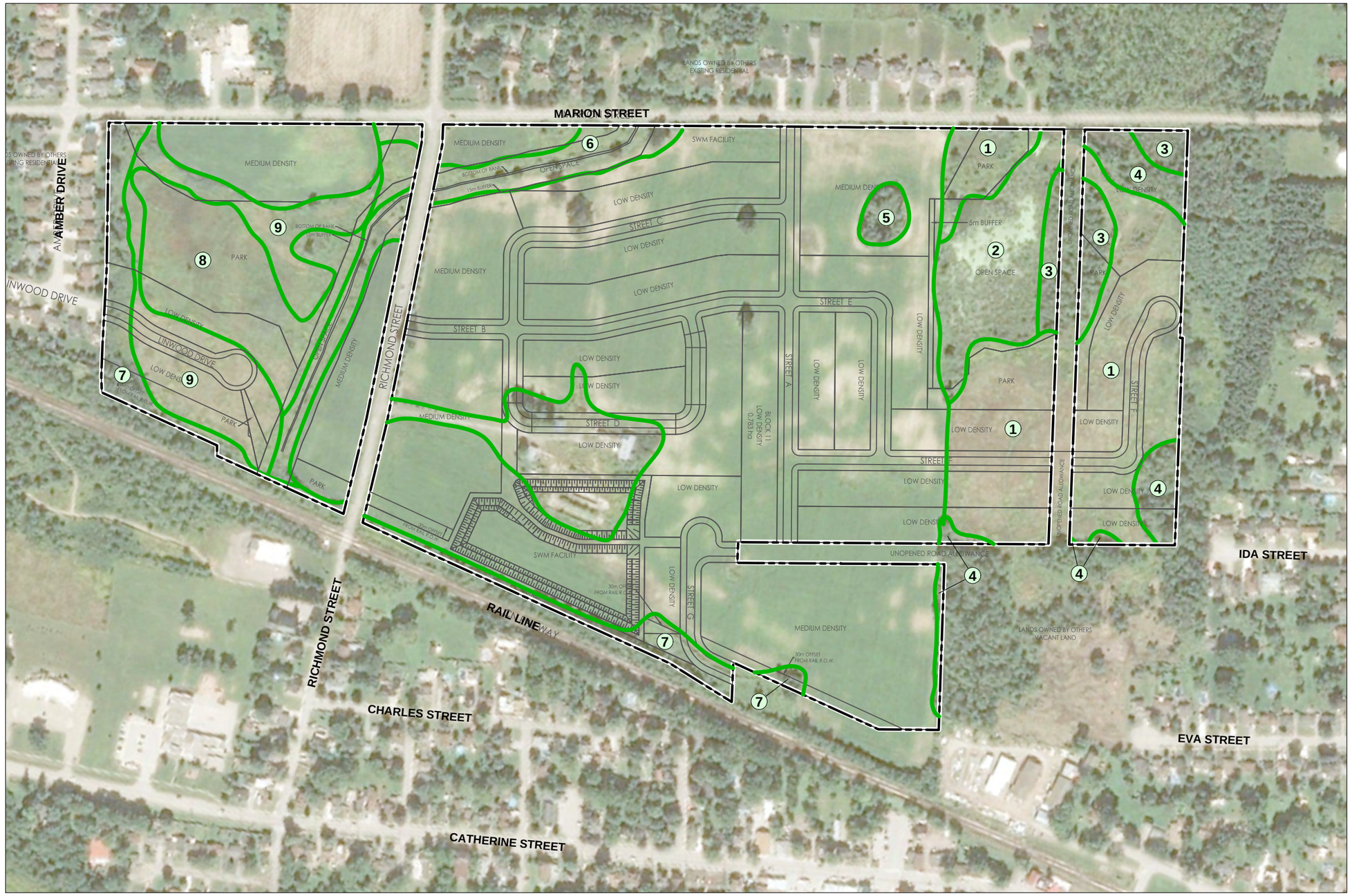
STORM DRAINAGE AREA FIGURE

PROJECT No. 161414095

SHEET No. Figure 3

PLAN FILE No.

V:\01614\active\161414095\design\drawing\civil\sheet_files\161414095_c_st.dwg
5/12/2022 9:08:04 AM by:Childs, Jason



ELC NUMBER	ELC CODE	Description
1	CUM1	Mineral Cultrual Meadow
2	MAS3	Organic Shallow Marsh
3	SWC3	White Cedar Organic Coniferous Swamp
4	CUW1	Mineral Cultrual Woodland
5	MAS	Shallow Marsh
6	MAMS/CUM1	Mineral Meadow Marsh / Mineral Cultrual Meadow
7	CUM1	Mineral Cutural Meadow
8	MAM2	Mineral Meadow Marsh
9	CUM1	Mineral Cutural Meadow
10		Residential Farmyard

SCALE IN METRES
0 50 100
1:4,000

LEGEND

- SITE BOUNDARY
- ① VEGETATION COMMUNITY

REFERENCES

BING IMAGERY AS OF JANUARY 18 - 2022 (IMAGE DATE UNKOWN); MRN LIO DATA, WATER BODIES AND WATER COURSES, 2022; AND CONCEPT PLAN PROVIDED BY STANTEC, AUTOCAD FILE "cad_161414095_20220513_draft_plan.dwg", MAY 13 - 2022.

NOTES

THIS FIGURE IS SCHEMATIC ONLY AND TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

BING IMAGERY USED FOR ILLUSTRATION PURPOSES ONLY AND NOT TO BE USED FOR MEASUREMENTS.

ALL LOCATIONS ARE APPROXIMATE.

MTE
Engineers, Scientists, Surveyors

PROJECT
NATURAL HERITAGE REPORT
HUNTER SUBDIVISION
DORCHESTER, ONTARIO

TITLE
DEVELOPMENT PLAN

Drawn	DCH	Scale	AS SHOWN
Checked		Project No.	48975-100
Date	May 16/22	Rev No.	0

FIGURE 8

Client: Auburn Developments Inc.

CAD: P:\48975\100\2_PROD\48975-100-R01 NATURAL HERITAGE REPORT\48975-100-R01001.DWG

Original Format in Tabloid (279mm x 432mm; 11" x 17")
0 25mm

Appendix C – Scoping Meeting Notes (April 20, 2022)

6-405 Maple Grove Road | Cambridge, Ontario | Canada
t: +1.519.650.4918 | f: +1.519.650.4603 | exp.com

From:	Stefanie Pratt
To:	Heather Jaggard; John Bice; Stephen Stapleton
Cc:	Jenna Allain; Karen Winfield; Kelli Dobbin
Subject:	Re: 1598 Richmond Street, Dorchester, Thames Centre
Date:	Wednesday, April 20, 2022 9:01:32 PM
Attachments:	ATT00001.bmp ATT00002.bmp ATT00004.png ATT00005.png

Hi Stephen,

As noted in John's email below, we will not be requiring a TOR for this project as it is nearing completion and would not be a good use of resources for yourselves nor us. We will also not be accepting draft reports at this time. We will await the final reports and accept the package as a whole for review.

While we understand that the EIS was scoped, please be advised that future projects should be fully scoped for EIS and Hydrog in advance of undertaking the required monitoring periods. We have worked with Heather on many projects and are typically comfortable with the scope of work proposed, however it is beneficial for all to have a clear understanding of the site and have the opportunity to provide feedback and input early on.

We will await your formal submission to the municipality and provide feedback at that time.

Kind Regards,

Stefanie Pratt
Planning Coordinator
1424 Clarke Road
London, ON N5V 5B9
t: 519-451-2800 ext. 430
e: pratts@thamesriver.on.ca

UPPER THAMES RIVER
CONSERVATION AUTHORITY

>>> Stephen Stapleton <sstapleton@auburndev.com> 2022-04-20 5:48 PM >>>
John we have a reputable hydro engineer and a reputable developer that have done these studies for years on many projects..we don't need to waste time of ToR. We will send you our draft reports.

Get Outlook for Android

From: John Bice <bicej@thamesriver.on.ca>
Sent: Wednesday, April 20, 2022 11:40:54 AM
To: Heather Jaggard <Heather.Jaggard@exp.com>
Cc: Jenna Allain <AllainJ@thamesriver.on.ca>; Karen Winfield <WinfieldK@thamesriver.on.ca>; Kelli Dobbin <Kelli.Dobbin@exp.com>; Stefanie Pratt <PrattS@thamesriver.on.ca>; Stephen Stapleton <sstapleton@auburndev.com>
Subject: RE: 1598 Richmond Street, Dorchester, Thames Centre

Hi Heather,

My last email was rather vague, apologies and I can clarify ToR requirements for you as well as requirements moving

forward. Typically we are looking for a formal ToR letter submission that lays out scope, summary of work to date, locations of monitoring wells, etc. in a formal letter submission. We would like to see this completed in conjunction with the EIS ToR for consistency.

Normally, we would take this ToR and have it reviewed by internal staff. However, since we are currently without a Hydrogeologist on staff we have been sending ToR's to a third party (along with the final study submissions).

Since you are already so far in the process we are not going to be asking for a ToR as you will be submitting the final study within the next month or so. We will await this study and send it for third party review. Apologies for the confusion here. In the future we would prefer to see a ToR near the beginning of the study to ensure consistency with supplementary requirements.

Kind Regards,

John Bice

UPPER THAMES RIVER
CONSERVATION AUTHORITY

John Bice
Land Use Planner
Upper Thames River Conservation Authority (UTRCA)
t: 519-451-2800 ext. 228
e: bicej@thamesriver.on.ca

>>> Heather Jaggard <Heather.Jaggard@exp.com> 20/04/2022 11:15 AM >>>
Hi John,

Please specify what exactly you require as a 'formal TOR'. I have only ever completed a HydroG scoping meeting followed by an email summary of study components discussed.

Is the external reviewer looking for a letter memo summarizing the study components completed to date?

Please clarify and I can provide.

Thank you.

Heather Jaggard, M.Sc., P.Geo., QP
EXP | Hydrogeologist, Project Manager
t : +1.226.616.0748 | m : +1.905.977.9030 | e : heather.jaggard@exp.com

---

From: John Bice <bicej@thamesriver.on.ca>
Sent: Wednesday, April 20, 2022 10:57 AM
To: Heather Jaggard <Heather.Jaggard@exp.com>
Cc: Jenna Allain <AllainJ@thamesriver.on.ca>; Karen Winfield <WinfieldK@thamesriver.on.ca>; Kelli Dobbin <Kelli.Dobbin@exp.com>; Stefanie Pratt <PrattS@thamesriver.on.ca>; Stephen Stapleton <sstapleton@auburndev.com>
Subject: RE: 1598 Richmond Street, Dorchester, Thames Centre

Good morning Heather,

Apologies for the delay in getting back to you and thank you for your patience. The UTRCA would require a formal submission of a TOR. Please see UTRCA's Hydro G Guidelines attached if you wish to submit a TOR.

Kind Regards,

John Bice

UPPER THAMES RIVER
CONSERVATION AUTHORITY

John Bice
Land Use Planner
Upper Thames River Conservation Authority (UTRCA)
t: 519-451-2800 ext. 228
e: bicej@thamesriver.on.ca

>>> Heather Jaggard <Heather.Jaggard@exp.com> 11/03/2022 4:09 PM >>>
Hi John,

Sure no problem. Please let me know if the following will suffice as a HydroG TOR.

The attached email includes the locations of the monitoring wells and on site surface water features. See below for a list of work completed so far. Monitoring started in May 2021 and is expected to go until May 2022.

- 38 test pits (part of Geotech report)
- 10 monitoring wells in 9 locations installed May 9-10, 2021
- 5 surface water (SW) stations installed May 27, 2021. Shallow piezometer and staff gauge installed at each.
- Monthly WLs since May 2021. To continue until at least May 2022
- 4 SWRT completed in May 2021
- 3 grain size samples
- 4 GW and 4 SW samples in September 2021. Second round scheduled for spring 2022
- Dataloggers in 4 wells and 4 piezometers and a barologger in one well. Installed in wells on May 18, 2021 and in piezometers on May 27, 2021. Will remain in place until at least May 2022.
- Monthly water balance completed
- Rough dewatering estimate completed
- MECP well record search done. Door to door survey scheduled for Spring 2022

Please let me know if you require any additional information at this time.

Thanks very much.

Heather

Heather Jaggard, M.Sc., P.Geo., QP
EXP | Hydrogeologist, Project Manager
t : +1.226.616.0748 | m : +1.905.977.9030 | e : heather.jaggard@exp.com

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keep it green, read from the screen

From: John Bice <bicej@thamesriver.on.ca>
Sent: Thursday, March 10, 2022 8:43 AM
To: Heather Jaggard <Heather.Jaggard@exp.com>
Cc: Jenna Allain <AllainJ@thamesriver.on.ca>; Karen Winfield <WinfieldK@thamesriver.on.ca>
Subject: 1598 Richmond Street, Dorchester, Thames Centre

Good morning Heather,

Apologies for the delay in getting back to you. Christine had forwarded me your request. We currently do not have a Hydrogeologist on staff to be able to answer any questions you may have in the scoping meeting.

We are completing this review through a third party. Typically we a receiving comments back ranging from 1 to 3 weeks. Could you complete a ToR for the Hydrogeological study, that way we can forward your ToR to our third party reviewer for comments?

Please let me know if this approach works for you?

Thank you,

John Bice

UPPER THAMES RIVER
CONSERVATION AUTHORITY

John Bice
Land Use Planner
Upper Thames River Conservation Authority (UTRCA)
t: 519-451-2800 ext. 228
e: bicej@thamesriver.on.ca

Appendix D – Borehole Logs

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BOREHOLE LOG

BH1/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 12, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
	260.8						
0	260.5	**TOPSOIL** - 300 mm					
		SILT - brown, trace to some clay, trace sand, trace gravel, compact, moist	SS	SA 1	350	14	11
1			SS	SA 2	450	20	16
2			SS	SA 3	100	27	12
	257.9						
3		**CLAYEY SILT TILL** - brown, trace sand, trace gravel, very stiff, damp	SS	SA 4	450	20	14
4							
		- some brown, dilatent silt layerin at 4.5 m bgs	SS	SA 5	400	23	21
5							
6		- becoming hard near 6.0 m bgs	SS	SA 6	450	37	13
7	253.7						
		SILTY SAND TILL - brown, gravelly, well graded, dense, wet	SS	SA 7	450	30	8
8	252.2						
		SAND - grey, fine to medium grained, trace silt, trace gravel, compact, wet	SS	SA 8	350	21	16
9	251.2						
10		**End of borehole at 9.6 m bgs.**					
11							
12							

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 4.71 m bgs (Elevation 256.18 m)
July 20, 2021: 4.86 m bgs (Elevation 256.03 m)
August 17, 2021: 4.92 m bgs (Elevation 255.97 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH2/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 12, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
0	256.0								
	255.6	**TOPSOIL** - 400 mm							
1		**SILT** - grey, trace to some sand, trace gravel, dilatent, very loose to compact, very moist to wet			SS	SA 1	400	10	15
2					SS	SA 2	350	8	17
3					SS	SA 3	350	9	14
4		- sandy seams encountered near 3.8 m bgs			SS	SA 4	350	10	15
					SS	SA 5	400	11	17
5	251.0				SS	SA 6	450	3	19
		End of borehole at 5.0 m bgs.							
6									
7									
8									
9									
10									
11									
12									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 1.10 m bgs (Elevation 255.01 m)
July 20, 2021: 0.97 m bgs (Elevation 255.14 m)
August 17, 2021: 1.12 m bgs (Elevation 254.99 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH3/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 12, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
	256.0								
0	255.8	**TOPSOIL** - 280 mm							
		SAND - brown, fine to medium grained, trace to some silt, trace gravel, loose to compact, very moist to wet			SS	SA 1	150	5	14
1					SS	SA 2	400	8	24
2					SS	SA 3	150	14	22
3		- some grey, stiff, clayey silt layering encountered at 3.15 m bgs - becoming grey, compact and wet at 3.3 m bgs			SS	SA 4	450	11	18
4					SS	SA 5	450	26	13
	251.3								
5		**SANDY SILT** - grey, trace gravel, compact, very moist to wet			SS	SA 6	450	19	15
	250.2				SS	SA 7	450	23	22
6		**End of borehole at 5.8 m bgs.**							
7									
8									
9									
10									
11									
12									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L

SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 1.28 m bgs (Elevation 254.79 m)
July 20, 2021: 1.58 m bgs (Elevation 254.49 m)
August 17, 2021: 1.70 m bgs (Elevation 254.37 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH4/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

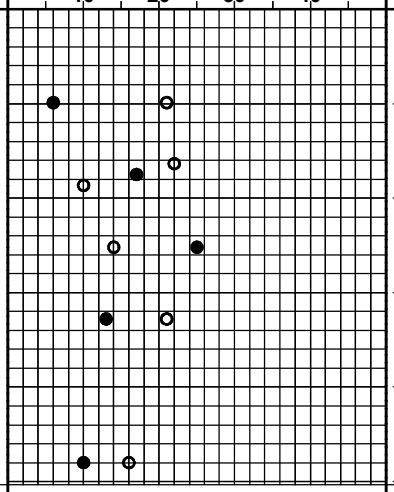
PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 11, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
	256.0						
0	255.8	**TOPSOIL** - 230 mm					
		FILL - SAND - brown/grey/black, trace silt, trace gravel, topsoil inclusions, building debris, loose, very moist	SS	SA 1	350	6	21
1	254.4						
		SAND and GRAVEL - grey, trace silt, well graded, compact, wet	SS	SA 2	400	17	22
2	253.9						10
		SAND - brown, some gravel, trace silt, compact, wet	SS	SA 3	450	25	14
3			SS	SA 4	450	13	21
4							
5	251.0		SS	SA 5	300	10	16
		End of borehole at 5.0 m bgs.					
6							
7							
8							
9							
10							
11							
12							

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40



NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 1.52 m bgs (Elevation 254.59 m)
July 20, 2021: 1.38 m bgs (Elevation 254.73 m)
August 17, 2021: 1.51 m bgs (Elevation 254.60 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

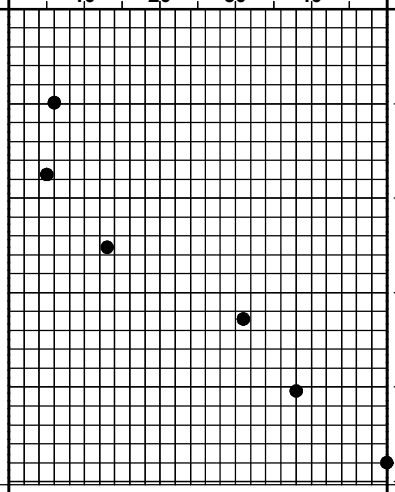
BH5/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 12, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
0	257.6						
	257.4	**TOPSOIL** - 280 mm					
		CLAYEY SILT - grey, trace sand, trace gravel, firm, moist	SS	SA 1	450	6	
1	256.3						
		SANDY SILT - grey, some gravel, compact, moist	SS	SA 2	450	5	
2	255.1		SS	SA 3	400	13	
		SAND - grey, fine to medium grained, some silt to silty, compact, wet					
3	254.2	-some silt layering encountered at 3.3 m bgs	SS	SA 4	400	31	
		SILT TILL - grey, some sand to sandy, trace gravel, dense to very dense, moist	SS	SA 5	450	38	
4							
5	252.6		SS	SA 6	450	50*	
		End of borehole at 5.0 m bgs.					
6							
7							
8							
9							
10							
11							
12							



NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) * denotes 50 blows per less than 150 mm split spoon sampler penetration.
5) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
6) Water level, May 17, 2021: 0.90 m bgs (Elevation 256.87 m)
July 20, 2021: 0.81 m bgs (Elevation 256.96 m)
August 17, 2021: 0.95 m bgs (Elevation 256.82 m)

SAMPLE LEGEND
AS Auger Sample | SS Split Spoon | ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) | VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent | Measured | Artesian (see Notes)

BOREHOLE LOG

BH6/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 11, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
0	268.1						
	267.9	**TOPSOIL** - 150 mm					
		SILTY SAND - brown, trace gravel, loose, very moist	SS	SA 1	300	6	11
1	266.7						
		SILT - brown, some sand, trace gravel, dilatent, sand laminations, compact, moist to very moist	SS	SA 2	300	13	16
2	265.9						
		CLAYEY SILT - brown, trace to some sand, trace gravel, sand laminations, moist to very moist, very stiff to dense	SS	SA 3	50	28	15
3		-some very moist silt layering encountered at 2.9 m bgs	SS	SA 4	400	18	15
4	263.6		SS	SA 5	400	23	17
		SANDY SILT - brown, trace gravel, moist, moist	SS	SA 6	450	16	14
5	262.5						
		SAND - brown, fine to medium grained, trace silt, trace gravel, loose, moist	SS	SA 7	400	9	7
6							
7							
	260.2	-some silt layering encountered at 7.8 m bgs	SS	SA 8	450	7	8
8		**CLAYEY SILT** - brown, trace sand, trace gravel, stiff, moist					16
	259.5						
		SAND - brown, fine to medium grained, trace to some silt, trace gravel, compact, moist	SS	SA 9	400	6	12
9							
10	257.9						
		CLAYEY SILT - grey, trace sand, trac gravel, soft, very stiff, very moist to wet	SS	SA 10	400	19	13
11	256.9						
		End of borehole at 11.1 m bgs.					
12							

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 9.27 m bgs (Elevation 258.87 m)
July 20, 2021: 9.53 m bgs (Elevation 258.61 m)
August 17, 2021: 9.55 m bgs (Elevation 258.59 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH7A/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 11, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
	264.3						
0	264.0	**TOPSOIL** - 300 mm					
		SANDY SILT - brown, trace gravel, loose to compact, very moist	SS	SA 1	50	5	24
1	262.9						
		SILT - grey, trace to some sand, trace gravel, dilatent, loose, wet	SS	SA 2	400	7	20
2			SS	SA 3	400	10	18
	261.4						
3		**CLAYEY SILT** - grey, trace sand, trace gravel, saturated silt lamination, stiff, moist	SS	SA 4	450	14	19
4	260.3						
		SILT - grey, trace sand, trace gravel, dilatent, loose, wet	SS	SA 5	400	11	20
5	258.7						
		SILT TILL - grey, some sand, trace gravel, saturated sand lamination, thin clay laminations, compact, moist	SS	SA 6	400	27	9
6							
7							
8	256.2		SS	SA 7	450	29	10
		End of borehole at 8.1 m bgs.					
9							
10							
11							
12							

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 0.64 m bgs (Elevation 263.69 m)
July 20, 2021: 1.07 m bgs (Elevation 263.26 m)
August 17, 2021: 1.35 m bgs (Elevation 262.98 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH7B/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 11, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)	SHEAR STRENGTH / Atterberg Limits and Moisture
	264.3									S Field Vane Test (#=Sensitivity); Penetrometer; Torvane; 100 200 kPa; W_P W W_L; SPT N Value; Dynamic Cone; 10 20 30 40
0	264.0	**TOPSOIL** - 300 mm								
		SANDY SILT - brown, trace gravel, loose to compact, very moist								
1	262.9									
		SILT - grey, trace to some sand, trace gravel, dilatent, loose, wet								
2	261.4									
3		**CLAYEY SILT** - grey, trace sand, trace gravel, saturated silt lamination, stiff, moist								
4	260.2									
		SILT - grey, trace sand, trace gravel, dilatent, loose, wet								
5	258.7									
		SILT TILL - grey, some sand, trace gravel, saturated sand lamination, thin clay laminations, compact, moist								
6										
7										
8	256.2									
		End of borehole at 8.1 m bgs.								
9										
10										
11										
12										

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 0.57 m bgs (Elevation 263.75 m)
July 20, 2021: 1.10 m bgs (Elevation 263.22 m)
August 17, 2021: 1.39 m bgs (Elevation 262.93 m)

SAMPLE LEGEND
- AS Auger Sample
- SS Split Spoon
- ST Shelby Tube
- Rock Core (eg. BQ, NQ, etc.)
- VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
- Apparent
- Measured
- Artesian (see Notes)

BOREHOLE LOG

BH8/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**
PROJECT **Hunter Farm** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 11, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
	257.5								
0	257.3	**TOPSOIL** - 250 mm							
	256.7	**CLAYEY SILT** - brown, some sand to sandy, trace gravel, stiff, moist							
1		**SILT TILL** - brown, trace sand, trace gravel, compact, moist to wet			SS	SA 1	450	21	11
		-some sand layering encountered at 1.2 m bgs			SS	SA 2	450	18	10
2	255.2								
	254.6	**SAND** - brown, some silt chunks, trace gravel, compact, wet			SS	SA 3	350	17	9
3		**SILT TILL** - brown, some sand to sand, trace gravel, thin wet sand laminations, compact, very moist to wet			SS	SA 4	350	28	13
4					SS	SA 5	350	41	14
		- becoming grey and dense at 4.4 m bgs							
5	252.5				SS	SA 6	450	45	10
		End of borehole at 5.0 m bgs.							
6									
7									
8									
9									
10									
11									
12									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 0.62 m bgs (Elevation 257.03 m)
July 20, 2021: 0.56 m bgs (Elevation 257.09 m)
August 17, 2021: 0.70 m bgs (Elevation 256.95 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

BOREHOLE LOG

BH9/MW
Sheet 1 of 1

CLIENT **Auburn Developments Inc.** PROJECT NO. **LON-21008138-A0**

PROJECT **Hunter Farm** DATUM **Geodetic**

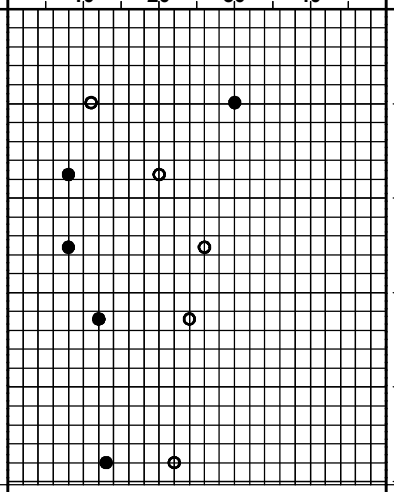
LOCATION **Marion Street, Dorchester, ON** DATES: Boring **May 11, 2021** Water Level **August 17, 2021**

DEPTH (m bgs)	ELEVATION (~m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm)	SAMPLES N VALUE (blows)	MOISTURE CONTENT (%)
0	266.1								
	265.8	**TOPSOIL** - 300 mm							
		SILTY SAND - brown, trace gravel, dense, moist			SS	SA 1	300	30	11
1	264.8								
		SAND - fine to medium grained, brown, trace to some silt, trace gravel, loose to compact, wet			SS	SA 2	250	8	20
2					SS	SA 3	450	8	26
3					SS	SA 4	400	12	24
4		- becoming grey near 4.0 m bgs							
5	261.1				SS	SA 5	400	13	22
		End of borehole at 5.0 m bgs.							
6									
7									
8									
9									
10									
11									
12									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
100 200 kPa

Atterberg Limits and Moisture
W_P W W_L

SPT N Value × Dynamic Cone
10 20 30 40



NOTES

1) Borehole Log interpretation requires assistance by EXP before use by others. Borehole Log must be read in conjunction with EXP Report LON-21008138-A0.
2) No significant methane gas detected upon completion of drilling.
3) bgs denotes below ground surface.
4) Geodetic elevation surveyed by using a SOKKIA GCX2 Receiver.
5) Water level, May 17, 2021: 1.37 m bgs (Elevation 264.84 m)
July 20, 2021: 1.40 m bgs (Elevation 264.81 m)
August 17, 2021: 1.61 m bgs (Elevation 264.60 m)

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP1
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	254.9	**TOPSOIL** - 500 mm							
	254.4								
		MARL - mixed peat, light grey, wet			GB	SA 1			
1									
	252.9								
2		**SAND and GRAVEL** -grey, alluvial, loose, wet			GB	SA 2			
	251.9								
3		**SAND** - brown/grey, fine to medium grained, loose, wet			GB	SA 3			
	251.6								
		End of test pit at 3.3 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

134

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 2.0 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity
H Hydrometer
S Sieve Analysis
γ Unit Weight
P Field Permeability
K Lab Permeability
C Consolidation
CD Consolidated Drained Triaxial
CU Consolidated Undrained Triaxial
UU Unconsolidated Undrained Triaxial
UC Unconfined Compression
DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP1A
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.2	**TOPSOIL** - 300 mm							
	254.9								
		MARL - mixed peat, light grey, wet			GB	SA 1			
1									
2	253.2								
		SAND - brown/grey, fine to medium grained, loose, wet			GB	SA 2			
3	252.2								
		End of test pit at 3.0 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 2.5 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP2
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	256.7								
	256.5	**TOPSOIL** - 250 mm							
	256.2	**SAND** , brown, weathered, some silt to silty, loose, very moist			GB	SA 1			
1		**SILT TILL** - brown/grey, trace gravel, compact, moist			GB	SA 2			
2		- becoming grey near 2.0 m bgs							
3	253.2								
		End of test pit at 3.5 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP3
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	256.2	**TOPSOIL** - 300 mm							
	255.9	**PEAT** - black, fibrous, wet			GB	SA 1			
1	255.2	**MARL** - mixed peat, light grey, wet			GB	SA 2			
2									
3	253.2	**SAND** - brown, loose, wet			GB	SA 3			
	252.7	**End of test pit at 3.5 m bgs.**							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa
Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

323
100

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 3.0 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity
H Hydrometer
S Sieve Analysis
γ Unit Weight
P Field Permeability
K Lab Permeability
C Consolidation
CD Consolidated Drained Triaxial
CU Consolidated Undrained Triaxial
UU Unconsolidated Undrained Triaxial
UC Unconfined Compression
DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP3A
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	255.4	**TOPSOIL** - 300 mm								
	255.1	**SAND** - brown/grey, trace gravel, loose, wet			GB	SA 1				
1										
2	252.9									
		End of test pit at 2.5 m bgs due to unstable sidewalls.								
3										
4										
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa
Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP4
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	256.0	**TOPSOIL** - 300 mm							
	255.7	**SAND** - brown/grey, some silt, loose, moist to very moist			GB	SA 1			
1									
2		- becoming grey near 2.0 m bgs							
	253.0								
3		**End of test pit at 3.0 m bgs.**							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP5
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.1	**TOPSOIL** - 300 mm							
	254.8	**SAND and GRAVEL** - brown, trace silt, loose, moist to wet			GB	SA 1			
1					GB	SA 2			
2		- becoming grey near 2.0 m bgs							
	252.6	**End of test pit at 2.5 m bgs due to unstable sidewalls.**							
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 2.0 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP5A
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.1	**TOPSOIL** - mixed fill, 1.2 m							
1	253.9	**SAND and GRAVEL** - grey, loose, wet			GB	SA 1			
	253.6	**SILTY SAND** - grey, loose, wet			GB	SA 2			
2									
3	252.1	**End of test pit at 3.0 m bgs.**							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 1.2 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP6
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	257.0								
	256.7	**TOPSOIL** - 300 mm							
	256.4	**SAND and GRAVEL** - brown, loose, moist			GB	SA 1			
1		**SILT TILL** - brown, some clay, trace gravel, compact, moist			GB	SA 2			
2									
		- becoming grey near 2.5 m bgs			GB	SA 3			
3									
4	253.0	**End of test pit at 4.0 m bgs.**							
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP6A
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	257.6	**TOPSOIL** - mixed peat, 1.2 m							
1	256.4	**SANDY SILT** - brown/grey, trace gravel, trace clay, loose, very moist to wet			GB	SA 1			
2	255.6	**End of test pit at 2.0 m bgs.**							
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 1.8 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity
H Hydrometer
S Sieve Analysis
γ Unit Weight
P Field Permeability
K Lab Permeability
C Consolidation
CD Consolidated Drained Triaxial
CU Consolidated Undrained Triaxial
UU Unconsolidated Undrained Triaxial
UC Unconfined Compression
DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP7
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	259.0	**TOPSOIL** - 400 mm							
	258.6								
1		**SANDY SILT** - brown, trace clay, trace gravel, , loose, moist			GB	SA 1			
	257.5								
2		**CLAYEY SILT TILL** - grey, trace sand and gravel, stiff, moist			GB	SA 2			
3	255.5								
4		**End of test pit at 3.5 m bgs.**							
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP8
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

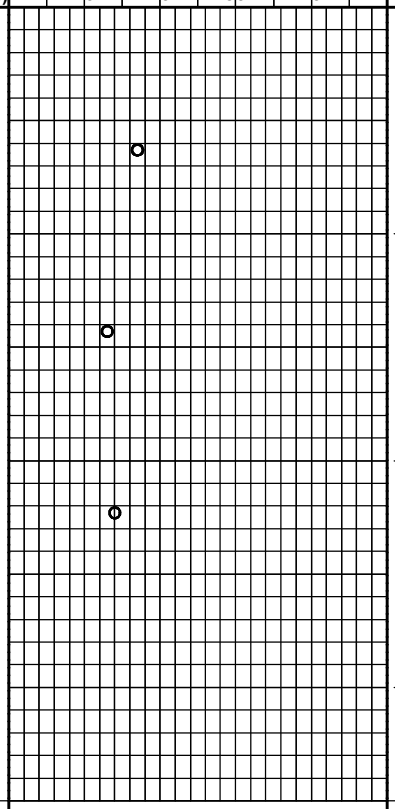
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	258.0								
	257.6	**TOPSOIL** - 400 mm							
		SILTY SAND - brown, loose to compact, moist			GB	SA 1			
1	256.8								
		CLAYEY SILT TILL - brown, trace sand, stiff, moist			GB	SA 2			
2	256.0								
		SILT TILL - grey, compact, moist			GB	SA 3			
3		- dilatant silt layering encountered near 3.0 m bgs							
	254.5								
		End of test pit at 3.5 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40



NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and water observed near 1.2 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity
H Hydrometer
S Sieve Analysis
γ Unit Weight
P Field Permeability
K Lab Permeability
C Consolidation
CD Consolidated Drained Triaxial
CU Consolidated Undrained Triaxial
UU Unconsolidated Undrained Triaxial
UC Unconfined Compression
DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP9
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	263.3	**TOPSOIL** - 400 mm							
	262.9								
1		**CLAYEY SILT TILL** - brown, stiff, moist			GB	SA 1			
2									
	260.8								
3		**SILT TILL** - brown, some clay, compact, moist			GB	SA 2			
	259.3								
4		**End of test pit at 4.0 m bgs.**							
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP10
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	269.0								
	268.7	**TOPSOIL** - 300 mm							
		CLAYEY SILT - brown, soft to firm, moist			GB	SA 1			
1	268.0								
		SILT TILL - brown, stiff, moist			GB	SA 2			
2									
	266.5								
		SAND and GRAVEL - brown/grey, trace cobble, compact, wet			GB	SA 3			
3									
	265.0								
4		**End of test pit at 4.0 m bgs.**							
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
▲ Penetrometer ■ Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
● SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 3.0 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
☒ AS Auger Sample ▨ SS Split Spoon ■ ST Shelby Tube
▥ Rock Core (eg. BQ, NQ, etc.) ▥ VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
▽ Apparent ▼ Measured ▲ Artesian (see Notes)

TEST PIT LOG

TP11
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	267.7	**TOPSOIL** - organic fill, 500 mm							
	267.2	**SILT TILL** - grey, some clay, wet sand layering, cobbles, compact, moist			GB	SA 1			
1									
2	265.7	**SAND** - grey, fine to medium grained, compact, wet			GB	SA 2			
	264.7	**End of test pit at 3.0 m bgs.**							
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and 0.3 m of water observed upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP12
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	267.8	**TOPSOIL** - 300 mm							
	267.5	**SAND** - brown, fine to medium sand, trace silt, compact, moist to very moist			GB	SA 1			
1					GB	SA 2			
2					GB	SA 3			
3	264.8	**End of test pit at 3.0 m bgs.**							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP13
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	265.2	**TOPSOIL** - 250 mm							
	265.0								
		SILTY SAND - brown/grey, loose, wet			GB	SA 1			
	264.5								
1		**SILT TILL** - grey, some clay, wet sand layering, cobbles, compact, moist			GB	SA 2			
2									
3									
4	261.2								
		End of test pit at 4.0 m bgs.							
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and water observed near 0.8 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity
H Hydrometer
S Sieve Analysis
γ Unit Weight
P Field Permeability
K Lab Permeability
C Consolidation
CD Consolidated Drained Triaxial
CU Consolidated Undrained Triaxial
UU Unconsolidated Undrained Triaxial
UC Unconfined Compression
DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP14
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	263.1	**TOPSOIL** - 300 mm							
	262.8	**SILTY SAND** - brown, trace gravel, weathered, loose, moist			GB	SA 1			
1		- becoming grey, compact, very moist to wet near 1.0 m bgs			GB	SA 2			
2									
3	260.1	**End of test pit at 3.0 m bgs due to unstable sidewalls.**							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and 1.8 m of water observed upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP15
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	266.5								
	266.2	**TOPSOIL** - 300 mm							
		SAND and GRAVEL - grey, looset to compact, very moist to wet			GB	SA 1			
1	265.5								
		SILT TILL - grey, some clay, trace gravel, occassional cobble and boulder, wet sand layering, compact, moist to very moist			GB	SA 2			
2									
3	263.0								
		End of test pit at 3.5 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 1.0 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP16
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.8	**TOPSOIL** - 400 mm							
	255.4								
		FILL - SAND AND GRAVEL - dark brown/grey, loose, wet			GB	SA 1			
1	254.5								
		FILL - CLAYEY SILT - dark grey/black, organics, firm, wet			GB	SA 2			
	254.2								
		CLAYEY SILT TILL - grey, some sand and gravel, occassional cobble and boulder, wet sand layering, stiff, moist			GB	SA 3			
2									
	252.8								
3		**End of test pit at 3.0 m bgs.**							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
▲ Penetrometer ■ Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
● SPT N Value × Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 1.3 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
☒ AS Auger Sample ▨ SS Split Spoon ■ ST Shelby Tube
▥ Rock Core (eg. BQ, NQ, etc.) ▣ VN Vane Sample

OTHER TESTS

G Specific Gravity	C Consolidation
H Hydrometer	CD Consolidated Drained Triaxial
S Sieve Analysis	CU Consolidated Undrained Triaxial
γ Unit Weight	UU Unconsolidated Undrained Triaxial
P Field Permeability	UC Unconfined Compression
K Lab Permeability	DS Direct Shear

WATER LEVELS
▽ Apparent ▼ Measured ▲ Artesian (see Notes)

TEST PIT LOG

TP16A
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	256.0								
	255.7	**TOPSOIL** - 300 mm							
		SAND and GRAVEL - grey, trace silt, compact, moist			GB	SA 1			
1	254.7								
	254.6	**SILT TILL**, grey, trace to some clay, wet sand layering, compact, moist to very moist							
		End of test pit at 1.4 m bgs.							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 1.3 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP16B
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **May 12, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.8	**TOPSOIL** - 300 mm							
	255.5	**FILL - SILTY SAND** - dark brown/black, loose/compact, moist			GB	SA 1			
1	254.6	**SILT TILL**, grey, trace to some clay, wet sand layering, compact, moist to very moist							
	254.4	**End of test pit at 1.4 m bgs.**							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit caved and water observed near 1.3 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevation surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP201
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.2	**TOPSOIL** - 400 mm							
	254.8	**SAND and GRAVEL** -grey, coarse-grained, loose to compact, moist to very moist							
1	253.7	**End of test pit at 1.5 m bgs.**							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP202
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.9	**TOPSOIL** - 300 mm							
	255.6	**SILTY SAND** , brown, trace gravel, trace cobbles, loose to compact, moist							
1	254.9	**SANDY SILT** , grey, fine-grained, trace clay, loose to compact, moist							
	254.4	**End of test pit at 1.5 m bgs.**							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP203
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	256.6	**TOPSOIL** - 300 mm							
	256.3	**SILTY SAND** , brown, fine to medium-grained, moist -becoming grey, fine-grained and very moist at 0.6 m bgs							
1	255.6	**End of test pit at 1.0 m bgs.**							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP204
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.2	**TOPSOIL** - 300 mm							
	254.9	**SILTY SAND** , grey, fine to medium-grained, loose to compact, very moist							
	254.6	**SAND AND GRAVEL** , grey, fine-grained, loose to compact, wet							
1	254.0	**End of test pit at 1.2 m bgs.**							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 0.6 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP205
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.4	**PEAT** , black, fibrous, wet							
1	254.2	**MARL** , grey, mixed alluvial clay/silt, wet							
2									
3	251.9								
	251.8	**SAND AND GRAVEL** , grey, wet							
		End of test pit at 3.6 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 1.2 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP206
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.5	**PEAT** , black, fibrous, wet							
1									
	254.0	**MARL** , grey, mixed alluvial clay/silt, wet							
2									
3									
	252.0								
	251.9	**SAND AND GRAVEL** , grey, wet							
		End of test pit at 3.6 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 1.5 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP207
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.0								
	254.5	**TOPSOIL** - 500 mm							
		MARL , grey, mixed alluvial clay/silt, wet							
1	254.0								
	253.8	**SILTY SAND** , brown, loose, very moist to wet							
		End of test pit at 1.2 m bgs.							
2									
3									
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 0.5 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity
H Hydrometer
S Sieve Analysis
γ Unit Weight
P Field Permeability
K Lab Permeability
C Consolidation
CD Consolidated Drained Triaxial
CU Consolidated Undrained Triaxial
UU Unconsolidated Undrained Triaxial
UC Unconfined Compression
DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP208
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	255.4	**PEAT** , black, fibrous, wet							
1	254.2	**MARL** , grey, mixed alluvial clay/silt, wet							
2									
3	251.7								
	251.6	**SANDY SILT** , brown, loose, very moist							
4		**End of test pit at 3.75 m bgs.**							
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 1.2 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP209
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	255.4	**TOPSOIL** - 300 mm								
	255.1	**SILTY SAND** , brown, loose to compact, very moist								
1	254.4	**End of test pit at 1.0 m bgs.**								
2										
3										
4										
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa
Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP210
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	256.4	**PEAT** , black, fibrous, wet							
1	255.4	**MARL** , grey, mixed alluvial clay/silt, wet							
2									
3	252.9								
	252.8	**SILTY SAND** , brown, loose, wet							
		End of test pit at 3.6 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 1.0 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP211
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	255.9	**TOPSOIL** - 300 mm								
	255.6	**SAND AND GRAVEL** , brown, loose to compact, wet								
1	254.9	**End of test pit at 1.0 m bgs.**								
2										
3										
4										
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 0.3 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP212
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	254.9	**PEAT** , black, fibrous, wet								
1	253.7	**MARL** , grey, mixed alluvial clay/silt, wet								
2										
3	251.9	**End of test pit at 3.0 m bgs due to cave.**								
4										
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 1.2 m bgs, unable to excavate beyond 3.0 m bgs due to cave.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP213
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	254.7	**PEAT** , black, fibrous, wet								
	254.2	**MARL** , grey, mixed alluvial clay/silt, wet								
1	253.7	**End of test pit at 1.0 m bgs.**								
2										
3										
4										
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa
Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 0.5 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP214
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	256.7	**PEAT** , black, fibrous, wet								
	256.2	**SILTY SAND** , grey, loose, wet								
1										
2	254.7	**End of test pit at 2.0 m bgs.**								
3										
4										
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa
Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 0.5 m bgs, test pit caved upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP215
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**
CLIENT **Auburn Developments Inc.** DATUM **Geodetic**
LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)
0	266.5								
	266.3	**TOPSOIL** - 200 mm							
		SILTY SAND , brown, trace gravel, loose to compact, moist to very moist							
1									
2									
3		- becoming wet at 3.0 m bgs							
	263.0								
		End of test pit at 3.5 m bgs.							
4									
5									

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa

Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Water observed near 3.0 m bgs upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

TEST PIT LOG

TP216
Sheet 1 of 1

PROJECT **Hunter Farm** PROJECT NO. **LON-21008138-A0**

CLIENT **Auburn Developments Inc.** DATUM **Geodetic**

LOCATION **Marion Street, Dorchester, ON** DATES: Excavation **August 4, 2021** Water Level

DEPTH (m)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES TYPE	SAMPLES NUMBER	SAMPLES RECOVERY (mm) or (%)	SAMPLES N VALUE (blows) or RQD (%)	BULK DENSITY (kN/m3)	SHEAR STRENGTH / Atterberg Limits and Moisture
0	267.3									
	267.1	**TOPSOIL** - 200 mm								
		SILTY SAND , brown, trace gravel, trace clay, loose to compact, moist to very moist								
1										
2										
3										
	263.3									
4		**End of test pit at 4.0 m bgs.**								
5										

SHEAR STRENGTH
S Field Vane Test (#=Sensitivity)
Penetrometer Torvane
40 80 kPa
Atterberg Limits and Moisture
W_P W W_L
SPT N Value Dynamic Cone
10 20 30 40

NOTES

1) Test pit interpretation requires assistance by EXP before use by others. Test pit log must be read in conjunction with EXP Report LON-21008138-A0.
2) Test pit is based on observations of the excavator resistance.
3) Test pit open and dry upon completion of excavation.
4) bgs denotes below ground surface.
5) Geodetic elevations surveyed using a SOKKIA GCX2 Receiver.

SAMPLE LEGEND
AS Auger Sample SS Split Spoon ST Shelby Tube
Rock Core (eg. BQ, NQ, etc.) VN Vane Sample

OTHER TESTS
G Specific Gravity C Consolidation
H Hydrometer CD Consolidated Drained Triaxial
S Sieve Analysis CU Consolidated Undrained Triaxial
γ Unit Weight UU Unconsolidated Undrained Triaxial
P Field Permeability UC Unconfined Compression
K Lab Permeability DS Direct Shear

WATER LEVELS
Apparent Measured Artesian (see Notes)

Appendix E – Grain Size Analyses

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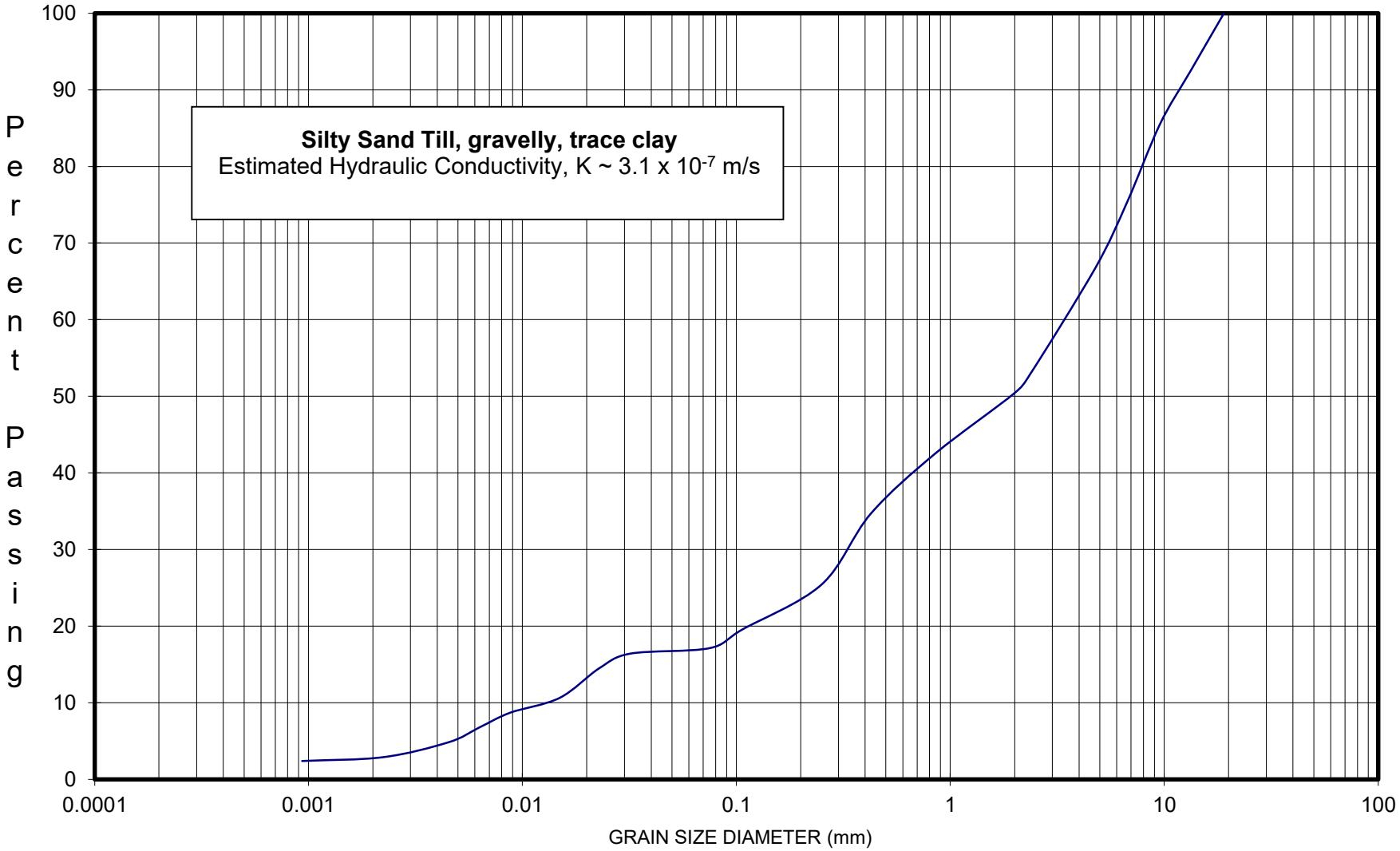
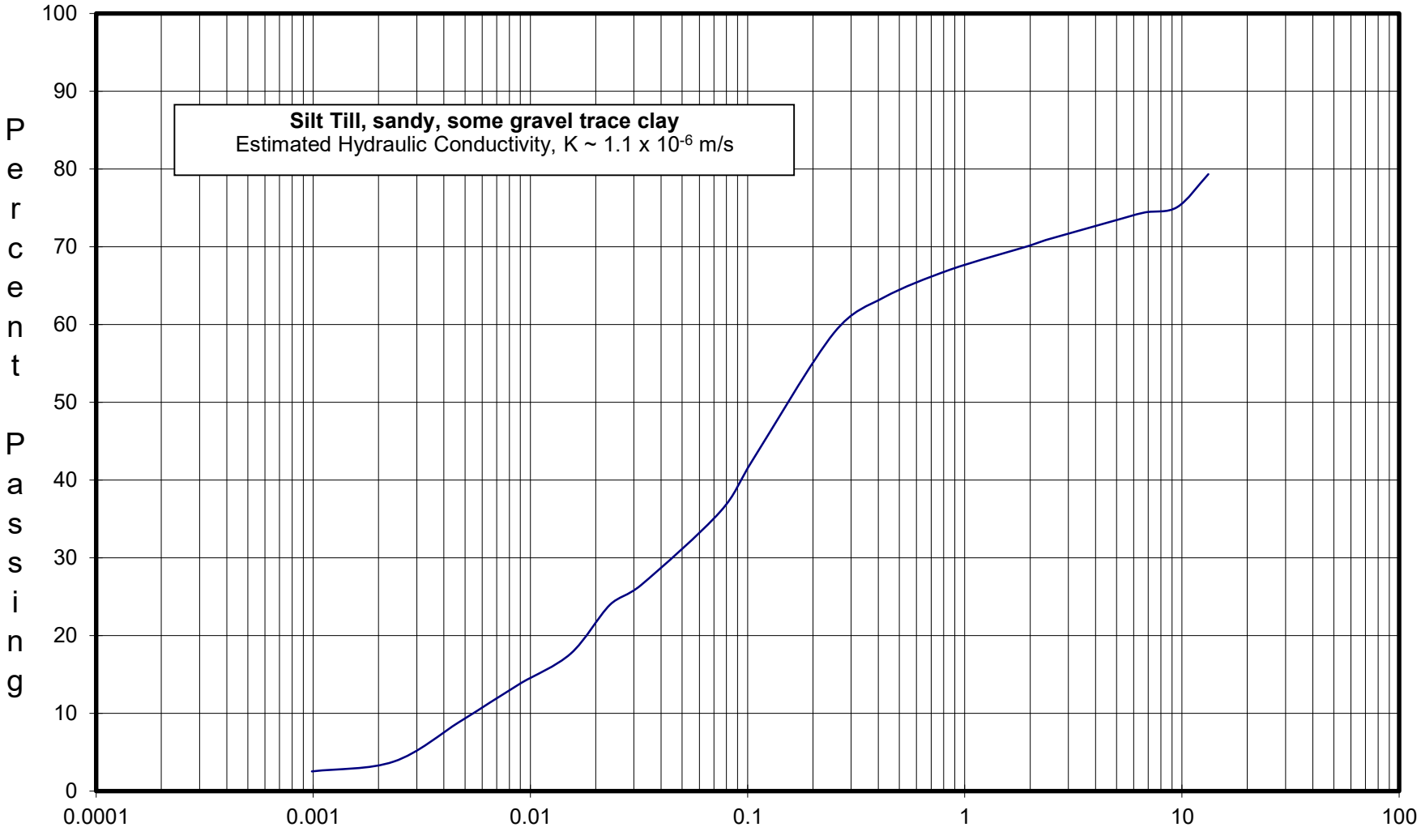
MECHANICAL GRAIN SIZE ANALYSIS



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

MODIFIED M.I.T. CLASSIFICATION		
Silty Sand Till, gravelly (BH1, SA7)	**Hunter Farm, Dorchester, Ontario Project: LON-21008138-A0**	**Figure 1**

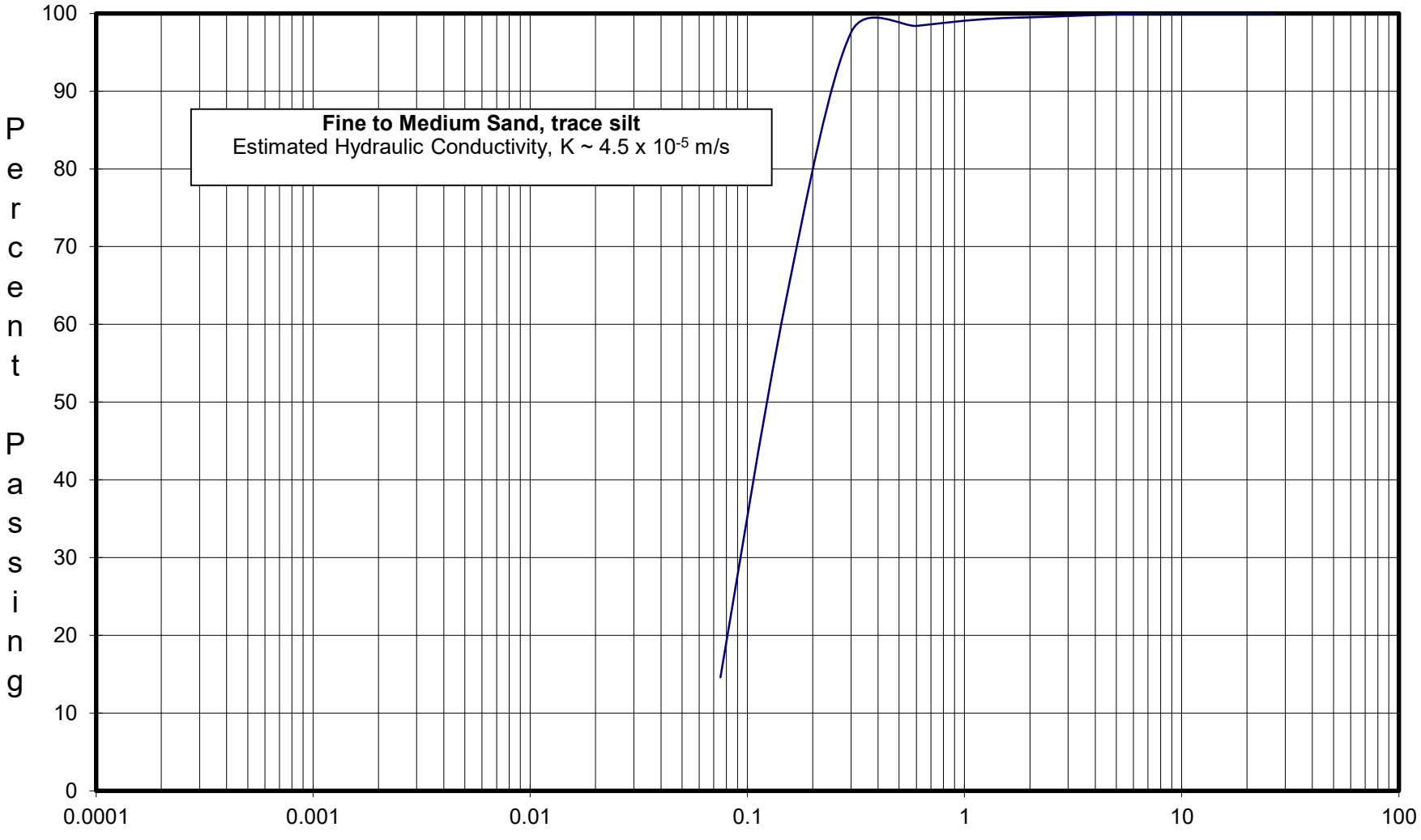
MECHANICAL GRAIN SIZE ANALYSIS



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

MODIFIED M.I.T. CLASSIFICATION	**Silt Till (BH8,S4)**	**Hunter Farm, Dorchester, Ontario** **Project: LON-21008138-A0**	**Figure 2**

MECHANICAL GRAIN SIZE ANALYSIS



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			
MODIFIED M.I.T. CLASSIFICATION	**Fine to Medium Sand (BH 9 SA 5)**						**Hunter Farm, Dorchester, Ontario** **Project: LON-21008138-A0**			**Figure 3**

Appendix F – MECP Water Well Record Summary

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Water Well Records

Sunday, September 5, 2021

8:20:55 PM

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
NORTH DORCHESTER TOW	17 495037 4759176 W	2013/03 6809	0.75			MO	0097 10	7219087 (Z164808) A135911	BRWN SAND GRVL 0022 GREY CLAY TILL 0082 GREY SAND GRVL 0102
NORTH DORCHESTER TOW	17 493597 4759957 W	2008/12 7238						7117778 (Z90466) A069682 A	
NORTH DORCHESTER TOW	17 493620 4760020 W	6607	2.00	0020		MN	0015 13	7115588 (Z86898) A069682	BRWN SAND SLTY 0003 BRWN SILT SNDY 0010 GREY SILT 0021 GREY SILT 0028
NORTH DORCHESTER TOW	17 495178 4759247 W	2005/10 7190	0.79				0010 10	4116326 (Z25566) A029302	BRWN SAND 0020
NORTH DORCHESTER TOW 04 008	17 493699 4759607 W	2008/06 6607	0.75	UK 0003		MO		7116490 (M01798) A067294	BRWN SILT LOAM 0004 BRWN SILT SAND 0005 BRWN SAND SILT GRVL 0007 GREY SILT SAND GRVL 0007
NORTH DORCHESTER TOW TR N 03 007	17 493514 4760058 W	1965/09 3009	6 6	FR 0088	22/27/10/4:0	DO		4102868 ()	CLAY STNS 0056 BRWN LMSN 0060 FSND 0079 BRWN LMSN 0089
NORTH DORCHESTER TOW TR N 03 008	17 493534 4760013 W	1962/03 3117	6	FR 0058	12/30/8/2:30	DO		4102871 ()	LOAM MSND 0008 HPAN STNS 0058 GRVL 0060
NORTH DORCHESTER TOW TR N 03 008	17 493534 4760013 W	1969/08 3009	5 5	FR 0082	23/30/12/5:0	DO		4104788 ()	BRWN CLAY 0016 GREY CLAY MSND STNS 0045 GRVL 0046 GREY CLAY MSND 0079 GREY LMSN 0082
NORTH DORCHESTER TOW TR N 03 008	17 493534 4760123 W	1977/05 5466	5	FR 0082	28/28/4/48:0	DO		4108014 ()	RED CLAY SNDY PCKD 0012 BRWN SAND GRVL CLAY 0020 GREY GRVL CLAY BLDR 0040 GREY GRVL SAND CLAY 0070 GREY GRVL SAND PORS 0082
NORTH DORCHESTER TOW TR N 03 008	17 493534 4760143 W	1977/04 5466	5	FR 0085	30/37/4/48:0	DO		4108013 ()	RED CLAY SNDY PCKD 0015 BRWN SAND LOOS 0020 GREY GRVL CLAY SAND 0085
NORTH DORCHESTER TOW TR N 03 008	17 493744 4760038 W	1988/03 3009	5	FR 0073	28/41/6/1:45	DO		4111206 (23005)	BLCK LOAM 0001 BRWN SAND CLAY 0009 GREY CLAY SAND 0014 GREY CLAY SAND STNS 0070 GREY FGVL SAND SILT 0072 GREY CSND 0073
NORTH DORCHESTER TOW TR N 03 008	17 493484 4760183 W	1970/08 2607	36	FR 0008	8///:	DO		4105190 ()	BRWN MSND 0008 GRVL BLDR 0009 BLUE CLAY BLDR 0020
NORTH DORCHESTER TOW TR N 03 008	17 493514 4760028 W	1954/08 1708	4	FR 0029	29/32/5/5:0	DO		4103066 ()	MSND GRVL 0010 HPAN BLDR 0068 GRVL 0069
NORTH DORCHESTER TOW TR N 03 008	17 493554 4760183 W	1963/06 3009	4 4	FR 0103	50/55/10/3:0	DO		4102872 ()	LOAM MSND 0020 GRVL 0022 CLAY 0041 GRVL 0046 CLAY 0076 MSND 0081 GREY LMSN 0083 FSND 0088 CLAY MSND 0102 GREY LMSN 0104
NORTH DORCHESTER TOW TR N 03 008	17 493774 4760103 W	1961/01 1708	5 5	FR 0062	35/44/5/8:0	ST DO		4102870 ()	LOAM 0004 BRWN CLAY 0030 CLAY GRVL 0050 CLAY MSND 0062 GRVL 0064

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
NORTH DORCHESTER TOW TR N 03 008	17 493534 4760053 W	1972/06 3009	5	FR 0084	26/33/10/2:0	DO		4105974 ()	CLAY SAND 0008 BRWN CLAY 0022 GREY SAND CLAY 0031 GREY CLAY SAND 0045 GREY SAND CLAY 0083 GREY SAND 0084
NORTH DORCHESTER TOW TR N 03 008	17 493602 4760482 W	2018/09 5466	6.25	FR 0038	20//20/1:	DO		7328053 (Z282227) A255658	BRWN SAND 0001 BRWN SAND GRVL 0014 GREY SAND GRVL 0028 GREY GRVL SAND CLAY 0030 GREY CLAY GRVL SAND 0038
NORTH DORCHESTER TOW TR N 03 008	17 493559 4760223 W	1988/03 5466	5	SU 0102	48/76/6/24:0	DO		4111398 (14340)	BRWN SAND PCKD 0017 GREY SAND CLAY 0023 GREY GRVL CLAY 0030 GREY BLDR HARD 0032 GREY GRVL CLAY 0075 GREY GRVL SAND 0080 GREY GRVL SAND CLAY 0098 GREY GRVL SAND 0100 GREY LMSN HARD 0102
NORTH DORCHESTER TOW TR N 03 009	17 494234 4760323 W	1985/12 5466	6 6	FR 0068	18/46/4/12:0	DO		4110509 (NA)	BLCK LOAM PORS 0001 BRWN SAND STNS CLAY 0015 GREY CLAY STNS DNSE 0022 GREY CLAY GRVL 0038 GREY CLAY STNS DNSE 0052 GREY GRVL CLAY 0066 GREY LMSN HARD 0069
NORTH DORCHESTER TOW TR N 03 009	17 494374 4760463 W	1979/06 2607	36	FR 0008	8/14/3/:	DO		4108834 ()	SAND 0014
NORTH DORCHESTER TOW TR N 03 009	17 494354 4760503 W	1980/03 5466	5	FR 0050	10/38/5/2:0	DO	0049 3	4109439 ()	BRWN SAND PCKD 0007 BRWN GRVL CLAY 0015 BRWN CLAY SAND 0025 BRWN GRVL CLAY 0048 BRWN GRVL PORS 0052
NORTH DORCHESTER TOW TR N 03 009	17 494314 4760363 W	1980/03 5466	5 5	FR 0077	12/34/5/16:0	DO		4109440 ()	BRWN SAND PCKD 0007 BRWN GRVL SAND 0018 BRWN CLAY SAND 0027 BRWN GRVL CLAY 0069 BRWN GRVL PORS 0075 BRWN LMSN HARD 0077
NORTH DORCHESTER TOW TR N 03 009	17 494394 4760403 W	1983/08 5466	5 5	FR 0068	6/30/13/14:0	DO		4110011 ()	BRWN SAND PCKD 0010 BRWN SAND 0020 GREY CLAY DNSE 0025 GREY GRVL CLAY 0060 GREY GRVL PORS 0067 BRWN LMSN HARD 0068
NORTH DORCHESTER TOW TR N 03 009	17 494064 4761023 W	1955/07 2801	8					4103070 ()	FSND 0013 MSND CLAY GRVL 0020 BLUE CLAY MSND GRVL 0045 BLUE CLAY 0064 BLUE CLAY FSND 0070 FSND GRVL 0077 MSND GRVL 0082 BLUE CLAY GRVL 0100 ROCK 0102
NORTH DORCHESTER TOW TR N 03 009	17 494434 4760403 W	1976/04 5466	5 5	MN 0063	-4/16/15/24:0	DO		4107600 ()	RED SAND LOOS 0006 BLUE CLAY DNSE 0020 GREY GRVL CLAY LYRD 0050 GREY GRVL PORS 0061 BRWN LMSN HARD PORS 0063
NORTH DORCHESTER TOW TR N 03 009	17 494084 4760273 W	1962/09 1708	5 5	SU 0092	60/65/8/8:0	ST DO		4102873 ()	LOAM 0006 MSND 0022 GREY CLAY 0057 HPAN 0078 CLAY 0088 LMSN 0092
NORTH DORCHESTER TOW TR N 03 009	17 494284 4760353 W	1988/03 5466	5 5	FR 0078	28/63/6/1:0	DO		4111255 (03895)	BRWN SAND CLAY PCKD 0004 BRWN SAND PCKD 0020 GREY SAND CLAY PCKD 0035 GREY GRVL CLAY 0074 BRWN LMSN HARD 0078
NORTH DORCHESTER TOW TR N 03 010	17 494214 4760363 W	1983/04 5466	5	FR 0075	15/46/5/4:0	DO		4109922 ()	BRWN SAND PCKD 0005 BRWN CLAY GRVL 0010 GREY CLAY SAND 0029 GREY GRVL CLAY 0071 BRWN LMSN HARD 0075
NORTH DORCHESTER TOW TR N 03 010	17 495014 4760618 W	1971/03 1708	4	FR 0064	34/61/9/8:0	DO	0065 4	4105393 ()	LOAM 0001 BRWN CLAY MSND 0021 BRWN CLAY MSND 0043 GREY FSND 0060 GREY MSND CLAY 0064 GREY FSND 0069 GREY CLAY GRVL 0070
NORTH DORCHESTER TOW TR N 03 010	17 494614 4760663 W	1976/06 5466	5 5	MN 0076	7/38/10/16:0	ST		4107654 ()	RED SAND LOOS 0004 GREY GRVL PORS 0025 GREY CLAY DNSE 0030 GREY GRVL CLAY LYRD 0065 GREY GRVL PORS 0073 BRWN LMSN HARD PORS 0076

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
NORTH DORCHESTER TOW TR N 03 011	17 495154 4760703 W	1967/08 3009	5 5	FR 0135	40/132/6/6:0	DO		4102876 ()	CLAY MSND 0020 FSND 0062 CLAY MSND 0092 FSND 0107 LMSN 0110 MSND GRVL 0132 GREY LMSN 0135
NORTH DORCHESTER TOW TR N 03 011	17 495360 4760757 W	2019/07 7090	6 6	UT 0071	39/41/10/2:	DO	0058 12	7338997 (Z299311) A258362	BRWN CLAY SNDY 0013 BRWN FSND LOOS 0071 GREY CLAY SOFT 0075
NORTH DORCHESTER TOW TR N 03 011	17 495219 4760709 W	2015/06 7090	6 6	UT 0061	30/33/10/1:30	DO	0048 12	7254857 (Z201669) A170120	BRWN CLAY STNS 0014 BRWN SAND 0060 GREY HPAN 0065
NORTH DORCHESTER TOW TR N 03 011	17 495283 4760742 W	2018/07 7090	6 6	UT 0042	35/40/10/1:30	DO	0052 12	7314845 (Z288559) A249256	BLCK LOAM LOAM 0002 BRWN CLAY STNS SAND 0016 BRWN SAND FSND 0042 GREY SAND MSND 0064 GREY CLAY SOFT 0069
NORTH DORCHESTER TOW TR N 03 011	17 495134 4760743 W	1967/02 1708	5 5	FR 0064	33/62/7/8:0	ST DO	0060 3	4102875 ()	BRWN CLAY 0008 BRWN CLAY MSND 0028 BRWN FSND 0064 BRWN CSND 0067 GREY CLAY 0068
NORTH DORCHESTER TOW TR N 04 008	17 493974 4759213 W	1962/08 2801	5					4102900 ()	CLAY MSND 0003 MSND GRVL BLDR 0008 CLAY BLDR 0026 MSND GRVL 0028 WHIT CLAY BLDR 0031 ROCK 0036
NORTH DORCHESTER TOW TR N 04 008	17 494074 4759283 W	1962/08 2801	5					4102898 ()	FILL CLAY 0006 MSND GRVL 0011 CLAY BLDR 0026
NORTH DORCHESTER TOW TR N 04 008	17 493514 4759961 W	1961/05 3410	5 5	FR 0082	17/24/6/3:0	DO		4102896 ()	LOAM 0002 YLLW MSND 0005 BLUE CLAY 0020 HPAN 0079 GREY LMSN 0084
NORTH DORCHESTER TOW TR N 04 008	17 493639 4760008 W	1962/01 1708	5 5	FR 0071	28/33/8/8:0	DO		4102897 ()	BRWN CLAY 0015 BLUE CLAY 0017 CLAY GRVL 0069 GRVL SHLE 0071
NORTH DORCHESTER TOW TR N 04 008	17 493674 4759963 W	1975/05 1708	5	FR 0066	24/42/13/8:0	DO		4107535 ()	LOAM 0001 BRWN CLAY STNS 0016 GREY CLAY GRVL 0042 GREY GRVL CMTD 0059 GREY CLAY SAND GRVL 0066 LMSN GRVL 0067
NORTH DORCHESTER TOW TR N 04 008	17 493504 4759953 W	1969/04 2607	36	FR 0010	10/21/1/1:0	DO		4104657 ()	BRWN CLAY MSND 0008 BLUE CLAY MSND 0022
NORTH DORCHESTER TOW TR N 04 008	17 493514 4759943 W	1969/08 2607	36	FR 0023	23/39/0/1:0	DO		4104792 ()	BRWN CLAY MSND 0012 BLUE CLAY BLDR 0040
NORTH DORCHESTER TOW TR N 04 008	17 493750 4759660 W	2003/11 6032	1.97			NU	0007 3	4115472 (Z05561) A005180	BRWN SILT 0012 GREY GRVL TILL SILT 0015
NORTH DORCHESTER TOW TR N 04 008	17 493803 4759643 L	1997/09 3563	5 5 5	FR 0123	32/90/12/2:0	DO		4113726 (177836)	BRWN CLAY STNS 0018 BLUE CLAY 0053 SAND GRVL DRY 0061 GREY HPAN STNS 0098 GREY LMSN 0123
NORTH DORCHESTER TOW TR N 04 008	17 493774 4760053 W	1987/06 5466	5 4	FR 0073	20/37/13/18:0	DO	0070 3	4110951 (03819)	BRWN CLAY STNS DNSE 0005 BRWN GRVL CLAY PCKD 0012 GREY CLAY GRVL PCKD 0020 GREY GRVL SAND CLAY 0060 GREY GRVL SAND 0070 GREY CSND LOOS 0073
NORTH DORCHESTER TOW TR N 04 008	17 493534 4759963 W	1985/12 5466	5	FR 0061	15/31/12/2:0	DO	0058 3	4110402 ()	BRWN CLAY STNS 0010 BRWN GRVL CLAY 0016 GREY GRVL CLAY 0054 GREY GRVL SAND CLAY 0058 GREY SAND GRVL LOOS 0061
NORTH DORCHESTER TOW TR N 04 008	17 493684 4759633 W	1968/07 2607	36	FR 0006	6/14/0/1:0	PS		4104491 ()	CLAY 0015

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
NORTH DORCHESTER TOW TR N 04 009	17 494378 4759884 L	2000/03 6824	5	FR 0030	30/34/5/2:0	DO	0032 3	4114469 (212155)	BRWN FSND 0028 BLCK FSND 0040 GREY GRVL TILL 0055
NORTH DORCHESTER TOW TR N 04 009	17 494484 4759603 W	1952/07 3410	6	SU 0063	12/40/15/:	DO		4102899 ()	GRVL 0010 CLAY 0020 MSND 0027 HPAN 0062 GRVL 0063
NORTH DORCHESTER TOW TR N 04 010	17 494914 4759783 W	1953/09 4711	4 4	FR 0059	15/20/4/5:0	DO		4102902 ()	LOAM 0003 YLLW CLAY 0006 GRVL HPAN 0020 STNS HPAN 0045 SHLE 0059
NORTH DORCHESTER TOW TR N 04 010	17 494687 4760428 W	1974/03 2801				MN		4106734 ()	LOAM 0001 BRWN CLAY GRVL 0006 GREY CLAY 0019 GREY CLAY SILT 0030 GREY CLAY SAND SILT 0064 GREY LMSN 0065 GREY LMSN 0067
NORTH DORCHESTER TOW TR N 04 010	17 495094 4760403 W	1984/10 2552	36	FR 0025	25/47/5/2:0	DO		4110200 ()	BRWN CLAY 0020 BRWN SAND 0048
NORTH DORCHESTER TOW TR N 04 010	17 494954 4759743 W	1947/06 3558	4 4	SU	16/19/6/4:0	DO		4102901 ()	BRWN CLAY STNS 0020 HPAN BLDR 0052 GREY ROCK 0057
NORTH DORCHESTER TOW TR N 04 011	17 495234 4760343 W	1966/11 2519	30	FR 0012	12/20/3/1:0	DO		4102903 ()	LOAM 0001 BRWN CLAY 0011 BRWN MSND 0020
NORTH DORCHESTER TOW TR S A 017	17 495394 4759563 W	1948/10 3505	4	SU 0088	30/35/6/7:0	DO		4102944 ()	LOAM 0004 BLDR CLAY 0020 GRVL STNS 0050 BLDR CLAY ROCK 0088
NORTH DORCHESTER TOW TR S A 017	17 495354 4759283 W	1953/03 2801	6					4102945 ()	LOAM 0001 MSND GRVL 0015 BLDR MSND GRVL 0022 BLUE CLAY MSND GRVL 0027 GRVL MSND 0028 BLUE CLAY MSND GRVL 0039 GRVL MSND CLAY 0046 BLUE CLAY MSND GRVL 0065 BLUE CLAY GRVL MSND 0069 GRVL ROCK 0077 CLAY 0079
NORTH DORCHESTER TOW TR S A 018	17 494744 4759328 W	1949/08 3511	4 4		60/70/5/12:0	DO		4102949 ()	BRWN CLAY 0020 HPAN STNS 0070 MSND 0080 LMSN 0084
NORTH DORCHESTER TOW TR S A 018	17 494159 4759188 W	1953/03 2801	4 4 4	FR	39/40/19/7:0	NU	0055 7	4102950 ()	LOAM 0001 MSND GRVL CLAY 0045 MSND GRVL 0057 BLDR MSND GRVL 0062 MSND GRVL BLDR 0072 ROCK 0074
NORTH DORCHESTER TOW TR S A 018	17 494744 4759333 W	1955/11 4711	6	FR 0079	30/60/2/5:0	ST DO		4102951 ()	LOAM 0001 MSND GRVL 0035 CLAY GRVL 0079 GRVL 0080
NORTH DORCHESTER TOW TR S A 019	17 494374 4759343 W	1985/10 4741	10	SU 0064	///24:0			4110332 ()	GRVL 0003 BRWN CLAY 0017 BLUE CLAY STNS 0045 GREY LMSN 0078
NORTH DORCHESTER TOW TR S A 019	17 494454 4759263 W	1985/05 4741	7					4110336 ()	GRVL 0012 BRWN CLAY 0017 BLUE CLAY STNS 0040
NORTH DORCHESTER TOW TR S A 019	17 494074 4759143 W	1985/10 4741	5	FR 0010	2/10/10/1:0		0006 4	4110339 () A	BRWN CLAY SLTY 0006 BRWN GRVL 0010

Notes:
UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
DATE CNTR: Date Work Completedand Well Contractor Licence Number
CASING DIA: Casing diameter in inches
WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
WELL USE: See Table 3 for Meaning of Code
SCREEN: Screen Depth and Length in feet
WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only
FORMATION: See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

2. Core Color

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

3. Well Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial	MT	Monitoring TestHole
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		

Appendix G – Water Levels and Hydrographs

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LON-21008138-A0

Hunter Farm - Marion St, Dorchester

Groundwater Elevation Monitoring

Well ID	BH1/MW	BH2/MW	BH3/MW	BH4/MW	BH5/MW	BH6/MW	BH7/MW-A	BH7/MW-B	BH8/MW	BH9/MW
Ground Surface Elevation (m amsl)	260.80	256.00	256.04	256.03	257.64	268.06	264.30	264.28	257.53	266.14
Top of Pipe Elevation (m amsl)	261.60	256.90	256.89	256.85	258.57	268.90	265.08	265.11	258.43	266.96
Groundwater Elevation (m amsl)										
17-May-21	256.18	255.01	254.79	254.59	256.87	258.87	263.69	263.75	257.03	264.84
30-Jul-21	256.03	255.14	254.49	254.73	256.96	258.61	263.26	263.22	257.09	264.81
17-Aug-21	255.97	254.99	254.37	254.60	256.82	258.59	262.98	262.93	256.95	264.60
28-Sep-21	256.30	255.26	255.03	254.85	257.01	258.38	263.65	263.57	257.12	264.92
13-Oct-21	256.41	255.35	254.99	254.77	257.27	258.53	263.90	263.86	257.19	264.97
10-Nov-21	256.43	255.23	254.61	254.75	257.03	258.90	263.85	263.90	257.19	264.99
20-Dec-21	256.46	255.24	254.02	254.78	257.07	259.37	264.08	264.20	257.19	264.40
18-Jan-22	256.45	255.20	253.97	254.80	257.13	259.33	264.10	264.06	257.20	264.45
24-Feb-22	256.59	255.46	255.27	255.09	257.23	259.24	264.15	264.32	257.25	265.30
17-Mar-22	256.47	255.26	255.10	254.82	257.19	259.22	264.20	264.20	257.15	265.14
26-Apr-22	256.46	255.24	254.04	254.78	257.07	259.18	264.06	264.21	257.13	265.13

Groundwater Level Monitoring

Well ID	BH1/MW	BH2/MW	BH3/MW	BH4/MW	BH5/MW	BH6/MW	BH7/MW-A	BH7/MW-B	BH8/MW	BH9/MW
Groundwater Level (m bgs)										
17-May-21	4.62	1.00	1.25	1.44	0.77	9.18	0.61	0.53	0.50	1.30
30-Jul-21	4.77	0.87	1.55	1.30	0.68	9.44	1.04	1.06	0.44	1.33
17-Aug-21	4.83	1.02	1.67	1.43	0.82	9.46	1.32	1.35	0.58	1.54
28-Sep-21	4.50	0.75	1.01	1.18	0.63	9.67	0.65	0.71	0.41	1.22
13-Oct-21	4.39	0.66	1.05	1.26	0.37	9.53	0.40	0.42	0.34	1.17
10-Nov-21	4.37	0.78	1.43	1.28	0.61	9.15	0.45	0.38	0.34	1.15
20-Dec-21	4.34	0.77	2.02	1.25	0.57	8.68	0.22	0.08	0.34	1.74
18-Jan-22	4.35	0.81	2.07	1.23	0.51	8.72	0.20	0.22	0.33	1.69
24-Feb-22	4.21	0.55	0.77	0.94	0.41	8.81	0.15	-0.04	0.28	0.84
17-Mar-22	4.33	0.75	0.94	1.21	0.45	8.83	0.10	0.08	0.38	1.00
26-Apr-22	4.34	0.77	2.00	1.25	0.57	8.87	0.24	0.07	0.40	1.01

Notes:
- indicates not measured

LON-21008138-A0

Hunter Farm - Marion St, Dorchester

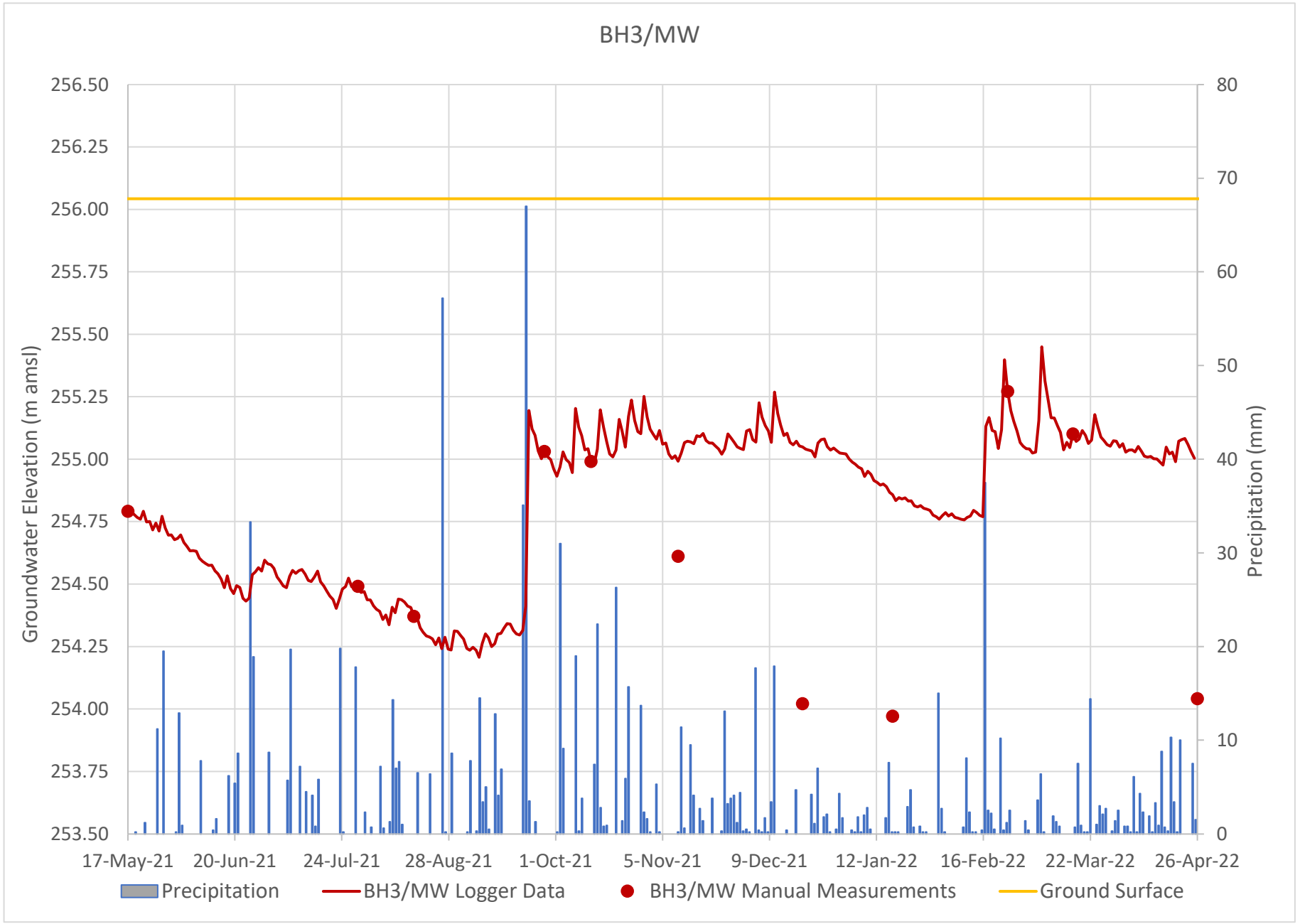
Water Elevation Monitoring

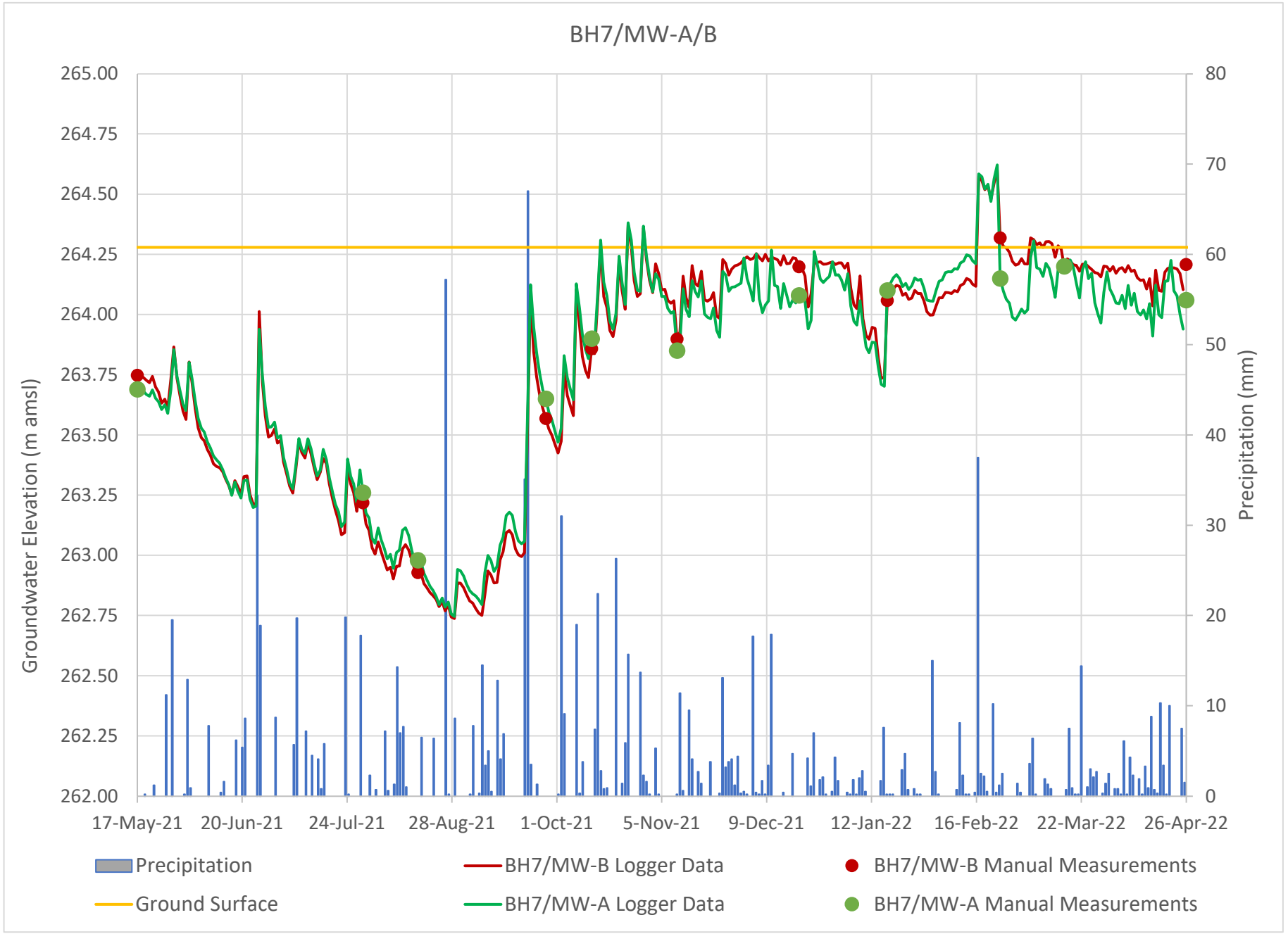
Well ID	P1 Inside	P1 Outside	SG1	P2 Inside	P2 Outside	SG2	P3 Inside	P3 Outside	SG3	P4 Inside	P4 Outside	SG4	P5 Inside	P5 Outside	SG5
Ground Surface Elevation (masl)	255.52	255.52	255.49	254.58	254.58	254.49	256.21	256.21	256.01	263.57	263.57	263.57	264.43	264.43	264.17
Top of Pipe Elevation (masl)	256.56	256.56	-	255.88	255.88	-	257.55	257.55	-	264.74	264.74	-	265.68	265.68	-
Groundwater Elevation															
30-Jul-21	255.16	255.63	255.60	254.65	254.67	254.72	256.27	-	Dry	262.96	Dry	Dry	264.56	264.68	264.56
17-Aug-21	255.22	255.66	255.60	254.68	254.70	254.71	256.25	-	256.27	262.78	-	-	264.54	264.65	264.56
28-Sep-21	255.46	255.58	255.59	254.89	254.75	254.79	256.52	256.25	256.35	262.76	Dry	Dry	264.69	264.66	264.57
13-Oct-21	255.66	255.46	255.63	254.89	254.75	254.85	256.51	256.36	256.41	263.29	Dry	263.71	264.70	264.69	264.63
10-Nov-21	255.44	255.64	255.63	254.71	254.69	254.78	256.63	Dry	256.40	263.68	263.75	264.10	264.62	264.69	264.62
20-Dec-21	255.56	255.65	255.64	254.77	254.66	254.77	256.54	256.31	256.38	NM	NM	264.27	264.71	264.54	264.64
18-Jan-22	255.54	255.61	255.62	254.75	254.64	254.78	256.50	Dry	256.37	263.70	263.75	263.95	264.69	264.70	264.61
24-Feb-22	255.60	255.81	255.75	255.28	254.83	254.94	256.60	256.38	256.48	NM	264.08	264.50	264.95	264.90	264.92
17-Mar-22	255.57	255.71	255.69	254.67	254.73	254.78	256.71	256.32	256.42	263.91	263.95	264.43	264.64	263.78	264.87
26-Apr-22	255.66	255.74	255.64	254.75	254.71	254.74	256.63	256.34	256.36	NM	NM	264.38	264.72	264.79	265.06

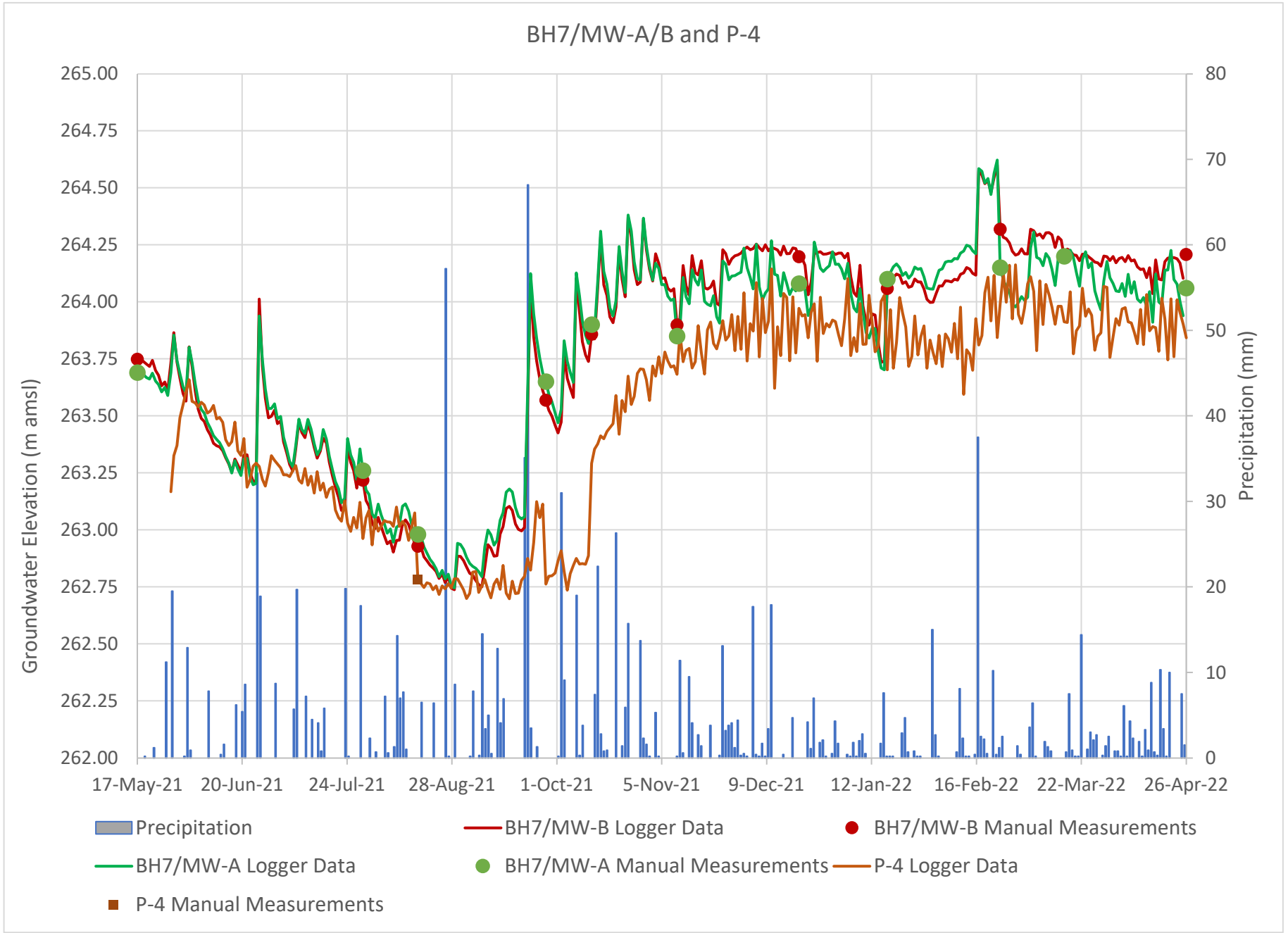
Water Level Monitoring

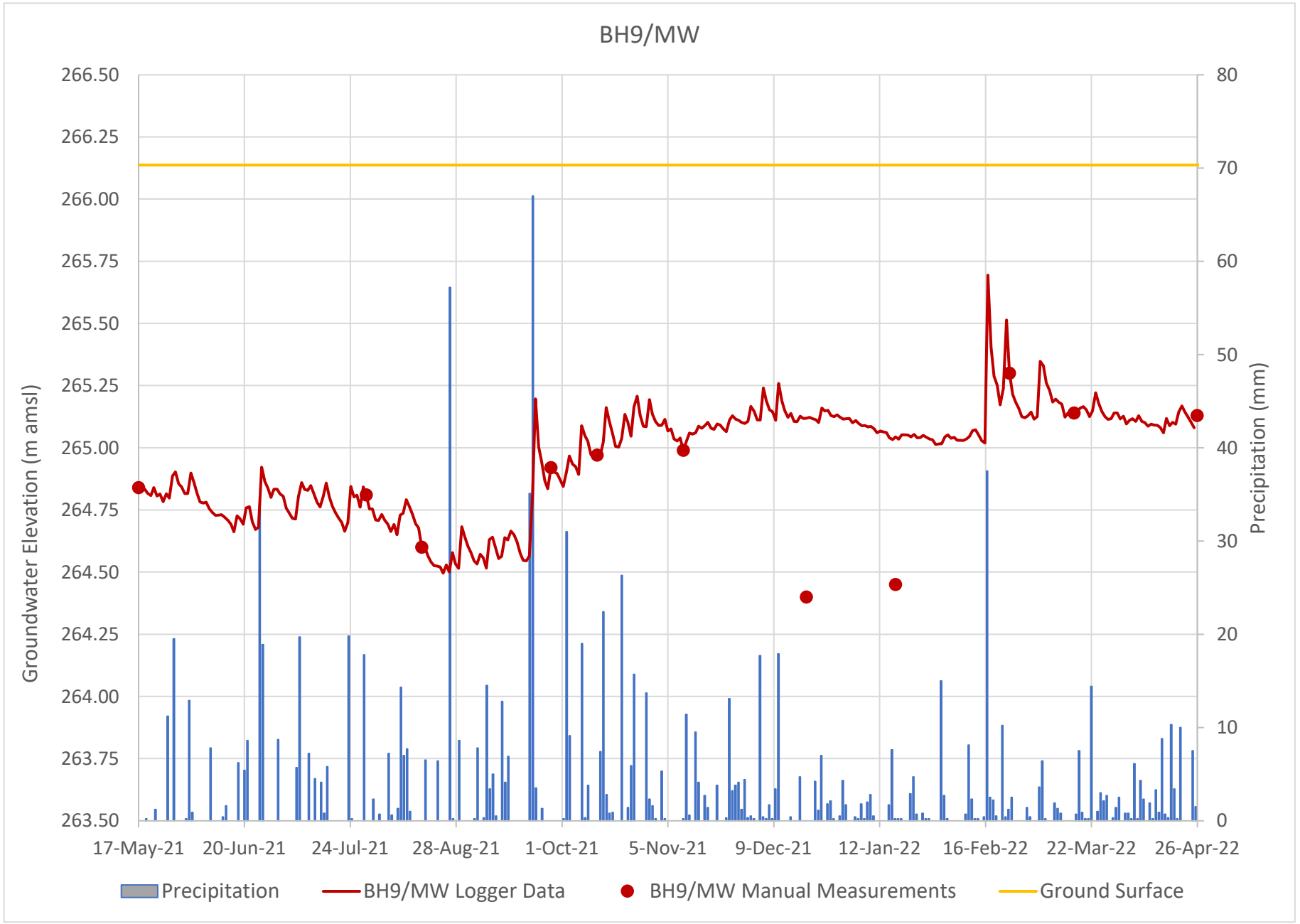
Well ID	P1 Inside	P2 Inside	P3 Inside	P4 Inside	P5 Inside
Groundwater Level (m bgs)					
30-Jul-21	0.36	-0.07	-0.06	0.60	-0.13
17-Aug-21	0.30	-0.10	-0.04	0.78	-0.11
28-Sep-21	0.06	-0.31	-0.31	0.80	-0.26
13-Oct-21	-0.14	-0.31	-0.30	0.27	-0.27
10-Nov-21	0.08	-0.13	-0.42	-0.12	-0.19
20-Dec-21	-0.04	-0.19	-0.33	NM	-0.28
18-Jan-22	-0.02	-0.17	-0.29	-0.14	-0.26
24-Feb-22	-0.08	-0.70	-0.39	NM	-0.52
17-Mar-22	-0.05	-0.09	-0.50	-0.35	-0.21
26-Apr-22	-0.14	-0.17	-0.42	NM	-0.30

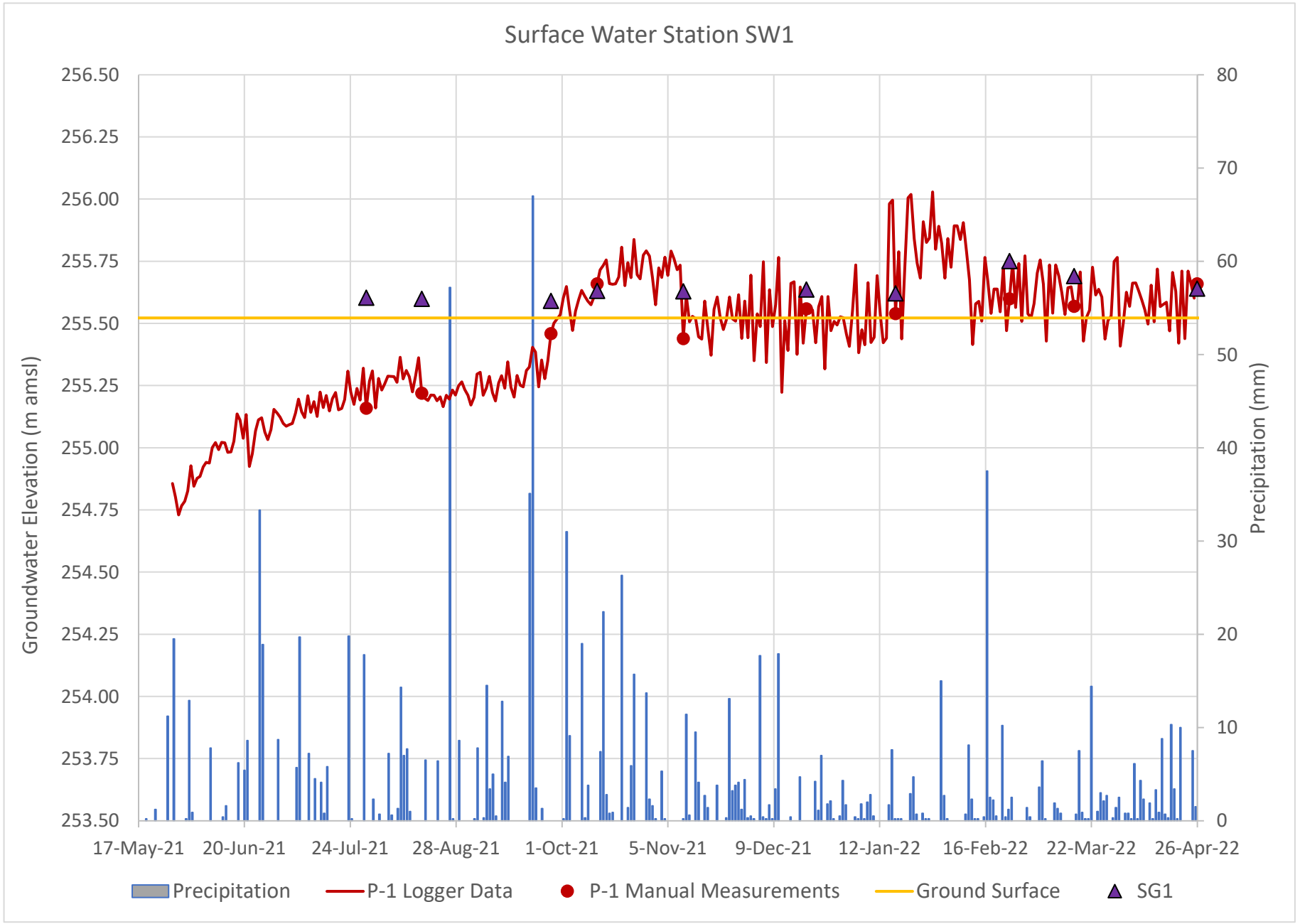
Notes:
- indicates not measured

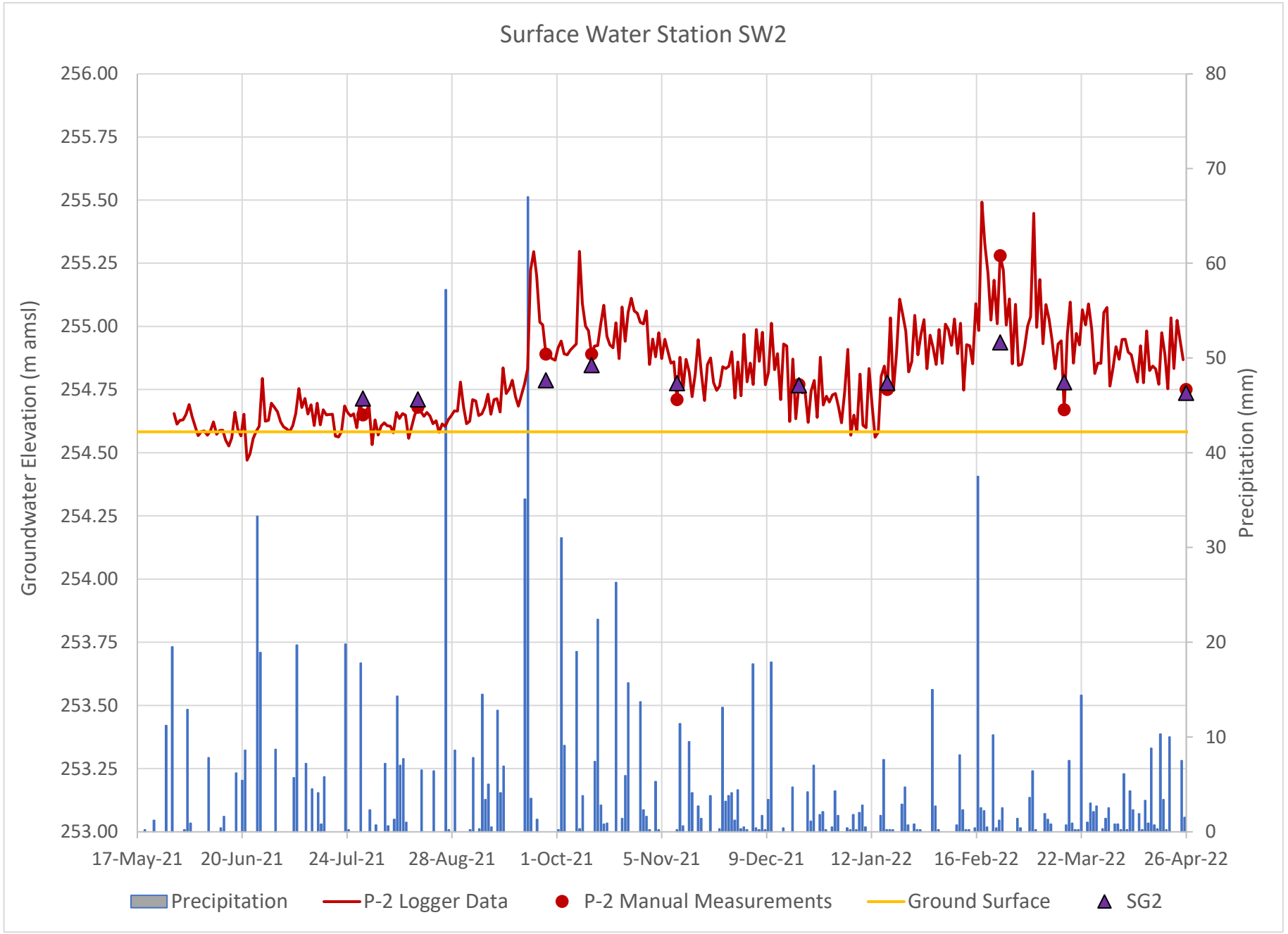

BH3/MW
Groundwater Elevation (m amsl)
Precipitation (mm)
256.50
256.25
256.00
255.75
255.50
255.25
255.00
254.75
254.50
254.25
254.00
253.75
253.50
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
BH3/MW Logger Data
BH3/MW Manual Measurements
Ground Surface

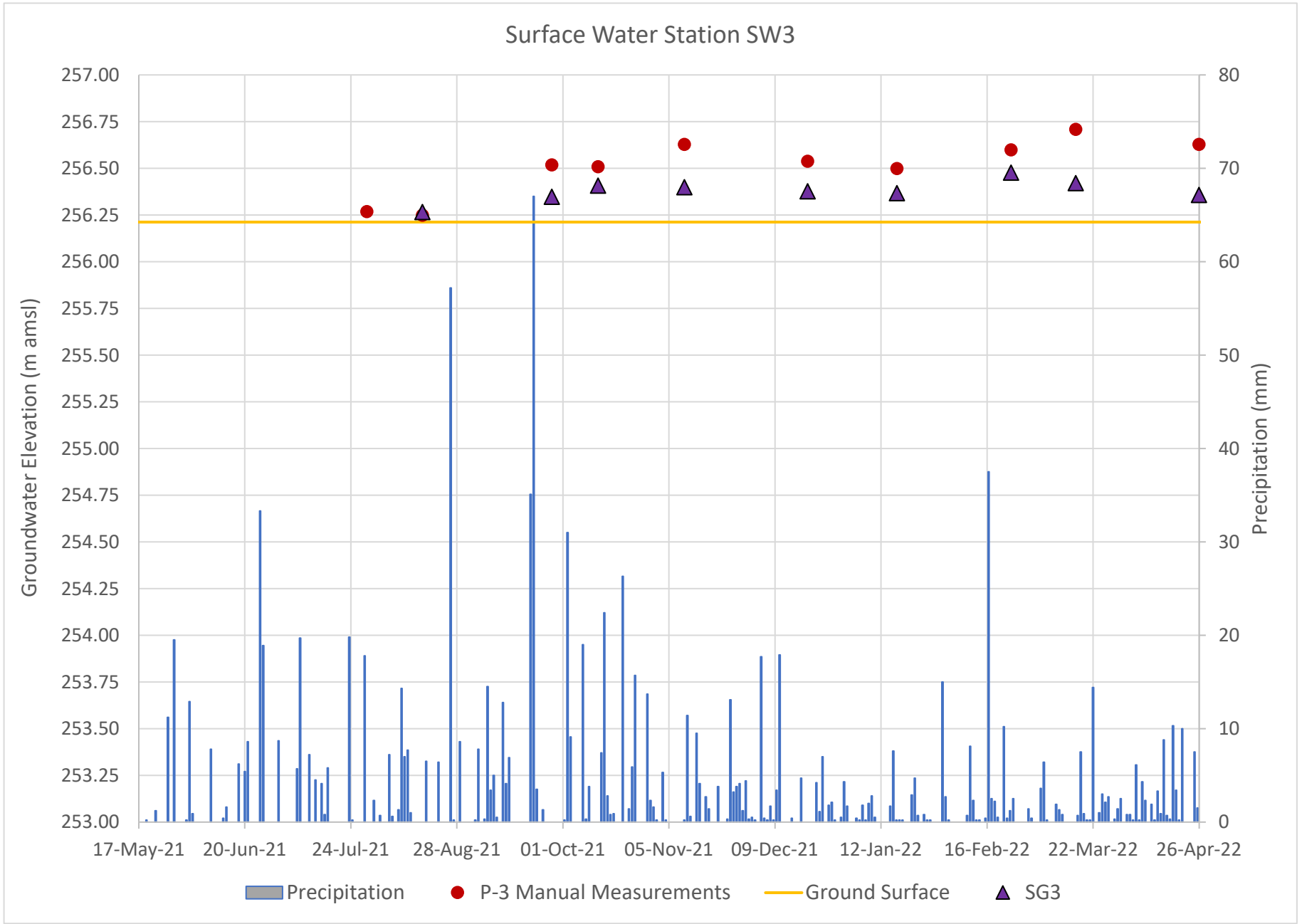

BH7/MW-A/B
Groundwater Elevation (m amsl)
Precipitation (mm)
265.00
264.75
264.50
264.25
264.00
263.75
263.50
263.25
263.00
262.75
262.50
262.25
262.00
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
BH7/MW-B Logger Data
BH7/MW-B Manual Measurements
Ground Surface
BH7/MW-A Logger Data
BH7/MW-A Manual Measurements

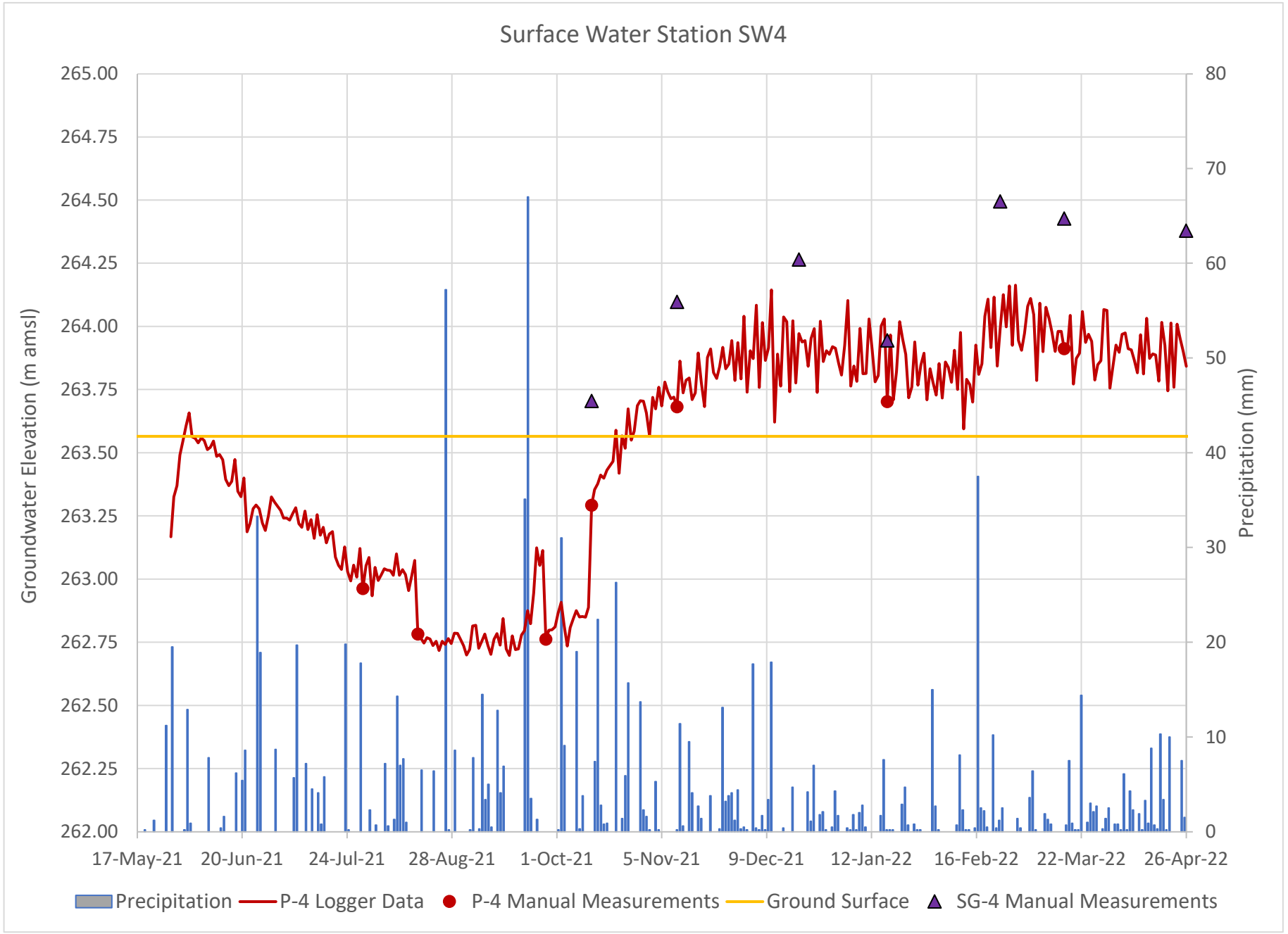

BH7/MW-A/B and P-4
Groundwater Elevation (m amsl)
Precipitation (mm)
265.00
264.75
264.50
264.25
264.00
263.75
263.50
263.25
263.00
262.75
262.50
262.25
262.00
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
BH7/MW-B Logger Data
BH7/MW-B Manual Measurements
BH7/MW-A Logger Data
BH7/MW-A Manual Measurements
P-4 Logger Data
P-4 Manual Measurements

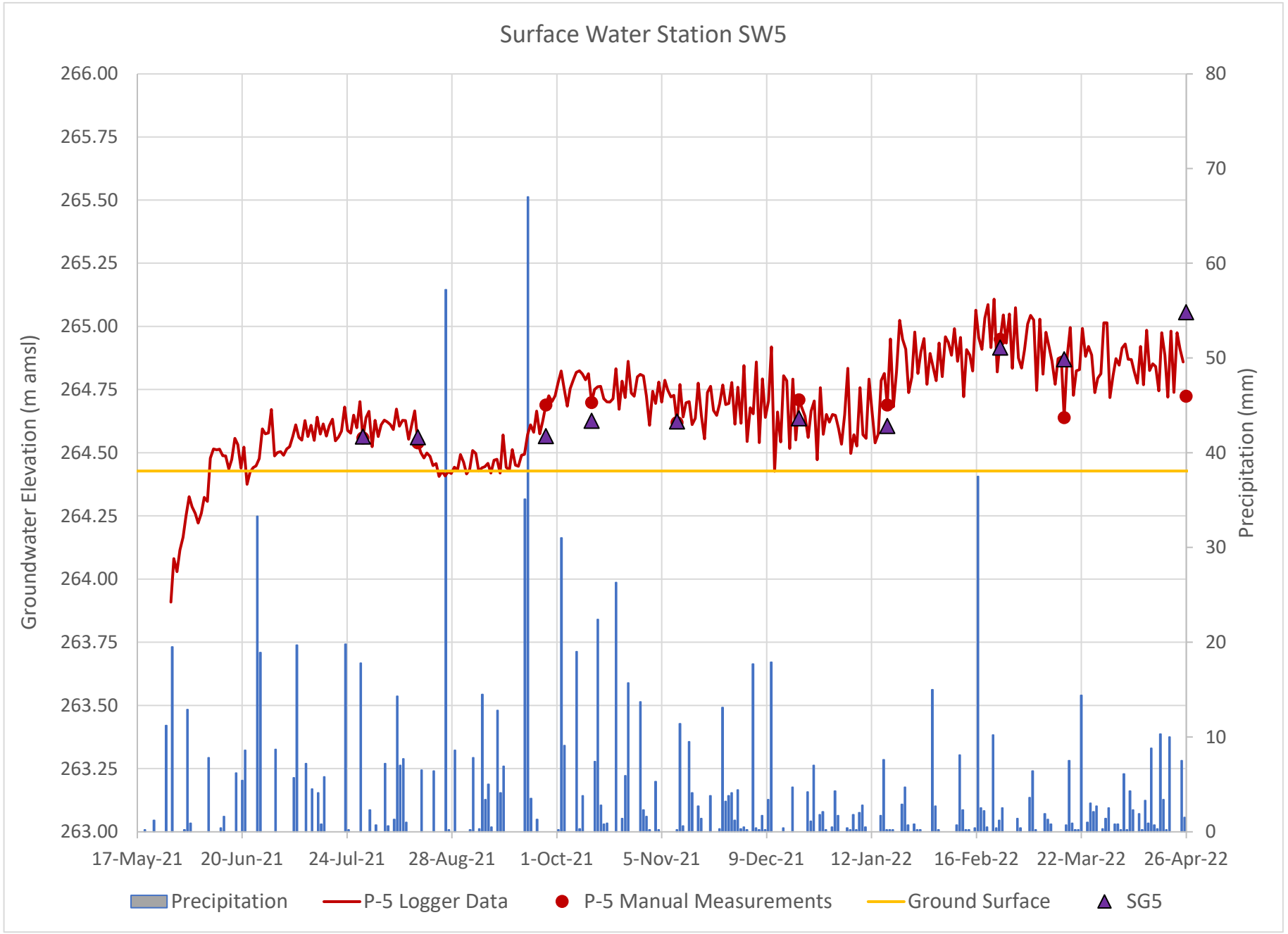

BH9/MW
Groundwater Elevation (m amsl)
Precipitation (mm)
266.50
266.25
266.00
265.75
265.50
265.25
265.00
264.75
264.50
264.25
264.00
263.75
263.50
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
BH9/MW Logger Data
BH9/MW Manual Measurements
Ground Surface


Surface Water Station SW1
Groundwater Elevation (m amsl)
Precipitation (mm)
256.50
256.25
256.00
255.75
255.50
255.25
255.00
254.75
254.50
254.25
254.00
253.75
253.50
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
P-1 Logger Data
P-1 Manual Measurements
Ground Surface
SG1


Surface Water Station SW2
Groundwater Elevation (m amsl)
Precipitation (mm)
256.00
255.75
255.50
255.25
255.00
254.75
254.50
254.25
254.00
253.75
253.50
253.25
253.00
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
P-2 Logger Data
P-2 Manual Measurements
Ground Surface
SG2


Surface Water Station SW3
Groundwater Elevation (m amsl)
Precipitation (mm)
257.00
256.75
256.50
256.25
256.00
255.75
255.50
255.25
255.00
254.75
254.50
254.25
254.00
253.75
253.50
253.25
253.00
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
01-Oct-21
05-Nov-21
09-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
P-3 Manual Measurements
Ground Surface
SG3


Surface Water Station SW4
Groundwater Elevation (m amsl)
Precipitation (mm)
265.00
264.75
264.50
264.25
264.00
263.75
263.50
263.25
263.00
262.75
262.50
262.25
262.00
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
P-4 Logger Data
P-4 Manual Measurements
Ground Surface
SG-4 Manual Measurements


Surface Water Station SW5
Groundwater Elevation (m amsl)
Precipitation (mm)
266.00
265.75
265.50
265.25
265.00
264.75
264.50
264.25
264.00
263.75
263.50
263.25
263.00
80
70
60
50
40
30
20
10
0
17-May-21
20-Jun-21
24-Jul-21
28-Aug-21
1-Oct-21
5-Nov-21
9-Dec-21
12-Jan-22
16-Feb-22
22-Mar-22
26-Apr-22
Precipitation
P-5 Logger Data
P-5 Manual Measurements
Ground Surface
SG5

Appendix H – Single Well Response Test Data

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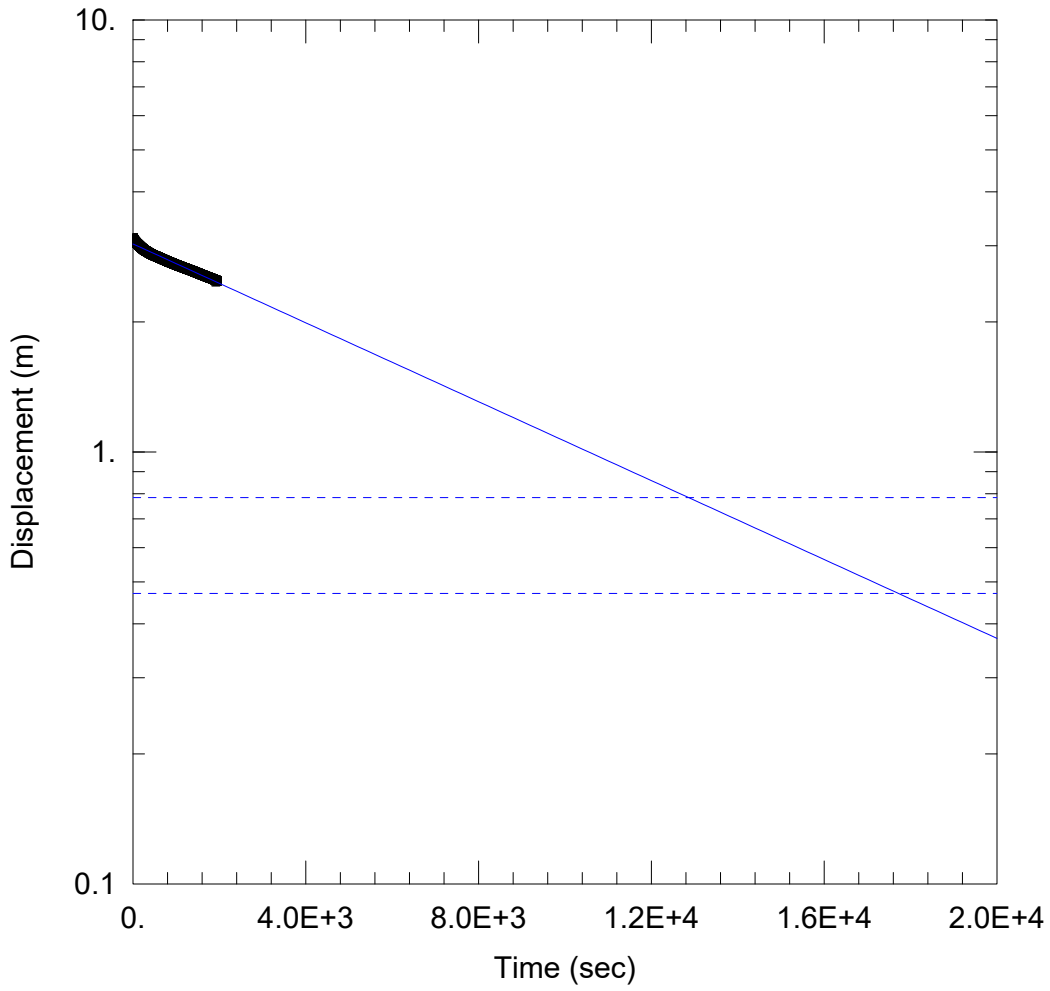


WELL TEST ANALYSIS

Data Set: E:\LON\LON-21008138-A0\50 Input\Hydrogeological Work\SWRT Data\BH2MW.aqt
Date: 11/16/21 Time: 08:10:57

PROJECT INFORMATION

Company: EXP
Client: Auburn Developments Inc.
Project: LON-21008138
Location: Dorchester, Ontario
Test Date: May 17 2021

AQUIFER DATA

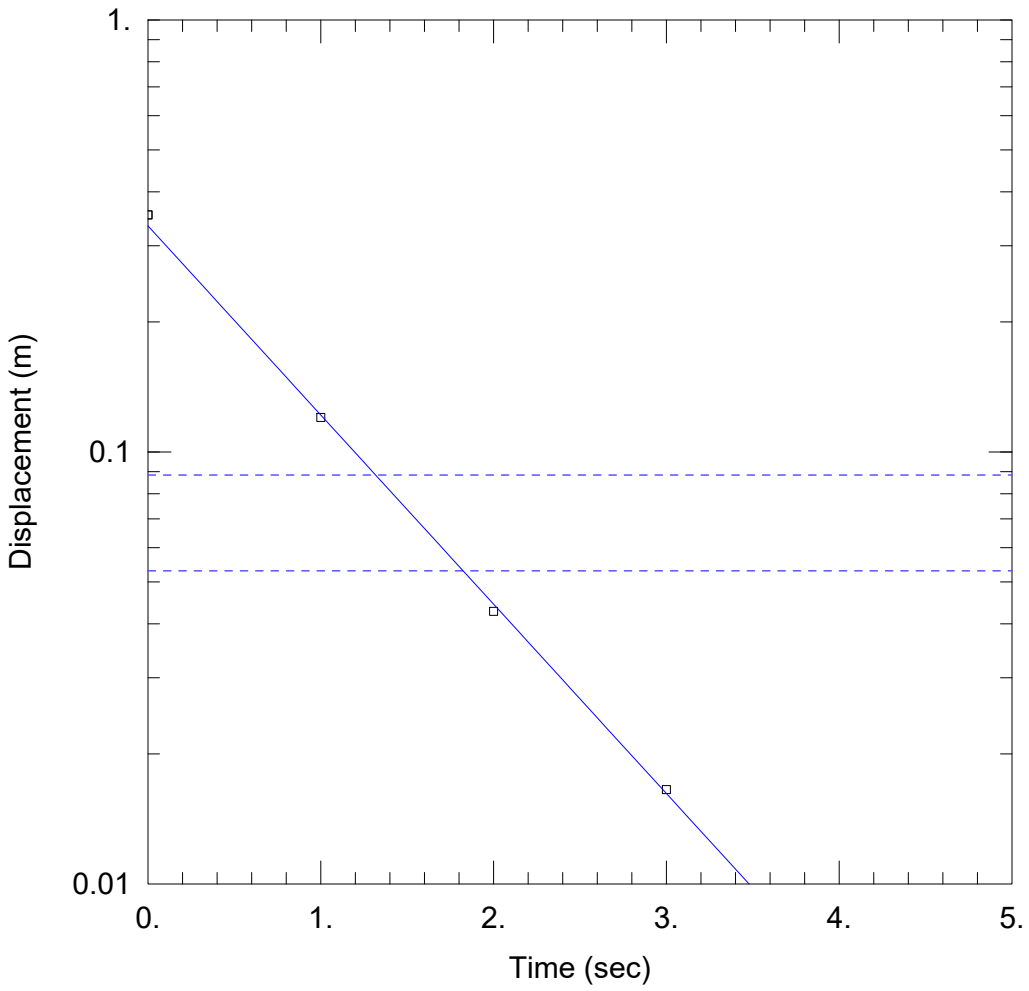
Saturated Thickness: 5. m Anisotropy Ratio (Kz/Kr): 0.3

WELL DATA (BH2/MW)

Initial Displacement: 3.135 m
Total Well Penetration Depth: 3.53 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.53 m
Screen Length: 1.524 m
Well Radius: 0.1048 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 7.3E-8 m/sec
y0 = 3.03 m



WELL TEST ANALYSIS

Data Set: E:\LON\LON-21008138-A0\50 Input\Hydrogeological Work\SWRT Data\BH4MW.aqt
Date: 11/16/21 Time: 08:10:36

PROJECT INFORMATION

Company: EXP
Client: Auburn Developments Inc.
Project: LON-21008138
Location: Dorchester, Ontario
Test Date: May 17 2021

AQUIFER DATA

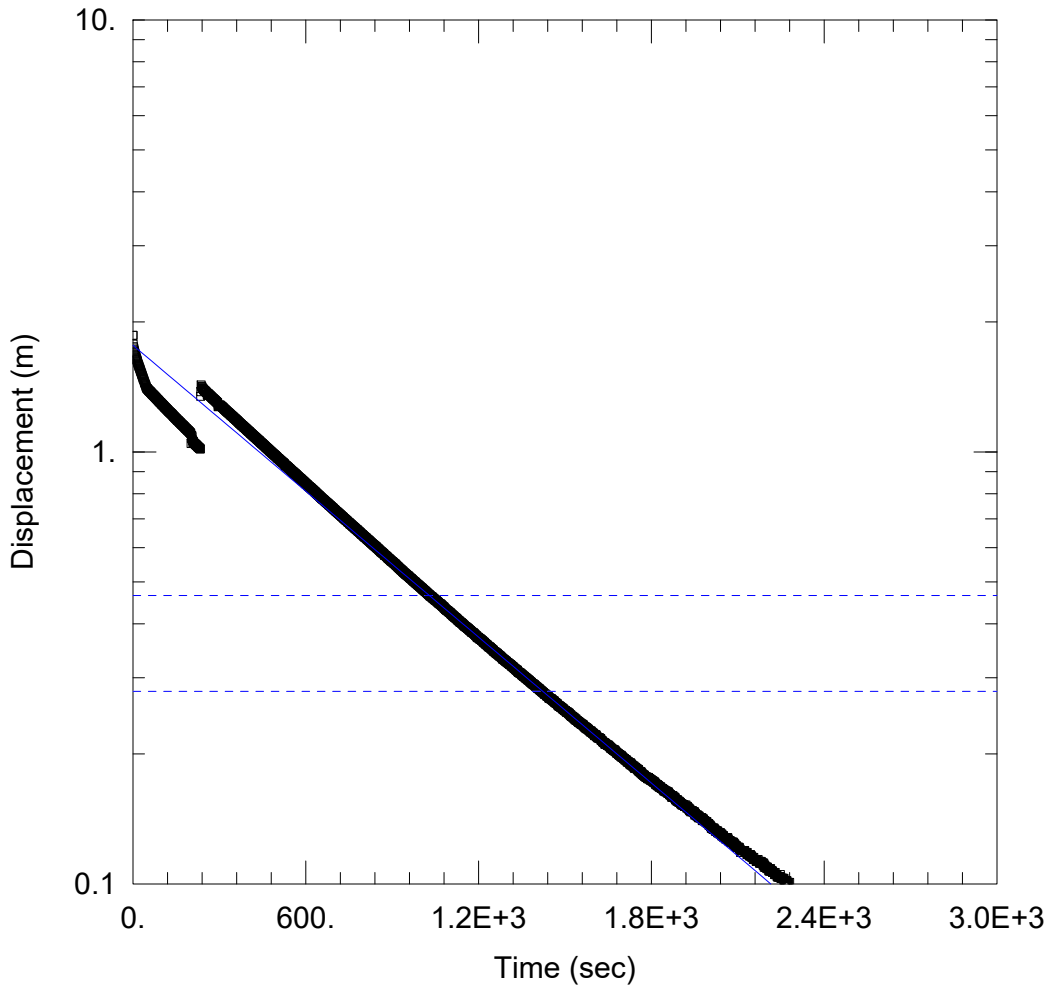
Saturated Thickness: 2.74 m Anisotropy Ratio (Kz/Kr): 0.4

WELL DATA (BH4/MW)

Initial Displacement: 0.3536 m
Total Well Penetration Depth: 3.1 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.1 m
Screen Length: 1.524 m
Well Radius: 0.1048 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.0008171 m/sec
y0 = 0.3336 m



WELL TEST ANALYSIS

Data Set: E:\LON\LON-21008138-A0\50 Input\Hydrogeological Work\SWRT Data\BH7MW_A.aqt
Date: 11/16/21 Time: 08:09:45

PROJECT INFORMATION

Company: EXP
Client: Auburn Developments Inc.
Project: LON-21008138
Location: Dorchester, Ontario
Test Date: May 17 2021

AQUIFER DATA

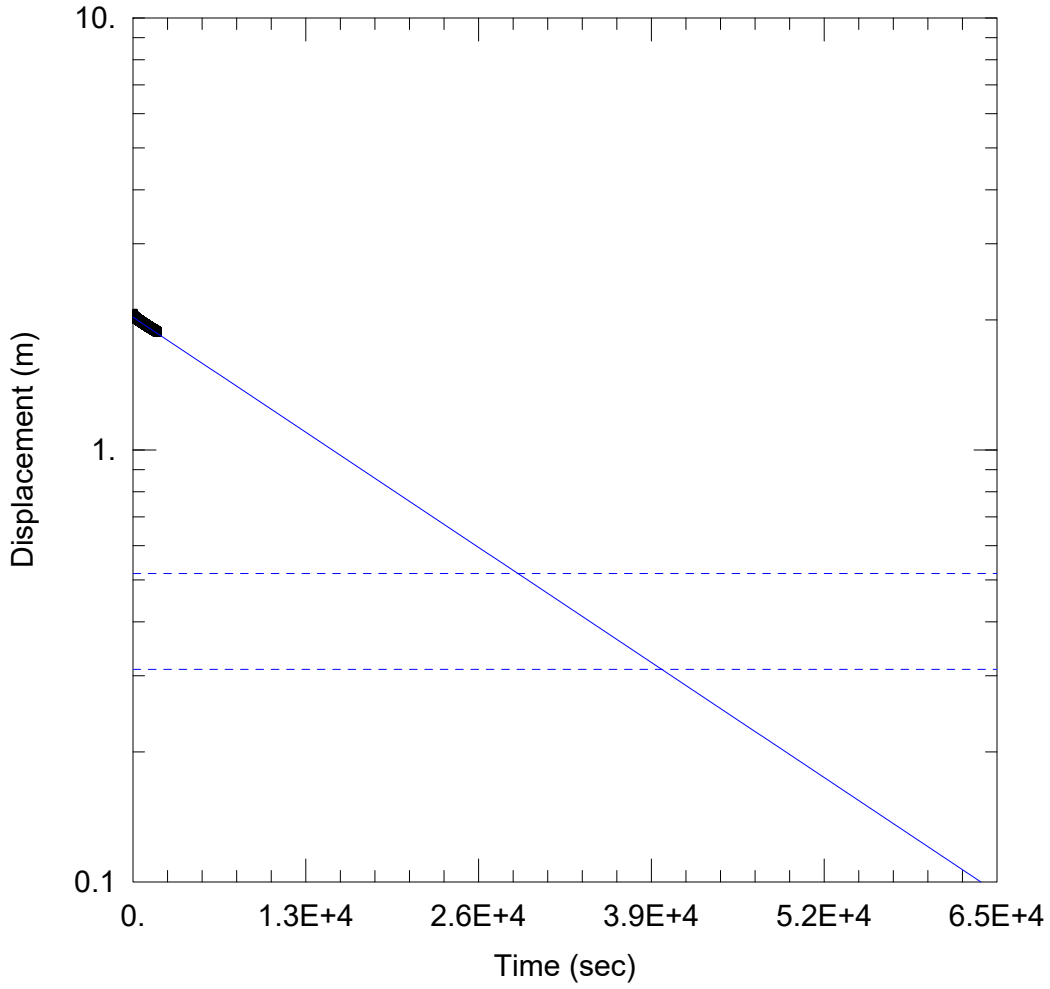
Saturated Thickness: 6.71 m Anisotropy Ratio (Kz/Kr): 0.3

WELL DATA (BH7/MW-A)

Initial Displacement: 1.861 m
Total Well Penetration Depth: 5.15 m
Casing Radius: 0.0254 m
Static Water Column Height: 5.15 m
Screen Length: 1.524 m
Well Radius: 0.1048 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 9.0E-7 m/sec
y0 = 1.765 m



WELL TEST ANALYSIS

Data Set: E:\LON\LON-21008138-A0\50 Input\Hydrogeological Work\SWRT Data\BH8MW.aqt
Date: 11/16/21 Time: 08:10:10

PROJECT INFORMATION

Company: EXP
Client: Auburn Developments Inc.
Project: LON-21008138
Location: Dorchester, Ontario
Test Date: May 17 2021

AQUIFER DATA

Saturated Thickness: 3.6 m Anisotropy Ratio (Kz/Kr): 0.35

WELL DATA (BH8/MW)

Initial Displacement: 2.07 m
Total Well Penetration Depth: 3.21 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.21 m
Screen Length: 1.524 m
Well Radius: 0.1048 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 3.2E-8 m/sec
y0 = 2.029 m

Appendix I – Water Quality Tables

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Groundwater Quality Results
Hunter Farm Development,
Dorchester, ON
Project No. LON-21008138

CRITERIA	ODWQS	UNITS	28-Sep-21	17-Mar-22	28-Sep-21	17-Mar-22	28-Sep-21	17-Mar-22	28-Sep-21	17-Mar-22
			BH3/MW		BH7/MW-A		BH7/MW-B		BH9/MW	
Calculated Parameters										
Anion Sum	-	me/L	7.37	6.08	4.23	11.2	9.63	9.1	3.38	3.78
Bicarb. Alkalinity (calc. as CaCO3)	-	mg/L	280	220	140	450	400	380	130	180
Calculated TDS	-	mg/L	390	330	230	610	510	460	180	190
Carb. Alkalinity (calc. as CaCO3)	-	mg/L	2.6	2.8	1.1	2.9	3.4	1.6	1.4	2.1
Cation Sum	-	me/L	7.83	6.23	4.29	11.6	10.3	8.95	3.4	3.89
Hardness (CaCO3)	-	mg/L	330	290	180	350	490	420	140	190
Ion Balance (% Difference)	-	%	3.05	1.25	0.63	1.61	3.31	0.86	0.31	1.46
Langelier Index (@ 20C)	-	N/A	0.974	0.987	0.386	1	1.25	0.859	0.408	0.728
Langelier Index (@ 4C)	-	N/A	0.726	0.739	0.137	0.755	1	0.611	0.158	0.478
Saturation pH (@ 20C)	-	N/A	7.02	7.14	7.52	6.83	6.7	6.78	7.63	7.36
Saturation pH (@ 4C)	-	N/A	7.27	7.39	7.77	7.08	6.95	7.03	7.88	7.61
Inorganics										
Total Ammonia-N	-	mg/L	<0.050	<0.050	<0.050	0.29	0.097	0.12	<0.050	<0.050
Conductivity	-	umho/cm	690	570	410	1000	840	840	320	350
Dissolved Organic Carbon	-	mg/L	3.7	5.2	4.8	9.5	10	7	4.1	1.2
Orthophosphate (P)	-	mg/L	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010
pH	-	pH	8	8.13	7.91	7.83	7.95	7.64	8.04	8.09
Dissolved Sulphate (SO4)	-	mg/L	27	24	37	69	39	22	18	2.2
Alkalinity (Total as CaCO3)	-	mg/L	290	230	140	460	410	390	130	190
Dissolved Chloride (Cl-)	-	mg/L	38	24	18	24	24	33	9	<1.0
Nitrite (N)	1	mg/L	<0.010	<0.010	0.026	<0.010	0.055	<0.010	0.015	<0.010
Nitrate (N)	10	mg/L	0.11	5.23	1.08	<0.10	0.26	<0.10	0.54	<0.10
Nitrate + Nitrite (N)	-	mg/L	0.11	5.23	1.11	<0.10	0.31	<0.10	0.56	<0.10
Metals										
Dissolved Aluminum (Al)	-	ug/L	<4.9	8	7.3	6.7	5.9	<4.9	9.4	6.1
Dissolved Antimony (Sb)	6	ug/L	<0.50	<0.50	0.71	0.62	<0.50	<0.50	0.51	<0.50
Dissolved Arsenic (As)	10	ug/L	5.4	<1.0	1	1.9	<1.0	<1.0	<1.0	<1.0
Dissolved Barium (Ba)	1000	ug/L	79	29	32	36	72	44	17	14
Dissolved Beryllium (Be)	-	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Dissolved Boron (B)	5000	ug/L	28	11	17	41	16	<10	16	11
Dissolved Cadmium (Cd)	5	ug/L	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090
Dissolved Calcium (Ca)	-	ug/L	92000	86000	53000	100000	140000	120000	42000	57000
Dissolved Chromium (Cr)	50	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Cobalt (Co)	-	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	0.55	<0.50	<0.50
Dissolved Copper (Cu)	-	ug/L	17	1.1	23	3.4	21	2.4	11	1.4
Dissolved Iron (Fe)	-	ug/L	<100	<100	<100	<100	<100	<100	<100	<100
Dissolved Lead (Pb)	10	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Dissolved Magnesium (Mg)	-	ug/L	24000	18000	12000	24000	32000	28000	8800	12000
Dissolved Manganese (Mn)	-	ug/L	88	18	10	300	310	430	<2.0	<2.0
Dissolved Molybdenum (Mo)	-	ug/L	12	0.69	5.3	45	4.2	2	4.9	<0.50
Dissolved Nickel (Ni)	-	ug/L	13	<1.0	8.7	1	8.6	1.6	4.7	<1.0
Dissolved Phosphorus (P)	-	ug/L	<100	<100	<100	<100	<100	<100	<100	<100
Dissolved Potassium (K)	-	ug/L	2800	2500	3500	1600	3600	2300	3100	1700
Dissolved Selenium (Se)	50	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Dissolved Silicon (Si)	-	ug/L	4700	2800	2000	6900	6900	3400	2500	2900
Dissolved Silver (Ag)	-	ug/L	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090	<0.090
Dissolved Sodium (Na)	-	ug/L	27000	10000	14000	100000	7300	10000	12000	1300
Dissolved Strontium (Sr)	-	ug/L	180	160	180	140	200	160	120	81
Dissolved Thallium (Tl)	-	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Titanium (Ti)	-	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Dissolved Uranium (U)	20	ug/L	0.59	1.5	1.2	**35**	0.74	1.8	0.59	0.21
Dissolved Vanadium (V)	-	ug/L	<0.50	<0.50	<0.50	1.6	0.58	<0.50	<0.50	<0.50
Dissolved Zinc (Zn)	-	ug/L	59	<5.0	110	38	44	36	30	7

TABLE NOTES:

Results compared to Ontario Drinking Water Quality Standards (ODWQS).

Values highlighted GREY and bold exceed parameter guidelines

Surface Water Quality Results
Hunter Farm Development,
Dorchester, ON
Project No. LON-21008138

CRITERIA	PWQO	UNITS	28-Sep-21	17-Mar-22	28-Sep-21	17-Mar-22	28-Sep-21	17-Mar-22	28-Sep-21	17-Mar-22
			SW Station1		SW Station 2		SW Station 4		SW Station 5	
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	-	mg/L	390	570	250	220	70	38	120	220
Calculated TDS	-	mg/L	650	920	380	330	170	45	140	240
Carb. Alkalinity (calc. as CaCO3)	-	mg/L	3.5	2.8	3.6	2.3	<1.0	<1.0	<1.0	<1.0
Hardness (CaCO3)	-	mg/L	400	640	310	280	130	44	130	220
Langelier Index (@ 20C)	-	N/A	1.18	1.23	1.13	0.897	-0.628	-1.19	0.15	0.165
Langelier Index (@ 4C)	-	N/A	0.93	0.981	0.882	0.648	-0.878	-1.44	-0.101	-0.085
Saturation pH (@ 20C)	-	N/A	6.8	6.49	7.06	7.14	7.94	8.61	7.71	7.28
Saturation pH (@ 4C)	-	N/A	7.05	6.73	7.31	7.38	8.19	8.86	7.97	7.53
Inorganics										
Total Ammonia-N	-	mg/L	0.082	0.29	<0.050	<0.050	0.14	<0.050	0.093	1.2
Conductivity	-	umho/cm	1200	1700	640	590	280	89	260	440
Total Organic Carbon (TOC)	-	mg/L	41	30	8.9	5.4	17	3.9	24	23
Orthophosphate (P)	-	mg/L	0.012	<0.010	0.026	<0.010	0.4	0.017	0.082	0.1
pH	6.5 - 8.5	pH	7.98	7.71	8.19	8.03	7.32	7.42	7.86	7.44
Total Phosphorus	-	mg/L	1.9	0.41	0.043	0.026	0.46	0.09	0.64	1.5
Dissolved Sulphate (SO4)	-	mg/L	<1.0	<1.0	36	23	47	<1.0	<1.0	<1.0
Turbidity	-	NTU	9.3	45	1.1	0.7	2.5	0.8	5	7.2
Alkalinity (Total as CaCO3)	-	mg/L	390	570	250	230	70	38	120	220
Dissolved Chloride (Cl-)	-	mg/L	150	200	30	25	14	2.9	9.7	12
Nitrite (N)	-	mg/L	<0.010	<0.010	0.031	<0.010	0.039	<0.010	<0.010	<0.010
Nitrate (N)	-	mg/L	<0.10	<0.10	5.26	5.8	0.45	<0.10	<0.10	<0.10
Metals										
Dissolved Calcium (Ca)	-	mg/L	130	200	95	87	38	13	37	61
Dissolved Magnesium (Mg)	-	mg/L	21	35	17	16	7.3	2.7	7.9	16
Dissolved Potassium (K)	-	mg/L	5	3	4	2	8	2	3	5
Dissolved Sodium (Na)	-	mg/L	89	120	12	11	2.5	1.1	3.4	3.9
Total Aluminum (Al)	75	ug/L	**1300**	**84**	67	**75**	**140**	**100**	**940**	**1100**
Total Antimony (Sb)	20	ug/L	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50
Total Arsenic (As)	5	ug/L	**7.3**	2.7	<1.0	<1.0	<1.0	**<10**	1	1.2
Total Barium (Ba)	-	ug/L	160	150	41	30	8.5	<20	31	35
Total Beryllium (Be)	1100	ug/L	<0.40	<0.40	<0.40	<0.40	<0.40	<4.0	<0.40	<0.40
Total Boron (B)	200	ug/L	43	15	22	11	44	<100	23	12
Total Cadmium (Cd)	0.5	ug/L	<0.090	<0.090	<0.090	<0.090	0.11	**<0.90**	<0.090	<0.090
Total Calcium (Ca)	-	ug/L	160000	240000	110000	91000	41000	8900	42000	67000
Total Chromium (Cr)	8.9	ug/L	<5.0	<5.0	<5.0	<5.0	<5.0	**<50**	<5.0	<5.0
Total Cobalt (Co)	0.9	ug/L	**2.3**	**2.4**	<0.50	<0.50	0.5	**<5.0**	<0.50	**1**
Total Copper (Cu)	5	ug/L	4	4.9	2.5	1.6	2	**<9.0**	2.2	**7.7**
Total Iron (Fe)	300	ug/L	**39000**	**39000**	130	190	230	**<1000**	**1400**	**6200**
Total Lead (Pb)	5	ug/L	2	<0.50	<0.50	<0.50	<0.50	<5.0	1.6	2.4
Total Magnesium (Mg)	-	ug/L	24000	36000	19000	18000	7600	1600	9000	18000
Total Manganese (Mn)	-	ug/L	1400	2700	30	40	210	410	76	450
Total Molybdenum (Mo)	40	ug/L	0.82	<0.50	1.3	0.64	1.3	<5.0	1.2	0.94
Total Nickel (Ni)	25	ug/L	3.8	3	<1.0	<1.0	<1.0	<10	1.1	1.8
Total Potassium (K)	-	ug/L	5100	2400	4000	2500	7800	<2000	3700	5500
Total Selenium (Se)	100	ug/L	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<2.0	<2.0
Total Silicon (Si)	-	ug/L	9900	9400	4300	2800	1800	<500	3500	3800
Total Silver (Ag)	0.1	ug/L	<0.090	<0.090	<0.090	<0.090	<0.090	**<0.90**	<0.090	<0.090
Total Sodium (Na)	-	ug/L	93000	120000	14000	12000	1900	1200	3000	4300
Total Strontium (Sr)	-	ug/L	280	390	190	150	44	<10	57	77
Total Thallium (Tl)	0.3	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	**<0.50**	<0.050	<0.050
Total Titanium (Ti)	-	ug/L	48	7.3	5.6	5.1	7.3	<50	24	29
Total Tungsten (W)	30	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<1.0
Total Uranium (U)	5	ug/L	1.4	0.33	2.4	1.6	0.1	<1.0	0.44	0.81
Total Vanadium (V)	6	ug/L	3.4	0.7	0.87	0.53	0.79	<5.0	2.3	2.8
Total Zinc (Zn)	20	ug/L	**26**	**43**	<5.0	<5.0	5.4	**<50**	18	**80**
Total Zirconium (Zr)	4	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	**<10**	<1.0	<1.0
Dissolved Metals										
Dissolved Aluminum (Al)	-	ug/L	<4.9	-	9.4	-	24	-	11	-
Dissolved Antimony (Sb)	-	ug/L	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dissolved Arsenic (As)	-	ug/L	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dissolved Barium (Ba)	-	ug/L	57	-	41	-	8	-	20	-
Dissolved Beryllium (Be)	-	ug/L	<0.40	-	<0.40	-	<0.40	-	<0.40	-
Dissolved Bismuth (Bi)	-	ug/L	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dissolved Boron (B)	-	ug/L	34	-	21	-	44	-	22	-
Dissolved Cadmium (Cd)	-	ug/L	<0.090	-	<0.090	-	0.093	-	<0.090	-
Dissolved Calcium (Ca)	-	ug/L	140000	-	100000	-	39000	-	41000	-
Dissolved Chromium (Cr)	-	ug/L	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Dissolved Cobalt (Co)	-	ug/L	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dissolved Copper (Cu)	-	ug/L	<0.90	-	1.9	-	1.7	-	<0.90	-
Dissolved Iron (Fe)	-	ug/L	<100	-	<100	-	110	-	150	-
Dissolved Lead (Pb)	-	ug/L	<0.50	-	<0.50	-	<0.50	-	<0.50	-
Dissolved Lithium (Li)	-	ug/L	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Dissolved Magnesium (Mg)	-	ug/L	25000	-	19000	-	7600	-	9000	-
Dissolved Manganese (Mn)	-	ug/L	18	-	20	-	200	-	<2.0	-
Dissolved Molybdenum (Mo)	-	ug/L	0.63	-	1.4	-	1.6	-	1.2	-
Dissolved Nickel (Ni)	-	ug/L	2.4	-	<1.0	-	<1.0	-	<1.0	-
Dissolved Phosphorus (P)	-	ug/L	<100	-	100	-	510	-	270	-
Dissolved Potassium (K)	-	ug/L	5100	-	4000	-	8200	-	3500	-
Dissolved Selenium (Se)	-	ug/L	<2.0	-	<2.0	-	<2.0	-	<2.0	-
Dissolved Silicon (Si)	-	ug/L	7200	-	4300	-	1500	-	2500	-
Dissolved Silver (Ag)	-	ug/L	<0.090	-	<0.090	-	<0.090	-	<0.090	-
Dissolved Sodium (Na)	-	ug/L	98000	-	13000	-	1900	-	3000	-
Dissolved Strontium (Sr)	-	ug/L	260	-	190	-	45	-	54	-
Dissolved Tellurium (Te)	-	ug/L	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dissolved Thallium (Tl)	-	ug/L	<0.050	-	<0.050	-	<0.050	-	<0.050	-
Dissolved Tin (Sn)	-	ug/L	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dissolved Titanium (Ti)	-	ug/L	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Dissolved Tungsten (W)	-	ug/L	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Dissolved Uranium (U)	-	ug/L	1.4	-	2.3	-	0.1	-	0.29	-
Dissolved Vanadium (V)	-	ug/L	<0.50	-	0.56	-	<0.50	-	0.91	-
Dissolved Zinc (Zn)	-	ug/L	<5.0	-	<5.0	-	<5.0	-	<5.0	-
Dissolved Zirconium (Zr)	-	ug/L	<1.0	-	<1.0	-	<1.0	-	<1.0	-

TABLE NOTES:

Results compared to Provincial Water Quality Objectives (PWQO), Ministry of the Environment and Energy (1994, revised 1999)

Values highlighted GREY and bold exceed parameter guidelines

Value in **BOLD** indicates detection limit exceeds parameter guideline

Due to limited amount of sample available for analysis at SW4, a smaller than usual portion of the sample was analyzed and detection limits were adjusted accordingly

Appendix J – Laboratory Chain of Custody

6-405 Maple Grove Road | Cambridge, Ontario | Canada
t: +1.519.650.4918 | f: +1.519.650.4603 | exp.com

Your Project #: KCH-21008183
Site Location: HUNTER FARMS
Your C.O.C. #: 870268-01-01

Attention: Kelli Dobbin

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/03/30
Report #: R7065870
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C272761
Received: 2022/03/17, 15:15

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	8	N/A	2022/03/23	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	8	N/A	2022/03/24	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	8	N/A	2022/03/23	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	8	N/A	2022/03/23	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	4	N/A	2022/03/24	CAM SOP-00446	SM 23 5310 B m
Hardness (calculated as CaCO3)	8	N/A	2022/03/24	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	3	2022/03/23	2022/03/24	CAM SOP-00408	EPA 6010D m
Lab Filtered Metals Analysis by ICP	1	2022/03/25	2022/03/28	CAM SOP-00408	EPA 6010D m
Lab Filtered Metals by ICPMS	4	2022/03/23	2022/03/24	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	3	N/A	2022/03/25	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	N/A	2022/03/30	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	4	N/A	2022/03/24		
Anion and Cation Sum	4	N/A	2022/03/24		
Total Ammonia-N	8	N/A	2022/03/23	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (2)	8	N/A	2022/03/23	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	8	2022/03/22	2022/03/23	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	8	N/A	2022/03/23	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	8	N/A	2022/03/24		Auto Calc
Sat. pH and Langelier Index (@ 4C)	8	N/A	2022/03/24		Auto Calc
Sulphate by Automated Colourimetry	8	N/A	2022/03/24	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	8	N/A	2022/03/24		Auto Calc
Total Organic Carbon (TOC) (3)	4	N/A	2022/03/23	CAM SOP-00446	SM 23 5310B m
Total Phosphorus (Colourimetric)	4	2022/03/23	2022/03/24	CAM SOP-00407	SM 23 4500 P B H m
Turbidity	4	N/A	2022/03/22	CAM SOP-00417	SM 23 2130 B 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, MELCC, EPA, APHA.

Your Project #: KCH-21008183
Site Location: HUNTER FARMS
Your C.O.C. #: 870268-01-01

Attention: Kelli Dobbin

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/03/30
Report #: R7065870
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C272761
Received: 2022/03/17, 15:15

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) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.
(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bureauveritas.com
Phone# (519)652-9444
==========
This report has been generated and distributed using a secure automated process.
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For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - COMPREHENSIVE (LAB FILTERED)

Bureau Veritas ID					SDE609		SDE610		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	MW3	QC Batch	MW7A	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	-	-	-	6.08	7896590	11.2	N/A	7894695
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	220	7896580	450	1.0	7894693
Calculated TDS	mg/L	-	500	-	330	7896579	**610**	1.0	7894701
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	2.8	7896580	2.9	1.0	7894693
Cation Sum	me/L	-	-	-	6.23	7896590	11.6	N/A	7894695
Hardness (CaCO3)	mg/L	-	80:100	-	**290**	7896344	**350**	1.0	7894046
Ion Balance (% Difference)	%	-	-	-	1.25	7896589	1.61	N/A	7894694
Langelier Index (@ 20C)	N/A	-	-	-	0.987	7896591	1.00		7894699
Langelier Index (@ 4C)	N/A	-	-	-	0.739	7896592	0.755		7894700
Saturation pH (@ 20C)	N/A	-	-	-	7.14	7896591	6.83		7894699
Saturation pH (@ 4C)	N/A	-	-	-	7.39	7896592	7.08		7894700
Inorganics									
Total Ammonia-N	mg/L	-	-	-	<0.050	7899195	0.29	0.050	7899195
Conductivity	umho/cm	-	-	-	570	7897446	1000	1.0	7897446
Dissolved Organic Carbon	mg/L	-	5	-	**5.2**	7900197	**9.5**	0.40	7897137
Orthophosphate (P)	mg/L	-	-	-	<0.010	7897503	0.011	0.010	7897503
pH	pH	-	6.5:8.5	6.5:8.5	8.13	7897448	7.83		7897448
Dissolved Sulphate (SO4)	mg/L	-	500	-	24	7897496	69	1.0	7897496
Alkalinity (Total as CaCO3)	mg/L	-	30:500	-	230	7897442	460	1.0	7897442
Dissolved Chloride (Cl-)	mg/L	-	250	-	24	7897487	24	1.0	7897487
Nitrite (N)	mg/L	1	-	-	<0.010	7897511	<0.010	0.010	7897511
Nitrate (N)	mg/L	10	-	-	5.23	7897511	<0.10	0.10	7897511
Nitrate + Nitrite (N)	mg/L	10	-	-	5.23	7897511	<0.10	0.10	7897511
Metals									
Dissolved Aluminum (Al)	ug/L	-	100	-	8.0	7900101	6.7	4.9	7900101
Dissolved Antimony (Sb)	ug/L	6	-	20	<0.50	7900101	0.62	0.50	7900101

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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

Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - COMPREHENSIVE (LAB FILTERED)

Bureau Veritas ID					SDE609		SDE610		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	MW3	QC Batch	MW7A	RDL	QC Batch
Dissolved Arsenic (As)	ug/L	10	-	100	<1.0	7900101	1.9	1.0	7900101
Dissolved Barium (Ba)	ug/L	1000	-	-	29	7900101	36	2.0	7900101
Dissolved Beryllium (Be)	ug/L	-	-	11	<0.40	7900101	<0.40	0.40	7900101
Dissolved Boron (B)	ug/L	5000	-	200	11	7900101	41	10	7900101
Dissolved Cadmium (Cd)	ug/L	5	-	0.2	<0.090	7900101	<0.090	0.090	7900101
Dissolved Calcium (Ca)	ug/L	-	-	-	86000	7900101	100000	200	7900101
Dissolved Chromium (Cr)	ug/L	50	-	-	<5.0	7900101	<5.0	5.0	7900101
Dissolved Cobalt (Co)	ug/L	-	-	0.9	<0.50	7900101	<0.50	0.50	7900101
Dissolved Copper (Cu)	ug/L	-	1000	5	1.1	7900101	3.4	0.90	7900101
Dissolved Iron (Fe)	ug/L	-	300	300	<100	7900101	<100	100	7900101
Dissolved Lead (Pb)	ug/L	10	-	5	<0.50	7900101	<0.50	0.50	7900101
Dissolved Magnesium (Mg)	ug/L	-	-	-	18000	7900101	24000	50	7900101
Dissolved Manganese (Mn)	ug/L	-	50	-	18	7900101	**300**	2.0	7900101
Dissolved Molybdenum (Mo)	ug/L	-	-	40	0.69	7900101	**45**	0.50	7900101
Dissolved Nickel (Ni)	ug/L	-	-	25	<1.0	7900101	1.0	1.0	7900101
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	7900101	<100	100	7900101
Dissolved Potassium (K)	ug/L	-	-	-	2500	7900101	1600	200	7900101
Dissolved Selenium (Se)	ug/L	50	-	100	<2.0	7900101	<2.0	2.0	7900101
Dissolved Silicon (Si)	ug/L	-	-	-	2800	7900101	6900	50	7900101
Dissolved Silver (Ag)	ug/L	-	-	0.1	<0.090	7900101	<0.090	0.090	7900101
Dissolved Sodium (Na)	ug/L	-	200000	-	10000	7900101	100000	100	7900101
Dissolved Strontium (Sr)	ug/L	-	-	-	160	7900101	140	1.0	7900101
Dissolved Thallium (Tl)	ug/L	-	-	0.3	<0.050	7900101	<0.050	0.050	7900101
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	7900101	<5.0	5.0	7900101
Dissolved Uranium (U)	ug/L	20	-	5	1.5	7900101	**35**	0.10	7900101
Dissolved Vanadium (V)	ug/L	-	-	6	<0.50	7900101	1.6	0.50	7900101
Dissolved Zinc (Zn)	ug/L	-	5000	30	<5.0	7900101	**38**	5.0	7900101

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - COMPREHENSIVE (LAB FILTERED)

Bureau Veritas ID					SDE611		SDE612		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	MW7B	QC Batch	MW9	RDL	QC Batch
Calculated Parameters									
Anion Sum	me/L	-	-	-	9.10	7894695	3.78	N/A	7894695
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	380	7894693	180	1.0	7894693
Calculated TDS	mg/L	-	500	-	460	7894701	190	1.0	7894701
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	1.6	7894693	2.1	1.0	7894693
Cation Sum	me/L	-	-	-	8.95	7894695	3.89	N/A	7894695
Hardness (CaCO3)	mg/L	-	80:100	-	**420**	7894046	**190**	1.0	7894046
Ion Balance (% Difference)	%	-	-	-	0.860	7894694	1.46	N/A	7894694
Langelier Index (@ 20C)	N/A	-	-	-	0.859	7894699	0.728		7894699
Langelier Index (@ 4C)	N/A	-	-	-	0.611	7894700	0.478		7894700
Saturation pH (@ 20C)	N/A	-	-	-	6.78	7894699	7.36		7894699
Saturation pH (@ 4C)	N/A	-	-	-	7.03	7894700	7.61		7894700
Inorganics									
Total Ammonia-N	mg/L	-	-	-	0.12	7899195	<0.050	0.050	7899195
Conductivity	umho/cm	-	-	-	840	7897464	350	1.0	7897446
Dissolved Organic Carbon	mg/L	-	5	-	**7.0**	7897137	1.2	0.40	7897137
Orthophosphate (P)	mg/L	-	-	-	<0.010	7897503	<0.010	0.010	7897503
pH	pH	-	6.5:8.5	6.5:8.5	7.64	7897458	8.09		7897448
Dissolved Sulphate (SO4)	mg/L	-	500	-	22	7897496	2.2	1.0	7897496
Alkalinity (Total as CaCO3)	mg/L	-	30:500	-	390	7897455	190	1.0	7897442
Dissolved Chloride (Cl-)	mg/L	-	250	-	33	7897487	<1.0	1.0	7897487
Nitrite (N)	mg/L	1	-	-	<0.010	7897511	<0.010	0.010	7897511
Nitrate (N)	mg/L	10	-	-	<0.10	7897511	<0.10	0.10	7897511
Nitrate + Nitrite (N)	mg/L	10	-	-	<0.10	7897511	<0.10	0.10	7897511
Metals									
Dissolved Aluminum (Al)	ug/L	-	100	-	<4.9	7900101	6.1	4.9	7900101
Dissolved Antimony (Sb)	ug/L	6	-	20	<0.50	7900101	<0.50	0.50	7900101

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
N/A = Not Applicable

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RCAP - COMPREHENSIVE (LAB FILTERED)

Bureau Veritas ID					SDE611		SDE612		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	MW7B	QC Batch	MW9	RDL	QC Batch
Dissolved Arsenic (As)	ug/L	10	-	100	<1.0	7900101	<1.0	1.0	7900101
Dissolved Barium (Ba)	ug/L	1000	-	-	44	7900101	14	2.0	7900101
Dissolved Beryllium (Be)	ug/L	-	-	11	<0.40	7900101	<0.40	0.40	7900101
Dissolved Boron (B)	ug/L	5000	-	200	<10	7900101	11	10	7900101
Dissolved Cadmium (Cd)	ug/L	5	-	0.2	<0.090	7900101	<0.090	0.090	7900101
Dissolved Calcium (Ca)	ug/L	-	-	-	120000	7900101	57000	200	7900101
Dissolved Chromium (Cr)	ug/L	50	-	-	<5.0	7900101	<5.0	5.0	7900101
Dissolved Cobalt (Co)	ug/L	-	-	0.9	0.55	7900101	<0.50	0.50	7900101
Dissolved Copper (Cu)	ug/L	-	1000	5	2.4	7900101	1.4	0.90	7900101
Dissolved Iron (Fe)	ug/L	-	300	300	<100	7900101	<100	100	7900101
Dissolved Lead (Pb)	ug/L	10	-	5	<0.50	7900101	<0.50	0.50	7900101
Dissolved Magnesium (Mg)	ug/L	-	-	-	28000	7900101	12000	50	7900101
Dissolved Manganese (Mn)	ug/L	-	50	-	**430**	7900101	<2.0	2.0	7900101
Dissolved Molybdenum (Mo)	ug/L	-	-	40	2.0	7900101	<0.50	0.50	7900101
Dissolved Nickel (Ni)	ug/L	-	-	25	1.6	7900101	<1.0	1.0	7900101
Dissolved Phosphorus (P)	ug/L	-	-	-	<100	7900101	<100	100	7900101
Dissolved Potassium (K)	ug/L	-	-	-	2300	7900101	1700	200	7900101
Dissolved Selenium (Se)	ug/L	50	-	100	<2.0	7900101	<2.0	2.0	7900101
Dissolved Silicon (Si)	ug/L	-	-	-	3400	7900101	2900	50	7900101
Dissolved Silver (Ag)	ug/L	-	-	0.1	<0.090	7900101	<0.090	0.090	7900101
Dissolved Sodium (Na)	ug/L	-	200000	-	10000	7900101	1300	100	7900101
Dissolved Strontium (Sr)	ug/L	-	-	-	160	7900101	81	1.0	7900101
Dissolved Thallium (Tl)	ug/L	-	-	0.3	<0.050	7900101	<0.050	0.050	7900101
Dissolved Titanium (Ti)	ug/L	-	-	-	<5.0	7900101	<5.0	5.0	7900101
Dissolved Uranium (U)	ug/L	20	-	5	1.8	7900101	0.21	0.10	7900101
Dissolved Vanadium (V)	ug/L	-	-	6	<0.50	7900101	<0.50	0.50	7900101
Dissolved Zinc (Zn)	ug/L	-	5000	30	**36**	7900101	7.0	5.0	7900101

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)

Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - SURFACE WATER (WATER)

Bureau Veritas ID					SDE613		SDE614		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	SW1	RDL	SW2	RDL	QC Batch
Calculated Parameters									
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	570	1.0	220	1.0	7894693
Calculated TDS	mg/L	-	500	-	**920**	1.0	330	1.0	7894701
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	2.8	1.0	2.3	1.0	7894693
Hardness (CaCO3)	mg/L	-	80:100	-	**640**	1.0	**280**	1.0	7894046
Langelier Index (@ 20C)	N/A	-	-	-	1.23		0.897		7894699
Langelier Index (@ 4C)	N/A	-	-	-	0.981		0.648		7894700
Saturation pH (@ 20C)	N/A	-	-	-	6.49		7.14		7894699
Saturation pH (@ 4C)	N/A	-	-	-	6.73		7.38		7894700
Inorganics									
Total Ammonia-N	mg/L	-	-	-	0.29	0.050	<0.050	0.050	7899195
Conductivity	umho/cm	-	-	-	1700	1.0	590	1.0	7897446
Total Organic Carbon (TOC)	mg/L	-	-	-	30	0.40	5.4	0.40	7898671
Orthophosphate (P)	mg/L	-	-	-	<0.010	0.010	<0.010	0.010	7897503
pH	pH	-	6.5:8.5	6.5:8.5	7.71		8.03		7897448
Total Phosphorus	mg/L	-	-	0.01	**0.41**	0.02	**0.026**	0.004	7899137
Dissolved Sulphate (SO4)	mg/L	-	500	-	<1.0	1.0	23	1.0	7897496
Turbidity	NTU	-	5	-	**45**	0.1	0.7	0.1	7896234
Alkalinity (Total as CaCO3)	mg/L	-	30:500	-	**570**	1.0	230	1.0	7897442
Dissolved Chloride (Cl-)	mg/L	-	250	-	200	2.0	25	1.0	7897487
Nitrite (N)	mg/L	1	-	-	<0.010	0.010	<0.010	0.010	7897511
Nitrate (N)	mg/L	10	-	-	<0.10	0.10	5.80	0.10	7897511
Metals									
Dissolved Calcium (Ca)	mg/L	-	-	-	200	0.05	87	0.05	7900083
Dissolved Magnesium (Mg)	mg/L	-	-	-	35	0.05	16	0.05	7900083
Dissolved Potassium (K)	mg/L	-	-	-	3	1	2	1	7900083
Dissolved Sodium (Na)	mg/L	-	200	-	120	0.5	11	0.5	7900083
Total Aluminum (Al)	ug/L	-	100	-	84	4.9	75	4.9	7903614

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - SURFACE WATER (WATER)

Bureau Veritas ID					SDE613		SDE614		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	SW1	RDL	SW2	RDL	QC Batch
Total Antimony (Sb)	ug/L	6	-	20	<0.50	0.50	<0.50	0.50	7903614
Total Arsenic (As)	ug/L	10	-	100	2.7	1.0	<1.0	1.0	7903614
Total Barium (Ba)	ug/L	1000	-	-	150	2.0	30	2.0	7903614
Total Beryllium (Be)	ug/L	-	-	11	<0.40	0.40	<0.40	0.40	7903614
Total Boron (B)	ug/L	5000	-	200	15	10	11	10	7903614
Total Cadmium (Cd)	ug/L	5	-	0.2	<0.090	0.090	<0.090	0.090	7903614
Total Calcium (Ca)	ug/L	-	-	-	240000	200	91000	200	7903614
Total Chromium (Cr)	ug/L	50	-	-	<5.0	5.0	<5.0	5.0	7903614
Total Cobalt (Co)	ug/L	-	-	0.9	**2.4**	0.50	<0.50	0.50	7903614
Total Copper (Cu)	ug/L	-	1000	5	4.9	0.90	1.6	0.90	7903614
Total Iron (Fe)	ug/L	-	300	300	**39000**	100	190	100	7903614
Total Lead (Pb)	ug/L	10	-	5	<0.50	0.50	<0.50	0.50	7903614
Total Magnesium (Mg)	ug/L	-	-	-	36000	50	18000	50	7903614
Total Manganese (Mn)	ug/L	-	50	-	**2700**	2.0	40	2.0	7903614
Total Molybdenum (Mo)	ug/L	-	-	40	<0.50	0.50	0.64	0.50	7903614
Total Nickel (Ni)	ug/L	-	-	25	3.0	1.0	<1.0	1.0	7903614
Total Potassium (K)	ug/L	-	-	-	2400	200	2500	200	7903614
Total Selenium (Se)	ug/L	50	-	100	<2.0	2.0	<2.0	2.0	7903614
Total Silicon (Si)	ug/L	-	-	-	9400	50	2800	50	7903614
Total Silver (Ag)	ug/L	-	-	0.1	<0.090	0.090	<0.090	0.090	7903614
Total Sodium (Na)	ug/L	-	200000	-	120000	100	12000	100	7903614
Total Strontium (Sr)	ug/L	-	-	-	390	1.0	150	1.0	7903614
Total Thallium (Tl)	ug/L	-	-	0.3	<0.050	0.050	<0.050	0.050	7903614
Total Titanium (Ti)	ug/L	-	-	-	7.3	5.0	5.1	5.0	7903614
Total Tungsten (W)	ug/L	-	-	30	<1.0	1.0	<1.0	1.0	7903614
Total Uranium (U)	ug/L	20	-	5	0.33	0.10	1.6	0.10	7903614
Total Vanadium (V)	ug/L	-	-	6	0.70	0.50	0.53	0.50	7903614
Total Zinc (Zn)	ug/L	-	5000	30	**43**	5.0	<5.0	5.0	7903614

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - SURFACE WATER (WATER)

Bureau Veritas ID					SDE613		SDE614		
Sampling Date					2022/03/17		2022/03/17		
COC Number					870268-01-01		870268-01-01		
	UNITS	MAC	A/O	Criteria	SW1	RDL	SW2	RDL	QC Batch
Total Zirconium (Zr)	ug/L	-	-	4	<1.0	1.0	<1.0	1.0	7903614

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - SURFACE WATER (WATER)

Bureau Veritas ID					SDE615			SDE616		
Sampling Date					2022/03/17			2022/03/17		
COC Number					870268-01-01			870268-01-01		
	UNITS	MAC	A/O	Criteria	SW4	RDL	QC Batch	SW5	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	38	1.0	7894693	220	1.0	7894693
Calculated TDS	mg/L	-	500	-	45	1.0	7894701	240	1.0	7894701
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	-	-	<1.0	1.0	7894693	<1.0	1.0	7894693
Hardness (CaCO3)	mg/L	-	80:100	-	**44**	1.0	7894046	**220**	1.0	7894046
Langelier Index (@ 20C)	N/A	-	-	-	-1.19		7894699	0.165		7894699
Langelier Index (@ 4C)	N/A	-	-	-	-1.44		7894700	-0.0850		7894700
Saturation pH (@ 20C)	N/A	-	-	-	8.61		7894699	7.28		7894699
Saturation pH (@ 4C)	N/A	-	-	-	8.86		7894700	7.53		7894700
Inorganics										
Total Ammonia-N	mg/L	-	-	-	<0.050	0.050	7899195	1.2	0.050	7899195
Conductivity	umho/cm	-	-	-	89	1.0	7897446	440	1.0	7897446
Total Organic Carbon (TOC)	mg/L	-	-	-	3.9	0.40	7898671	23	2.0	7898671
Orthophosphate (P)	mg/L	-	-	-	0.017	0.010	7897503	0.10	0.010	7897503
pH	pH	-	6.5:8.5	6.5:8.5	7.42		7897448	7.44		7897448
Total Phosphorus	mg/L	-	-	0.01	**0.09**	0.02	7899137	**1.5**	0.02	7899137
Dissolved Sulphate (SO4)	mg/L	-	500	-	<1.0	1.0	7897496	<1.0	1.0	7897496
Turbidity	NTU	-	5	-	0.8	0.1	7896234	**7.2**	0.1	7896234
Alkalinity (Total as CaCO3)	mg/L	-	30:500	-	38	1.0	7897442	220	1.0	7897442
Dissolved Chloride (Cl-)	mg/L	-	250	-	2.9	1.0	7897487	12	1.0	7897487
Nitrite (N)	mg/L	1	-	-	<0.010	0.010	7897511	<0.010	0.010	7897511
Nitrate (N)	mg/L	10	-	-	<0.10	0.10	7897511	<0.10	0.10	7897511
Metals										
Dissolved Calcium (Ca)	mg/L	-	-	-	13	0.05	7904606	61	0.05	7900083
Dissolved Magnesium (Mg)	mg/L	-	-	-	2.7	0.05	7904606	16	0.05	7900083
Dissolved Potassium (K)	mg/L	-	-	-	2	1	7904606	5	1	7900083
Dissolved Sodium (Na)	mg/L	-	200	-	1.1	0.5	7904606	3.9	0.5	7900083
Total Aluminum (Al)	ug/L	-	100	-	100	49	7911141	**1100**	4.9	7903614

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - SURFACE WATER (WATER)

Bureau Veritas ID					SDE615			SDE616		
Sampling Date					2022/03/17			2022/03/17		
COC Number					870268-01-01			870268-01-01		
	UNITS	MAC	A/O	Criteria	SW4	RDL	QC Batch	SW5	RDL	QC Batch
Total Antimony (Sb)	ug/L	6	-	20	<5.0	5.0	7911141	<0.50	0.50	7903614
Total Arsenic (As)	ug/L	10	-	100	<10	10	7911141	1.2	1.0	7903614
Total Barium (Ba)	ug/L	1000	-	-	<20	20	7911141	35	2.0	7903614
Total Beryllium (Be)	ug/L	-	-	11	<4.0	4.0	7911141	<0.40	0.40	7903614
Total Boron (B)	ug/L	5000	-	200	<100	100	7911141	12	10	7903614
Total Cadmium (Cd)	ug/L	5	-	0.2	**<0.90 (1)**	0.90	7911141	<0.090	0.090	7903614
Total Calcium (Ca)	ug/L	-	-	-	8900	2000	7911141	67000	200	7903614
Total Chromium (Cr)	ug/L	50	-	-	<50	50	7911141	<5.0	5.0	7903614
Total Cobalt (Co)	ug/L	-	-	0.9	**<5.0 (1)**	5.0	7911141	**1.0**	0.50	7903614
Total Copper (Cu)	ug/L	-	1000	5	**<9.0 (1)**	9.0	7911141	**7.7**	0.90	7903614
Total Iron (Fe)	ug/L	-	300	300	**<1000 (1)**	1000	7911141	**6200**	100	7903614
Total Lead (Pb)	ug/L	10	-	5	<5.0	5.0	7911141	2.4	0.50	7903614
Total Magnesium (Mg)	ug/L	-	-	-	1600	500	7911141	18000	50	7903614
Total Manganese (Mn)	ug/L	-	50	-	**410**	20	7911141	**450**	2.0	7903614
Total Molybdenum (Mo)	ug/L	-	-	40	<5.0	5.0	7911141	0.94	0.50	7903614
Total Nickel (Ni)	ug/L	-	-	25	<10	10	7911141	1.8	1.0	7903614
Total Potassium (K)	ug/L	-	-	-	<2000	2000	7911141	5500	200	7903614
Total Selenium (Se)	ug/L	50	-	100	<20	20	7911141	<2.0	2.0	7903614
Total Silicon (Si)	ug/L	-	-	-	<500	500	7911141	3800	50	7903614
Total Silver (Ag)	ug/L	-	-	0.1	**<0.90 (1)**	0.90	7911141	<0.090	0.090	7903614
Total Sodium (Na)	ug/L	-	200000	-	1200	1000	7911141	4300	100	7903614
Total Strontium (Sr)	ug/L	-	-	-	<10	10	7911141	77	1.0	7903614
Total Thallium (Tl)	ug/L	-	-	0.3	**<0.50 (1)**	0.50	7911141	<0.050	0.050	7903614
Total Titanium (Ti)	ug/L	-	-	-	<50	50	7911141	29	5.0	7903614
Total Tungsten (W)	ug/L	-	-	30	<10	10	7911141	<1.0	1.0	7903614
Total Uranium (U)	ug/L	20	-	5	<1.0	1.0	7911141	0.81	0.10	7903614
Total Vanadium (V)	ug/L	-	-	6	<5.0	5.0	7911141	2.8	0.50	7903614

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
(1) RDL exceeds criteria

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

RCAP - SURFACE WATER (WATER)

Bureau Veritas ID					SDE615			SDE616		
Sampling Date					2022/03/17			2022/03/17		
COC Number					870268-01-01			870268-01-01		
	UNITS	MAC	A/O	Criteria	SW4	RDL	QC Batch	SW5	RDL	QC Batch
Total Zinc (Zn)	ug/L	-	5000	30	**<50 (1)**	50	7911141	**80**	5.0	7903614
Total Zirconium (Zr)	ug/L	-	-	4	**<10 (1)**	10	7911141	<1.0	1.0	7903614

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
MAC,A/O: Ontario Drinking Water Standards - Maximum Acceptable Concentration [MAC] & Table 4-Chemical/Physical Objectives [A/O] - Not Health Related, respectively
(Made under the Ontario Safe Drinking Water Act, 2002)
Criteria: Ontario Provincial Water Quality Objectives
Ref. to MOEE Water Management document dated Feb.1999
(1) RDL exceeds criteria

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

TEST SUMMARY

Bureau Veritas ID: SDE609
Sample ID: MW3
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7896580	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7900197	N/A	2022/03/24	Anna-Kay Gooden
Hardness (calculated as CaCO3)		7896344	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7900101	2022/03/23	2022/03/24	Prempal Bhatti
Ion Balance (% Difference)	CALC	7896589	N/A	2022/03/24	Automated Statchk
Anion and Cation Sum	CALC	7896590	N/A	2022/03/24	Automated Statchk
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7896591	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7896592	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7896579	N/A	2022/03/24	Automated Statchk

Bureau Veritas ID: SDE609 Dup
Sample ID: MW3
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7900197	N/A	2022/03/24	Anna-Kay Gooden

Bureau Veritas ID: SDE610
Sample ID: MW7A
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7897137	N/A	2022/03/24	Anna-Kay Gooden
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7900101	2022/03/23	2022/03/24	Prempal Bhatti
Ion Balance (% Difference)	CALC	7894694	N/A	2022/03/24	Automated Statchk
Anion and Cation Sum	CALC	7894695	N/A	2022/03/24	Automated Statchk
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

TEST SUMMARY

Bureau Veritas ID: SDE610
Sample ID: MW7A
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk

Bureau Veritas ID: SDE611
Sample ID: MW7B
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897455	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu
Conductivity	AT	7897464	N/A	2022/03/23	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7897137	N/A	2022/03/24	Anna-Kay Gooden
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7900101	2022/03/23	2022/03/24	Prempal Bhatti
Ion Balance (% Difference)	CALC	7894694	N/A	2022/03/24	Automated Statchk
Anion and Cation Sum	CALC	7894695	N/A	2022/03/24	Automated Statchk
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897458	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk

Bureau Veritas ID: SDE611 Dup
Sample ID: MW7B
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897455	N/A	2022/03/23	Surinder Rai
Conductivity	AT	7897464	N/A	2022/03/23	Surinder Rai
pH	AT	7897458	2022/03/22	2022/03/23	Surinder Rai

Bureau Veritas ID: SDE612
Sample ID: MW9
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

TEST SUMMARY

Bureau Veritas ID: SDE612
Sample ID: MW9
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7897137	N/A	2022/03/24	Anna-Kay Gooden
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7900101	2022/03/23	2022/03/24	Prempal Bhatti
Ion Balance (% Difference)	CALC	7894694	N/A	2022/03/24	Automated Statchk
Anion and Cation Sum	CALC	7894695	N/A	2022/03/24	Automated Statchk
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk

Bureau Veritas ID: SDE613
Sample ID: SW1
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7900083	2022/03/23	2022/03/24	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7903614	N/A	2022/03/25	Arefa Dabhad
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7898671	N/A	2022/03/23	Anna-Kay Gooden
Total Phosphorus (Colourimetric)	LACH/P	7899137	2022/03/23	2022/03/24	Nimarta Singh
Turbidity	AT	7896234	N/A	2022/03/22	Roya Fathitil

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TEST SUMMARY

Bureau Veritas ID: SDE613 Dup
Sample ID: SW1
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Metals Analysis by ICPMS	ICP/MS	7903614	N/A	2022/03/25	Arefa Dabhad

Bureau Veritas ID: SDE614
Sample ID: SW2
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7900083	2022/03/23	2022/03/24	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7903614	N/A	2022/03/25	Arefa Dabhad
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7898671	N/A	2022/03/23	Anna-Kay Gooden
Total Phosphorus (Colourimetric)	LACH/P	7899137	2022/03/23	2022/03/24	Nimarta Singh
Turbidity	AT	7896234	N/A	2022/03/22	Roya Fathitil

Bureau Veritas ID: SDE614 Dup
Sample ID: SW2
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Lab Filtered Metals Analysis by ICP	ICP	7900083	2022/03/23	2022/03/24	Suban Kanapathippllai
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai

Bureau Veritas ID: SDE615
Sample ID: SW4
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

TEST SUMMARY

Bureau Veritas ID: SDE615
Sample ID: SW4
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7904606	2022/03/25	2022/03/28	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7911141	N/A	2022/03/30	Prempal Bhatti
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7898671	N/A	2022/03/23	Anna-Kay Gooden
Total Phosphorus (Colourimetric)	LACH/P	7899137	2022/03/23	2022/03/24	Nimarta Singh
Turbidity	AT	7896234	N/A	2022/03/22	Roya Fathitil

Bureau Veritas ID: SDE616
Sample ID: SW5
Matrix: Water

Collected: 2022/03/17
Shipped:
Received: 2022/03/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7897442	N/A	2022/03/23	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7894693	N/A	2022/03/24	Automated Statchk
Chloride by Automated Colourimetry	KONE	7897487	N/A	2022/03/23	Alina Dobreanu
Conductivity	AT	7897446	N/A	2022/03/23	Surinder Rai
Hardness (calculated as CaCO3)		7894046	N/A	2022/03/24	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7900083	2022/03/23	2022/03/24	Suban Kanapathippllai
Total Metals Analysis by ICPMS	ICP/MS	7903614	N/A	2022/03/25	Arefa Dabhad
Total Ammonia-N	LACH/NH4	7899195	N/A	2022/03/23	Raiq Kashif
Nitrate & Nitrite as Nitrogen in Water	LACH	7897511	N/A	2022/03/23	Chandra Nandlal
pH	AT	7897448	2022/03/22	2022/03/23	Surinder Rai
Orthophosphate	KONE	7897503	N/A	2022/03/23	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7894699	N/A	2022/03/24	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7894700	N/A	2022/03/24	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7897496	N/A	2022/03/24	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7894701	N/A	2022/03/24	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7898671	N/A	2022/03/23	Anna-Kay Gooden
Total Phosphorus (Colourimetric)	LACH/P	7899137	2022/03/23	2022/03/24	Nimarta Singh
Turbidity	AT	7896234	N/A	2022/03/22	Roya Fathitil

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GENERAL COMMENTS

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

Package 1	6.3°C

Sample SDE615 [SW4] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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Bureau Veritas Job #: C272761
Report Date: 2022/03/30

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7896234	Turbidity	2022/03/22			112	85 - 115	<0.1	NTU	0.68	20		
7897137	Dissolved Organic Carbon	2022/03/24	96	80 - 120	97	80 - 120	<0.40	mg/L	0.39	20		
7897442	Alkalinity (Total as CaCO3)	2022/03/23			93	85 - 115	<1.0	mg/L	0.98	20		
7897446	Conductivity	2022/03/23			100	85 - 115	<1.0	umho/cm	0.85	25		
7897448	pH	2022/03/23			102	98 - 103			0.96	N/A		
7897455	Alkalinity (Total as CaCO3)	2022/03/23			94	85 - 115	<1.0	mg/L	0.72	20		
7897458	pH	2022/03/23			102	98 - 103			0.26	N/A		
7897464	Conductivity	2022/03/23			100	85 - 115	<1.0	umho/cm	0.36	25		
7897487	Dissolved Chloride (Cl-)	2022/03/23	101	80 - 120	103	80 - 120	<1.0	mg/L	4.7	20		
7897496	Dissolved Sulphate (SO4)	2022/03/24	125	75 - 125	103	80 - 120	<1.0	mg/L	1.9	20		
7897503	Orthophosphate (P)	2022/03/23	107	75 - 125	102	80 - 120	<0.010	mg/L	NC	25		
7897511	Nitrate (N)	2022/03/23	105	80 - 120	102	80 - 120	<0.10	mg/L	NC	20		
7897511	Nitrite (N)	2022/03/23	88	80 - 120	102	80 - 120	<0.010	mg/L	NC	20		
7898671	Total Organic Carbon (TOC)	2022/03/23	94	80 - 120	98	80 - 120	<0.40	mg/L	2.7	20		
7899137	Total Phosphorus	2022/03/24	NC	80 - 120	107	80 - 120	<0.004	mg/L	4.3	20	115	80 - 120
7899195	Total Ammonia-N	2022/03/23	98	75 - 125	100	80 - 120	<0.050	mg/L	0.13	20		
7900083	Dissolved Calcium (Ca)	2022/03/24	93	80 - 120	101	80 - 120	<0.05	mg/L	0.012	25		
7900083	Dissolved Magnesium (Mg)	2022/03/24	96	80 - 120	98	80 - 120	<0.05	mg/L	0.43	25		
7900083	Dissolved Potassium (K)	2022/03/24	99	80 - 120	100	80 - 120	<1	mg/L	1.1	25		
7900083	Dissolved Sodium (Na)	2022/03/24	92	80 - 120	99	80 - 120	<0.5	mg/L	3.7	25		
7900101	Dissolved Aluminum (Al)	2022/03/24	101	80 - 120	103	80 - 120	<4.9	ug/L	NC	20		
7900101	Dissolved Antimony (Sb)	2022/03/24	104	80 - 120	103	80 - 120	<0.50	ug/L	NC	20		
7900101	Dissolved Arsenic (As)	2022/03/24	102	80 - 120	102	80 - 120	<1.0	ug/L	NC	20		
7900101	Dissolved Barium (Ba)	2022/03/24	104	80 - 120	104	80 - 120	<2.0	ug/L	0.56	20		
7900101	Dissolved Beryllium (Be)	2022/03/24	104	80 - 120	103	80 - 120	<0.40	ug/L	NC	20		
7900101	Dissolved Boron (B)	2022/03/24	96	80 - 120	97	80 - 120	<10	ug/L	NC	20		
7900101	Dissolved Cadmium (Cd)	2022/03/24	102	80 - 120	102	80 - 120	<0.090	ug/L	NC	20		
7900101	Dissolved Calcium (Ca)	2022/03/24	91	80 - 120	105	80 - 120	<200	ug/L	1.6	20		
7900101	Dissolved Chromium (Cr)	2022/03/24	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7900101	Dissolved Cobalt (Co)	2022/03/24	97	80 - 120	97	80 - 120	<0.50	ug/L	NC	20		
7900101	Dissolved Copper (Cu)	2022/03/24	98	80 - 120	99	80 - 120	<0.90	ug/L	NC	20		
7900101	Dissolved Iron (Fe)	2022/03/24	100	80 - 120	100	80 - 120	<100	ug/L	NC	20		
7900101	Dissolved Lead (Pb)	2022/03/24	94	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
7900101	Dissolved Magnesium (Mg)	2022/03/24	100	80 - 120	101	80 - 120	<50	ug/L	0.17	20		
7900101	Dissolved Manganese (Mn)	2022/03/24	103	80 - 120	102	80 - 120	<2.0	ug/L	NC	20		
7900101	Dissolved Molybdenum (Mo)	2022/03/24	104	80 - 120	102	80 - 120	<0.50	ug/L	5.2	20		
7900101	Dissolved Nickel (Ni)	2022/03/24	97	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		
7900101	Dissolved Phosphorus (P)	2022/03/24	108	80 - 120	113	80 - 120	<100	ug/L	NC	20		
7900101	Dissolved Potassium (K)	2022/03/24	101	80 - 120	99	80 - 120	<200	ug/L	1.3	20		
7900101	Dissolved Selenium (Se)	2022/03/24	100	80 - 120	100	80 - 120	<2.0	ug/L	NC	20		
7900101	Dissolved Silicon (Si)	2022/03/24	101	80 - 120	103	80 - 120	<50	ug/L	1.2	20		
7900101	Dissolved Silver (Ag)	2022/03/24	96	80 - 120	97	80 - 120	<0.090	ug/L	NC	20		
7900101	Dissolved Sodium (Na)	2022/03/24	97	80 - 120	99	80 - 120	<100	ug/L	0.90	20		
7900101	Dissolved Strontium (Sr)	2022/03/24	101	80 - 120	101	80 - 120	<1.0	ug/L	1.6	20		
7900101	Dissolved Thallium (Tl)	2022/03/24	103	80 - 120	102	80 - 120	<0.050	ug/L	NC	20		
7900101	Dissolved Titanium (Ti)	2022/03/24	102	80 - 120	102	80 - 120	<5.0	ug/L	NC	20		
7900101	Dissolved Uranium (U)	2022/03/24	104	80 - 120	103	80 - 120	<0.10	ug/L	1.3	20		
7900101	Dissolved Vanadium (V)	2022/03/24	102	80 - 120	100	80 - 120	<0.50	ug/L	4.2	20		
7900101	Dissolved Zinc (Zn)	2022/03/24	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20		
7900197	Dissolved Organic Carbon	2022/03/24	97	80 - 120	99	80 - 120	<0.40	mg/L	0.15	20		
7903614	Total Aluminum (Al)	2022/03/25	114	80 - 120	105	80 - 120	<4.9	ug/L	3.9	20		
7903614	Total Antimony (Sb)	2022/03/25	105	80 - 120	104	80 - 120	<0.50	ug/L	NC	20		
7903614	Total Arsenic (As)	2022/03/25	103	80 - 120	107	80 - 120	<1.0	ug/L	0.44	20		
7903614	Total Barium (Ba)	2022/03/25	99	80 - 120	103	80 - 120	<2.0	ug/L	1.6	20		
7903614	Total Beryllium (Be)	2022/03/25	104	80 - 120	104	80 - 120	<0.40	ug/L	NC	20		
7903614	Total Boron (B)	2022/03/25	93	80 - 120	95	80 - 120	<10	ug/L	1.1	20		
7903614	Total Cadmium (Cd)	2022/03/25	100	80 - 120	102	80 - 120	<0.090	ug/L	NC	20		
7903614	Total Calcium (Ca)	2022/03/25	-4.6 (1)	80 - 120	105	80 - 120	<200	ug/L	2.2	20		
7903614	Total Chromium (Cr)	2022/03/25	98	80 - 120	101	80 - 120	<5.0	ug/L	NC	20		
7903614	Total Cobalt (Co)	2022/03/25	102	80 - 120	105	80 - 120	<0.50	ug/L	0.49	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7903614	Total Copper (Cu)	2022/03/25	104	80 - 120	105	80 - 120	<0.90	ug/L	1.5	20		
7903614	Total Iron (Fe)	2022/03/25	89	80 - 120	105	80 - 120	<100	ug/L	0.72	20		
7903614	Total Lead (Pb)	2022/03/25	98	80 - 120	98	80 - 120	<0.50	ug/L	NC	20		
7903614	Total Magnesium (Mg)	2022/03/25	93	80 - 120	107	80 - 120	<50	ug/L	1.2	20		
7903614	Total Manganese (Mn)	2022/03/25	46 (1)	80 - 120	102	80 - 120	<2.0	ug/L	0.72	20		
7903614	Total Molybdenum (Mo)	2022/03/25	102	80 - 120	102	80 - 120	<0.50	ug/L	NC	20		
7903614	Total Nickel (Ni)	2022/03/25	99	80 - 120	103	80 - 120	<1.0	ug/L	9.2	20		
7903614	Total Potassium (K)	2022/03/25	107	80 - 120	107	80 - 120	<200	ug/L	0.31	20		
7903614	Total Selenium (Se)	2022/03/25	108	80 - 120	110	80 - 120	<2.0	ug/L	NC	20		
7903614	Total Silicon (Si)	2022/03/25	95	80 - 120	99	80 - 120	<50	ug/L	1.6	20		
7903614	Total Silver (Ag)	2022/03/25	97	80 - 120	100	80 - 120	<0.090	ug/L	NC	20		
7903614	Total Sodium (Na)	2022/03/25	58 (1)	80 - 120	109	80 - 120	<100	ug/L	2.1	20		
7903614	Total Strontium (Sr)	2022/03/25	90	80 - 120	98	80 - 120	<1.0	ug/L	0.38	20		
7903614	Total Thallium (Tl)	2022/03/25	103	80 - 120	101	80 - 120	<0.050	ug/L	NC	20		
7903614	Total Titanium (Ti)	2022/03/25	99	80 - 120	100	80 - 120	<5.0	ug/L	3.8	20		
7903614	Total Tungsten (W)	2022/03/25	105	80 - 120	108	80 - 120	<1.0	ug/L	NC	20		
7903614	Total Uranium (U)	2022/03/25	102	80 - 120	103	80 - 120	<0.10	ug/L	NC	20		
7903614	Total Vanadium (V)	2022/03/25	101	80 - 120	102	80 - 120	<0.50	ug/L	0.29	20		
7903614	Total Zinc (Zn)	2022/03/25	99	80 - 120	106	80 - 120	<5.0	ug/L	0.23	20		
7903614	Total Zirconium (Zr)	2022/03/25	105	80 - 120	104	80 - 120	<1.0	ug/L	NC	20		
7904606	Dissolved Calcium (Ca)	2022/03/28	98	80 - 120	97	80 - 120	<0.05	mg/L	3.5	25		
7904606	Dissolved Magnesium (Mg)	2022/03/28	100	80 - 120	96	80 - 120	<0.05	mg/L	3.2	25		
7904606	Dissolved Potassium (K)	2022/03/28	105	80 - 120	98	80 - 120	<1	mg/L	3.8	25		
7904606	Dissolved Sodium (Na)	2022/03/28	113	80 - 120	97	80 - 120	<0.5	mg/L	2.3	25		
7911141	Total Aluminum (Al)	2022/03/30	99	80 - 120	99	80 - 120	<4.9	ug/L	3.4	20		
7911141	Total Antimony (Sb)	2022/03/30	107	80 - 120	105	80 - 120	<0.50	ug/L	NC	20		
7911141	Total Arsenic (As)	2022/03/30	103	80 - 120	99	80 - 120	<1.0	ug/L	NC	20		
7911141	Total Barium (Ba)	2022/03/30	100	80 - 120	97	80 - 120	<2.0	ug/L	NC	20		
7911141	Total Beryllium (Be)	2022/03/30	103	80 - 120	98	80 - 120	<0.40	ug/L	NC	20		
7911141	Total Boron (B)	2022/03/30	99	80 - 120	95	80 - 120	<10	ug/L	NC	20		
7911141	Total Cadmium (Cd)	2022/03/30	103	80 - 120	100	80 - 120	<0.090	ug/L	NC	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7911141	Total Calcium (Ca)	2022/03/30	99	80 - 120	97	80 - 120	<200	ug/L	NC	20		
7911141	Total Chromium (Cr)	2022/03/30	95	80 - 120	92	80 - 120	<5.0	ug/L	NC	20		
7911141	Total Cobalt (Co)	2022/03/30	96	80 - 120	93	80 - 120	<0.50	ug/L	NC	20		
7911141	Total Copper (Cu)	2022/03/30	98	80 - 120	94	80 - 120	<0.90	ug/L	1.1	20		
7911141	Total Iron (Fe)	2022/03/30	99	80 - 120	97	80 - 120	<100	ug/L	NC	20		
7911141	Total Lead (Pb)	2022/03/30	97	80 - 120	93	80 - 120	<0.50	ug/L	NC	20		
7911141	Total Magnesium (Mg)	2022/03/30	97	80 - 120	95	80 - 120	<50	ug/L	NC	20		
7911141	Total Manganese (Mn)	2022/03/30	99	80 - 120	95	80 - 120	<2.0	ug/L	3.7	20		
7911141	Total Molybdenum (Mo)	2022/03/30	99	80 - 120	96	80 - 120	<0.50	ug/L	NC	20		
7911141	Total Nickel (Ni)	2022/03/30	98	80 - 120	95	80 - 120	<1.0	ug/L	0.11	20		
7911141	Total Potassium (K)	2022/03/30	98	80 - 120	95	80 - 120	<200	ug/L	NC	20		
7911141	Total Selenium (Se)	2022/03/30	104	80 - 120	103	80 - 120	<2.0	ug/L	NC	20		
7911141	Total Silicon (Si)	2022/03/30	98	80 - 120	98	80 - 120	<50	ug/L	NC	20		
7911141	Total Silver (Ag)	2022/03/30	99	80 - 120	95	80 - 120	<0.090	ug/L	NC	20		
7911141	Total Sodium (Na)	2022/03/30	95	80 - 120	96	80 - 120	<100	ug/L	4.9	20		
7911141	Total Strontium (Sr)	2022/03/30	98	80 - 120	95	80 - 120	<1.0	ug/L	NC	20		
7911141	Total Thallium (Tl)	2022/03/30	99	80 - 120	99	80 - 120	<0.050	ug/L	NC	20		
7911141	Total Titanium (Ti)	2022/03/30	97	80 - 120	97	80 - 120	<5.0	ug/L	0.036	20		
7911141	Total Tungsten (W)	2022/03/30	95	80 - 120	92	80 - 120	<1.0	ug/L	NC	20		
7911141	Total Uranium (U)	2022/03/30	100	80 - 120	100	80 - 120	<0.10	ug/L	NC	20		
7911141	Total Vanadium (V)	2022/03/30	98	80 - 120	95	80 - 120	<0.50	ug/L	NC	20		
7911141	Total Zinc (Zn)	2022/03/30	101	80 - 120	97	80 - 120	<5.0	ug/L	NC	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7911141	Total Zirconium (Zr)	2022/03/30	88	80 - 120	98	80 - 120	<1.0	ug/L	NC	20		

N/A = Not Applicable

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.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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.

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.

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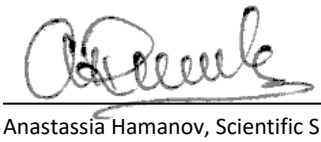
Bureau Veritas Job #: C272761
Report Date: 2022/03/30

exp Services Inc
Client Project #: KCH-21008183
Site Location: HUNTER FARMS
Sampler Initials: MB

VALIDATION SIGNATURE PAGE

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



Anastassia Hamanov, 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 Signature Page.

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17-Mar-22 15:15
Christine Gripton
C272761

Page of

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#28124 exp Services Inc	Company Name:		Quotation #:	B91718
Attention:	Accounts Payable	Attention:	Kelli Dobbin	P.O. #:	
Address:	15701 Robin's Hill Rd Unit 2	Address:		Project:	KCH-~~21006347~~ 21006183
	London ON N5V 0A5			Project Name:	Hunter Farms
Tel:	(519) 963-3000 Fax: (519) 963-1152	Tel:	Fax:	Site #:	
Email:	AP@exp.com, Karen.Burke@exp.com	Email:	kelli.dobbin@exp.com	Sampled By:	M Morello B

ATM ENV-1605

Bottle Order #: 870268

COC #: C#870268-01-01

Project Manager: Christine Gripton

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 ODWQS

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

Special Instructions

Field Filtered (please circle): Metals / Hg / Cr VI

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

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 #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	ROAp - Comprehensive (Lab Filtered)	ROAP - Surface Water	Lab Filtered Metals by ICPMS	# of Bottles	Comments
1		MW3	Mar 17 2022	AM	GW	X				ODWQS
2		MW7A		PM		X				
3		MW7B		PM		X				
4		MW9		PM		X				
5		SW1		AM	SW		X			PWQO
6		SW2		AM			X			
7		SW4		PM			X			
8		SW5		PM			X			
9										
10										On Ice

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
M Morello B	22/03/17		[illegible]	20220317	15:15	
			Roy Mercury	20220318	1750	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei: 3, 7, 9

Custody Seal	Yes	No
Present		
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/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/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

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.

BV - 418671 8/9/9

Exceedance Summary Table – ODWS (2002)

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
MW7A	SDE610-02	Dissolved Uranium (U)	20	35	0.10	ug/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Prov. Water Quality Obj.

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
MW7A	SDE610-02	Dissolved Molybdenum (Mo)	40	45	0.50	ug/L
MW7A	SDE610-02	Dissolved Uranium (U)	5	35	0.10	ug/L
MW7A	SDE610-02	Dissolved Zinc (Zn)	30	38	5.0	ug/L
MW7B	SDE611-02	Dissolved Zinc (Zn)	30	36	5.0	ug/L
SW1	SDE613-03-Lab Dup	Total Cobalt (Co)	0.9	2.4	0.50	ug/L
SW1	SDE613-03	Total Cobalt (Co)	0.9	2.4	0.50	ug/L
SW1	SDE613-03	Total Iron (Fe)	300	39000	100	ug/L
SW1	SDE613-03-Lab Dup	Total Iron (Fe)	300	39000	100	ug/L
SW1	SDE613-04	Total Phosphorus	0.01	0.41	0.02	mg/L
SW1	SDE613-03-Lab Dup	Total Zinc (Zn)	30	43	5.0	ug/L
SW1	SDE613-03	Total Zinc (Zn)	30	43	5.0	ug/L
SW2	SDE614-04	Total Phosphorus	0.01	0.026	0.004	mg/L
SW4	SDE615-04	Total Phosphorus	0.01	0.09	0.02	mg/L
SW5	SDE616-03	Total Cobalt (Co)	0.9	1.0	0.50	ug/L
SW5	SDE616-03	Total Copper (Cu)	5	7.7	0.90	ug/L
SW5	SDE616-03	Total Iron (Fe)	300	6200	100	ug/L
SW5	SDE616-04	Total Phosphorus	0.01	1.5	0.02	mg/L
SW5	SDE616-03	Total Zinc (Zn)	30	80	5.0	ug/L

Detection Limit Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW4	SDE615-03	Total Cadmium (Cd)	0.2	<0.90	0.90	ug/L
SW4	SDE615-03	Total Cobalt (Co)	0.9	<5.0	5.0	ug/L
SW4	SDE615-03	Total Copper (Cu)	5	<9.0	9.0	ug/L
SW4	SDE615-03	Total Iron (Fe)	300	<1000	1000	ug/L
SW4	SDE615-03	Total Silver (Ag)	0.1	<0.90	0.90	ug/L
SW4	SDE615-03	Total Thallium (Tl)	0.3	<0.50	0.50	ug/L
SW4	SDE615-03	Total Zinc (Zn)	30	<50	50	ug/L
SW4	SDE615-03	Total Zirconium (Zr)	4	<10	10	ug/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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

Your Project #: LON-21008138
Site Location: HUNTER FARM
Your C.O.C. #: 839959-01-01

Attention: Heather Jaggard

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2021/10/08
Report #: R6845736
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1S2764
Received: 2021/09/29, 08:30

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity	3	N/A	2021/10/01	CAM SOP-00448	SM 23 2320 B m
Alkalinity	5	N/A	2021/10/04	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2021/10/01	CAM SOP-00102	APHA 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide	2	N/A	2021/10/04	CAM SOP-00102	APHA 4500-CO2 D
Carbonate, Bicarbonate and Hydroxide	5	N/A	2021/10/05	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	4	N/A	2021/10/01	CAM SOP-00463	SM 23 4500-Cl E m
Chloride by Automated Colourimetry	4	N/A	2021/10/04	CAM SOP-00463	SM 23 4500-Cl E m
Conductivity	3	N/A	2021/10/01	CAM SOP-00414	SM 23 2510 m
Conductivity	5	N/A	2021/10/04	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2021/10/04	CAM SOP-00446	SM 23 5310 B m
Dissolved Organic Carbon (DOC) (1)	3	N/A	2021/10/05	CAM SOP-00446	SM 23 5310 B m
Hardness (calculated as CaCO3)	4	N/A	2021/10/04	CAM SOP 00102/00408/00447	SM 2340 B
Hardness (calculated as CaCO3)	4	N/A	2021/10/05	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals Analysis by ICP	4	2021/10/02	2021/10/04	CAM SOP-00408	EPA 6010D m
Lab Filtered Metals by ICPMS	8	2021/10/02	2021/10/04	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	3	N/A	2021/10/05	CAM SOP-00447	EPA 6020B m
Total Metals Analysis by ICPMS	1	N/A	2021/10/08	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	4	N/A	2021/10/05		
Anion and Cation Sum	4	N/A	2021/10/05		
Total Ammonia-N	1	N/A	2021/10/01	CAM SOP-00441	USGS I-2522-90 m
Total Ammonia-N	7	N/A	2021/10/04	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	4	N/A	2021/10/01	CAM SOP-00440	SM 23 4500-NO3I/NO2B
Nitrate (NO3) and Nitrite (NO2) in Water (2)	4	N/A	2021/10/04	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	5	2021/10/01	2021/10/04	CAM SOP-00413	SM 4500H+ B m
pH	3	2021/09/30	2021/10/01	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	4	N/A	2021/10/01	CAM SOP-00461	EPA 365.1 m
Orthophosphate	4	N/A	2021/10/04	CAM SOP-00461	EPA 365.1 m

Your Project #: LON-21008138
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CERTIFICATE OF ANALYSIS

BV LABS JOB #: C1S2764
Received: 2021/09/29, 08:30

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Sat. pH and Langelier Index (@ 20C)	8	N/A	2021/10/05		Auto Calc
Sat. pH and Langelier Index (@ 4C)	8	N/A	2021/10/05		Auto Calc
Sulphate by Automated Colourimetry	4	N/A	2021/10/01	CAM SOP-00464	EPA 375.4 m
Sulphate by Automated Colourimetry	4	N/A	2021/10/04	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	8	N/A	2021/10/05		Auto Calc
Total Organic Carbon (TOC) (3)	4	N/A	2021/10/05	CAM SOP-00446	SM 23 5310B m
Total Phosphorus (Colourimetric)	4	2021/10/04	2021/10/05	CAM SOP-00407	SM 23 4500 P B H m
Turbidity	4	N/A	2021/10/01	CAM SOP-00417	SM 23 2130 B 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, MELCC, EPA, APHA.

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) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

Your Project #: LON-21008138
Site Location: HUNTER FARM
Your C.O.C. #: 839959-01-01

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BV LABS JOB #: C1S2764
Received: 2021/09/29, 08:30

(2) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.
(3) Total Organic Carbon (TOC) present in the sample should be considered as non-purgeable TOC.

Encryption Key

Bureau Veritas
08 Oct 2021 13:16:47

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bureauveritas.com
Phone# (519)652-9444

==========

This report has been generated and distributed using a secure automated process.
BV Labs 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 Signature Page.

BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

RCAP - COMPREHENSIVE (LAB FILTERED)

BV Labs ID		QUK162		QUK163	QUK164	QUK165		
Sampling Date		2021/09/28 13:00		2021/09/28 16:00	2021/09/28 16:05	2021/09/28 16:30		
	UNITS	BH3/MW	QC Batch	BH7A/MW	BH7B/MW	BH9/MW	RDL	QC Batch
Calculated Parameters								
Anion Sum	me/L	7.37	7610019	4.23	9.63	3.38	N/A	7610019
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	280	7610010	140	400	130	1.0	7610010
Calculated TDS	mg/L	390	7610017	230	510	180	1.0	7610017
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.6	7610010	1.1	3.4	1.4	1.0	7610010
Cation Sum	me/L	7.83	7610019	4.29	10.3	3.40	N/A	7610019
Hardness (CaCO3)	mg/L	330	7610016	180	490	140	1.0	7610016
Ion Balance (% Difference)	%	3.05	7610018	0.630	3.31	0.310	N/A	7610018
Langelier Index (@ 20C)	N/A	0.974	7610013	0.386	1.25	0.408		7610013
Langelier Index (@ 4C)	N/A	0.726	7610014	0.137	1.00	0.158		7610014
Saturation pH (@ 20C)	N/A	7.02	7610013	7.52	6.70	7.63		7610013
Saturation pH (@ 4C)	N/A	7.27	7610014	7.77	6.95	7.88		7610014
Inorganics								
Total Ammonia-N	mg/L	<0.050	7616218	<0.050	0.097	<0.050	0.050	7616218
Conductivity	umho/cm	690	7613005	410	840	320	1.0	7613005
Dissolved Organic Carbon	mg/L	3.7	7617408	4.8	10	4.1	0.40	7616559
Orthophosphate (P)	mg/L	<0.010	7613566	<0.010	<0.010	<0.010	0.010	7613566
pH	pH	8.00	7613008	7.91	7.95	8.04		7613008
Dissolved Sulphate (SO4)	mg/L	27	7613565	37	39	18	1.0	7613565
Alkalinity (Total as CaCO3)	mg/L	290	7612994	140	410	130	1.0	7612994
Dissolved Chloride (Cl-)	mg/L	38	7613553	18	24	9.0	1.0	7613553
Nitrite (N)	mg/L	<0.010	7613663	0.026	0.055	0.015	0.010	7613663
Nitrate (N)	mg/L	0.11	7613663	1.08	0.26	0.54	0.10	7613663
Nitrate + Nitrite (N)	mg/L	0.11	7613663	1.11	0.31	0.56	0.10	7613663
Metals								
Dissolved Aluminum (Al)	ug/L	<4.9	7614958	7.3	5.9	9.4	4.9	7614958
Dissolved Antimony (Sb)	ug/L	<0.50	7614958	0.71	<0.50	0.51	0.50	7614958
Dissolved Arsenic (As)	ug/L	5.4	7614958	1.0	<1.0	<1.0	1.0	7614958
Dissolved Barium (Ba)	ug/L	79	7614958	32	72	17	2.0	7614958
Dissolved Beryllium (Be)	ug/L	<0.40	7614958	<0.40	<0.40	<0.40	0.40	7614958
Dissolved Boron (B)	ug/L	28	7614958	17	16	16	10	7614958
Dissolved Cadmium (Cd)	ug/L	<0.090	7614958	<0.090	<0.090	<0.090	0.090	7614958

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
N/A = Not Applicable

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

BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

RCAP - COMPREHENSIVE (LAB FILTERED)

BV Labs ID		QUK162		QUK163	QUK164	QUK165		
Sampling Date		2021/09/28 13:00		2021/09/28 16:00	2021/09/28 16:05	2021/09/28 16:30		
	UNITS	BH3/MW	QC Batch	BH7A/MW	BH7B/MW	BH9/MW	RDL	QC Batch
Dissolved Calcium (Ca)	ug/L	92000	7614958	53000	140000	42000	200	7614958
Dissolved Chromium (Cr)	ug/L	<5.0	7614958	<5.0	<5.0	<5.0	5.0	7614958
Dissolved Cobalt (Co)	ug/L	<0.50	7614958	<0.50	<0.50	<0.50	0.50	7614958
Dissolved Copper (Cu)	ug/L	17	7614958	23	21	11	0.90	7614958
Dissolved Iron (Fe)	ug/L	<100	7614958	<100	<100	<100	100	7614958
Dissolved Lead (Pb)	ug/L	<0.50	7614958	<0.50	<0.50	<0.50	0.50	7614958
Dissolved Magnesium (Mg)	ug/L	24000	7614958	12000	32000	8800	50	7614958
Dissolved Manganese (Mn)	ug/L	88	7614958	10	310	<2.0	2.0	7614958
Dissolved Molybdenum (Mo)	ug/L	12	7614958	5.3	4.2	4.9	0.50	7614958
Dissolved Nickel (Ni)	ug/L	13	7614958	8.7	8.6	4.7	1.0	7614958
Dissolved Phosphorus (P)	ug/L	<100	7614958	<100	<100	<100	100	7614958
Dissolved Potassium (K)	ug/L	2800	7614958	3500	3600	3100	200	7614958
Dissolved Selenium (Se)	ug/L	<2.0	7614958	<2.0	<2.0	<2.0	2.0	7614958
Dissolved Silicon (Si)	ug/L	4700	7614958	2000	6900	2500	50	7614958
Dissolved Silver (Ag)	ug/L	<0.090	7614958	<0.090	<0.090	<0.090	0.090	7614958
Dissolved Sodium (Na)	ug/L	27000	7614958	14000	7300	12000	100	7614958
Dissolved Strontium (Sr)	ug/L	180	7614958	180	200	120	1.0	7614958
Dissolved Thallium (Tl)	ug/L	<0.050	7614958	<0.050	<0.050	<0.050	0.050	7614958
Dissolved Titanium (Ti)	ug/L	<5.0	7614958	<5.0	<5.0	<5.0	5.0	7614958
Dissolved Uranium (U)	ug/L	0.59	7614958	1.2	0.74	0.59	0.10	7614958
Dissolved Vanadium (V)	ug/L	<0.50	7614958	<0.50	0.58	<0.50	0.50	7614958
Dissolved Zinc (Zn)	ug/L	59	7614958	110	44	30	5.0	7614958

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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

BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

RCAP - SURFACE WATER (WATER)

BV Labs ID		QUK166			QUK167			QUK168		
Sampling Date		2021/09/28 14:00			2021/09/28 11:30			2021/09/28 16:45		
	UNITS	SW1	RDL	QC Batch	SW2	RDL	QC Batch	SW4	RDL	QC Batch
Calculated Parameters										
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	390	1.0	7610010	250	1.0	7610010	70	1.0	7610010
Calculated TDS	mg/L	650	1.0	7610017	380	1.0	7610017	170	1.0	7610017
Carb. Alkalinity (calc. as CaCO3)	mg/L	3.5	1.0	7610010	3.6	1.0	7610010	<1.0	1.0	7610010
Hardness (CaCO3)	mg/L	400	1.0	7610015	310	1.0	7610016	130	1.0	7610015
Langelier Index (@ 20C)	N/A	1.18		7610013	1.13		7610013	-0.628		7610013
Langelier Index (@ 4C)	N/A	0.930		7610014	0.882		7610014	-0.878		7610014
Saturation pH (@ 20C)	N/A	6.80		7610013	7.06		7610013	7.94		7610013
Saturation pH (@ 4C)	N/A	7.05		7610014	7.31		7610014	8.19		7610014
Inorganics										
Total Ammonia-N	mg/L	0.082	0.050	7610470	<0.050	0.050	7616218	0.14	0.050	7616218
Conductivity	umho/cm	1200	1.0	7613005	640	1.0	7611593	280	1.0	7611684
Total Organic Carbon (TOC)	mg/L	41	0.40	7613672	8.9	0.40	7613672	17	0.40	7613672
Orthophosphate (P)	mg/L	0.012	0.010	7611563	0.026	0.010	7611563	0.40	0.010	7611563
pH	pH	7.98		7613008	8.19		7611646	7.32		7611688
Total Phosphorus	mg/L	1.9	0.1	7616206	0.043	0.004	7616206	0.46	0.02	7616206
Dissolved Sulphate (SO4)	mg/L	<1.0	1.0	7611557	36	1.0	7611557	47	1.0	7611557
Turbidity	NTU	9.3	0.1	7610722	1.1	0.1	7610722	2.5	0.1	7610722
Alkalinity (Total as CaCO3)	mg/L	390	1.0	7612994	250	1.0	7611647	70	1.0	7611678
Dissolved Chloride (Cl-)	mg/L	150	2.0	7611552	30	1.0	7611552	14	1.0	7611552
Nitrite (N)	mg/L	<0.010	0.010	7610949	0.031	0.010	7610949	0.039	0.010	7610949
Nitrate (N)	mg/L	<0.10	0.10	7610949	5.26	0.10	7610949	0.45	0.10	7610949
Metals										
Dissolved Calcium (Ca)	mg/L	130	0.05	7614963	95	0.05	7614963	38	0.05	7614094
Dissolved Magnesium (Mg)	mg/L	21	0.05	7614963	17	0.05	7614963	7.3	0.05	7614094
Dissolved Potassium (K)	mg/L	5	1	7614963	4	1	7614963	8	1	7614094
Dissolved Sodium (Na)	mg/L	89	0.5	7614963	12	0.5	7614963	2.5	0.5	7614094
Total Aluminum (Al)	ug/L	1300	4.9	7616141	67	4.9	7616141	140	4.9	7624000
Total Antimony (Sb)	ug/L	<0.50	0.50	7616141	<0.50	0.50	7616141	<0.50	0.50	7624000
Total Arsenic (As)	ug/L	7.3	1.0	7616141	<1.0	1.0	7616141	<1.0	1.0	7624000
Total Barium (Ba)	ug/L	160	2.0	7616141	41	2.0	7616141	8.5	2.0	7624000
Total Beryllium (Be)	ug/L	<0.40	0.40	7616141	<0.40	0.40	7616141	<0.40	0.40	7624000
Total Boron (B)	ug/L	43	10	7616141	22	10	7616141	44	10	7624000

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

RCAP - SURFACE WATER (WATER)

BV Labs ID		QUK166			QUK167			QUK168		
Sampling Date		2021/09/28 14:00			2021/09/28 11:30			2021/09/28 16:45		
	UNITS	SW1	RDL	QC Batch	SW2	RDL	QC Batch	SW4	RDL	QC Batch
Total Cadmium (Cd)	ug/L	<0.090	0.090	7616141	<0.090	0.090	7616141	0.11	0.090	7624000
Total Calcium (Ca)	ug/L	160000	200	7616141	110000	200	7616141	41000	200	7624000
Total Chromium (Cr)	ug/L	<5.0	5.0	7616141	<5.0	5.0	7616141	<5.0	5.0	7624000
Total Cobalt (Co)	ug/L	2.3	0.50	7616141	<0.50	0.50	7616141	0.50	0.50	7624000
Total Copper (Cu)	ug/L	4.0	0.90	7616141	2.5	0.90	7616141	2.0	0.90	7624000
Total Iron (Fe)	ug/L	39000	100	7616141	130	100	7616141	230	100	7624000
Total Lead (Pb)	ug/L	2.0	0.50	7616141	<0.50	0.50	7616141	<0.50	0.50	7624000
Total Magnesium (Mg)	ug/L	24000	50	7616141	19000	50	7616141	7600	50	7624000
Total Manganese (Mn)	ug/L	1400	2.0	7616141	30	2.0	7616141	210	2.0	7624000
Total Molybdenum (Mo)	ug/L	0.82	0.50	7616141	1.3	0.50	7616141	1.3	0.50	7624000
Total Nickel (Ni)	ug/L	3.8	1.0	7616141	<1.0	1.0	7616141	<1.0	1.0	7624000
Total Potassium (K)	ug/L	5100	200	7616141	4000	200	7616141	7800	200	7624000
Total Selenium (Se)	ug/L	<2.0	2.0	7616141	<2.0	2.0	7616141	<2.0	2.0	7624000
Total Silicon (Si)	ug/L	9900	50	7616141	4300	50	7616141	1800	50	7624000
Total Silver (Ag)	ug/L	<0.090	0.090	7616141	<0.090	0.090	7616141	<0.090	0.090	7624000
Total Sodium (Na)	ug/L	93000	100	7616141	14000	100	7616141	1900	100	7624000
Total Strontium (Sr)	ug/L	280	1.0	7616141	190	1.0	7616141	44	1.0	7624000
Total Thallium (Tl)	ug/L	<0.050	0.050	7616141	<0.050	0.050	7616141	<0.050	0.050	7624000
Total Titanium (Ti)	ug/L	48	5.0	7616141	5.6	5.0	7616141	7.3	5.0	7624000
Total Tungsten (W)	ug/L	<1.0	1.0	7616141	<1.0	1.0	7616141	<1.0	1.0	7624000
Total Uranium (U)	ug/L	1.4	0.10	7616141	2.4	0.10	7616141	0.10	0.10	7624000
Total Vanadium (V)	ug/L	3.4	0.50	7616141	0.87	0.50	7616141	0.79	0.50	7624000
Total Zinc (Zn)	ug/L	26	5.0	7616141	<5.0	5.0	7616141	5.4	5.0	7624000
Total Zirconium (Zr)	ug/L	<1.0	1.0	7616141	<1.0	1.0	7616141	<1.0	1.0	7624000

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

RCAP - SURFACE WATER (WATER)

BV Labs ID		QUK169		
Sampling Date		2021/09/28 17:00		
	UNITS	SW5	RDL	QC Batch
Calculated Parameters				
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	120	1.0	7610010
Calculated TDS	mg/L	140	1.0	7610017
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	7610010
Hardness (CaCO3)	mg/L	130	1.0	7610016
Langelier Index (@ 20C)	N/A	0.150		7610013
Langelier Index (@ 4C)	N/A	-0.101		7610014
Saturation pH (@ 20C)	N/A	7.71		7610013
Saturation pH (@ 4C)	N/A	7.97		7610014
Inorganics				
Total Ammonia-N	mg/L	0.093	0.050	7616218
Conductivity	umho/cm	260	1.0	7611593
Total Organic Carbon (TOC)	mg/L	24	0.40	7613672
Orthophosphate (P)	mg/L	0.082	0.010	7611563
pH	pH	7.86		7611646
Total Phosphorus	mg/L	0.64	0.02	7616206
Dissolved Sulphate (SO4)	mg/L	<1.0	1.0	7611557
Turbidity	NTU	5.0	0.1	7610722
Alkalinity (Total as CaCO3)	mg/L	120	1.0	7611647
Dissolved Chloride (Cl-)	mg/L	9.7	1.0	7611552
Nitrite (N)	mg/L	<0.010	0.010	7610949
Nitrate (N)	mg/L	<0.10	0.10	7610949
Metals				
Dissolved Calcium (Ca)	mg/L	37	0.05	7614094
Dissolved Magnesium (Mg)	mg/L	7.9	0.05	7614094
Dissolved Potassium (K)	mg/L	3	1	7614094
Dissolved Sodium (Na)	mg/L	3.4	0.5	7614094
Total Aluminum (Al)	ug/L	940	4.9	7616141
Total Antimony (Sb)	ug/L	<0.50	0.50	7616141
Total Arsenic (As)	ug/L	1.0	1.0	7616141
Total Barium (Ba)	ug/L	31	2.0	7616141
Total Beryllium (Be)	ug/L	<0.40	0.40	7616141
Total Boron (B)	ug/L	23	10	7616141

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

RCAP - SURFACE WATER (WATER)

BV Labs ID		QUK169		
Sampling Date		2021/09/28 17:00		
	UNITS	SW5	RDL	QC Batch
Total Cadmium (Cd)	ug/L	<0.090	0.090	7616141
Total Calcium (Ca)	ug/L	42000	200	7616141
Total Chromium (Cr)	ug/L	<5.0	5.0	7616141
Total Cobalt (Co)	ug/L	<0.50	0.50	7616141
Total Copper (Cu)	ug/L	2.2	0.90	7616141
Total Iron (Fe)	ug/L	1400	100	7616141
Total Lead (Pb)	ug/L	1.6	0.50	7616141
Total Magnesium (Mg)	ug/L	9000	50	7616141
Total Manganese (Mn)	ug/L	76	2.0	7616141
Total Molybdenum (Mo)	ug/L	1.2	0.50	7616141
Total Nickel (Ni)	ug/L	1.1	1.0	7616141
Total Potassium (K)	ug/L	3700	200	7616141
Total Selenium (Se)	ug/L	<2.0	2.0	7616141
Total Silicon (Si)	ug/L	3500	50	7616141
Total Silver (Ag)	ug/L	<0.090	0.090	7616141
Total Sodium (Na)	ug/L	3000	100	7616141
Total Strontium (Sr)	ug/L	57	1.0	7616141
Total Thallium (Tl)	ug/L	<0.050	0.050	7616141
Total Titanium (Ti)	ug/L	24	5.0	7616141
Total Tungsten (W)	ug/L	<1.0	1.0	7616141
Total Uranium (U)	ug/L	0.44	0.10	7616141
Total Vanadium (V)	ug/L	2.3	0.50	7616141
Total Zinc (Zn)	ug/L	18	5.0	7616141
Total Zirconium (Zr)	ug/L	<1.0	1.0	7616141

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QUK166	QUK167	QUK168	QUK169		
Sampling Date		2021/09/28 14:00	2021/09/28 11:30	2021/09/28 16:45	2021/09/28 17:00		
	UNITS	SW1	SW2	SW4	SW5	RDL	QC Batch
Metals							
Dissolved Aluminum (Al)	ug/L	<4.9	9.4	24	11	4.9	7614958
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7614958
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7614958
Dissolved Barium (Ba)	ug/L	57	41	8.0	20	2.0	7614958
Dissolved Beryllium (Be)	ug/L	<0.40	<0.40	<0.40	<0.40	0.40	7614958
Dissolved Bismuth (Bi)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7614958
Dissolved Boron (B)	ug/L	34	21	44	22	10	7614958
Dissolved Cadmium (Cd)	ug/L	<0.090	<0.090	0.093	<0.090	0.090	7614958
Dissolved Calcium (Ca)	ug/L	140000	100000	39000	41000	200	7614958
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7614958
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7614958
Dissolved Copper (Cu)	ug/L	<0.90	1.9	1.7	<0.90	0.90	7614958
Dissolved Iron (Fe)	ug/L	<100	<100	110	150	100	7614958
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7614958
Dissolved Lithium (Li)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7614958
Dissolved Magnesium (Mg)	ug/L	25000	19000	7600	9000	50	7614958
Dissolved Manganese (Mn)	ug/L	18	20	200	<2.0	2.0	7614958
Dissolved Molybdenum (Mo)	ug/L	0.63	1.4	1.6	1.2	0.50	7614958
Dissolved Nickel (Ni)	ug/L	2.4	<1.0	<1.0	<1.0	1.0	7614958
Dissolved Phosphorus (P)	ug/L	<100	100	510	270	100	7614958
Dissolved Potassium (K)	ug/L	5100	4000	8200	3500	200	7614958
Dissolved Selenium (Se)	ug/L	<2.0	<2.0	<2.0	<2.0	2.0	7614958
Dissolved Silicon (Si)	ug/L	7200	4300	1500	2500	50	7614958
Dissolved Silver (Ag)	ug/L	<0.090	<0.090	<0.090	<0.090	0.090	7614958
Dissolved Sodium (Na)	ug/L	98000	13000	1900	3000	100	7614958
Dissolved Strontium (Sr)	ug/L	260	190	45	54	1.0	7614958
Dissolved Tellurium (Te)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7614958
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7614958
Dissolved Tin (Sn)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7614958
Dissolved Titanium (Ti)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7614958
Dissolved Tungsten (W)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7614958
Dissolved Uranium (U)	ug/L	1.4	2.3	0.10	0.29	0.10	7614958

RDL = Reportable Detection Limit
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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

BV Labs ID		QUK166	QUK167	QUK168	QUK169		
Sampling Date		2021/09/28 14:00	2021/09/28 11:30	2021/09/28 16:45	2021/09/28 17:00		
	UNITS	SW1	SW2	SW4	SW5	RDL	QC Batch
Dissolved Vanadium (V)	ug/L	<0.50	0.56	<0.50	0.91	0.50	7614958
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7614958
Dissolved Zirconium (Zr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7614958

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

TEST SUMMARY

BV Labs ID: QUK162
Sample ID: BH3/MW
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7612994	N/A	2021/10/04	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/05	Automated Statchk
Chloride by Automated Colourimetry	KONE	7613553	N/A	2021/10/04	Alina Dobreanu
Conductivity	AT	7613005	N/A	2021/10/04	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7617408	N/A	2021/10/05	Julianna Castiglione
Hardness (calculated as CaCO3)		7610016	N/A	2021/10/04	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	7610018	N/A	2021/10/05	Automated Statchk
Anion and Cation Sum	CALC	7610019	N/A	2021/10/05	Automated Statchk
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7613663	N/A	2021/10/04	Chandra Nandlal
pH	AT	7613008	2021/10/01	2021/10/04	Surinder Rai
Orthophosphate	KONE	7613566	N/A	2021/10/04	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7613565	N/A	2021/10/04	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk

BV Labs ID: QUK163
Sample ID: BH7A/MW
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7612994	N/A	2021/10/04	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/05	Automated Statchk
Chloride by Automated Colourimetry	KONE	7613553	N/A	2021/10/04	Alina Dobreanu
Conductivity	AT	7613005	N/A	2021/10/04	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7616559	N/A	2021/10/05	Julianna Castiglione
Hardness (calculated as CaCO3)		7610016	N/A	2021/10/04	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	7610018	N/A	2021/10/05	Automated Statchk
Anion and Cation Sum	CALC	7610019	N/A	2021/10/05	Automated Statchk
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7613663	N/A	2021/10/04	Chandra Nandlal
pH	AT	7613008	2021/10/01	2021/10/04	Surinder Rai
Orthophosphate	KONE	7613566	N/A	2021/10/04	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7613565	N/A	2021/10/04	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

TEST SUMMARY

BV Labs ID: QUK164
Sample ID: BH7B/MW
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7612994	N/A	2021/10/04	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/05	Automated Statchk
Chloride by Automated Colourimetry	KONE	7613553	N/A	2021/10/04	Alina Dobreanu
Conductivity	AT	7613005	N/A	2021/10/04	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7616559	N/A	2021/10/04	Julianna Castiglione
Hardness (calculated as CaCO3)		7610016	N/A	2021/10/04	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	7610018	N/A	2021/10/05	Automated Statchk
Anion and Cation Sum	CALC	7610019	N/A	2021/10/05	Automated Statchk
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7613663	N/A	2021/10/04	Chandra Nandlal
pH	AT	7613008	2021/10/01	2021/10/04	Surinder Rai
Orthophosphate	KONE	7613566	N/A	2021/10/04	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7613565	N/A	2021/10/04	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk

BV Labs ID: QUK165
Sample ID: BH9/MW
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7612994	N/A	2021/10/04	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/05	Automated Statchk
Chloride by Automated Colourimetry	KONE	7613553	N/A	2021/10/04	Alina Dobreanu
Conductivity	AT	7613005	N/A	2021/10/04	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	7616559	N/A	2021/10/05	Julianna Castiglione
Hardness (calculated as CaCO3)		7610016	N/A	2021/10/04	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	7610018	N/A	2021/10/05	Automated Statchk
Anion and Cation Sum	CALC	7610019	N/A	2021/10/05	Automated Statchk
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7613663	N/A	2021/10/04	Chandra Nandlal
pH	AT	7613008	2021/10/01	2021/10/04	Surinder Rai
Orthophosphate	KONE	7613566	N/A	2021/10/04	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7613565	N/A	2021/10/04	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

TEST SUMMARY

BV Labs ID: QUK165 Dup
Sample ID: BH9/MW
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti

BV Labs ID: QUK166
Sample ID: SW1
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7612994	N/A	2021/10/04	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/05	Automated Statchk
Chloride by Automated Colourimetry	KONE	7611552	N/A	2021/10/01	Alina Dobreanu
Conductivity	AT	7613005	N/A	2021/10/04	Surinder Rai
Hardness (calculated as CaCO3)		7610015	N/A	2021/10/05	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7614963	2021/10/02	2021/10/04	Meghaben Patel
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	7616141	N/A	2021/10/05	Nan Raykha
Total Ammonia-N	LACH/NH4	7610470	N/A	2021/10/01	Viorica Rotaru
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7610949	N/A	2021/10/01	Chandra Nandlal
pH	AT	7613008	2021/10/01	2021/10/04	Surinder Rai
Orthophosphate	KONE	7611563	N/A	2021/10/01	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7611557	N/A	2021/10/01	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7613672	N/A	2021/10/05	Julianna Castiglione
Total Phosphorus (Colourimetric)	LACH/P	7616206	2021/10/04	2021/10/05	Shivani Shivani
Turbidity	AT	7610722	N/A	2021/10/01	Neil Dassanayake

BV Labs ID: QUK166 Dup
Sample ID: SW1
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7612994	N/A	2021/10/04	Surinder Rai
Conductivity	AT	7613005	N/A	2021/10/04	Surinder Rai
Lab Filtered Metals Analysis by ICP	ICP	7614963	2021/10/02	2021/10/04	Meghaben Patel
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7610949	N/A	2021/10/01	Chandra Nandlal
pH	AT	7613008	2021/10/01	2021/10/04	Surinder Rai

BV Labs ID: QUK167
Sample ID: SW2
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7611647	N/A	2021/10/01	Surinder Rai

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

TEST SUMMARY

BV Labs ID: QUK167
Sample ID: SW2
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/04	Automated Statchk
Chloride by Automated Colourimetry	KONE	7611552	N/A	2021/10/01	Alina Dobreanu
Conductivity	AT	7611593	N/A	2021/10/01	Surinder Rai
Hardness (calculated as CaCO3)		7610016	N/A	2021/10/05	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7614963	2021/10/02	2021/10/04	Meghaben Patel
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	7616141	N/A	2021/10/05	Nan Raykha
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7610949	N/A	2021/10/01	Chandra Nandlal
pH	AT	7611646	2021/09/30	2021/10/01	Surinder Rai
Orthophosphate	KONE	7611563	N/A	2021/10/01	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7611557	N/A	2021/10/01	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7613672	N/A	2021/10/05	Julianna Castiglione
Total Phosphorus (Colourimetric)	LACH/P	7616206	2021/10/04	2021/10/05	Shivani Shivani
Turbidity	AT	7610722	N/A	2021/10/01	Neil Dassanayake

BV Labs ID: QUK167 Dup
Sample ID: SW2
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Turbidity	AT	7610722	N/A	2021/10/01	Neil Dassanayake

BV Labs ID: QUK168
Sample ID: SW4
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7611678	N/A	2021/10/01	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/01	Automated Statchk
Chloride by Automated Colourimetry	KONE	7611552	N/A	2021/10/01	Alina Dobreanu
Conductivity	AT	7611684	N/A	2021/10/01	Surinder Rai
Hardness (calculated as CaCO3)		7610015	N/A	2021/10/05	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7614094	2021/10/02	2021/10/04	Meghaben Patel
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	7624000	N/A	2021/10/08	Arefa Dabhad
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7610949	N/A	2021/10/01	Chandra Nandlal
pH	AT	7611688	2021/09/30	2021/10/01	Surinder Rai
Orthophosphate	KONE	7611563	N/A	2021/10/01	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

TEST SUMMARY

BV Labs ID: QUK168
Sample ID: SW4
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7611557	N/A	2021/10/01	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7613672	N/A	2021/10/05	Julianna Castiglione
Total Phosphorus (Colourimetric)	LACH/P	7616206	2021/10/04	2021/10/05	Shivani Shivani
Turbidity	AT	7610722	N/A	2021/10/01	Neil Dassanayake

BV Labs ID: QUK168 Dup
Sample ID: SW4
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7611678	N/A	2021/10/01	Surinder Rai
Conductivity	AT	7611684	N/A	2021/10/01	Surinder Rai
pH	AT	7611688	2021/09/30	2021/10/01	Surinder Rai

BV Labs ID: QUK169
Sample ID: SW5
Matrix: Water

Collected: 2021/09/28
Shipped:
Received: 2021/09/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	7611647	N/A	2021/10/01	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	7610010	N/A	2021/10/04	Automated Statchk
Chloride by Automated Colourimetry	KONE	7611552	N/A	2021/10/01	Alina Dobreanu
Conductivity	AT	7611593	N/A	2021/10/01	Surinder Rai
Hardness (calculated as CaCO3)		7610016	N/A	2021/10/05	Automated Statchk
Lab Filtered Metals Analysis by ICP	ICP	7614094	2021/10/02	2021/10/04	Meghaben Patel
Lab Filtered Metals by ICPMS	ICP/MS	7614958	2021/10/02	2021/10/04	Prempal Bhatti
Total Metals Analysis by ICPMS	ICP/MS	7616141	N/A	2021/10/05	Nan Raykha
Total Ammonia-N	LACH/NH4	7616218	N/A	2021/10/04	Amanpreet Sappal
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	7610949	N/A	2021/10/01	Chandra Nandlal
pH	AT	7611646	2021/09/30	2021/10/01	Surinder Rai
Orthophosphate	KONE	7611563	N/A	2021/10/01	Avneet Kour Sudan
Sat. pH and Langelier Index (@ 20C)	CALC	7610013	N/A	2021/10/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	7610014	N/A	2021/10/05	Automated Statchk
Sulphate by Automated Colourimetry	KONE	7611557	N/A	2021/10/01	Avneet Kour Sudan
Total Dissolved Solids (TDS calc)	CALC	7610017	N/A	2021/10/05	Automated Statchk
Total Organic Carbon (TOC)	TOCV/NDIR	7613672	N/A	2021/10/05	Julianna Castiglione
Total Phosphorus (Colourimetric)	LACH/P	7616206	2021/10/04	2021/10/05	Shivani Shivani
Turbidity	AT	7610722	N/A	2021/10/01	Neil Dassanayake

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

GENERAL COMMENTS

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

Package 1	1.0°C
Package 2	2.7°C

Results relate only to the items tested.

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7610470	Total Ammonia-N	2021/10/01	99	75 - 125	99	80 - 120	<0.050	mg/L	NC	20		
7610722	Turbidity	2021/10/01			96	85 - 115	<0.1	NTU	6.9	20		
7610949	Nitrate (N)	2021/10/01	86	80 - 120	94	80 - 120	<0.10	mg/L	NC	20		
7610949	Nitrite (N)	2021/10/01	99	80 - 120	104	80 - 120	<0.010	mg/L	NC	20		
7611552	Dissolved Chloride (Cl-)	2021/10/01	NC	80 - 120	105	80 - 120	<1.0	mg/L	1.5	20		
7611557	Dissolved Sulphate (SO4)	2021/10/01	101	75 - 125	104	80 - 120	<1.0	mg/L	0.41	20		
7611563	Orthophosphate (P)	2021/10/01	112	75 - 125	100	80 - 120	<0.010	mg/L	NC	25		
7611593	Conductivity	2021/10/01			99	85 - 115	<1.0	umho/cm	0.62	25		
7611646	pH	2021/10/01			102	98 - 103			0.95	N/A		
7611647	Alkalinity (Total as CaCO3)	2021/10/01			96	85 - 115	<1.0	mg/L	0.40	20		
7611678	Alkalinity (Total as CaCO3)	2021/10/01			97	85 - 115	<1.0	mg/L	1.0	20		
7611684	Conductivity	2021/10/01			101	85 - 115	<1.0	umho/cm	1.8	25		
7611688	pH	2021/10/01			102	98 - 103			0.11	N/A		
7612994	Alkalinity (Total as CaCO3)	2021/10/04			95	85 - 115	<1.0	mg/L	1.3	20		
7613005	Conductivity	2021/10/04			101	85 - 115	<1.0	umho/cm	0.084	25		
7613008	pH	2021/10/04			102	98 - 103			2.4	N/A		
7613553	Dissolved Chloride (Cl-)	2021/10/04	NC	80 - 120	102	80 - 120	<1.0	mg/L	6.6	20		
7613565	Dissolved Sulphate (SO4)	2021/10/04	95	75 - 125	101	80 - 120	<1.0	mg/L	0.58	20		
7613566	Orthophosphate (P)	2021/10/04	114	75 - 125	99	80 - 120	<0.010	mg/L	NC	25		
7613663	Nitrate (N)	2021/10/04	101	80 - 120	106	80 - 120	<0.10	mg/L	NC	20		
7613663	Nitrite (N)	2021/10/04	101	80 - 120	103	80 - 120	<0.010	mg/L	NC	20		
7613672	Total Organic Carbon (TOC)	2021/10/05	101	80 - 120	96	80 - 120	<0.40	mg/L	0.17	20		
7614094	Dissolved Calcium (Ca)	2021/10/05	NC	80 - 120	99	80 - 120	<0.05	mg/L	1.5	25		
7614094	Dissolved Magnesium (Mg)	2021/10/05	113	80 - 120	97	80 - 120	<0.05	mg/L	1.3	25		
7614094	Dissolved Potassium (K)	2021/10/05	106	80 - 120	99	80 - 120	<1	mg/L	1.1	25		
7614094	Dissolved Sodium (Na)	2021/10/05	NC	80 - 120	98	80 - 120	<0.5	mg/L	0.16	25		
7614958	Dissolved Aluminum (Al)	2021/10/04	101	80 - 120	107	80 - 120	<4.9	ug/L	14	20		
7614958	Dissolved Antimony (Sb)	2021/10/04	106	80 - 120	106	80 - 120	<0.50	ug/L	1.2	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7614958	Dissolved Arsenic (As)	2021/10/04	101	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
7614958	Dissolved Barium (Ba)	2021/10/04	104	80 - 120	104	80 - 120	<2.0	ug/L	6.8	20		
7614958	Dissolved Beryllium (Be)	2021/10/04	100	80 - 120	99	80 - 120	<0.40	ug/L	NC	20		
7614958	Dissolved Bismuth (Bi)	2021/10/04	101	80 - 120	103	80 - 120	<1.0	ug/L				
7614958	Dissolved Boron (B)	2021/10/04	98	80 - 120	96	80 - 120	<10	ug/L	0.47	20		
7614958	Dissolved Cadmium (Cd)	2021/10/04	103	80 - 120	103	80 - 120	<0.090	ug/L	NC	20		
7614958	Dissolved Calcium (Ca)	2021/10/04	96	80 - 120	104	80 - 120	<200	ug/L	0.15	20		
7614958	Dissolved Chromium (Cr)	2021/10/04	100	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
7614958	Dissolved Cobalt (Co)	2021/10/04	103	80 - 120	99	80 - 120	<0.50	ug/L	NC	20		
7614958	Dissolved Copper (Cu)	2021/10/04	98	80 - 120	98	80 - 120	<0.90	ug/L	2.3	20		
7614958	Dissolved Iron (Fe)	2021/10/04	102	80 - 120	102	80 - 120	<100	ug/L	NC	20		
7614958	Dissolved Lead (Pb)	2021/10/04	96	80 - 120	100	80 - 120	<0.50	ug/L	NC	20		
7614958	Dissolved Lithium (Li)	2021/10/04	106	80 - 120	108	80 - 120	<5.0	ug/L				
7614958	Dissolved Magnesium (Mg)	2021/10/04	101	80 - 120	102	80 - 120	<50	ug/L	1.4	20		
7614958	Dissolved Manganese (Mn)	2021/10/04	104	80 - 120	104	80 - 120	<2.0	ug/L	NC	20		
7614958	Dissolved Molybdenum (Mo)	2021/10/04	104	80 - 120	103	80 - 120	<0.50	ug/L	1.1	20		
7614958	Dissolved Nickel (Ni)	2021/10/04	98	80 - 120	98	80 - 120	<1.0	ug/L	11	20		
7614958	Dissolved Phosphorus (P)	2021/10/04	105	80 - 120	116	80 - 120	<100	ug/L	NC	20		
7614958	Dissolved Potassium (K)	2021/10/04	104	80 - 120	105	80 - 120	<200	ug/L	0.67	20		
7614958	Dissolved Selenium (Se)	2021/10/04	97	80 - 120	101	80 - 120	<2.0	ug/L	NC	20		
7614958	Dissolved Silicon (Si)	2021/10/04	100	80 - 120	104	80 - 120	<50	ug/L	0.55	20		
7614958	Dissolved Silver (Ag)	2021/10/04	101	80 - 120	102	80 - 120	<0.090	ug/L	NC	20		
7614958	Dissolved Sodium (Na)	2021/10/04	97	80 - 120	101	80 - 120	<100	ug/L	2.2	20		
7614958	Dissolved Strontium (Sr)	2021/10/04	103	80 - 120	101	80 - 120	<1.0	ug/L	0.83	20		
7614958	Dissolved Tellurium (Te)	2021/10/04	107	80 - 120	103	80 - 120	<1.0	ug/L				
7614958	Dissolved Thallium (Tl)	2021/10/04	99	80 - 120	100	80 - 120	<0.050	ug/L	NC	20		
7614958	Dissolved Tin (Sn)	2021/10/04	105	80 - 120	105	80 - 120	<1.0	ug/L				
7614958	Dissolved Titanium (Ti)	2021/10/04	99	80 - 120	102	80 - 120	<5.0	ug/L	NC	20		
7614958	Dissolved Tungsten (W)	2021/10/04	100	80 - 120	98	80 - 120	<1.0	ug/L				
7614958	Dissolved Uranium (U)	2021/10/04	99	80 - 120	100	80 - 120	<0.10	ug/L	4.5	20		
7614958	Dissolved Vanadium (V)	2021/10/04	102	80 - 120	101	80 - 120	<0.50	ug/L	NC	20		

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7614958	Dissolved Zinc (Zn)	2021/10/04	101	80 - 120	101	80 - 120	<5.0	ug/L	1.9	20		
7614958	Dissolved Zirconium (Zr)	2021/10/04	111	80 - 120	110	80 - 120	<1.0	ug/L				
7614963	Dissolved Calcium (Ca)	2021/10/04	97	80 - 120	100	80 - 120	0.05, RDL=0.05	mg/L	0.79	25		
7614963	Dissolved Magnesium (Mg)	2021/10/04	98	80 - 120	99	80 - 120	<0.05	mg/L	0.94	25		
7614963	Dissolved Potassium (K)	2021/10/04	99	80 - 120	100	80 - 120	<1	mg/L	1.1	25		
7614963	Dissolved Sodium (Na)	2021/10/04	98	80 - 120	99	80 - 120	<0.5	mg/L	0.79	25		
7616141	Total Aluminum (Al)	2021/10/05	104	80 - 120	105	80 - 120	<4.9	ug/L	3.7	20		
7616141	Total Antimony (Sb)	2021/10/05	108	80 - 120	103	80 - 120	<0.50	ug/L	6.3	20		
7616141	Total Arsenic (As)	2021/10/05	105	80 - 120	102	80 - 120	<1.0	ug/L	0.52	20		
7616141	Total Barium (Ba)	2021/10/05	103	80 - 120	103	80 - 120	<2.0	ug/L	0.42	20		
7616141	Total Beryllium (Be)	2021/10/05	105	80 - 120	100	80 - 120	<0.40	ug/L	NC	20		
7616141	Total Boron (B)	2021/10/05	100	80 - 120	97	80 - 120	<10	ug/L	1.4	20		
7616141	Total Cadmium (Cd)	2021/10/05	103	80 - 120	100	80 - 120	<0.090	ug/L	NC	20		
7616141	Total Calcium (Ca)	2021/10/05	96	80 - 120	101	80 - 120	<200	ug/L	0.18	20		
7616141	Total Chromium (Cr)	2021/10/05	103	80 - 120	101	80 - 120	<5.0	ug/L	NC	20		
7616141	Total Cobalt (Co)	2021/10/05	105	80 - 120	102	80 - 120	<0.50	ug/L	NC	20		
7616141	Total Copper (Cu)	2021/10/05	108	80 - 120	108	80 - 120	<0.90	ug/L	NC	20		
7616141	Total Iron (Fe)	2021/10/05	102	80 - 120	100	80 - 120	<100	ug/L	12	20		
7616141	Total Lead (Pb)	2021/10/05	97	80 - 120	94	80 - 120	<0.50	ug/L	NC	20		
7616141	Total Magnesium (Mg)	2021/10/05	101	80 - 120	104	80 - 120	<50	ug/L	4.3	20		
7616141	Total Manganese (Mn)	2021/10/05	103	80 - 120	102	80 - 120	<2.0	ug/L	0.16	20		
7616141	Total Molybdenum (Mo)	2021/10/05	106	80 - 120	103	80 - 120	<0.50	ug/L	8.5	20		
7616141	Total Nickel (Ni)	2021/10/05	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20		
7616141	Total Potassium (K)	2021/10/05	104	80 - 120	105	80 - 120	<200	ug/L	1.1	20		
7616141	Total Selenium (Se)	2021/10/05	105	80 - 120	107	80 - 120	<2.0	ug/L	NC	20		
7616141	Total Silicon (Si)	2021/10/05	100	80 - 120	101	80 - 120	<50	ug/L	3.4	20		
7616141	Total Silver (Ag)	2021/10/05	103	80 - 120	102	80 - 120	<0.090	ug/L	NC	20		
7616141	Total Sodium (Na)	2021/10/05	105	80 - 120	102	80 - 120	<100	ug/L	5.2	20		
7616141	Total Strontium (Sr)	2021/10/05	97	80 - 120	96	80 - 120	<1.0	ug/L	1.8	20		
7616141	Total Thallium (Tl)	2021/10/05	97	80 - 120	92	80 - 120	<0.050	ug/L	NC	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7616141	Total Titanium (Ti)	2021/10/05	98	80 - 120	100	80 - 120	<5.0	ug/L	NC	20		
7616141	Total Tungsten (W)	2021/10/05	109	80 - 120	103	80 - 120	<1.0	ug/L	NC	20		
7616141	Total Uranium (U)	2021/10/05	92	80 - 120	90	80 - 120	<0.10	ug/L	0.88	20		
7616141	Total Vanadium (V)	2021/10/05	106	80 - 120	102	80 - 120	<0.50	ug/L	12	20		
7616141	Total Zinc (Zn)	2021/10/05	104	80 - 120	105	80 - 120	<5.0	ug/L	3.1	20		
7616141	Total Zirconium (Zr)	2021/10/05	111	80 - 120	104	80 - 120	<1.0	ug/L	NC	20		
7616206	Total Phosphorus	2021/10/05	101	80 - 120	105	80 - 120	<0.004	mg/L	NC	20	90	80 - 120
7616218	Total Ammonia-N	2021/10/04	100	75 - 125	100	80 - 120	<0.050	mg/L	NC	20		
7616559	Dissolved Organic Carbon	2021/10/04	95	80 - 120	97	80 - 120	<0.40	mg/L	0.040	20		
7617408	Dissolved Organic Carbon	2021/10/05	101	80 - 120	98	80 - 120	<0.40	mg/L	2.8	20		
7624000	Total Aluminum (Al)	2021/10/08	89	80 - 120	103	80 - 120	<4.9	ug/L				
7624000	Total Antimony (Sb)	2021/10/08	94	80 - 120	105	80 - 120	<0.50	ug/L				
7624000	Total Arsenic (As)	2021/10/08	89	80 - 120	101	80 - 120	<1.0	ug/L				
7624000	Total Barium (Ba)	2021/10/08	87	80 - 120	99	80 - 120	<2.0	ug/L				
7624000	Total Beryllium (Be)	2021/10/08	88	80 - 120	99	80 - 120	<0.40	ug/L				
7624000	Total Boron (B)	2021/10/08	66 (1)	80 - 120	90	80 - 120	<10	ug/L				
7624000	Total Cadmium (Cd)	2021/10/08	90	80 - 120	102	80 - 120	<0.090	ug/L	NC	20		
7624000	Total Calcium (Ca)	2021/10/08	67 (1)	80 - 120	105	80 - 120	<200	ug/L				
7624000	Total Chromium (Cr)	2021/10/08	85	80 - 120	97	80 - 120	<5.0	ug/L	NC	20		
7624000	Total Cobalt (Co)	2021/10/08	88	80 - 120	100	80 - 120	<0.50	ug/L				
7624000	Total Copper (Cu)	2021/10/08	87	80 - 120	98	80 - 120	<0.90	ug/L	NC	20		
7624000	Total Iron (Fe)	2021/10/08	88	80 - 120	99	80 - 120	<100	ug/L				
7624000	Total Lead (Pb)	2021/10/08	88	80 - 120	102	80 - 120	<0.50	ug/L	NC	20		
7624000	Total Magnesium (Mg)	2021/10/08	82	80 - 120	101	80 - 120	<50	ug/L				
7624000	Total Manganese (Mn)	2021/10/08	82	80 - 120	98	80 - 120	<2.0	ug/L				
7624000	Total Molybdenum (Mo)	2021/10/08	86	80 - 120	96	80 - 120	<0.50	ug/L				
7624000	Total Nickel (Ni)	2021/10/08	87	80 - 120	99	80 - 120	<1.0	ug/L	15	20		
7624000	Total Potassium (K)	2021/10/08	86	80 - 120	99	80 - 120	<200	ug/L				
7624000	Total Selenium (Se)	2021/10/08	91	80 - 120	107	80 - 120	<2.0	ug/L				
7624000	Total Silicon (Si)	2021/10/08	89	80 - 120	102	80 - 120	<50	ug/L				
7624000	Total Silver (Ag)	2021/10/08	89	80 - 120	99	80 - 120	<0.090	ug/L				

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
7624000	Total Sodium (Na)	2021/10/08	59 (1)	80 - 120	101	80 - 120	<100	ug/L				
7624000	Total Strontium (Sr)	2021/10/08	64 (1)	80 - 120	98	80 - 120	<1.0	ug/L				
7624000	Total Thallium (Tl)	2021/10/08	90	80 - 120	101	80 - 120	<0.050	ug/L				
7624000	Total Titanium (Ti)	2021/10/08	85	80 - 120	100	80 - 120	<5.0	ug/L				
7624000	Total Tungsten (W)	2021/10/08	88	80 - 120	106	80 - 120	<1.0	ug/L				
7624000	Total Uranium (U)	2021/10/08	89	80 - 120	101	80 - 120	<0.10	ug/L				
7624000	Total Vanadium (V)	2021/10/08	88	80 - 120	99	80 - 120	<0.50	ug/L				
7624000	Total Zinc (Zn)	2021/10/08	90	80 - 120	103	80 - 120	<5.0	ug/L	NC	20		
7624000	Total Zirconium (Zr)	2021/10/08	93	80 - 120	102	80 - 120	<1.0	ug/L				

N/A = Not Applicable

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.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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.

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.

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BV Labs Job #: C1S2764
Report Date: 2021/10/08

exp Services Inc
Client Project #: LON-21008138
Site Location: HUNTER FARM
Sampler Initials: JM

VALIDATION SIGNATURE PAGE

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

Anastassia Hamanov, Scientific Specialist

Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

BV Labs 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 Signature Page.

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Page of

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#28124 exp Services Inc	Company Name:	EXP SERVICES INC.	Quotation #:	B91718	BV Labs Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	HEATHER JAGGARD	P.O. #:			839959
Address:	15701 Robin's Hill Rd Unit 2	Address:		Project:	LON-21008138-AO	COC #:	Project Manager:
	London ON N5V 0A5			Project Name:	HUNTER FARM	C#839959-01-01	Christine Gripton
Tel:	(519) 963-3000 Fax: (519) 963-1152	Tel:		Site #:			
Email:	AP@exp.com, karen.Burke@exp.com, Lo-Ellen.Mitton	Email:	HEATHER.JAGGARD@EXP.COM TASNEEL.MAHAL	Sampled By:	JM		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS 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)? YES

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	RCAp - Comprehensive (Lab Filtered)	RCAP - Surface Water	Lab Filtered Metals by ICPMS	# of Bottles	Comments
1		BH3/MW	21/09/28	1:00PM	GW	No	X		X	3	
2		BH7A/MW	21/09/28	4:00PM	GW	NO	X		X	3	
3		BH7B/MW	~~21/09/28~~ 21/09/28	4:05PM	GW	No	X		X	3	
4		BH9/MW	21/09/28	4:30PM	GW	No	X		X	3	
5		SW1	21/09/28	2:00PM	SW	No		X	X	5	
6		SW2	21/09/28	11:30AM	SW	No		X	X	5	
7		SW4	21/09/28	4:45PM	SW	No		X	X	5	
8		SW5	21/09/28	6:00PM	SW	No		X	X	5	
9											
10											

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

Regular (Standard) TAT: X
(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 #)*

29-Sep-21 08:30
Christine Gripton
C1S2764

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
TASNEEL MAHAL	21/09/28	5:30PM	Via Fedex for Bar	2021/09/29	8:30	
			KAVITHASELVAN	2021/09/29	17:37	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	0.1, 2/3.3.2	Present		
		Intact		✓

On Ice

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' 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.BVLABS.COM/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.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

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

White: BV Labs Yellow: Client

Appendix K – Water Balance Assessment

6-405 Maple Grove Road | Cambridge, Ontario | Canada
t: +1.519.650.4918 | f: +1.519.650.4603 | exp.com

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Pre-Development Monthly Water Balance

TABLE K1 - PRE-DEVELOPMENT WATER BALANCE CALCULATIONS

AREA A - Drains to the Sandusky Drain	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)	Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)
Agricultural Land	0	111,551	**190,407**	Sandy Loam	B	150	0.6	3.3	-10.0	0.92
Pasture and Shrubs	0	68,966		Sand	A	100	0.8			
Mature Forest	0	2,090		Sandy Loam	B	300	0.8			
Richmond Street	5,460	2,340		Sandy Loam	B	75	0.6			

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Totals
Average Temperature (°C)	-5.6	-4.5	-0.1	6.8	13.1	18.3	20.8	19.7	15.5	9.2	3.4	-2.6	
Total Precipitation (mm/month)	74.2	65.5	71.5	83.4	89.8	91.7	82.7	82.9	103.0	81.3	98.0	87.5	1011.5
Precipitation as rain (mm/month)	24.5	27.1	53.2	83.4	89.8	91.7	82.7	82.9	103.0	81.3	98.0	48.7	
Precipitation as snow (mm/month)	49.7	38.4	18.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.8	
Potential Snow Melt (mm/month)	20.9	32.8	49.1	26.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	
Actual Snow Melt (mm/month)	20.9	32.8	49.1	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	
Snow Storage (mm/month)	47.7	53.4	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	
Agricultural Land													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	115.6	90.5	56.3	30.5	16.0	10.0	570.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-32.9	-7.6	46.7	50.8	82.0	58.6	441.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**993**	**1205**	**2264**	**4284**	**7842**	**11445**	**12895**	**10095**	**6280**	**3402**	**1785**	**1116**	**63606**
Estimated Runoff (m^3/month)	**4075**	**5472**	**6402**	**3015**	**870**	**0**	**0**	**0**	**2084**	**2267**	**3659**	**6532**	**34375**
Estimated Infiltration (m^3/month)	**0**	**0**	**2744**	**4523**	**1305**	**0**	**0**	**0**	**3126**	**3400**	**5488**	**0**	**20586**
Pasture and Shrubs													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	114.0	88.6	56.3	30.5	16.0	10.0	566.7
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-31.3	-5.7	46.7	50.8	82.0	58.6	444.8
Estimated Runoff (mm/month)	36.5	49.1	49.2	13.5	3.9	0.0	0.0	0.0	9.3	10.2	16.4	58.6	246.6
Estimated Infiltration (mm/month)	0.0	0.0	32.8	54.1	15.6	0.0	0.0	0.0	37.4	40.6	65.6	0.0	246.1
Estimated Actual Evapotranspiration (m^3/month)	**614**	**745**	**1400**	**2648**	**4848**	**7076**	**7862**	**6110**	**3883**	**2103**	**1103**	**690**	**39083**
Estimated Runoff (m^3/month)	**2519**	**3383**	**3392**	**932**	**269**	**0**	**0**	**0**	**644**	**701**	**1131**	**4038**	**17010**
Estimated Infiltration (m^3/month)	**0**	**0**	**2262**	**3729**	**1076**	**0**	**0**	**0**	**2577**	**2803**	**4524**	**0**	**16970**
Mature Forest													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	117.2	92.6	56.3	30.5	16.0	10.0	573.9
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-34.5	-9.7	46.7	50.8	82.0	58.6	437.6
Estimated Runoff (mm/month)	36.5	49.1	49.2	13.5	3.9	0.0	0.0	0.0	9.3	10.2	16.4	58.6	246.6
Estimated Infiltration (mm/month)	0.0	0.0	32.8	54.1	15.6	0.0	0.0	0.0	37.4	40.6	65.6	0.0	246.1
Estimated Actual Evapotranspiration (m^3/month)	**19**	**23**	**42**	**80**	**147**	**214**	**245**	**194**	**118**	**64**	**33**	**21**	**1199**
Estimated Runoff (m^3/month)	**76**	**103**	**103**	**28**	**8**	**0**	**0**	**0**	**20**	**21**	**34**	**122**	**515**
Estimated Infiltration (m^3/month)	**0**	**0**	**69**	**113**	**33**	**0**	**0**	**0**	**78**	**85**	**137**	**0**	**514**
Richmond Street (pervious)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**21**	**25**	**48**	**90**	**165**	**240**	**263**	**203**	**132**	**71**	**37**	**23**	**1318**
Estimated Runoff (m^3/month)	**85**	**115**	**134**	**63**	**18**	**0**	**0**	**0**	**44**	**48**	**77**	**137**	**721**
Estimated Infiltration (m^3/month)	**0**	**0**	**58**	**95**	**27**	**0**	**0**	**0**	**66**	**71**	**115**	**0**	**432**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Pre-Development Monthly Water Balance

IMPERVIOUS AREAS													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**45**	**59**	**101**	**104**	**88**	**90**	**81**	**81**	**101**	**80**	**96**	**67**	**994**
Estimated Runoff (m^3/month)	**203**	**268**	**458**	**474**	**402**	**411**	**370**	**371**	**461**	**364**	**439**	**307**	**4529**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AREA A TOTALS													
Estimated Actual Evapotranspiration (m^3/month)	**1691**	**2056**	**3855**	**7206**	**13090**	**19066**	**21346**	**16684**	**10514**	**5721**	**3055**	**1917**	**106201**
Estimated Runoff (m^3/month)	**6959**	**9341**	**10489**	**4514**	**1568**	**411**	**370**	**371**	**3252**	**3400**	**5340**	**11136**	**57150**
Estimated Infiltration (m^3/month)	**0**	**0**	**5131**	**8460**	**2441**	**0**	**0**	**0**	**5846**	**6359**	**10265**	**0**	**38502**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Pre-Development Monthly Water Balance

AREA B - Drains to Wetland C	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)	Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)
Agricultural Land	0	10,005	**71,714**	Sandy Loam	B	150	0.6	3.3	-10.0	0.92
Pasture and Shrubs	0	14,552		Sandy Loam	B	150	0.8			
Mature Forest		13,804		Sandy Loam	B	300	0.7			
Urban Lawn/Grassed Area		33,352		Sandy Loam	B	75	0.6			

Agricultural Land	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**Totals**
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	115.6	90.5	56.3	30.5	16.0	10.0	570.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-32.9	-7.6	46.7	50.8	82.0	58.6	441.3
Initial Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**89**	**108**	**203**	**384**	**703**	**1027**	**1157**	**905**	**563**	**305**	**160**	**100**	**5705**
Estimated Runoff (m^3/month)	**365**	**491**	**574**	**270**	**78**	**0**	**0**	**0**	**187**	**203**	**328**	**586**	**3083**
Estimated Infiltration (m^3/month)	**0**	**0**	**246**	**406**	**117**	**0**	**0**	**0**	**280**	**305**	**492**	**0**	**1846**

Mature Forest													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	117.2	92.6	56.3	30.5	16.0	10.0	573.9
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-34.5	-9.7	46.7	50.8	82.0	58.6	437.6
Estimated Runoff (mm/month)	36.5	49.1	53.3	20.3	5.9	0.0	0.0	0.0	14.0	15.2	24.6	58.6	277.4
Estimated Infiltration (mm/month)	0.0	0.0	28.7	47.3	13.7	0.0	0.0	0.0	32.7	35.6	57.4	0.0	215.3
Estimated Actual Evapotranspiration (m^3/month)	**123**	**149**	**280**	**530**	**970**	**1416**	**1618**	**1278**	**777**	**421**	**221**	**138**	**7922**
Estimated Runoff (m^3/month)	**504**	**677**	**736**	**280**	**81**	**0**	**0**	**0**	**193**	**210**	**340**	**808**	**3829**
Estimated Infiltration (m^3/month)	**0**	**0**	**396**	**653**	**188**	**0**	**0**	**0**	**451**	**491**	**792**	**0**	**2972**

Urban Lawn/Grassed Area													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**297**	**360**	**677**	**1281**	**2345**	**3422**	**3745**	**2895**	**1878**	**1017**	**534**	**334**	**18784**
Estimated Runoff (m^3/month)	**1218**	**1636**	**1914**	**902**	**260**	**0**	**0**	**0**	**623**	**678**	**1094**	**1953**	**10278**
Estimated Infiltration (m^3/month)	**0**	**0**	**820**	**1352**	**390**	**0**	**0**	**0**	**935**	**1017**	**1641**	**0**	**6155**

Pasture and Shrubs													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	115.6	90.5	56.3	30.5	16.0	10.0	570.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-32.9	-7.6	46.7	50.8	82.0	58.6	441.3
Estimated Runoff (mm/month)	36.5	49.1	49.2	13.5	3.9	0.0	0.0	0.0	9.3	10.2	16.4	58.6	246.6
Estimated Infiltration (mm/month)	0.0	0.0	32.8	54.1	15.6	0.0	0.0	0.0	37.4	40.6	65.6	0.0	246.1
Estimated Actual Evapotranspiration (m^3/month)	**130**	**157**	**295**	**559**	**1023**	**1493**	**1682**	**1317**	**819**	**444**	**233**	**146**	**8298**
Estimated Runoff (m^3/month)	**532**	**714**	**716**	**197**	**57**	**0**	**0**	**0**	**136**	**148**	**239**	**852**	**3589**
Estimated Infiltration (m^3/month)	**0**	**0**	**477**	**787**	**227**	**0**	**0**	**0**	**544**	**591**	**955**	**0**	**3581**
AREA B TOTALS													
Estimated Actual Evapotranspiration (m^3/month)	**638**	**775**	**1456**	**2754**	**5041**	**7358**	**8202**	**6396**	**4037**	**2187**	**1147**	**717**	**40709**
Estimated Runoff (m^3/month)	**2619**	**3518**	**3940**	**1649**	**476**	**0**	**0**	**0**	**1139**	**1239**	**2000**	**4199**	**20779**
Estimated Infiltration (m^3/month)	**0**	**0**	**1940**	**3198**	**923**	**0**	**0**	**0**	**2210**	**2404**	**3880**	**0**	**14554**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Pre-Development Monthly Water Balance

AREA C - Drains to the Southeast (Ida Street)	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)		Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)		
Urban Lawn/Grassed Area	0	18,802	21,368	Sandy Loam	B	75		0.6	3.3	-10.0	0.92		
Mature Forest	0	2,566		Sandy Loam	B	300		0.7					
Urban Lawn/Grassed Area													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**167**	**203**	**382**	**722**	**1322**	**1929**	**2111**	**1632**	**1059**	**573**	**301**	**188**	**10589**
Estimated Runoff (m^3/month)	**687**	**922**	**1079**	**508**	**147**	**0**	**0**	**0**	**351**	**382**	**617**	**1101**	**5794**
Estimated Infiltration (m^3/month)	**0**	**0**	**462**	**762**	**220**	**0**	**0**	**0**	**527**	**573**	**925**	**0**	**3470**
Mature Forest													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	117.2	92.6	56.3	30.5	16.0	10.0	573.9
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-34.5	-9.7	46.7	50.8	82.0	58.6	437.6
Estimated Runoff (mm/month)	36.5	49.1	53.3	20.3	5.9	0.0	0.0	0.0	14.0	15.2	24.6	58.6	277.4
Estimated Infiltration (mm/month)	0.0	0.0	28.7	47.3	13.7	0.0	0.0	0.0	32.7	35.6	57.4	0.0	215.3
Estimated Actual Evapotranspiration (m^3/month)	**23**	**28**	**52**	**99**	**180**	**263**	**301**	**238**	**144**	**78**	**41**	**26**	**1472**
Estimated Runoff (m^3/month)	**94**	**126**	**137**	**52**	**15**	**0**	**0**	**0**	**36**	**39**	**63**	**150**	**712**
Estimated Infiltration (m^3/month)	**0**	**0**	**74**	**121**	**35**	**0**	**0**	**0**	**84**	**91**	**147**	**0**	**552**
AREA C TOTALS													
Estimated Actual Evapotranspiration (m^3/month)	**190**	**231**	**434**	**821**	**1502**	**2192**	**2412**	**1870**	**1203**	**652**	**342**	**214**	**12062**
Estimated Runoff (m^3/month)	**780**	**1048**	**1216**	**560**	**162**	**0**	**0**	**0**	**387**	**421**	**680**	**1251**	**6506**
Estimated Infiltration (m^3/month)	**0**	**0**	**536**	**884**	**255**	**0**	**0**	**0**	**611**	**664**	**1072**	**0**	**4022**

Project Name: Hunter Farm
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Client: Auburn Developments

Pre-Development Monthly Water Balance

AREA D - Drains to the Southwest (into the Sandusky Drain)	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)		Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)		
Agricultural Land	3473.9	143,421	**169,611**	Sandy Loam	B	150		0.6	3.3	-10.0	0.92		
Urban Lawn/Grassed Area	0	22,716		Sandy Loam	B	75		0.6					
Agricultural Land													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	115.6	90.5	56.3	30.5	16.0	10.0	570.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-32.9	-7.6	46.7	50.8	82.0	58.6	441.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**1276**	**1549**	**2911**	**5507**	**10083**	**14715**	**16580**	**12980**	**8075**	**4374**	**2295**	**1434**	**81779**
Estimated Runoff (m^3/month)	**5239**	**7036**	**8231**	**3877**	**1119**	**0**	**0**	**0**	**2679**	**2914**	**4704**	**8398**	**44196**
Estimated Infiltration (m^3/month)	**0**	**0**	**3527**	**5816**	**1678**	**0**	**0**	**0**	**4019**	**4371**	**7056**	**0**	**26467**
Urban Lawn/Grassed Area													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**202**	**245**	**461**	**872**	**1597**	**2331**	**2551**	**1972**	**1279**	**693**	**363**	**227**	**12793**
Estimated Runoff (m^3/month)	**830**	**1114**	**1304**	**614**	**177**	**0**	**0**	**0**	**424**	**462**	**745**	**1330**	**7000**
Estimated Infiltration (m^3/month)	**0**	**0**	**559**	**921**	**266**	**0**	**0**	**0**	**636**	**692**	**1118**	**0**	**4192**
Impervious													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**28**	**37**	**64**	**66**	**56**	**57**	**52**	**52**	**64**	**51**	**61**	**43**	**632**
Estimated Runoff (m^3/month)	**129**	**171**	**291**	**302**	**256**	**261**	**236**	**236**	**293**	**232**	**279**	**195**	**2881**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AREA D TOTALS													
Estimated Actual Evapotranspiration (m^3/month)	**1507**	**1832**	**3437**	**6446**	**11736**	**17103**	**19182**	**15003**	**9418**	**5118**	**2719**	**1704**	**95205**
Estimated Runoff (m^3/month)	**6198**	**8321**	**9826**	**4793**	**1552**	**261**	**236**	**236**	**3397**	**3607**	**5728**	**9923**	**54078**
Estimated Infiltration (m^3/month)	**0**	**0**	**4086**	**6737**	**1944**	**0**	**0**	**0**	**4655**	**5064**	**8174**	**0**	**30660**

Project Name: Hunter Farm
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Client: Auburn Developments

Post-Development Monthly Water Balance

TABLE K2 - POST-DEVELOPMENT WATER BALANCE CALCULATIONS

Drainage to the Sandusky Drain Blocks 201-208a	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)	Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)
Low-Medium Density (Urban Lawn)	44782	34,178	**124,600**	Sandy Loam	B	75	0.6	3.3	-10.0	0.92
Open Space/Wetland A and Sandusky Drain (Pasture and Shrubs)	9128	36,512		Sand	A	100	0.8			

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Totals
Average Temperature (°C)	-5.6	-4.5	-0.1	6.8	13.1	18.3	20.8	19.7	15.5	9.2	3.4	-2.6	
Total Precipitation (mm/month)	74.2	65.5	71.5	83.4	89.8	91.7	82.7	82.9	103.0	81.3	98.0	87.5	1011.5
Precipitation as rain (mm/month)	24.5	27.1	53.2	83.4	89.8	91.7	82.7	82.9	103.0	81.3	98.0	48.7	
Precipitation as snow (mm/month)	49.7	38.4	18.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.8	
Potential Snow Melt (mm/month)	20.9	32.8	49.1	26.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	
Actual Snow Melt (mm/month)	20.9	32.8	49.1	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.9	
Snow Storage (mm/month)	47.7	53.4	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.9	
Low-Medium Density (Urban Lawn)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**304**	**369**	**694**	**1312**	**2403**	**3507**	**3838**	**2967**	**1924**	**1042**	**547**	**342**	**19249**
Estimated Runoff (m^3/month)	**1248**	**1677**	**1961**	**924**	**267**	**0**	**0**	**0**	**638**	**694**	**1121**	**2001**	**10532**
Estimated Infiltration (m^3/month)	**0**	**0**	**841**	**1386**	**400**	**0**	**0**	**0**	**958**	**1042**	**1682**	**0**	**6307**
Open Space/Wetland A and Sandusky Drain (Pasture and Shrubs)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	114.0	88.6	56.3	30.5	16.0	10.0	566.7
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-31.3	-5.7	46.7	50.8	82.0	58.6	444.8
Estimated Runoff (mm/month)	36.5	49.1	49.2	13.5	3.9	0.0	0.0	0.0	9.3	10.2	16.4	58.6	246.6
Estimated Infiltration (mm/month)	0.0	0.0	32.8	54.1	15.6	0.0	0.0	0.0	37.4	40.6	65.6	0.0	246.1
Estimated Actual Evapotranspiration (m^3/month)	**325**	**394**	**741**	**1402**	**2567**	**3746**	**4162**	**3235**	**2056**	**1114**	**584**	**365**	**20691**
Estimated Runoff (m^3/month)	**1334**	**1791**	**1796**	**494**	**142**	**0**	**0**	**0**	**341**	**371**	**599**	**2138**	**9005**
Estimated Infiltration (m^3/month)	**0**	**0**	**1197**	**1974**	**570**	**0**	**0**	**0**	**1364**	**1484**	**2395**	**0**	**8984**
Impervious Areas													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**441**	**581**	**993**	**1028**	**871**	**890**	**803**	**804**	**999**	**789**	**951**	**665**	**9815**
Estimated Runoff (m^3/month)	**2008**	**2646**	**4522**	**4685**	**3970**	**4054**	**3656**	**3665**	**4553**	**3594**	**4332**	**3030**	**44715**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL (Blocks 201-208a)													
Estimated Actual Evapotranspiration (m^3/month)	**1070**	**1344**	**2428**	**3743**	**5841**	**8143**	**8803**	**7006**	**4979**	**2945**	**2082**	**1372**	**49756**
Estimated Runoff (m^3/month)	**4590**	**6114**	**8279**	**6102**	**4379**	**4054**	**3656**	**3665**	**5533**	**4659**	**6052**	**7170**	**64252**
Estimated Infiltration (m^3/month)	**0**	**0**	**2038**	**3360**	**969**	**0**	**0**	**0**	**2322**	**2526**	**4077**	**0**	**15291**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Post-Development Monthly Water Balance

Drainage to Wetland C Blocks A210 and A212	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)		Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)		
Low Density (Urban Lawn)	12,842	17,318	**55,700**	Sandy Loam	B	75		0.6	3.3	-10.0	0.92		
Open Space (Pasture and Shrubs)	5,108	20,432		Sandy Loam	B	150		0.8					
Low Density (Urban Lawn)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**154**	**187**	**352**	**665**	**1217**	**1777**	**1945**	**1503**	**975**	**528**	**277**	**173**	**9753**
Estimated Runoff (m^3/month)	**633**	**850**	**994**	**468**	**135**	**0**	**0**	**0**	**324**	**352**	**568**	**1014**	**5337**
Estimated Infiltration (m^3/month)	**0**	**0**	**426**	**702**	**203**	**0**	**0**	**0**	**485**	**528**	**852**	**0**	**3196**
Open Space/Wetland C (Pasture and Shrubs)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	115.6	90.5	56.3	30.5	16.0	10.0	570.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-32.9	-7.6	46.7	50.8	82.0	58.6	441.3
Estimated Runoff (mm/month)	36.5	49.1	49.2	13.5	3.9	0.0	0.0	0.0	9.3	10.2	16.4	58.6	246.6
Estimated Infiltration (mm/month)	0.0	0.0	32.8	54.1	15.6	0.0	0.0	0.0	37.4	40.6	65.6	0.0	246.1
Estimated Actual Evapotranspiration (m^3/month)	**182**	**221**	**415**	**785**	**1436**	**2096**	**2362**	**1849**	**1150**	**623**	**327**	**204**	**11650**
Estimated Runoff (m^3/month)	**746**	**1002**	**1005**	**276**	**80**	**0**	**0**	**0**	**191**	**208**	**335**	**1196**	**5039**
Estimated Infiltration (m^3/month)	**0**	**0**	**670**	**1105**	**319**	**0**	**0**	**0**	**763**	**830**	**1340**	**0**	**5027**
Impervious Areas													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**147**	**193**	**330**	**342**	**290**	**296**	**267**	**268**	**333**	**263**	**317**	**221**	**3268**
Estimated Runoff (m^3/month)	**669**	**881**	**1506**	**1560**	**1322**	**1350**	**1217**	**1220**	**1516**	**1197**	**1442**	**1009**	**14888**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL (Blocks A210 and A212)													
Estimated Actual Evapotranspiration (m^3/month)	**483**	**601**	**1097**	**1792**	**2944**	**4169**	**4574**	**3620**	**2458**	**1414**	**921**	**599**	**24672**
Estimated Runoff (m^3/month)	**2047**	**2733**	**3504**	**2304**	**1537**	**1350**	**1217**	**1220**	**2030**	**1756**	**2346**	**3219**	**25264**
Estimated Infiltration (m^3/month)	**0**	**0**	**1096**	**1807**	**521**	**0**	**0**	**0**	**1249**	**1358**	**2192**	**0**	**8223**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Post-Development Monthly Water Balance

Drainage to the southeast (Ida Street) Block A211	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)		Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)		
Low Density (Urban Lawn)	2970	2,430	5,400	Sandy Loam	B	75		0.6	3.3	-10.0	0.92		
Low Density (Urban Lawn)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**22**	**26**	**49**	**93**	**171**	**249**	**273**	**211**	**137**	**74**	**39**	**24**	**1369**
Estimated Runoff (m^3/month)	**89**	**119**	**139**	**66**	**19**	**0**	**0**	**0**	**45**	**49**	**80**	**142**	**749**
Estimated Infiltration (m^3/month)	**0**	**0**	**60**	**99**	**28**	**0**	**0**	**0**	**68**	**74**	**120**	**0**	**448**
Impervious Areas													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**24**	**32**	**55**	**57**	**48**	**49**	**44**	**44**	**55**	**43**	**52**	**37**	**541**
Estimated Runoff (m^3/month)	**111**	**146**	**249**	**258**	**219**	**223**	**201**	**202**	**251**	**198**	**239**	**167**	**2463**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL (Block A211)													
Estimated Actual Evapotranspiration (m^3/month)	**46**	**58**	**104**	**150**	**219**	**298**	**317**	**255**	**192**	**118**	**91**	**61**	**1909**
Estimated Runoff (m^3/month)	**199**	**265**	**389**	**324**	**238**	**223**	**201**	**202**	**296**	**247**	**318**	**309**	**3212**
Estimated Infiltration (m^3/month)	**0**	**0**	**60**	**99**	**28**	**0**	**0**	**0**	**68**	**74**	**120**	**0**	**448**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Post-Development Monthly Water Balance

Drainage to North SWMF Block A209	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)		Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)		
Medium-Low Density (Urban Lawn)	12,526	6,745	25,900	Sandy Loam	B	75		0.6	3.3	-10.0	0.92		
SWM Facility (North)	3,713	2,917		Sandy Loam	B	75		0.6					
Medium-Low Density (Urban Lawn)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**60**	**73**	**137**	**259**	**474**	**692**	**757**	**585**	**380**	**206**	**108**	**67**	**3799**
Estimated Runoff (m^3/month)	**246**	**331**	**387**	**182**	**53**	**0**	**0**	**0**	**126**	**137**	**221**	**395**	**2078**
Estimated Infiltration (m^3/month)	**0**	**0**	**166**	**273**	**79**	**0**	**0**	**0**	**189**	**206**	**332**	**0**	**1245**
SWM Facility (North)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**26**	**32**	**59**	**112**	**205**	**299**	**328**	**253**	**164**	**89**	**47**	**29**	**1643**
Estimated Runoff (m^3/month)	**107**	**143**	**167**	**79**	**23**	**0**	**0**	**0**	**54**	**59**	**96**	**171**	**899**
Estimated Infiltration (m^3/month)	**0**	**0**	**72**	**118**	**34**	**0**	**0**	**0**	**82**	**89**	**144**	**0**	**538**
Impervious Areas													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**133**	**175**	**299**	**310**	**262**	**268**	**242**	**242**	**301**	**238**	**286**	**200**	**2957**
Estimated Runoff (m^3/month)	**605**	**797**	**1362**	**1411**	**1196**	**1221**	**1101**	**1104**	**1371**	**1083**	**1305**	**913**	**13469**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL (Block A209)													
Estimated Actual Evapotranspiration (m^3/month)	**219**	**279**	**495**	**681**	**942**	**1259**	**1327**	**1081**	**845**	**532**	**441**	**297**	**8398**
Estimated Runoff (m^3/month)	**958**	**1271**	**1916**	**1672**	**1271**	**1221**	**1101**	**1104**	**1552**	**1279**	**1622**	**1479**	**16446**
Estimated Infiltration (m^3/month)	**0**	**0**	**238**	**392**	**113**	**0**	**0**	**0**	**271**	**294**	**475**	**0**	**1783**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Post-Development Monthly Water Balance

Drainage to South SWMF Block A208b	Impervious Area (m^2)	Pervious Area (m^2)	Total Area (m^2)	Soil Type	Soil Group	Water Holding Capacity (mm)		Infiltration Factor	T_{rain} (°C)	T_{snow} (°C)	Meltmax (%/100)		
Low-Medium Density (Urban Lawn)	119,884	78,076	**241,500**	Sandy Loam	B	75		0.6	3.3	-10.0	0.92		
Park/Open Space	4,022	16,088		Sandy Loam	B	75		0.6					
SWM Facility (South)	13,121	10,309		Sandy Loam	B	75		0.6					
Low-Medium Density (Urban Lawn)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**695**	**843**	**1585**	**2998**	**5489**	**8011**	**8768**	**6777**	**4396**	**2381**	**1249**	**781**	**43972**
Estimated Runoff (m^3/month)	**2852**	**3830**	**4481**	**2111**	**609**	**0**	**0**	**0**	**1458**	**1587**	**2561**	**4572**	**24060**
Estimated Infiltration (m^3/month)	**0**	**0**	**1920**	**3166**	**913**	**0**	**0**	**0**	**2188**	**2380**	**3841**	**0**	**14408**
Park/Open Space													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**143**	**174**	**327**	**618**	**1131**	**1651**	**1807**	**1396**	**906**	**491**	**257**	**161**	**9061**
Estimated Runoff (m^3/month)	**588**	**789**	**923**	**435**	**125**	**0**	**0**	**0**	**301**	**327**	**528**	**942**	**4958**
Estimated Infiltration (m^3/month)	**0**	**0**	**396**	**652**	**188**	**0**	**0**	**0**	**451**	**490**	**792**	**0**	**2969**
SWM Facility (South)													
Estimated Actual Evapotranspiration (mm/month)	8.9	10.8	20.3	38.4	70.3	102.6	112.3	86.8	56.3	30.5	16.0	10.0	563.2
Surplus (mm/month)	36.5	49.1	82.0	67.6	19.5	-10.9	-29.6	-3.9	46.7	50.8	82.0	58.6	448.3
Estimated Runoff (mm/month)	36.5	49.1	57.4	27.0	7.8	0.0	0.0	0.0	18.7	20.3	32.8	58.6	308.2
Estimated Infiltration (mm/month)	0.0	0.0	24.6	40.5	11.7	0.0	0.0	0.0	28.0	30.5	49.2	0.0	184.5
Estimated Actual Evapotranspiration (m^3/month)	**92**	**111**	**209**	**396**	**725**	**1058**	**1158**	**895**	**580**	**314**	**165**	**103**	**5806**
Estimated Runoff (m^3/month)	**377**	**506**	**592**	**279**	**80**	**0**	**0**	**0**	**193**	**209**	**338**	**604**	**3177**
Estimated Infiltration (m^3/month)	**0**	**0**	**254**	**418**	**121**	**0**	**0**	**0**	**289**	**314**	**507**	**0**	**1902**
Impervious Areas													
Estimated Actual Evapotranspiration (mm/month)	8.2	10.8	18.4	19.1	16.2	16.5	14.9	14.9	18.5	14.6	17.6	12.3	182.1
Surplus (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Runoff (mm/month)	37.2	49.1	83.9	86.9	73.6	75.2	67.8	68.0	84.5	66.7	80.4	56.2	829.4
Estimated Infiltration (mm/month)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated Actual Evapotranspiration (m^3/month)	**1120**	**1476**	**2523**	**2614**	**2215**	**2262**	**2040**	**2045**	**2540**	**2005**	**2417**	**1691**	**24948**
Estimated Runoff (m^3/month)	**5104**	**6726**	**11493**	**11908**	**10090**	**10304**	**9292**	**9315**	**11573**	**9135**	**11011**	**7703**	**113654**
Estimated Infiltration (m^3/month)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL (Block A208b)													
Estimated Actual Evapotranspiration (m^3/month)	**2050**	**2605**	**4644**	**6626**	**9559**	**12981**	**13772**	**11113**	**8422**	**5192**	**4089**	**2736**	**83788**
Estimated Runoff (m^3/month)	**8920**	**11851**	**17488**	**14732**	**10905**	**10304**	**9292**	**9315**	**13525**	**11258**	**14438**	**13820**	**145848**
Estimated Infiltration (m^3/month)	**0**	**0**	**2570**	**4236**	**1222**	**0**	**0**	**0**	**2927**	**3184**	**5140**	**0**	**19280**

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Monthly Water Balance - Summary Tables

TABLE K3 - WATER BALANCE SUMMARY

DRAINAGE TO THE SANDUSKY DRAIN:

AREA A TOTALS (Pre-Development)													
Estimated Actual Evapotranspiration (m^3/month)	**1691**	**2056**	**3855**	**7206**	**13090**	**19066**	**21346**	**16684**	**10514**	**5721**	**3055**	**1917**	**106201**
Estimated Runoff (m^3/month)	**6959**	**9341**	**10489**	**4514**	**1568**	**411**	**370**	**371**	**3252**	**3400**	**5340**	**11136**	**57150**
Estimated Infiltration (m^3/month)	**0**	**0**	**5131**	**8460**	**2441**	**0**	**0**	**0**	**5846**	**6359**	**10265**	**0**	**38502**
AREA D TOTALS (Pre-Development)													
Estimated Actual Evapotranspiration (m3/month)	**1507**	**1832**	**3437**	**6446**	**11736**	**17103**	**19182**	**15003**	**9418**	**5118**	**2719**	**1704**	**95205**
Estimated Runoff (m3/month)	**6198**	**8321**	**9826**	**4793**	**1552**	**261**	**236**	**236**	**3397**	**3607**	**5728**	**9923**	**54078**
Estimated Infiltration (m3/month)	**0**	**0**	**4086**	**6737**	**1944**	**0**	**0**	**0**	**4655**	**5064**	**8174**	**0**	**30660**
TOTAL Blocks 201-208a (Post-Development)													
Estimated Actual Evapotranspiration (m3/month)	**1070**	**1344**	**2428**	**3743**	**5841**	**8143**	**8803**	**7006**	**4979**	**2945**	**2082**	**1372**	**49756**
Estimated Runoff (m3/month)	**4590**	**6114**	**8279**	**6102**	**4379**	**4054**	**3656**	**3665**	**5533**	**4659**	**6052**	**7170**	**64252**
Estimated Infiltration (m3/month)	**0**	**0**	**2038**	**3360**	**969**	**0**	**0**	**0**	**2322**	**2526**	**4077**	**0**	**15291**
TOTAL Block A208b (Post-Development)													
Estimated Actual Evapotranspiration (m^3/month)	**2050**	**2605**	**4644**	**6626**	**9559**	**12981**	**13772**	**11113**	**8422**	**5192**	**4089**	**2736**	**83788**
Estimated Runoff (m^3/month)	**8920**	**11851**	**17488**	**14732**	**10905**	**10304**	**9292**	**9315**	**13525**	**11258**	**14438**	**13820**	**145848**
Estimated Infiltration (m^3/month)	**0**	**0**	**2570**	**4236**	**1222**	**0**	**0**	**0**	**2927**	**3184**	**5140**	**0**	**19280**
TOTAL Block A209 (Post-Development)													
Estimated Actual Evapotranspiration (m^3/month)	**219**	**279**	**495**	**681**	**942**	**1259**	**1327**	**1081**	**845**	**532**	**441**	**297**	**8398**
Estimated Runoff (m^3/month)	**958**	**1271**	**1916**	**1672**	**1271**	**1221**	**1101**	**1104**	**1552**	**1279**	**1622**	**1479**	**16446**
Estimated Infiltration (m^3/month)	**0**	**0**	**238**	**392**	**113**	**0**	**0**	**0**	**271**	**294**	**475**	**0**	**1783**

Drainage to the Sandusky Drain (PRE VS. POST)	**PRE**	**POST**	**VOL CHANGE**	**% Difference**	**Post with Mitigation**	**% Difference with Mitigation**
Estimated Runoff (m3/year)	111,228	226,546	115,318	204%	**135,928**	**122%**
Estimated Infiltration (m3/year)	69,161	36,354	(32,807)	53%	**55,384**	**80%**

With Mitigation:

Estimated Runoff	m^3/year	135928
Estimated Infiltration	m^3/year	55384
Runoff reduction		0.4
Effectiveness		0.21

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Monthly Water Balance - Summary Tables

DRAINAGE TO WETLAND C:

AREA B TOTALS (Pre- Development)													
Estimated Actual Evapotranspiration (m3/month)	**638**	**775**	**1456**	**2754**	**5041**	**7358**	**8202**	**6396**	**4037**	**2187**	**1147**	**717**	**40709**
Estimated Runoff (m3/month)	**2619**	**3518**	**3940**	**1649**	**476**	**0**	**0**	**0**	**1139**	**1239**	**2000**	**4199**	**20779**
Estimated Infiltration (m3/month)	**0**	**0**	**1940**	**3198**	**923**	**0**	**0**	**0**	**2210**	**2404**	**3880**	**0**	**14554**
TOTAL Blocks A210 and A212 (Post Development)													
Estimated Actual Evapotranspiration (m3/month)	**483**	**601**	**1097**	**1792**	**2944**	**4169**	**4574**	**3620**	**2458**	**1414**	**921**	**599**	**24672**
Estimated Runoff (m3/month)	**2047**	**2733**	**3504**	**2304**	**1537**	**1350**	**1217**	**1220**	**2030**	**1756**	**2346**	**3219**	**25264**
Estimated Infiltration (m3/month)	**0**	**0**	**1096**	**1807**	**521**	**0**	**0**	**0**	**1249**	**1358**	**2192**	**0**	**8223**

Drainage to Wetland C (PRE VS. POST)	**PRE**	**POST**	**VOL CHANGE**	**% Difference**	**Post with Mitigation**	**% Difference with Mitigation**
Estimated Runoff (m3/year)	20,779	25,264	4,485	122%	**10,106**	**49%**
Estimated Infiltration (m3/year)	14,554	8,223	(6,331)	57%	**11,710**	**80%**

With Mitigation:

Estimated Runoff	m^3/year	10106
Estimated Infiltration	m^3/year	11710
Runoff reduction		0.6
Effectiveness		0.23

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Monthly Water Balance - Summary Tables

DRAINAGE TO THE SOUTHEAST:

AREA C TOTALS (Pre-Development)													
Estimated Actual Evapotranspiration (m3/month)	**190**	**231**	**434**	**821**	**1502**	**2192**	**2412**	**1870**	**1203**	**652**	**342**	**214**	**12062**
Estimated Runoff (m3/month)	**780**	**1048**	**1216**	**560**	**162**	**0**	**0**	**0**	**387**	**421**	**680**	**1251**	**6506**
Estimated Infiltration (m3/month)	**0**	**0**	**536**	**884**	**255**	**0**	**0**	**0**	**611**	**664**	**1072**	**0**	**4022**
TOTAL Block A211 (Post-Development)													
Estimated Actual Evapotranspiration (m^3/month)	**46**	**58**	**104**	**150**	**219**	**298**	**317**	**255**	**192**	**118**	**91**	**61**	**1909**
Estimated Runoff (m^3/month)	**199**	**265**	**389**	**324**	**238**	**223**	**201**	**202**	**296**	**247**	**318**	**309**	**3212**
Estimated Infiltration (m^3/month)	**0**	**0**	**60**	**99**	**28**	**0**	**0**	**0**	**68**	**74**	**120**	**0**	**448**

Area C (PRE VS. POST)	***PRE***	***POST***	***VOL CHANGE***	***% CHANGE***	***% of Pre-Dev Conditions***
Estimated Runoff (m3/year)	6506	3212	-3294	-51%	49%
Estimated Infiltration (m3/year)	4022	448	-3574	-89%	11%

Drainage to the Southeast (Ida Street) (PRE VS. POST) [1]	**PRE**	**POST**	**VOL CHANGE**	**% Difference**	**Post with Mitigation**	**% Difference with Mitigation**
Estimated Runoff (m3/year)	6,506	3,212	(3,294)	49%	**128**	**2%**
Estimated Infiltration (m3/year)	4,022	448	(3,574)	11%	**3,224**	**80%**
With Mitigation:						
Estimated Runoff	m^3/year	128				
Estimated Infiltration	m^3/year	3224				
Runoff reduction		0.96				
Effectiveness		0.9				

Notes:

1. Runoff and infiltration in the drainage area to the southeast (Ida Street) are significantly different due to a smaller drainage area in the post development.

Project Name: Hunter Farm
Project Number: LON-21008138-A0
Client: Auburn Developments

Monthly Water Balance

TABLE K4 - WATER BALANCE ASSUMPTIONS

1. AET occurs year round. Although the average temperature is below 0°C in the winter months, fluctuation above and below the freezing temperature of water occurs. The Thornthwaite model used assumes T_{rain} = 3.3°C and T_{snow} = -10.0°C. When the average monthly temperature falls between these values, the monthly precipitation as rain and snow is derived by assuming a linear interpolation between these values, consistent with the methodology used in the accepted USGS reference material (McCabe, G.J., and Markstrom, S.L., 2007, A monthly water-balance model driven by a graphical use interface: U.S. Geological Survey Open-File report 2007-1088, 6 p.). Values of AET were taken from the Thornthwaite model and are considered to be representative of actual site conditions.
2. Monthly surplus is calculated by summing the precipitation as rain and actual snow melt, less estimated evapotranspiration.
3. Negative surplus values can be achieved during the summer months as water storage is the vadose zone of the soil is subject to evapotranspiration and depleted.
4. Infiltration is assumed not to occur between December and February as frost is typically present throughout those months.
5. Infiltration in March (Average temperature of -0.1°C), is assumed to occur during half of the month.
6. No net infiltration or runoff occur in the summer as the rainfall accumulation is stored on site and infiltration was not assigned a negative value. See Assumption 3.
7. Evapotranspiration in impervious areas is the sum of precipitation as rain and snow melt multiplied by a factor of 0.18.
8. Under post development conditions, it is assumed that infiltration follows the new drainage pathways.
9. Forested areas west of Richmond Street and adjacent to Wetland C are assumed to be removed post-development.
10. Impervious areas are based on the Conceptual SWM Strategy the Site (Stantec, 2022)
11. Water holding capacity for SWM facilities is assumed to be 75mm.

	Direct Drainage to Sandusky Drain											SWM (wet) south	SWM (dry) north	Wetland C NE wetland		Ida Street
Block	**A201**	**A202**	**A203**	**A204a**	**A204b**	**A205a**	**A205b**	**A206a**	**A206b**	**A207**	**A208a**	**A208b**	**A209**	**A210**	**A212**	**A211**
Total Area	1.61	2.96	1.75	0.99	0.68	0.89	0.78	0.57	0.18	0.45	1.6	24.15	2.59	4.31	1.26	0.54
Low Density			1.75							0.45	0.37	10.79	0.155		1.26	0.54
Medium Density	1.61					0.89					0.91	5.006	1.462			
High Density																
Park		2.96						0.57	0.18			0.404		1.276		
Open Space				0.99	0.68						0.17	1.607		2.554		
Street							0.78				0.15	4	0.31	0.48		
SWM Facility												2.343	0.663			
Impervious Areas	1.05	0.59	0.96	0.20	0.14	0.58	0.55	0.11	0.04	0.25	0.93	13.70	1.62	1.10	0.69	0.30
Pervious Areas	0.56	2.37	0.79	0.79	0.54	0.31	0.23	0.46	0.14	0.20	0.67	10.45	0.97	3.21	0.57	0.24

Post-Development Conditions:

Sub-Catchment	Area (ha)	TIMP	AxC	XIMP	AxC	CN	AxCN	IA	AxIA	Description
201	1.61	0.65	1.047	0.55	0.886	61	98.210	5	8.050	MD on the north of the west of Richmond part from the site.
202	2.96	0.20	0.591	0.05	0.148	75	221.700	5	14.780	Park block on west of Richmond
203	1.76	0.55	0.968	0.45	0.792	61	107.360	5	8.800	SF blocks on the south of the west of Richmond part from the site
204a	0.99	0.20	0.198	0.20	0.198	75	74.250	5	4.950	Sandusky drain on west of Richmond
204b	0.68	0.20	0.136	0.20	0.136	75	51.000	5	3.400	Sandusky drain on east of Richmond
205a	0.89	0.65	0.579	0.55	0.490	61	54.290	5	4.450	MD between Sandusky drain and Richmond
205b	0.78	0.70	0.546	0.60	0.468	61	47.580	5	3.900	Richmond street
206a	0.59	0.20	0.118	0.05	0.030	75	44.250	5	2.950	West park block on south boundary of west of Richmond
206b	0.18	0.20	0.036	0.05	0.009	75	13.500	5	0.900	East park block on the south boundary of west of Richmond
207	0.45	0.65	0.293	0.55	0.248	61	27.450	5	2.250	MD between Sandusky drain and Marion Street.
208a (MD)	0.91	0.65	0.592	0.55	0.501	61	55.567	5	4.555	-
208a (SF)	0.37	0.55	0.204	0.45	0.167	61	22.626	5	1.855	-
208a (Roads)	0.15	0.70	0.105	0.60	0.090	61	9.150	5	0.750	-
208a (OS)	0.17	0.20	0.034	0.05	0.009	61	10.412	5	0.853	-
208a (Weighted)	**1.60**	**0.58**	**0.935**	**0.48**	**0.766**	**61**	**97.754**	**5**	**8.013**	Proposed uncontrolled toward the Drain
208b (MD)	4.21	0.65	2.737	0.55	2.316	61	256.810	5	21.050	
208b (SF)	12.00	0.55	6.599	0.45	5.399	61	731.840	5	59.987	-
208b (Roads)	4.00	0.70	2.798	0.60	2.399	61	243.849	5	19.988	-
208b (OS)	3.95	0.20	0.790	0.05	0.198	61	240.950	5	19.750	-
208b (Weighted)	**24.15**	**0.54**	**12.92**	**0.43**	**10.31**	**61**	**1473.45**	**5**	**120.77**	Proposed site toward south SWMF toward Sandusky drain
209 (MD)	1.56	0.65	1.017	0.55	0.860	61	95.404	5	7.820	-
209 (SF)	0.25	0.55	0.138	0.45	0.113	61	15.250	5	1.250	-
209 (Roads)	0.31	0.70	0.217	0.60	0.186	61	18.910	5	1.550	-
209 (OS)	0.49	0.20	0.098	0.05	0.025	61	29.890	5	2.450	-
209 (Weighted)	**2.61**	**0.56**	**1.47**	**0.45**	**1.18**	**61**	**159.45**	**5**	**13.07**	Proposed site toward north SWMF toward Sandusky drain
210 (OS)	2.20	0.20	0.440	0.05	0.110	75	164.850	10	21.980	Undeveloped open space area
210 (Roads)	0.48	0.70	0.336	0.60	0.288	75	36.000	5	2.400	-
210 (Parks)	1.58	0.20	0.315	0.05	0.079	75	118.200	5	7.880	-
210 (Weighted)	**4.25**	**0.26**	**1.09**	**0.11**	**0.48**	**75**	**319.05**	**8**	**32.26**	Proposed parks on northeast toward the north
211	0.54	0.55	0.297	0.45	0.243	61	32.940	5	2.700	SF blocks on the southeast toward IDA Street
212	1.26	0.55	0.693	0.45	0.567	75	94.500	5	6.300	SF blocks on the northeast
Total	**45.31**	**0.48**	**21.92**	**0.37**	**16.95**	**64**	**2916.74**	**5**	**237.55**	-

Sub-Catchment	Area (ha)	C	AxC	CN	AxC	IA	AxIA	Description
EXT-1	19.09	0.20	3.818	75	1431.750	5	95.450	External on northwest with runoff toward Sandusky Drain
EXT-2	479.35	0.20	95.870	75	35951.250	5	2396.750	External on north with runoff toward Sandusky Drain Via Hunter Branch
EXT-3	186.58	0.20	37.316	75	13993.500	5	932.900	External on northeast with runoff toward Sandusky Drain through site
EXT-4	0.91	0.20	0.182	75	68.250	5	4.550	External on southeast corner of site through IDA toward Sandusky Drain
Total	**685.93**		**137.19**		**51444.75**		**3429.65**	

Airport Method

$$Tc = \frac{3.26(1.1-C)L^{0.5}}{S^{0.33}}$$

Tc = Time of Concentration (min)
C = Runoff Coefficient
L = Catchment Length (m)
S = Catchment Slope (%)

730.70
730.70

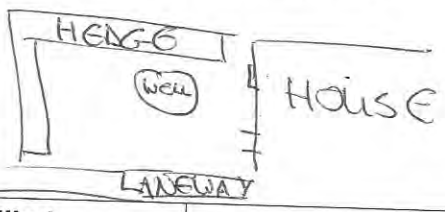
Appendix L – Well Survey Questionnaire Responses

6-405 Maple Grove Road | Cambridge, Ontario | Canada
t: +1.519.650.4918 | f: +1.519.650.4603 | exp.com

WELL SURVEY QUESTIONNAIRE
(please select the appropriate box)

☒ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	Rik Burton / Rosemary Rasmussen.		
Address	268 CLARA ST. DORCHESTER.		
Phone	519 268 1130		
Existing well	☐ No wells present at the address noted above ☒ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)	Shallow well located in front of house bedroom window. Well used to provide water to houses in the area. House built in 1975 & I believe well was existing. 		
Depth of Well	8' ??	**Date Drilled** (estimate, if not known)	??
Type of Well: (Dug/Bored or Drilled)	DUG.	**Static Water Level**	6' ?
Do you have Municipal water?	☐ No ☒ Yes – if yes, is the well still being used? NO.		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____.

R Rasmussen
Owner's Signature

Apr. 27/22
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE

(please select the appropriate box)

☑ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	Penelope Cloutier		
Address	272 Clara St Dorchester, ONT		
Phone	(519) 860-8131		
Existing well	☒ No wells present at the address noted above ☐ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)			
Depth of Well		**Date Drilled** (estimate, if not known)	
Type of Well: (Dug/Bored or Drilled)		**Static Water Level**	
Do you have Municipal water?	☐ No ☒ Yes – if yes, is the well still being used?		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____

Penny Cloutier
Owner's Signature

May 15, 2022
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE
(please select the appropriate box)

☑ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	Carlos & Sarah Almeida		
Address	289 Clara St., Dorchester, ON		
Phone			
Existing well	☑ No wells present at the address noted above ☐ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)			
Depth of Well		**Date Drilled** (estimate, if not known)	
Type of Well: (Dug/Bored or Drilled)		**Static Water Level**	
Do you have Municipal water?	☐ No ☑ Yes – if yes, is the well still being used? N/A		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____.

Sarah Almeida
Owner's Signature

04/26/22
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE
(please select the appropriate box)

☐ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	S. DAYLE GOULD		
Address	3832 CATHERINE ST-DORCHESTER		
Phone	519-268-3902		
Existing well	☒ No wells present at the address noted above ☐ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)			
Depth of Well		**Date Drilled** (estimate, if not known)	
Type of Well: (Dug/Bored or Drilled)		**Static Water Level**	
Do you have Municipal water?	☐ No ☐ Yes – if yes, is the well still being used?		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____.

S. Dayle Gould
Owner's Signature

APR. 27/22
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE
(please select the appropriate box)

☒ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	Amy Turner		
Address	4231 Catherine St. Dorchester		
Phone	519 268 2668		
Existing well	☒ No wells present at the address noted above ☐ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)			
Depth of Well		**Date Drilled** (estimate, if not known)	
Type of Well: (Dug/Bored or Drilled)		**Static Water Level**	
Do you have Municipal water?	☐ No ☑ Yes – if yes, is the well still being used?		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____.

Amy Turner
Owner's Signature

Apr 28/22
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE
(please select the appropriate box)

☐ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	Chesher John + Nancy		
Address	4611 Marion Street		
Phone	519-268-1036		
Existing well	☐ No wells present at the address noted above ☑ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)	3 feet from back door under decking		
Depth of Well	6 feet ?	**Date Drilled** (estimate, if not known)	? 60+ years
Type of Well: (Dug/Bored or Drilled)	?	**Static Water Level**	3 6 feet - can be seen when opened
Do you have Municipal water?	☑ No ☐ Yes – if yes, is the well still being used?		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____.

Mary Chesher
Owner's Signature

May 7 2022
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE
(please select the appropriate box)

☑ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc.** regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	STEWART AMES		
Address	4641 MARION ST DORCHESTER		
Phone	519.202.0345		
Existing well	☒ No wells present at the address noted above ☐ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)			
Depth of Well		**Date Drilled** (estimate, if not known)	
Type of Well: (Dug/Bored or Drilled)		**Static Water Level**	
Do you have Municipal water?	☐ No ☒ Yes – if yes, is the well still being used? THERE IS NO WELL IT WAS FILLED IN IN 1990.		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc.** at the following address: _____.

Owner's Signature

27 Apr 2022
Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

WELL SURVEY QUESTIONNAIRE

(please select the appropriate box)

☑ ***Agree to Provide Well Information***

I hereby disclose the following information to **EXP Services Inc**. regarding the well on the subject property (noted below) and in doing so, acknowledge that the monitoring results may be available to the public on request.

Name	JAMES VandenBrandt.		
Address	4673 Marion Street Dorchester, ONT.		
Phone	519-281-2393		
Existing well	☐ No wells present at the address noted above ☑ Yes – please refer to requested details below		
Location of Well (Describe location, in reference to existing buildings or structures. If preferred, you can provide a sketch on the back of this page)	Inside house		
Depth of Well	85 FEET	**Date Drilled** (estimate, if not known)	1964?
Type of Well: (Dug/Bored or Drilled)	DRILLED	**Static Water Level**	62 FEET
Do you have Municipal water?	☐ No ☑ Yes – if yes, is the well still being used? NO		

☐ ***Decline to Provide Well Information***

I choose not to provide information regarding onsite well (s) to **EXP Services Inc**. at the following address: _____.

_____ May 01/2022

Owner's Signature Date

Please return to:

Heather Jaggard
Exp Services Inc.
15701 Robin's Hill Rd.
London ON
N5V 0A5

Fax: 519-963-1152

E-mail: Heather.Jaggard@exp.com
(please include **WELL SURVEY** in subject line).

Hagit Blumenthal

Subject: FW: Hunter Farm - LON-21008138

Private Well Survey

Completed on April 26, 2022. A total of 87 survey forms were delivered. The neighbourhoods / properties they were delivered to are shown here: \\exp\data\LON\LON-21008138-A0\50 Input\Hydrogeological Work\door-to-door survey\LON-21008138 Hunter Farm Well Survey Neighbourhoods.jpg

Other Notes:

- A water shutoff valve was observed in the front lawn of the property located at 4673 Marion Street.
- At least one well was observed in the front lawn of a property located on the east side of Ron Allen Drive.
- Spoke to the homeowner of 4984 Marion Street. They use a private well that is approx. 65 ft deep, located in the front of the property. The well was observed during the visit. Water was dripping/flowing out the top of the well (was capped but water was seeping out of the top).
- Spoke to the owner of My Pet's Spot, located at 3826 Catherine Street. Property is on a private well – took picture (see \\exp\data\LON\LON-21008138-A0\50 Input\Hydrogeological Work\door-to-door survey\3826 Catherine Street Well (My Pets Spot).jpg). Depth of well is unknown, installed approx. 1954. The owner stated roughly 26 properties in Dorchester are on their own private well, the rest are on Town water. She knows this because the owners of the 26 properties fought with the Town to keep their private wells and not be transferred to Town water. Not sure if there is a way to confirm with the Town what these 26 properties are?
- A survey could not be delivered to 4216 Catherine Street (salon). The person I spoke with said they would not be able to deliver the form to the property owner. They stated they do not believe they use a private well. The neighbouring property to the east (4218 Catherine Street – Flowershop) also stated they didn't think they were on a well but they did take a copy of the form to provide to the property owner. These are commercial properties and the businesses rent from the owners.

Kassandra Wallace

EXP | Intermediate Hydrogeologist

t : +1.226.616.0742 | m : +1.519.573.9210 | e : kassandra.wallace@exp.com

exp.com | legal disclaimer

keep it green, read from the screen

Appendix M – Dewatering Calculations

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APPENDIX M: Short-Term Flow Rate

Table M-1: Basement

Parameters	Symbols	Unit	Value
Geological Formation	-	-	Glacial Deposit
Ground Elevation	-	mASL	256.00
Highest Groundwater Elevation	-	mASL	255.45
Lowest Basement Bottom Elevation	-	mASL	**253.50**
Base of the Water-Bearing Zone	-	mASL	250.00
Height of Static Water Table Above the Base of the Water-Bearing Zone	**H**	m	5.45
Dewatering Target Elevation	-	mASL	253.00
Height of Target Water Level Above the Base of Water-Bearing Zone	**h_w**	m	3.00
Hydraulic Conductivity	**K**	m/s	8.2E-04
Length of Excavation	-	m	20.00
Width of Excavation	-	m	20.00
Equivalent Radius (equivalent perimeter)	**r_e**	m	12.73
Method to Calculate Radius of Influence	-	-	**Cooper-Jacob**
Time (30 days)	**t**	s	2592000
Specific Yield	**Sy**		0.30
Cooper-Jacob's Radius of Influence from Sides of Excavation	**Rcj**	m	294.75
Radius of Influence	**Ro**	m	307.48
Dewatering Flow Rate (unconfined radial flow component)	**Q**	m^3/day	1447.07
Factor of Safety	**fs**	-	2.00
Dewatering Flow Rate (multiplied by factor of safety)	**Q.fs**	m^3/day	2894
Precipitation Event	-	mm/day	0
Volume from Precipitation	-	m^3/day	0
Dewatering Flow Rate **Without Safety Factor** (including stormwater collection)	-	m^3/day	1447
Dewatering Flow Rate **With Safety Factor** (including stormwater collection)	-	m^3/day	2894

Notes:
mASL - meters above sea level

Analytical Solution for Estimating Radial Flow from an Unconfined Aquifer to a Fully-Penetrating Excavation

$$Q_w = \frac{\pi K(H^2 - h^2)}{Ln\,[\frac{R_o}{r_e}]} \qquad r_e = \frac{a+b}{\pi} \qquad R_o = R_{cj} + r_e \qquad R_{cj} = \sqrt{2.25KDt/S}$$

(Based on the Dupuit-Forcheimer Equation)

Where:

Q_w = Flow rate per unit length of excavation (m^3/s)

K = Hydraulic conductivity (m/s)

H = Height of static water table above base of water-bearing zone (m)

h_w = Height of target water level above the base of water-bearing zone (m)

Rcj=Cooper Jacob Radius of Influence (m)

R_o=Radius of influence (m)

re=Equivalent perimeter (m)

Modified DUPUIT Equation: unconfined flow into a long excavation.
No flow from the bottom!

Table M-2: Servicing Dewatering Calculations

Section	GW level	GW Target	Aquifer Bottom	x	w	A	K	s	r_e	R_o	L=R0/2	H_{sat}	Q_{ends}	Q_{ends}	Q_{trench}	Q_{trench}	Q_{total}	Q_{total}
	m AMSL	m AMSL	m AMSL	m	m	m^2	m/s	m	m	m	m	m	m^3/s	L/d	m^3/s	L/d	m^3/s	**L/d**
X-X'	255.45	252.50	250.00	50	5	250	8.2E-04	2.95	17.51	270.93	135.47	5.45	0.022056	1,905,603	0.007098	613,276	0.029154	**2,518,878**

$$Q = \frac{\pi K(H^2 - h^2)}{Ln\left[\frac{R_o}{r_e}\right]} + 2\left[\frac{xK(H^2 - h^2)}{2L}\right]$$

A = dewatered area (m^2)
Q = construction dewatering rate (m^3/sec)
K = saturated and horizontal hydraulic conductivity (m/s)
H = hydraulic head beyond R_0 (m)
h = hydraulic head within A (m)
s = drawdown (=H-h)
r_e = equivalent well radius of A (m)
R_0 = radius of influence of construction dewatering/pumping from equivalent well center (m)
x = length of the trench (m)
w = width (m)
L = distance of influence of construction dewatering/pumping from equivalent well center (m)
π = Pi (1)

Appendix N – Limitations and Use of Report

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LIMITATIONS AND USE OF REPORT

BASIS OF REPORT

This report ("Report") is based on site conditions known or inferred by the geotechnical investigation undertaken as of the date of the Report. Should changes occur which potentially impact the geotechnical condition of the site, or if construction is implemented more than one year following the date of the Report, the recommendations of EXP may require re-evaluation.

The Report is provided solely for the guidance of design engineers and on the assumption that the design will be in accordance with applicable codes and standards. Any changes in the design features which potentially impact the geotechnical analyses or issues concerning the geotechnical aspects of applicable codes and standards will necessitate a review of the design by EXP. Additional field work and reporting may also be required.

Where applicable, recommended field services are the minimum necessary to ascertain that construction is being carried out in general conformity with building code guidelines, generally accepted practices and EXP's recommendations. Any reduction in the level of services recommended will result in EXP providing qualified opinions regarding the adequacy of the work. EXP can assist design professionals or contractors retained by the Client to review applicable plans, drawings, and specifications as they relate to the Report or to conduct field reviews during construction.

Contractors contemplating work on the site are responsible for conducting an independent investigation and interpretation of the test pit results contained in the Report. The number of test pits necessary to determine the localized underground conditions as they impact construction costs, techniques, sequencing, equipment and scheduling may be greater than those carried out for the purpose of the Report.

Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates are based on investigations performed in accordance with the standard of care set out below and require the exercise of judgment. As a result, even comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations or building envelope descriptions involve an inherent risk that some conditions will not be detected. All documents or records summarizing investigations are based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated. Some conditions are subject to change over time. The Report presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, these should be disclosed to EXP to allow for additional or special investigations to be undertaken not otherwise within the scope of investigation conducted for the purpose of the Report.

RELIANCE ON INFORMATION PROVIDED

The evaluation and conclusions contained in the Report are based on conditions in evidence at the time of site inspections and information provided to EXP by the Client and others. The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose as communicated by the Client. EXP has relied in good faith upon such representations, information and instructions and accepts no responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of any misstatements, omissions, misrepresentation or fraudulent acts of persons providing information. Unless specifically stated otherwise, the applicability and reliability of the findings, recommendations, suggestions or opinions expressed in the Report are only valid to the extent that there has been no material alteration to or variation from any of the information provided to EXP.

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The Report has been prepared in a manner consistent with the degree of care and skill exercised by engineering consultants currently practicing under similar circumstances and locale. No other warranty, expressed or implied, is made. Unless specifically stated otherwise, the Report does not contain environmental consulting advice.

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