HYDROGEOLOGICAL ASSESSMENT REPORT

BRIDLE PARK

STAYNER
TOWNSHIP OF CLEARVIEW
COUNTY OF SIMCOE

PREPARED FOR:

1000983019 ONTARIO LIMITED

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CROZIER

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1.0 Introduction

C.F. Crozier & Associates Inc. (Crozier) was retained by 1000983019 Ontario Limited to conduct a Hydrogeological Assessment for the proposed residential development of Bridle Park 1 and Bridle Park 2 parcels located in Stayner, Clearview Township. The scope of the Hydrogeological Assessment Report is intended to fulfill the requirements of regulatory planning applications as well as establish a baseline for design.

The following report has been prepared to fulfill the terms of reference for a municipally serviced development within the Nottawasaga Valley Conservation Authority (NVCA) area. The Report characterizes the geological and hydrogeological regime of the Subject Property and describes the seasonal high groundwater elevation at the Subject Property. The Report also includes the findings of the field investigation, discussion of potential impacts to groundwater resources and mitigation strategies.

The Report also includes a water balance assessment to estimate the pre-development and post-development infiltration and runoff. At this stage, the stormwater management strategy for the Subject Property including the implementation of potential low-impact developments (LIDs) have yet to be finalized and therefore recommended mitigation strategies are meant to help guide future design considerations.

1.1 Background

The following resources, studies and reports have been reviewed in preparation for this Report:

- Geotechnical Investigation (AllRock Consulting Ltd., April 2022).
- Draft Plan of Subdivision (MHBC Planning, June 2026).
- Well Records Database, Ministry of Environment, Conservation and Parks (Accessed August 2025).
- Source Protection Information Atlas, Ministry of the Environment, Conservation and Parks (Accessed August 2025).
- The Physiography of Southern Ontario (Chapman and Putman, 1984).
- Official Plan of the Township of Clearview, Schedule A3 Stayner, Land Use and Transportation Plan Urban Settlement Area.
- Nottawasaga Valley Source Protection Area Approved Assessment Report (January 2019).
- Applications for Amendments to Township of Clearview Official Plan and Zoning By-law, Application for Draft Plan of Subdivision (NVCA, April 2017).
- Paleozoic Geology of Southern Ontario, Ontario Division of Mines, 1972.

1.2 Site Description

The Subject Property covers an area of approximately 68.5 ha and is legally described as Nottawasaga Concession 3, Part of Lot 26. The Subject Property is primarily used as agricultural land with trees/vegetation lining the property. There is also a large, forested area that takes up about one-third of the Subject Property to the west. The connected parcels are bounded to the south by residential units that front Regina/North St, to the west by agricultural lands, to the north by the Clearview Garden Estates parcel and Nottawasaga 27/28 Sideroad, and to the east by the recreational Train Trail. A wetland occupies a southwest portion of the Subject Property, and a small tributary of Lamont Creek runs parallel to the Train Trail on the western boundary of the site. According to The Clearview Township Comprehensive Zoning By-Law, Schedule B4, the Subject Property is currently designated as "Developable", "Environmental Protection", and "Residential" and is located within the Stayner Settlement Boundary.

Per the Draft Plan of Subdivision prepared by MHBC dated June 18, 2026, the elements envisioned for the site include:

- 523 single detached residential units, 4 semi-detached units and 164 townhouse units.
- A stormwater management pond
- A school and park area
- Environmental protection area

Please refer to **Figure 1** for the Site Location Plan and **Appendix A** for the Draft Plan.

2.0 Source Protection

The Subject Property is located within the Nottawasaga Valley Source Protection Area which is governed by the Nottawasaga Valley Source Protection Authority (NVSPA). The NVSPA is one of three source protection authorities for the South Georgian Bay Lake Simcoe (SGBLS) Source Protection Region and authorized to act under legislated powers of Ontario's Clean Water Act (2006).

Activities incorporating risk to drinking water sources through impacts to quality within the region's Source Protection Plan are organized into the following categories:

1. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.
2. The establishment, operation, or maintenance of a waste disposal site within the meaning of Part V of the Environmental Protection Act.
3. The handling and storage of a dense non-aqueous phase liquid.
4. The management, storage or application of agricultural source material to land.
5. The handling, storage or application of commercial fertilizer to land.
6. The handling, storage or application of non-agricultural source material to land

7. The handling, storage or application of pesticide to land.

8. The handling, storage or application of road salt.

9. The establishment, operation or maintenance of a system that collects, stores, transmits, treats or disposes of sewage.

10. The handling and storage of an organic solvent.

11. The handling and storage of fuel.

12. The management of runoff that contains chemicals used in the de-icing of aircraft.

13. The storage of snow.

14. The use of land as livestock grazing or pasturing land, an outdoor confinement area or a farm animal yard (O. Reg. 385/08, s. 3.).

15. The establishment and operation of a liquid hydrocarbon pipeline.

Activities incorporating risk to drinking water sources through impacts to quantity within the region's Source Protection Plan include:

1. An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.

2. An activity that reduces the recharge of an aquifer.

The NV Source Protection Plan provides a corresponding set of Tables of Drinking Water Threats that show where in a vulnerable area an activity must be located, and under what circumstances or Subcategory, the activity is to be considered a significant drinking water threat.

Drinking water threats associated with proposed activities on the Subject Property should be reviewed with the municipality's Risk Management Official (RMO).

2.1 Current Conditions

According to the Ministry of Environment, Conservation and Parks' (MECP) Source Protection Information Atlas, the Subject Property is not located within any Wellhead Protection Areas (WHPAs) or Intake Protection Zones (IPZs). The Subject Lands are also not considered to be an Event Based Area (EBA). The Information Atlas revealed that a Significant Groundwater Recharge Area (SGRA) and a Highly Vulnerable Aquifer (HVA) are present on areas of the Subject Property.

The SGRA was ranked with a score of 4 on the majority of the property, including the western, southern, and eastern portions of the property. However, there is also an SGRA with a score of 6 that takes up approximately 43,000 square meters in the central north area of the Subject Property. This area with this SGRA is also overlapped by the HVA residing on this property. The HVA has a vulnerability score of 6 and is located on the north end of the Subject Property. The HVA takes up about 42,000 square meters and begins on the central north and extends to the northeastern corner of the Subject Property.

Please see **Appendix B** for Source Protection mapping across and surrounding the Site.

2.2 Future Considerations

According to the SGBLS Source Protection Plan, based on the proposed use of the Subject Property the following activities have the potential to result in *Low* Drinking Water Threats on the Subject Property under certain scenarios:

2. The establishment, operation or maintenance of a system that collects, stores, transmits, treats, or disposes of sewage.

    A. Storm water management facilities and drainage systems: Outfall from a storm water management facility or storm water drainage system.

    B. Storm water management facilities and drainage systems: Storm water infiltration facility.

7. The handling, storage, or application of road salt.

8. The storage of snow.

The areas of the site in which the HVA and SGRA exist and incur a vulnerability score of 6 have the potential to pose a Low threat to drinking water resources. HVA and SGRA regions of the site with vulnerability scores of 6 should be dealt with using a cautious Bet Management Practice (BMP) approach. Some examples of BMPs that may be followed are included in the table below.

Table 1: Activities of Concern and Best Management Practices

Activity	Possible Best Management Practices
The application, handling and storage of road salt.	Utilize alternatives to NaCl (Road Salt), such as sand. Use Smart about Salt contractors. Direct runoff to stormwater infrastructure and avoid areas of ponding such that ice formation is minimized in high traffic areas.
Storage of snow.	Provide near impervious snow storage locations to direct melted runoff into storm water infrastructure. Snow disposal areas should be located at least 500 ft from storm drain inlets, drainage ditches, and surface water to minimize transport of pollutants from snowmelt. Snow storage areas should be maintained to reduce erosion and promote easy removal of accumulated pollutants or sediment.

In summary, the identified activities above should either be avoided or the implementation of mitigative strategies should be considered to prevent significant impacts on drinking water sources in the area.

3.0 Physical Setting

The following sections describe the local and regional geology of the Subject Property, including the physiography, topography, and drainage of the area.

3.1 Physiography, Topography and Drainage

The Subject Property is located within the Simcoe Lowlands physiographic region. Other existing physiographic regions near the site include the Horseshoe Moraines to the south and the Simcoe Uplands to the east. The Simcoe Lowlands is the land region between the Georgian Bay and Lake Simcoe with two major divisions with the eastern portion draining towards Lake Simcoe and the western portion draining towards Nottawasaga Bay via the Nottawasaga River. The western portion ranges from approximately 177-229 metres above sea level (masl) and the eastern portion ranges from approximately 219 – 259 masl. The Subject Property is on the western portion of the division resulting in flows towards Nottawasaga Bay (Chapman & Putnam,1984).

This entire site lies within the Stayner Clay Plains and is described as low relief, with considerable complexity. This part of the plain is known as the Beveled Till Plains with pebbly till appearing at or near the surface with some areas overlain with few metres of sand (Chapman & Putnam, 1984). To the north of the Subject Property exists an area of sand plains, to the west exists an area of clay plains, and to the west exists undrumlinized till plains. Please refer to **Figure 2** for the Physiography of the site.

The Subject Property is located on the western edge of the Simcoe Lowlands. The topography in this area was found to range from 213-223 masl. Topographic lows were found to occur in the northeast corner of the property and highs were found to occur near the southwest corner of the Subject Property.

A review of watershed mapping and boundaries indicate that the Subject Property is located within the Lower Nottawasaga River watershed, a subwatershed of the Nottawasaga Valley watershed. The Lower Nottawasaga River extends from Angus downstream through the Minesing Wetlands, emerging from this vast wetland at Edenvale. Downstream of Edenvale, the river cuts through the Edenvale Moraine and pauses briefly at Jack's Lake before cutting through the parabolic sand dunes of Wasaga Beach Provincial Park. The river then flows through the Wasaga Beach urban area before discharging into Georgian Bay (Lower Nottawasaga River Subwatershed Health Check, 2018). Drainage in Stayner thus generally flows northeast along the Nottawasaga River. It is assumed that surface water drainage on the Subject Property would follow local topography which would be towards the northeast corner of the site.

3.2 Surficial and Bedrock Geology

According to Ontario Geological Survey (OGS) mapping, the surficial geology for most of the Subject Property is considered course-textured glaciolacustrine deposits and consists of sand, gravel, minor silt and clay, and foreshore and basinal deposits. The northeast portion of the Subject Property is considered to be till which consists of stone-poor, sandy silt to silty-sand textured till on Paleozoic terrain. To the west of the Subject Property (approximately 200 m) is a thin strip of shore bluff or scarp. Just south (approximately 500 m) is an area of older alluvial deposits which consist of clay, silt, sand, gravel, and may contain organic remains.

Bedrock geology on the Subject Property is mapped as the Lindsay Formation, underlain by the Shadow Lake Formation. Both formations are a part of the Simcoe Group. The Lindsay Formation consists of fine- to coarse-grained, fossiliferous, commonly nodular limestone, while the Shadow Lake Formation consists of red and green sandy shales, shaly sandstones, and silty dolostones.

Surrounding formations which exist approximately 3.5 km west of the Subject Property include the Georgian Bay Formation, the Blue Mountain Formation, and the Billings Formation. The Lindsay Formation ranged from 0 to 10 m in thickness and the Shadow Lake Formation ranges from about 0 to 15 m in thickness (Paleozoic Geology of Southern Ontario, Ontario Division of Mines, 1972). Based on well records in the area, bedrock was encountered at depths ranging from 25.6 to 42.7 m below ground surface (mbgs).

Please refer to **Figure 3** and **Figure 4** for the Surficial and Bedrock Geology of the site, respectively.

4.0 Hydrogeology

The following sections describe the local and regional hydrogeology and hydrostratigraphy of the Subject Property.

4.1 MECP Well Records

A review of the MECP Record Database identified a total of 53 well records within a 500-meter radius of the Subject Property. A summary of the key points from the well records are as follows:

- Of the fifty-three (53) wells, twenty-three (23) were used for domestic purposes, eight (8) were used as monitoring wells. Seventeen (17) were used as test holes, one (1) used for dewatering, and four (4) wells were abandoned.
- Out of the thirty-four (34) wells screened in an aquifer, twenty (20) wells were screened in bedrock and fourteen (14) were screened in the overburden.
- The most common stratigraphy noted in the borehole logs were brown and grey sand and clay, with some silt and gravel noted. The bedrock was comprised of grey shale and limestone.
- Of the well records that recorded static levels, static levels ranged from 0.3 to 21 mbgs, with an average of 10.4 mbgs.
- Of the well records that recorded depth, depths ranged from 3.1 to 91.4 mbgs, with an average of 33.6 mbgs.
- Of the well records that recorded rates, rates ranged from 15.1 to 75.7 L/min, with an average of 39.4 L/min.

Please refer to **Figure 5** for the MECP Well Location and **Appendix C** for the MECP Well Record Summary.

4.2 Groundwater Properties

4.2.1 Regional

South Georgian Bay-Lake Simcoe Source Protection Region completed an assessment report of the Nottawasaga Valley Source Protection Area, which evaluated the surface water and groundwater conditions of the Nottawasaga Valley watershed. Chapter 10 of the Approved Assessment Report for Nottawasaga Valley details the groundwater quality in the Township of Clearview. According to the assessment report, none of the parameters that were commonly found in the municipal water system in the Township of Clearview were identified as drinking water issues, as concentrations were consistently less than the Ontario Drinking Water Quality Standard (ODWQS) values. The following was noted in the Approved Assessment Report:

- The parameter *N*-Nitrosodimethylamine (NDMA) has been detected on rare occasions, and in trace concentrations. Concentrations are well below ODWQS values and detections are not constant.
- Trihalomethanes are present in trace concentrations in the treated water as by-products of disinfection by chlorination. Trihalomethane concentrations are typically well below ODWQS values and detections are not consistent.
- Coliforms and *E. coli* have been detected in the raw water under conditions that are rare and not consistent. Treatment consisting of adequate filtration and disinfection is in place and maintained in accordance with Provincial standards set under the Safe Drinking Water Act. As this treatment is effective and detections are rare, the coliform and *E. coli* bacteria are not considered to be Drinking Water Issues.

Regional groundwater flow is expected to be north towards Georgian Bay, and local, shallow groundwater flow patterns are expected to follow local topography.

4.3 Aquifer Properties

Palmer Environmental Consulting Group Inc. previously completed a hydrogeological investigation for the Clearview Garden Estates parcel located adjacent to development property. Through review of OGS mapping, well records, and the geotechnical investigation completed for the site and the neighbouring property, the following layers were found to be present:

- An unconfined glaciolacustrine fine sand aquifer was found to be present on the Subject Property. This unconfined aquifer was found to be very thin (about 1.5 m). This aquifer is assumed to support natural environmental features such as wetlands and watercourses.
- A silty sand till aquitard is present over the Subject Property. This aquitard restricts water movement and infiltration. This is a much thicker aquitard as well records indicate this formation at depths as large as 27.5 mbgs.
- A confined sand aquifer extends across the Subject Property. This aquifer is found at a depth of approximately 28 mbgs on the site. Municipal wells within the area obtain water from this unit. This unit appears to present within a buried bedrock valley that extends to Stayner from the Niagara Escarpment to the Georgian Bay.

There is another aquitard present on the Subject Property but it is not extensive across the entire site. A silty clay aquitard can be found in some areas just above or just below the silty sand till aquitard. It should be noted that these areas will have lower soil conductivity which may result in water perching in areas.

4.4 Surface Water Features

Based on a review of the MECP natural heritage mapping, the surface water features present on the Site include tributaries of the Lamont Creek which cut through the middle of the Site, flowing from south to north. An unevaluated wetland also exists on the western portion of the Site, within the Environmental Protection lands. No development is proposed within these wetlands.

Several other tributaries of Lamont Creek are located to the north of the development, within the Clearview Garden Estates lands and south of the Site Boundary. Unevaluated wetlands are also located north of the Clearview Garden Estates lands and southeast of the Site boundary.

5.0 Field Work

Groundwater monitoring wells were installed on the Subject Property by other consultants in 2022.

5.1 Monitoring Well Construction

5.1.1 2022 Monitoring Well Construction (AllRock Consulting Ltd.)

Initially, during the period of March 28 - April 1, 2022, AllRock Consulting Ltd. was retained for the drilling of twenty (20) boreholes, with ten (10) being outfitted as monitoring wells. The purpose of this drilling program was to establish hydrogeological conditions across the Subject Property and assess the potential requirement for construction dewatering and/or long-term dewatering.

Key monitoring well construction details can be found in **Table 2**. Full borehole records and monitoring well construction logs can be found in **Appendix D**. Monitoring well locations can be seen on **Figure 6**.

Table 2: 2022 Monitoring Well Construction Details

Monitoring Well	Total Depth (mbgs)	Screened Interval (mbgs)	Screened Material
BH01	5.20	2.15-5.20	Native Glacial Till
BH02	5.20	2.15-5.20	Native Glacial Till
BH04	3.60	2.08-3.60	Native Silty Sand/Glacial Till
BH05	5.20	2.15-5.20	Native Glacial Till
BH08	3.20	1.68-3.20	Native Glacial Till
BH13	3.00	1.48-3.00	Native Silty Sand
BH15	5.20	2.15-5.20	Native Glacial Till
BH17	5.20	2.15-5.20	Native Silty Sand/Glacial Till
BH18	5.20	2.15-5.20	Native Glacial Till
BH19	5.20	2.15-5.20	Native Glacial Till

Most of the monitoring wells installed in 2022 were drilled to a depth of 5.20 mbgs. Accordingly, the majority of the wells were screened with the interval between 2.15 - 5.20 mbgs. The primary noted screened formations encountered included silty sand and glacial till. All wells constructed were installed with a 51 mm diameter Schedule 40 PVC pipe with #10 slot PVC screens complete with a sand pack at the screened interval and bentonite plug to the ground surface. It should be noted that BH04, BH08 and BH13 were drilled to 5.20 mbgs but caved in. Monitoring wells were installed to the caved in depths.

5.1.2 Observed Site Stratigraphy

Based on the geotechnical borehole logs prepared by AllRock, the following stratigraphy was seen during the drilling process.

Topsoil/Fill Material

A dark brown silty sand topsoil/fill with trace to some clay and organic materials were encountered in all boreholes except for BH07 and BH14. The topsoil/fill ranges from approximately 30 to 380 millimetres.

Weathered/Disturbed Material

A weathered/disturbed brown, silty gravelly sand with trace to some clay was encountered from surface grade and/or below the topsoil at BH01 to BH04, BH07, BH15, and BH18. The weathered material ranges from 0.1 to 0.7 metres in thickness and from depths of 0.1 to 0.9 metres below existing grade.

Silty Sand/Sand

The following native silty sand/sand was noted on-site:

- Brown to grey silty sand, trace to some clay
- Brown to grey clayey silty sand with trace to some gravel and clay
- Brown, fine to coarse grained sand with trace gravel and silt

These units were encountered at BH04, 06, 08, 09, 12, 13, 16, 17, 19 and 20 starting at depths ranging from 0.1 to 0.8 mbgs, extending to depths of 0.8 to 5.0 mbgs, with thicknesses ranging from 0.6 to 4.7 metres.

Glacial Till

Native deposits of glacial till were encountered at all borehole locations from ground surface to 5.2 mbgs. The deposits consisted of the following:

- Brown to grey silty sand, trace clay and some gravel
- Grey to brown sandy silty gravel with trace clay and cobbles
- Brown to grey sand and gravel, trace clay and some silt

For further details, please refer to the geotechnical report prepared by AllRock, submitted under separate cover.

6.0 Field Results

6.1 Groundwater Monitoring

Following the installation of the wells in 2022 and the redevelopment of the wells in 2025, periodic manual measurements have been collected by Crozier. Out of the ten (10) monitoring wells installed, seven (7) wells were considered suitable for monitoring. Water level recording devices (e.g., water level loggers) were installed in October 2025. All automatic water level loggers remain in the monitoring wells and will remain until the end of the one-year monitoring period in Fall 2026.

6.2 Groundwater Elevations

Table 3 below presents the manual groundwater elevations collected by AllRock Consulting Ltd. in April 2022 for the Subject Property.

Table 3: Manual Groundwater Levels (April 25, 2022)

Monitoring Well	Groundwater Level (mbgl)
BH01	0.54
BH02	0.05
BH04	0.73
BH05	0.12
BH08	0.39
BH13	0.04
BH15	0.18
BH17	0.45
BH18	-0.33
BH19	0.15

Table 4 below presents the manual groundwater elevations Crozier collected since the monitoring period began. This data is assumed to include a representation of the spring freshet.

Table 4: Manual Groundwater Levels (October 2025 to May 2026)

Monitoring Well	Ground Elevation (masl)	Manual Groundwater Levels					
		October 22, 2025		February 17, 2026		May 25, 2026	
		mbgs	masl	mbgs	masl	mbgs	masl
BH01	219.46	3.38	216.08	Frozen	Frozen	0.19	219.27
BH02	217.62	3.99	213.63	Frozen	Frozen	0.19	217.43
BH04	215.61	2.77	212.84	1.13	214.48	-0.12	215.73
BH15	220.68	3.62	217.06	0.76	219.92	0.69	219.99
BH17	216.90	1.68	215.22	0.73	216.17	0.36	216.54
BH18	222.92	1.52	221.40	0.08	222.84	0.01	222.91
BH19	217.78	1.40	216.38	Frozen	Frozen	0.20	217.58

Based on manual water level measurements, the highest groundwater level in mbgs was observed at BH04 with an elevation of -0.12 mbgs, while the highest groundwater level in masl was observed at BH18 with an elevation of 222.91 masl. Both elevations occurred on May 25, 2026.

6.2.1 Seasonally High Groundwater

A summary of the recorded data collected through the deployed loggers is provided in **Table 5** below. Seasonally recorded minimums are provided.

Table 5: Range of Seasonally High Groundwater Levels

Monitoring Well	Ground Elevation (masl)	Seasonally Recorded Minimum		
		Date	W/L (mbg)	W/L (masl)
BH01	219.46	2025-12-19	0.036	219.42
BH02	217.62	2025-11-15	0.178	217.44
BH04	215.61	2026-04-15	-0.434	216.04
BH15	220.68	2026-03-11	0.096	220.58
BH17	216.90	2026-03-11	0.073	216.82
BH18	222.92	2026-03-11	-0.017	222.94
BH19	217.78	2026-04-16	-0.228	218.00

Hydrographs were developed for each monitoring well with an automatic level logger, and groundwater elevations were reviewed. Seasonal highs ranged from -0.017 mbgs to -0.434 mbgs or 222.94 masl to 216.04 masl, at BH18 and BH04, respectively. At the time of submission, monitoring has been completed from Fall 2025 to Spring 2026. Throughout this time, lows were typically noted in Winter 2025 while highs were noted in the Spring 2026 freshet. Hydrographs can be seen in **Appendix E**.

Historical precipitation data was collected from the Wasaga Provincial Park weather station, located approximately 9.5 km from the Subject Lands. Hydrographs compared groundwater levels against precipitation data from the local rain station to interpret the relationship between the screened aquifer and recharge from precipitation. As seen in the hydrographs, when large precipitation events or the freshet occurred, the monitoring wells were moderately responsive. The moderate responses in water levels corresponds to the silty sand layer observed across the Site from depths of 0.1 to 5.0 mbgs, underlain by the glacial till unit which has a slower recharge rate and may correspond to the perched groundwater levels during the wetter seasons.

6.3 Groundwater Flow Direction

Based on manual measurements collected over the Spring 2026 freshet, the inferred site-specific groundwater flow direction is from the southwest to northeast from an elevation of 222.91 masl to 215.73 masl. The total groundwater gradient across the site is approximately 0.009. Per a review of surrounding surface water features, it appears that the groundwater flow corresponds to the existing topography and the Lamont Creek, located east of the Site. Please refer to **Figure 7** for the Groundwater Flow Direction.

6.4 Groundwater Quality

Groundwater quality sampling was conducted on May 25, 2026. One (1) representative water quality sample was obtained from monitoring well BH18 using low flow techniques. The sample was sent to a licensed third-party laboratory, AGAT Laboratories, for general water quality analysis. The resulting concentrations were compared against Provincial Water Quality Objectives (PWQO) and the Sewer Use By-Law for the Township of Clearview (#00-13). No exceedances were found when comparing the sample to the Sewer Use By-Law and the following exceedances were observed when comparing to the PWQO.

Table 6: Groundwater Quality Exceedances

Parameter	Unit	PWQO Concentration	Concentration in Sample
Ammonia as N	mg/L	0.02	0.03
Total Aluminum	mg/L	0.075	0.289
Total Iron	mg/L	0.30	0.721

The noted exceedances in metals are most likely naturally occurring. Aluminum and iron are some of the most common naturally occurring metals in groundwater. Exceedances in ammonia may be due to fertilizer used during farming activities. These exceedances are not expected to be of any concern based on the proposed use of the Subject Property.

The groundwater quality results can be found in **Appendix F**.

6.5 Infiltration Testing Results

In-situ Guelph permeameter testing was conducted in five (5) different locations by AllRock in 2022. The results of the infiltration testing are outlined in Table 7 below.

Table 7: Infiltration Testing Results

Test Number	Infiltration Rate (mm/hr)	Test Depth	Soil Type
1	0.96	1 m	Silty Sandy Gravel (Glacial Till)
2	111.37*	1 m	Gravel
3	0.71	1 m	Silty Sand (Glacial Till)
4	1.56	1 m	Silty Sand (Glacial Till)
5	0.59	1 m	Silty Sand (Glacial Till)

*According to AllRock, a permeable, clean gravel layer was encountered at the bottom of the test hole and water flowed freely through this layer, resulting in a higher K value.

7.0 Impact Assessment and Mitigation

Discussion on the potential for future dewatering below is based on the interaction between groundwater surface and proposed design elements for the Subject Property.

Discharge of any dewatering flows should be analyzed against PWQO and Sewer Use By-Laws, depending on dewatering discharge method, to ensure that they are within the allowable tolerance. If there are any noted exceedances, a settling basin or other treatment methods (including coagulation) may be required.

7.1 Groundwater Levels

Groundwater levels range from 222.94 masl to 216.04 masl, at BH18 and BH04, respectively. Given that the aquifer units noted during the geotechnical investigations included silty sands up to 5.0 mbgs and the hydrographs showed moderate responses to precipitation, it is anticipated that water seepage is expected during excavation which may appear as a moderate flow from the silty sand layer and a slow seepage from the glacial till layer.

7.2 Dewatering Considerations

According to the General Servicing Plan prepared by Crozier (2026), the deepest servicing (sanitary) will be constructed approximately 209.55 masl. As this elevation is below the seasonally high groundwater level range of 216.04 masl to 222.94 masl, it is anticipated that short-term dewatering will be required during construction. It is recommended that a pre-construction dewatering assessment be undertaken prior to breaking ground to ensure that sufficient pumping capacity can be provided on the Site during construction works. It is advised that seepage at or near the groundwater level should be handled using a filtered sump pump placed at the base of the excavation for most of the site, or with well points.

According to the Draft Plan prepared by MHBC, a SWM pond will be located on the northeastern side of the Subject Property. Groundwater levels on this side of the Subject Property ranged from 216.04 masl to 217.44 masl during the Spring 2026 freshet. Currently the depth of the SWM pond is approximately 215 masl, therefore depending on the time of year, temporary dewatering may be required in order to draw down the groundwater surface in the SWM pond area to enable the install of a clay liner in relatively dry conditions.

While the proposed development is still under revision, it is anticipated that some residential units may include basements. Due to the high groundwater levels, it is anticipated that engineered fill will be required on sections of the Subject Property. While the Township of Clearview does not have specific guidelines regarding seasonally high groundwater separation from the underside of basements, Crozier generally recommends a separation of 0.50 m. If a minimum of 0.50 m separation from the seasonal groundwater high is maintained, no long-term dewatering will be required for residential units at the Subject Property as all structural features are provided with sufficient separation from the seasonally high groundwater table. Seasonally high groundwater levels have been provided to the civil design team to ensure that an adequate separation between the final basement floor elevations and the seasonally high groundwater elevation will be met.

Long term elevated groundwater considerations should be made for the SWM pond on the northeast edge of the property to prevent the potential for hydrostatic uplift to result in heaving or unsettling of the pond's clay liner.

If construction dewatering volumes are expected to exceed 50,000 L/day, registration with the MECP Environmental Activity Sector Registry (EASR) is required. Local permitting will also likely be required prior to any groundwater discharge to municipal infrastructure. It is recommended that construction is advanced during dry months (June to September) when groundwater levels may be lower. If long-term dewatering volumes exceed 50,000 L/day, a Permit to Take Water (PTTW) will be required.

7.3 Groundwater Impacts

Impacts on both private and municipal water supplies in the area are predicted to be minimal based on the relatively shallow depth of potentially required dewatering when compared to the depths of drinking water wells. The existing private well on-site should be decommissioned under the guidelines on O. Reg. 903 (Wells Regulation).

Impacts to surface water features such as wetlands and the tributary of Lamont creek are not also anticipated based on the dewatering requirements.

Impacts to groundwater quality in the area may occur in the case of the SWM pond. To reduce the potential interaction between the pond's permanent pool and the groundwater table, a non-porous clay liner should be installed for the entirety of the pond's basin.

7.4 Water Balance

Sections of the Subject Property overly both an HVA and an SGRA. Accordingly, source protection guidelines dictate that the site should strive to maintain pre- to post-development infiltration rates to prevent depletion of the underlying aquifer. To accomplish this, Crozier completed a site-specific water balance analysis using the Thornthwaite and Mather Approach, in accordance with the Stormwater Management Planning and Design Manual (MOE 2003). The water balance assessment determines the potential impact of the proposed development on the local groundwater recharge conditions.

Based on detailed design at a later stage, infiltration deficits created by the reduction in pervious area on site will be compensated by the use of LIDs.

7.4.1 Site Specific Information

A water balance assessment was conducted to assess potential impacts of the proposed development on the local groundwater conditions. The water balance was conducted under existing (pre-development) and proposed (post-development) conditions. The water balance assessment was conducted in accordance with accepted Site condition values from Table 6.3 of the Urban Storm Drainage Criteria Manual: Volume 1 (Urban Drainage and Flood Control District, 2016) and Table 3.1 of the MECP Stormwater Management Planning and Design Manual (MECP, 2003). The results of the water balance assessment are presented in **Table 8**.

Table 8: Summary of Water Balance

Pre-Development Infiltration (mm/yr)	**Post-Development Infiltration without Mitigation** (mm/yr)	**Infiltration Deficit (mm)**
171	108	63

7.4.2 Methodology

The water balance on a site can be estimated from the following equation described in Thornthwaite and Mather 1957:

$$P = S + R + I + ET$$

where:
P = precipitation
S = change in groundwater storage
R = surface water runoff
I = infiltration
ET = evapotranspiration/evaporation

The components of the water balance equation can be estimated using field observations of drainage conditions, land cover, soil types, groundwater conditions and local climate records.

Precipitation (P)

The nearest climate station to the Site is located 45 km to the southeast of the site and is known as the Egbert weather station (44°14'00.000" N, 79°47'00.000" W, elevation of 251 masl). Monthly average precipitation and climate data from 1991-2020 was used to complete the water balance calculations for the Site. The long-term monthly average for precipitation and climate is shown below.

Table 9: Monthly Average Precipitation (1991-2020)

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Precip mm)	54.7	44.7	47.9	61.6	73.9	83	77.9	82.6	72.3	65.4	71.8	57.6	793.2[1]
Temp (°C)	-7.2	-6.4	-1.3	5.6	12.3	17.5	20.1	19.2	15.3	8.9	2.7	-3.2	7[2]

1. Total average annual precipitation from 1991-2020.
2. Average annual temperature from 1991-2020.

Therefore, based on the data above, the long-term annual average precipitation for the area is **793.2 mm/year** and the average annual temperature for the area is **7°C.**

Storage (S)

Long-term groundwater storage (S) is assumed to be negligible as no evidence of groundwater impact on significant groundwater pumping or withdrawal is noted in regional studies of the area. The seasonal changes in water levels are expected to balance annually.

Evapotranspiration/Evaporation (ET)

The rate of evapotranspiration is a function of the water holding capacity of the soil, vegetation and vegetation type and land cover. Through the Thornthwaite and Mather method or a soil moisture balance approach and local climate data, the Potential Evapotranspiration (PET) and the Actual Evapotranspiration (AET) can be calculated. PET refers to a loss of water to the atmosphere given unlimited water supply. The AET is generally found to be less than the PET due to the local climate effects such as soil moisture deficit in the summer months.

The soils on the property were determined to be a sandy silt loam. Therefore, based on these soils and various land use types, a soil moisture capacity ranging from **75 mm** to **400 mm** were selected from Table 3.1 of the MECP Stormwater Management Planning and Design Manual (MECP, 2003). Using these retentions, the monthly potential evapotranspiration was calculated using latitude and climate conditions and the actual evapotranspiration and water surplus was calculated based on monthly average precipitation and soil moisture conditions. The water balance components were used to estimate the pre-development and post-development water balance scenarios.

Water Surplus (R + I)

The difference between mean annual P and mean annual ET outputs the amount of water surplus for the Site. The water surplus either infiltrates (I) into the soil or travels across the site as runoff (R). The distribution of water that infiltrates into the soil is a function of an infiltration factor as described in the MECP Stormwater Management Planning and Design Manual (MECP, 2003). The infiltration factors for the Site are assumed to be 0.7 and 0.8. These factors were developed based on a combination of the following factors determined through land use type: Topographic factors (Flat – 0.1), soil (Combination of silt and sand – 0.3) and land cover factors (Urban/Cultivated Areas – 0.1, shallow rooted crops – 0.1, mature forests – 0.2, and other land uses – 0.1).

7.4.3 Pre-Development Infiltration

The pre-development water balance calculations are presented in **Appendix G**. The existing conditions have been broken down into the one (1) pre-development catchment and three (3) environmental protection catchments (PRE-1, EP-1, EP-2, and EP-3). The table below summarizes the land area and the associated imperviousness of the Site pre-development.

Table 10: Pre-Development Land Use Estimates

Land Use	Land Area (m^2)	Estimated Impervious Percentage[1]
PRE-1	462,800	0.5%
EP-1	63,700	0%
EP-2	148,500	0%
EP-3	11,300	0%
Total	**686,300**	

1. Estimated using Urban Strom Drainage Criteria Manual Volume 1 and field observations.

Based on the water balance components, the pre-development infiltration value for the subject property is calculated to be approximately **171 mm/year.**

7.4.4 Post-Development Infiltration

The post-development water balance calculations are presented in **Appendix G**. The proposed development concept has been broken down into the ten (10) post-development catchments and three (3) environmental protection areas. The table below summarizes the land areas and the associated imperviousness of the Subject Property post-development.

Table 11: Post-Development Land Use Estimates

Land Use	Land Area (m^2)	Estimated Impervious Percentage[1]
POST-1	310,600	54%
POST-2	13,200	56%
POST-3	18,700	43%
POST-4	19,300	55%
POST-5	15,900	59%
POST-6	21,600	55%
POST-7	700	48%
SCHOOL	21,200	85%
POND	41,600	100%
EP-1	63,700	0%
EP-2	148,500	0%
EP-3	11,300	0%
Total	**686,300**	

1. Estimated using Urban Strom Drainage Criteria Manual Volume 1 and field observations.

Based on the water balance components, the calculated post-development infiltration volumes are estimated to be **108 mm/year.** In comparing the pre and post development infiltration volumes, the proposed development has the potential to decrease infiltration by about **37%.**

7.4.5 Mitigation

Without mitigation strategies, the proposed development has the potential to impact the natural water balance of the Subject Property and the surrounding area. The proposed development will introduce impervious surfaces and structures decreasing soil infiltration in the area. The removal of vegetation combined with the reduction in soil infiltration will lead to the majority of precipitation in these areas becoming surplus water and direct runoff from the development.

Without mitigation, **63%** of pre-development infiltration is maintained post-development. Increased runoff from the development and reduction in soil infiltration can be addressed using appropriate stormwater management (SWM) techniques and the introduction of low impact development (LID) techniques.

Preliminary mitigation calculations assume that 50% of the on-site impervious area will drain to LID measures. Based on this assumption, the proposed LIDs should be sized for 9.5 mm of runoff from contributing impervious surfaces to maintain pre-development infiltration across the site. Refer to Crozier's Functional Servicing and Stormwater Management Report (2026) for details on the LID strategies proposed to achieve pre- to post-development infiltration targets.

8.0 Conclusion and Recommendations

Crozier is prepared to make the following conclusions and recommendations:

- The source protection approach on the Subject Property should follow a BMP approach and respect the risks associated with the following activities, mitigating where possible:
    - The establishment, operation or maintenance of a system that collects, stores, transmits, treats, or disposes of sewage.
        - Storm water management facilities and drainage systems: Storm water infiltration facility.
    - The handling, storage, or application of road salt.
    - The storage of snow.
    - An activity that takes water from an aquifer or a surface water body without returning the water taken to the same aquifer or surface water body.
    - An activity that reduces the recharge of an aquifer.
- Surficial geology on the Subject Property primarily overlies course-textured glaciolacustrine deposits that consists of sand, gravel, minor silt and clay, and foreshore and basinal deposits. A section on the northeast portion of the Subject Property is considered to be till which consists of stone-poor, sandy silt to silty-sand textured till on Paleozoic terrain. Overburden geology consists of the Lindsay Formation which is composed of limestone, dolostone, shale, arkose, and sandstone.
- A review of MECP Well Record Database identified a total of fifty-three (53) well records within a 500-meter radius of the site location. Well records indicated that most of the wells are used for monitoring, test hole, or domestic supply purposes, with a few indicating abandonment.

- Regionally, NDMA, coliforms and E. coli were found on rare occasions and not consistent. The NDMA concentrations found were well below ODWQS values. Due to sufficient filtration and disinfection, the E. coli and coliform bacteria are also not considered to be of concern. Trihalomethanes were also found in trace concentrations as a by-product of chlorination, these values are typically well below ODWQS values.

- Groundwater chemistry samples taken near the site revealed PWQO exceedances in ammonia, aluminum and iron. These exceedances are not expected to be of concern for future land use.

- Groundwater monitoring began on the Site in October 2025. Seasonally high groundwater levels ranged from 216.04 masl to 222.94 masl during the Spring 2026 freshet.

- Due to the high groundwater level records to date, temporary dewatering is presumed to be required on the Subject Property for the successful install of inground services and the SWM pond.

- Engineered fill is recommended in areas of the Subject Property for structural features such as footing and basement slabs to respect the seasonally high groundwater elevations.

- Impacts to groundwater resources in the area as a result of the Bridle Park Development are predicted to be negligible.

- Current land use plans for the Subject Property may result in an infiltration deficit of approximately 37% from pre-development to post-development. In order to maintain the infiltration on the Subject Property, strategies capable of increasing infiltration by 63 mm/year will be required such as LIDs.

- The proposed LIDs for the Site should be sized for 9.5 mm of runoff from contributing impervious surfaces to maintain pre-development infiltration across the site.

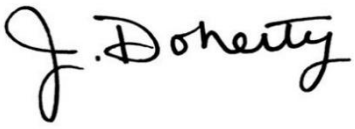
Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.



Kelly Reid
Engineering Intern, Hydrogeology

C.F. CROZIER & ASSOCIATES INC.



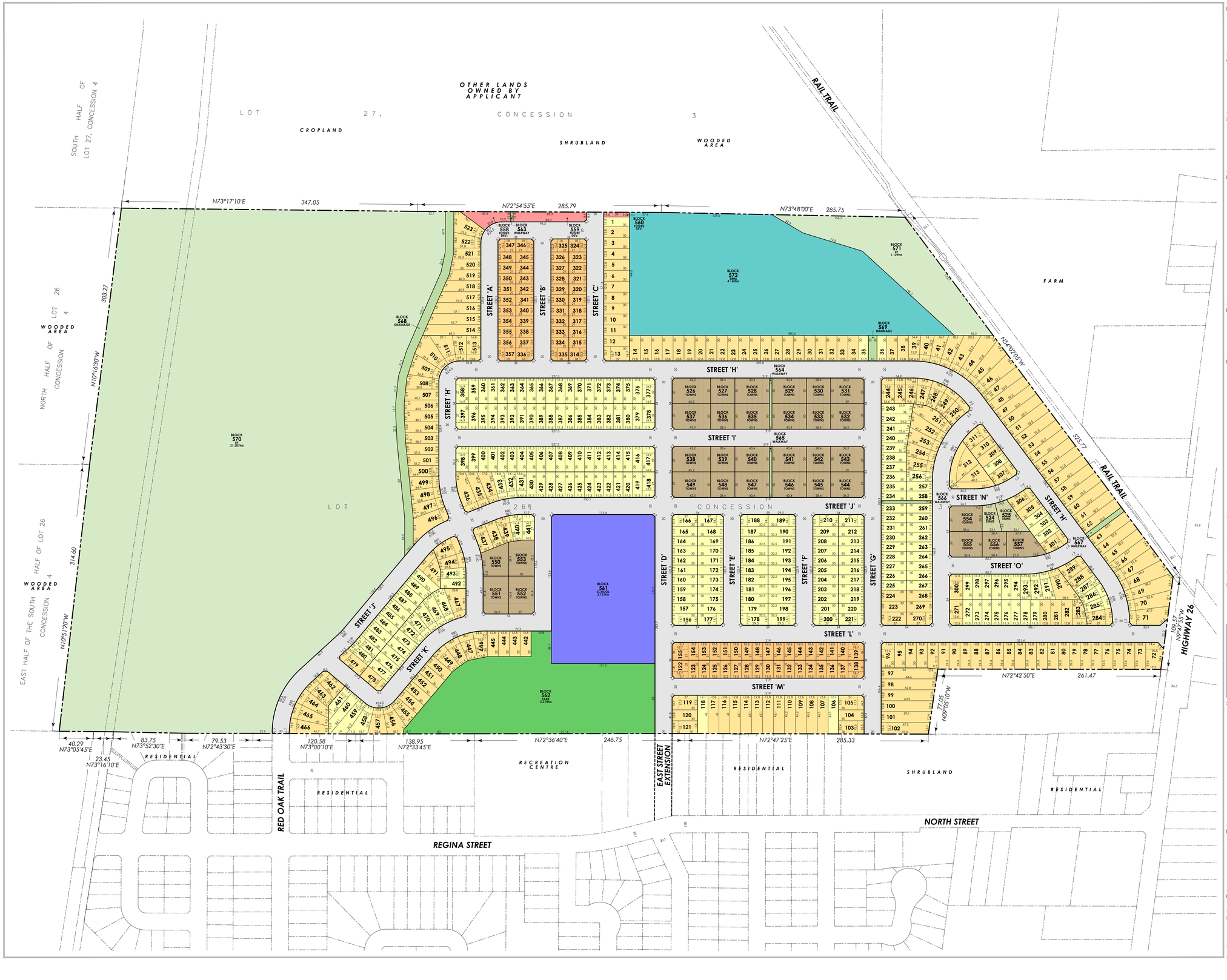
Jessica Doherty, P.Eng.
Project Manager

KR/

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APPENDIX A

Draft Plan



Legal Description

Part of Lot 26, Concession 3
Geographic Township of Nottawasaga
Town of Clearview
County of Simcoe

Owner's Certificate

I hereby authorize MacNaughton Hermsen Britton Clarkson Planning Limited to submit this plan for approval.

Date: _____

_____
Matthew Castelli
1000983019 Ontario Limited

Surveyor's Certificate

I hereby certify that the boundaries of the land to be subdivided on this plan and their relationship to the adjacent lands are accurately and correctly shown.

Date: _____

_____
Paul Edwards, OLS
R-PE Surveying Limited

Key Plan



Legend

- Project Boundary Line
- Right of Way Line
- Block Line
- Lot Line
- Parcel Fabric

Land Use Summary

Land Use	Lot / Block	Units	Area
Single Detached - 11.3m	1, 35, 36, 106, 118, 156-221, 225-243, 256-267, 272-279, 285-287, 291-299, 302-304, 308, 358-433, 440, 441, 458-461, 468-477, 480-490, 492, 493	231	8.325
Single Detached - 12.8m	2-34, 37-105, 107-117, 119-121, 222-224, 244-255, 268-271, 280-284, 288-290, 300, 301, 305-307, 309-313, 434-439, 442-457, 462-467, 478, 479, 491, 494-523	214	11.044
Single Detached - 12.5m Shallow	122-155, 314-357	78	2.141
Semi Detached - 7.5m	524, 525	4	0.146
Townhouse - 6m	526-557	164	3.583
Future Development	558-560		0.190
School	561		2.121
Park	562		2.314
Walkway	563-567		0.089
Drainage	568-569		0.439
Environmental Protection	570, 571		22.346
Stormwater Management Area	572		4.160
Right of Way	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O		11.727
Totals		691	68.625

Rev. No.	Date	Issued / Revision	By

Additional Information
Required Under Section 51 (17) of the Planning Act R.S.O. 1990 C.P.13 as Amended

A. As shown
B. As shown
C. As shown
D. As shown
E. As shown
F. As shown
G. As shown
H. Municipal water & sanitary supply
I. Silty sand/sand & glacial till
J. As shown
K. All services as required (water, sanitary, storm, hydro, cable)
L. As shown

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
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Stamp

Date	June 18, 2026
File No.	15226AH
Scale	1:2,000 (ARCH D)
Drawn By	M.A.M.
Checked By	K.C.
Other	

Project

Bridle Park
1000983019 Ontario Limited
111 Mildenhall Road
Toronto, Ontario
M4N 3H4

NORTH

File Name
Draft Plan of Subdivision

DWG No. 1 of 1

Scale Bar

0 5 10 15 20 25 50 75 100m

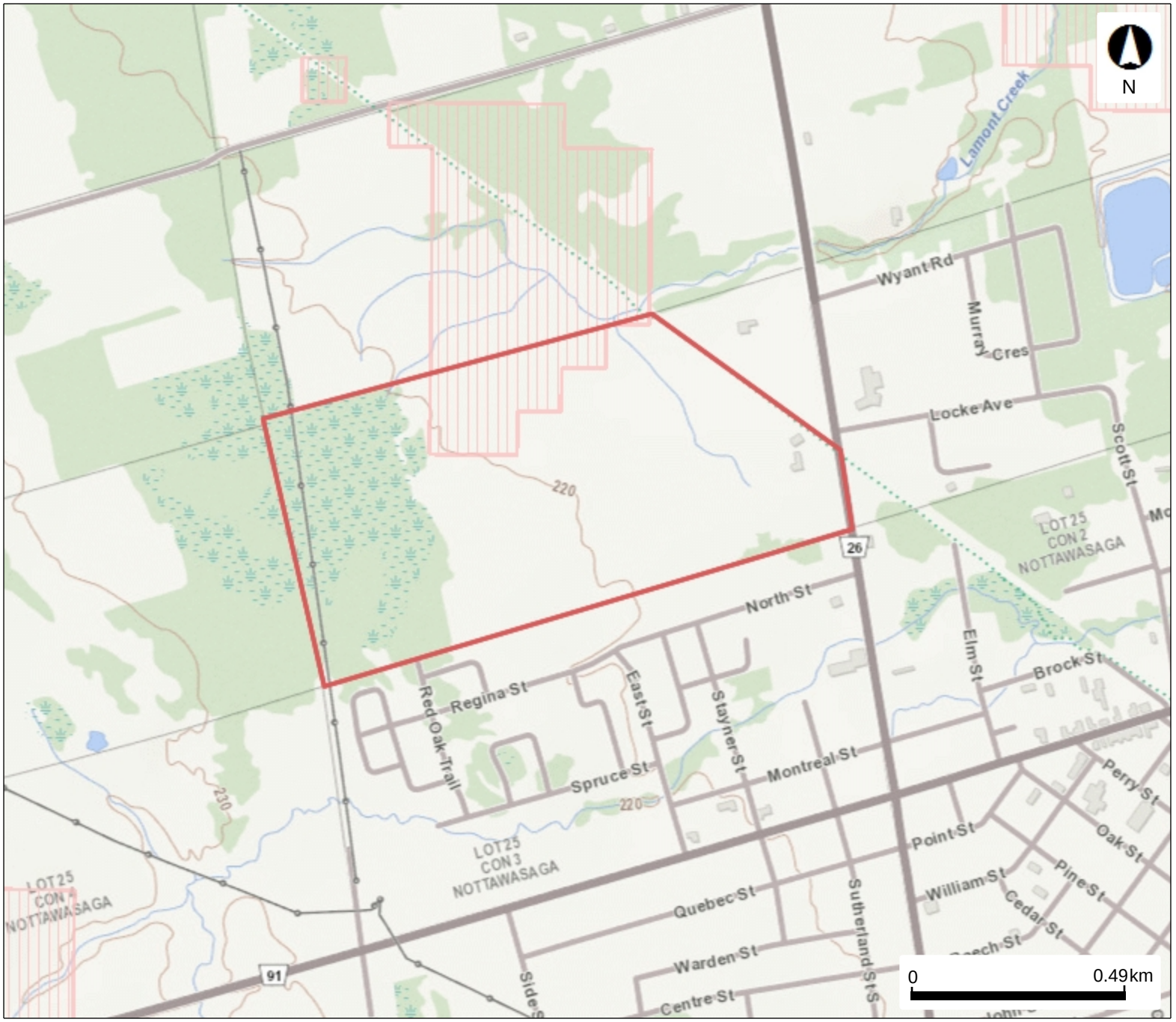
Measurements shown on this plan are in metres and can be converted to feet by dividing by 0.3048

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APPENDIX B

Source Protection Mapping

Highly Vulnerable Aquifer - Bridle Park



Legend

- Highly Vulnerable Aquifers
- Site Boundary

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

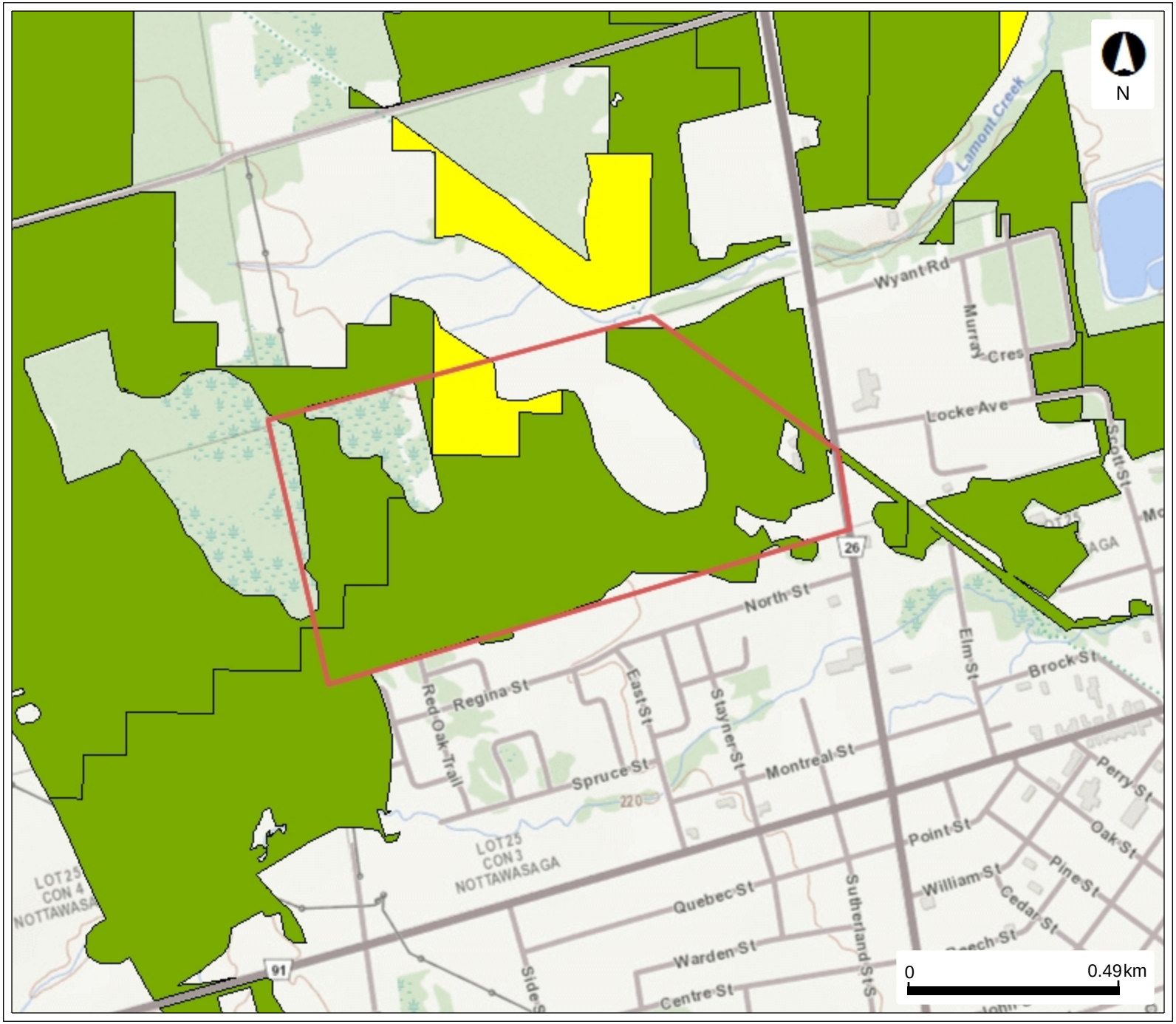
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Map Created: 6/22/2026
Map Center: 44.42417 N, -80.10477 W

Significant Groundwater Recharge Areas - Bridle Park



Legend

Significant Groundwater Recharge Area

- N/A
- 0
- 2
- 4
- 6

Site Boundary

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

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Map Created: 6/22/2026
Map Center: 44.42415 N, -80.10477 W

APPENDIX C

MECP Well Record Summary

MECP WATER WELL RECORDS

Project Number: 2135-7498 — Address: Nottawasaga Concession 3, Lot 26
Prepared by: KIR — Date completed: 29-Jul-25

Well Tag Number	Well ID	Inside Diameter (mm)	Depth (m)	Static Level (m)	Rate (L/min)	Water Quality	Material	Depth to Bedrock (m)	Aquifer[1]	Use	Date of Completion (MM/DD/YYYY)
N/A	5702039	101.6	33.8	21.0	11.4	Clear	medium sand/hardpan/gravel	-	OB	domestic	05/30/1960
N/A	5702040	762.0	7.6	4.6	11.4	Clear	sand	-	OB	domestic	12/18/1962
N/A	5702041	101.6	39.6	15.2	18.9	Clear	topsoil/sand & gravel/sandy clay/shale rock	33.5	BR	domestic	10/18/1966
N/A	5706103	101.6	38.4	9.8	75.7	Clear	sandy clay/clay/gravelly clay/shale/limestone	29.6	BR	domestic	11/15/1968
N/A	5709826	127.0	38.1	11.9	56.8	Clear	sandy clay/clay/sand	-	OB	domestic	04/12/1973
N/A	5710017	101.6	38.1	11.0	56.8	Clear	sand/clay/gravelly clay/grey rock	35.4	BR	domestic	07/20/1973
N/A	5715491	130.3	42.7	Unknown	30.3	Clear	brown sand/grey clay/grey shale	32.9	BR	domestic	08/31/1978
N/A	5716350	152.4	36.6	12.2	26.5	Clear	brown sand/grey clay/grey shale	33.2	BR	domestic	09/13/1979
N/A	5718166	152.4	73.2	12.2	26.5	Clear	brown topsoil/brown sand with gravel/grey clay/grey shale	33.5	BR	domestic	09/10/1982
N/A	5718197	152.4	42.7	12.2	22.7	Clear	brown topsoil, brown sand, grey clay, grey shale	34.1	BR	domestic	09/14/1982
N/A	5718842	N/A	32	Unknown	Unknown	Unknown	clay/sand/limestone	30.6	BR	test hole	11/23/1983
N/A	5719038	762.0	15.2	4.9	18.9	Clear	topsoil/brown clay/blue clay/gravel	-	OB	domestic	03/17/1983
N/A	5719845	152.4	40.2	N/A	75.7	Unknown	brown topsoil/brown sand with clay/grey clay/grey limestone	39.3	BR	domestic	05/14/1985
N/A	5721944	158.8	30.2	12.2	37.9	Clear	brown topsoil/brown sand/grey clay/brown sand	-	OB	domestic	08/12/1987
N/A	5722915	155.7	48.5	9.1	37.9	Clear	brown sand/grey clay/grey limestone	35.1	BR	domestic	12/23/1987
N/A	5725022	158.8	91.4	15.8	Unknown	Unknown	brown topsoil/brown clay/grey clay/grey shale	42.7	N/A	abandoned	06/06/1989
N/A	5725694	914.4	7.9	1.8	Unknown	Unknown	topsoil/brown sand/grey sand/grey silty clay	-	OB	domestic	09/14/1989
N/A	5726739	152.4	41.5	Unknown	56.8	Unknown	topsoil/brown sand/grey clay/grey gravel with sand,clay/grey clay with gravel/brown limestone	34.1	BR	domestic	05/23/1990
N/A	5727072	130.3	42.4	0.9	15.1	Clear	brown topsoil/brown clay/grey clay/grey gravel/grey shale	25.6	BR	domestic	07/02/1990
N/A	5727341	158.8	30.5	0.3	Unknown	Unknown	brown fill/brown clay/grey clay/grey gravel/grey shale	28.0	BR	test hole	09/08/1990
N/A	5730003	155.7	38.4	14.6	75.7	Clear	brown sand/grey sand/grey clay/brown sand	-	OB	domestic	06/30/1993
N/A	5730246	158.8	46.6	14.6	37.9	Clear	brown clay/grey clay/brown sand/grey clay/grey limestone	40.2	BR	domestic	10/15/1993
N/A	5736274	158.8	51.8	14.9	15.1	Cloudy	black topsoil/brown sand/grey sand/grey clay/grey silt/grey clay/grey limestone	34.1	BR	domestic	08/15/2001
A027618	5739983	51.0	4.5	Unknown	Unknown	Unknown	brown silty sand/grey sand	-	OB	monitoring well	05/27/2005
A029382	5741074	49.0	3.1	Unknown	Unknown	Unknown	brown sand with gravel/brown silt/grey sand/grey silt	-	OB	monitoring well	07/04/2006
A023825	7040506	73.0	36.9	Flowing	Flowing	Clear	brown clay with stones, gravel till/grey silt/brown sand/grey clay/grey limestone	36.3	BR	monitoring well	01/10/2007
_NO_TAG	7040507	N/A	35.4	Unknown	Unknown	Unknown	fill/grey clay with gravel till/grey clay/grey silt/grey limestone	34.7	N/A	abandoned	01/10/2007
_NO_TAG	7041914	101.6	6.1	Unknown	Unknown	Unknown	brown sand with cobbles/grey silt and clay	-	OB	monitoring well	01/08/2007
A054274	7046979	43.1	7	Unknown	Unknown	Clear	black topsoil/brown sand with gravel/brown silt/grey sand with gravel/grey till	-	OB	dewatering	06/21/2007
A107943	7153788	50.8	4.57	Unknown	Unknown	Unknown	grey gravel/brown sand	-	OB	monitoring well	10/12/2010
A137579	7205839	155.7	53.3	12.0	45.4	Clear	brown sand/grey sand with clay/grey clay/grey shale/grey limestone	37.5	BR	domestic	05/01/2013
A185330	7258942	6.4	36.6	Unknown	Unknown	Unknown	brown sand/grey silt with stones/grey sandy till/grey silt/grey sand/grey sandy till/grey limestone	32.0	BR	monitoring well	11/27/2015
A177392	7259660	155.7	34.4	6.3	37.9	Clear	brown sand/grey clay/grey limestone	30.2	BR	domestic	09/14/2015
A195012	7260810	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/02/2015
A195013	7260811	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/02/2015
A195044	7260812	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/04/2015
A195015	7260813	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/04/2015
A195014	7260814	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/03/2015
A195043	7260815	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/05/2015
A195016	7260816	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/05/2015
A195025	7260817	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	12/14/2015
A195043	7260889	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/04/2015
A195016	7260890	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/03/2015
A195044	7260891	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/04/2015
A195015	7260892	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	N/A
A195014	7260893	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/03/2015
A195013	7260894	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/02/2015
A195012	7260895	50.8	N/A	Unknown	Unknown	Unknown	N/A	N/A	N/A	test hole	11/02/2015
A194581	7271584	155.7	40.2	10.8	75.7	Clear	brown sand with clay/grey clay/grey limestone	33.8	BR	domestic	06/09/2016
A187059	7277013	50.8	6.1	Unknown	Unknown	Unknown	brown topsoil/brown sand/brown clay/grey clay	-	OB	monitoring well	10/05/2016
A284732	7361593	50.8	N/A	Unknown	Unknown	Unknown	sand, silt, clay	-	OB	monitoring well	05/07/2020
A023825	7377885	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	abandoned	11/18/2020
A023826	7377886	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	abandoned	11/18/2020

Data Source: Ministry of the Environment, Conservation, and Parks
1. OB — overburden aquifer BR — bedrock aquifer

APPENDIX D

Borehole Logs (AllRock, 2022)



NOTES:

REFERENCE DWG TITLE:	PLAN OF SUBDIVISION
COMPLETED BY:	MAINLINE PLANNING SERVICES INC.
DATE ON DWG:	06-11
REFERENCE PROJECT:	BRIDLE PARK

DWG TITLE:	BOREHOLE LOCATION PLAN
PROJECT:	BRIDLE PARK SUBDIVISION
CLIENT:	CROZIER CONSULTING ENGINEERS
DWG NO:	BH_22021
PROJECT NO:	22021
DRAWN BY:	N. GROVES
CHECKED BY:	S. ALLEN
DATE:	02/17/2022
SCALE:	

AllRock Consulting Ltd
www.allrockconsulting.com
24 Brydon Drive, Unit #5, Toronto, ON, M9W 5R6

WELL NUMBER BH-01

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.54 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	67	1-1-3-6 (4)		0.20 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL) Brown, silty gravelly sand, trace to some clay (WEATHERED/DISTURBED MATERIAL)	Stickup protective casing
1	SS 2	92	6-10-13-19 (23)		0.89 Brown to grey silty sand, some gravel and trace clay, and grey to brown sandy silty gravel with trace clay and possible cobbles (GLACIAL TILL)	Auger cuttings 51mm diameter, well PVC riser
2	SS 3	100	13-17-28-29 (45)			Bentonite seal
	SS 4	100	18-23-17-23 (40)			
3	SS 5	100	20-20-20-26 (40)			Filter sand 51mm diameter, 3.05m long well PVC screen
4	SS 6	100	14-17-22-28 (39)			
5	SS 7	100	13-15-17-31 (32)		5.20 Bottom of borehole at 5.20 meters.	

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-02

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.05 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	75	3-5-10-18 (15)		0.18 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)	Stickup protective casing
					0.28 Brown, silty gravelly sand, trace to some clay (WEATHERED/DISTURBED MATERIAL)	
1	SS 2	87	6-20-27-41 (47)		Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)	Auger cuttings 51mm diameter, well PVC riser
	SS 3	49	21-51			Bentonite seal
2	SS 4	67	39-51			
3	SS 5	100	26-28-33-51 (61)			Filter sand 51mm diameter, 3.05m long well PVC screen
4	SS 6	100	20-26-39-37 (65)			
5	SS 7	100	17-14-16-31 (30)		5.20 Bottom of borehole at 5.20 meters.	

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-03

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	100	1-1-2-3 (3)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
					0.38 Brown, silty gravelly sand, trace to some clay (WEATHERED/DISTURBED MATERIAL)
					0.61 Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
1	SS 2	100	2-7-10-14 (17)		
	SS 3	100	7-7-11-15 (18)		
2	SS 4	100	9-14-19-26 (33)		
3	SS 5	100	18-26-44-52 (70)		
4	SS 6	100	25-33-31-30 (64)		
5	SS 7	59	17-25-28-34 (53)		5.20 Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-04

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.73 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	92	1-2-1-2 (3)		0.22 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL) Brown, silty gravelly sand, trace to some clay (WEATHERED/DISTURBED MATERIAL)	Stickup protective casing
					0.76 ▼	
1	SS 2	100	3-7-16-18 (23)		Brown, fine to coarse grained SAND, trace gravel and some silt	Auger cuttings 51mm diameter, well PVC riser
					1.37 Brown to grey CLAYEY SILTY SAND	
2	SS 3	100	5-8-14-22 (22)			Bentonite seal
	SS 4	100	7-11-15-21 (26)			Filter sand
3					3.05 Brown, SILTY SAND	51mm diameter, 1.52m long well PVC screen
	SS 5	100	13-46-50 (96)		3.26 Brown to grey, silty sand, some gravel and trace clay with possible cobbles (GLACIAL TILL)	
4	SS 6	100	23-34-43-50 (77)			Cave in
5	SS 7	100	19-26-29-31 (55)		5.20	

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-05

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
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CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.12 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	54	4-6-10-16 (16)		0.15 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)	Stickup protective casing
1	SS 2	75	6-13-17-28 (30)		Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)	Auger cuttings; 51mm diameter, well PVC riser
2	SS 3	100	13-19-30-32 (49)			Bentonite seal
	SS 4	100	13-14-16-16 (30)			
3	SS 5	100	9-14-15-18 (29)			Filter sand; 51mm diameter, 3.05m long well PVC screen
4	SS 6	100	16-20-20-36 (40)			
5	SS 7	61	45-50		5.20	

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-06

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 4/1/22 **COMPLETED** 4/1/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
					0.19 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
	SS 1	72	2-3-6-12 (9)		Brown, SILTY SAND
					0.71 Brown to grey sand and gravel, some silt, trace clay with possible cobbles (GLACIAL TILL)
1	SS 2	100	8-13-13-17 (26)		
	SS 3	100	24-23-31-35 (54)		
2					
	SS 4	67	16-35-36-50 (71)		
3					
	SS 5	100	10-17-18-22 (35)		
4					
	SS 6	100	13-18-19-23 (37)		
5	SS 7	100	15-20-20-16 (40)		5.20

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-07

AllRock Consulting Ltd.
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Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	100	2-4-6-7 (10)		Brown, silty gravelly sand, trace to some clay (WEATHERED/DISTURBED MATERIAL)
					0.20 Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
1	SS 2	90	4-6-10-15 (16)		
	SS 3	100	8-12-24-41 (36)		
2					
	SS 4	87	20-31-38-40 (69)		
3					
	SS 5	100	15-25-23-19 (48)		
4					
	SS 6	100	14-16-26-27 (42)		
	SS 7	87	20-24-31-35 (55)		
5					5.20 Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

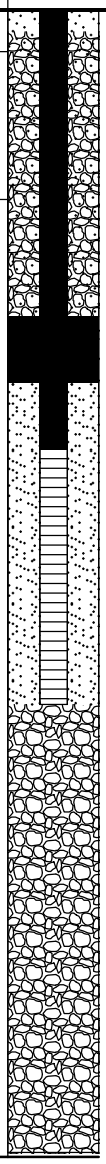
WELL NUMBER BH-08

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.39 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	85	2-2-3-7 (5)		0.19 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
					Brown, SILTY SAND
					0.86
1	SS 2	92	10-18-21-18 (39)		Brown to grey sand and gravel, trace clay and silt with possible cobbles (GLACIAL TILL)
	SS 3	36	8-9-9-13 (18)		
2	SS 4	92	38-28-37-40 (65)		
3	SS 5	100	18-21-26-30 (47)		
4	SS 6	100	6-9-11-14 (20)		
5	SS 7	100	23-23-28-46 (51)		5.20

Bottom of borehole at 5.20 meters.



Stickup protective casing
Auger cuttings
51mm diameter, well PVC riser
Bentonite seal
Filter sand
51mm diameter, 1.52m long well PVC screen
Cave in

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-09

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	100	1-1-1-2 (2)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
					0.20
					Brown to grey, fine to coarse grained SAND, some silt and trace gravel
1	SS 2	100	3-5-11-13 (16)		
	SS 3	100	12-15-26-40 (41)		
2	SS 4	100	12-18-27-40 (45)		
3					3.05
	SS 5	100	9-31-53 (84)		Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
4	SS 6	100	20-31-36-48 (67)		
5	SS 7	100	16-20-25-31 (45)		
					5.20
					Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-10

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/30/22 **COMPLETED** 3/30/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
				0.13	Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
	SS 1	54	1-1-3-5 (4)		Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
1	SS 2	100	7-14-25-35 (39)		
	SS 3	79	26-41-37-41 (78)		
2	SS 4	100	20-21-21-22 (42)		
3	SS 5	59	10-15-14-22 (29)		
4	SS 6	92	17-19-17-13 (36)		
5	SS 7	100	11-13-14-28 (27)	5.20	

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-11

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/30/22 **COMPLETED** 3/30/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	38	0-0-1-3 (1)		0.07 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL) Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
1	SS 2	87	4-7-8-15 (15)		
2	SS 3	49	16-34-49-50 (83)		
	SS 4	100	29-37-38-48 (75)		
3	SS 5	84	17-21-26-31 (47)		
4	SS 6	100	14-20-28-34 (48)		
5	SS 7	92	18-19-22-26 (41)		5.20 Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-12

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/30/22 **COMPLETED** 3/30/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	100	1-2-2-4 (4)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
					0.20 Brown, SILTY SAND
1	SS 2	100	10-8-8-10 (16)		0.89 Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
	SS 3	75	4-7-12-25 (19)		
2	SS 4	100	22-29-38-24 (67)		
3	SS 5	100	14-17-20-24 (37)		
4	SS 6	100	29-16-20-31 (36)		
5	SS 7	49	9-11-11-17 (22)		5.20 Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-13

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/31/22 **COMPLETED** 3/31/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.04 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	100	1-2-3-5 (5)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)	Stickup protective casing
					0.36 Brown to grey, SILTY SAND, trace to some gravel and clay	Auger cuttings
1	SS 2	100	4-7-13-10 (20)			51mm diameter, well PVC riser Bentonite seal
2	SS 3	100	7-7-8-19 (15)			
	SS 4	100	13-19-24-26 (43)			Filter sand 51mm diameter, 1.52m long well PVC screen
3	SS 5	100	9-12-16-17 (28)			
4	SS 6	100	9-14-18-23 (32)			Cave in
5	SS 7	100	8-5-4-5 (9)		5.03 5.20 Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)	

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-14

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/29/22 **COMPLETED** 3/29/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	49	3-6-8-10 (14)		Brown to grey silty sandy gravel with trace clay with possible cobbles (GLACIAL TILL)
1	SS 2	67	3-10-13-22 (23)		
2	SS 3	41	11-22-27-28 (49)		
	SS 4	84	10-10-13-16 (23)		
3	SS 5	100	6-8-8-11 (16)		
4	SS 6	41	3-5-17-21 (22)		
5	SS 7	100	9-15-16-21 (31)		
				5.20	Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-15

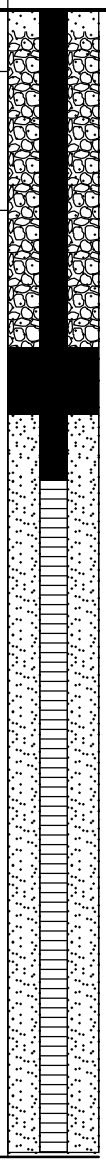
AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/29/22 **COMPLETED** 3/29/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.18 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	100	1-2-7-9 (9)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
					0.28 Brown, silty gravelly sand, trace to some clay (WEATHERED/DISTURBED MATERIAL)
1	SS 2	67	11-17-23-33 (40)		0.91 Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
2	SS 3	84	14-25-39-47 (64)		
	SS 4	84	22-28-30-29 (58)		
3	SS 5	100	14-16-18-24 (34)		
4	SS 6	100	12-19-23-31 (42)		
5	SS 7	75	13-20-32-36 (52)		5.20

Bottom of borehole at 5.20 meters.

WELL DIAGRAM



Stickup
protective casing
Auger cuttings
51mm diameter, well PVC riser
Bentonite seal
Filter sand
51mm diameter, 3.05m long well PVC screen

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-16

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/29/22 **COMPLETED** 3/29/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	84	2-2-5-9 (7)		0.10 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL) Brown and grey, SILTY SAND, trace gravel
1	SS 2	75	2-7-14-16 (21)		
	SS 3	100	14-20-38-30 (58)		
2					2.32
	SS 4	100	3-6-8-11 (14)		Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL)
3	SS 5	100	4-8-10-15 (18)		
4	SS 6	100	3-4-6-8 (10)		
5	SS 7	100	3-3-4-6 (7)		5.20
					Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-17

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/29/22 **COMPLETED** 3/29/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.45 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	100	2-1-2-3 (3)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)	Stickup protective casing
					0.28 Brown, SILTY SAND, trace gravel	
1	SS 2	100	4-7-8-17 (15)			Auger cuttings; 51mm diameter, well PVC riser
2	SS 3	100	12-14-19-25 (33)			Bentonite seal
3	SS 4	100	5-12-19-23 (31)			
	SS 5	100	8-13-18-23 (31)			Filter sand; 51mm diameter, 3.05m long well PVC screen
4	SS 6	100	12-15-25-22 (40)			
5	SS 7	100	5-8-12-15 (20)		4.98 Brown to grey sandy silt/ silty sand, trace to some gravel and clay with possible cobbles (GLACIAL TILL) 5.20	

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-18

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/28/22 **COMPLETED** 3/28/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.00 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	16	4-8-9-11 (17)		0.03 Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)	Stickup protective casing
					0.10 Brown, silty sand, trace to some clay and organic material (WEATHERED/DISTURBED MATERIAL)	
					Brown to grey sandy silty gravel with trace clay with possible cobbles (GLACIAL TILL)	
1	SS 2	100	8-16-14-12 (30)			Auger cuttings
						51mm diameter, well PVC riser
	SS 3	100	10-12-16-19 (28)			Bentonite seal
2						
	SS 4	100	9-9-9-16 (18)		Water pooling in this area. The groundwater level is 0.33m above the existing grade	
3						
	SS 5	100	2-2-4-3 (6)			Filter sand
						51mm diameter, 3.05m long well PVC screen
4						
	SS 6	84	13-19-18-24 (37)			
5					5.20 Bottom of borehole at 5.20 meters.	

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

WELL NUMBER BH-19

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/28/22 **COMPLETED** 3/28/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING 0.15 m

DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
	SS 1	100	3-2-4-7 (6)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)	Stickup protective casing
					0.36 Brown to grey SILTY SAND, trace to some clay	Auger cuttings
1	SS 2	100	6-8-14-18 (22)			51mm diameter, well PVC riser
	SS 3	100	4-8-10-14 (18)			Bentonite seal
2					1.83 Brown to grey, sandy silt, trace gravel with possible cobbles (GLACIAL TILL)	
	SS 4	100	7-8-13-19 (21)			
3						
	SS 5	100	5-7-10-14 (17)			Filter sand
						51mm diameter, 3.05m long well PVC screen
4	SS 6	100	6-8-9-17 (17)			
5	SS 7	100	6-10-13-17 (23)		5.20	

Bottom of borehole at 5.20 meters.

GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

BORING NUMBER BH-20

AllRock Consulting Ltd.
24 Brydon Drive, Unit #5
Toronto, ON, M9W 5R6

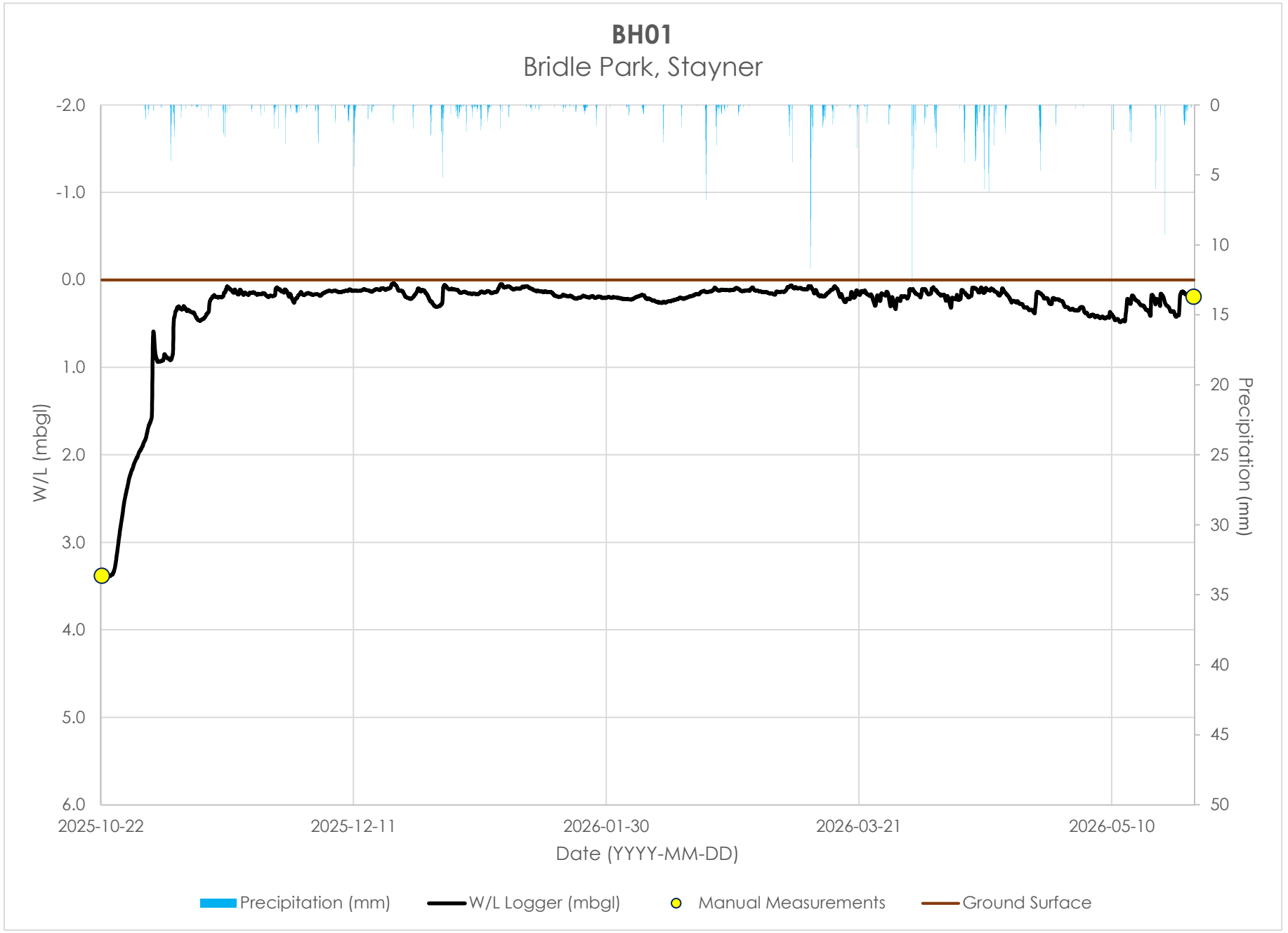
CLIENT Crozier Consulting Engineers
PROJECT NAME Bridle Park Development
PROJECT NUMBER 22021
PROJECT LOCATION Stayner, Clearview
DATE STARTED 3/29/22 **COMPLETED** 3/29/22
GROUND ELEVATION _____ **HOLE SIZE** _____
DRILLING CONTRACTOR Landshark Drilling
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem 2"
AT TIME OF DRILLING ---
LOGGED BY A.S. **CHECKED BY** G.D.
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

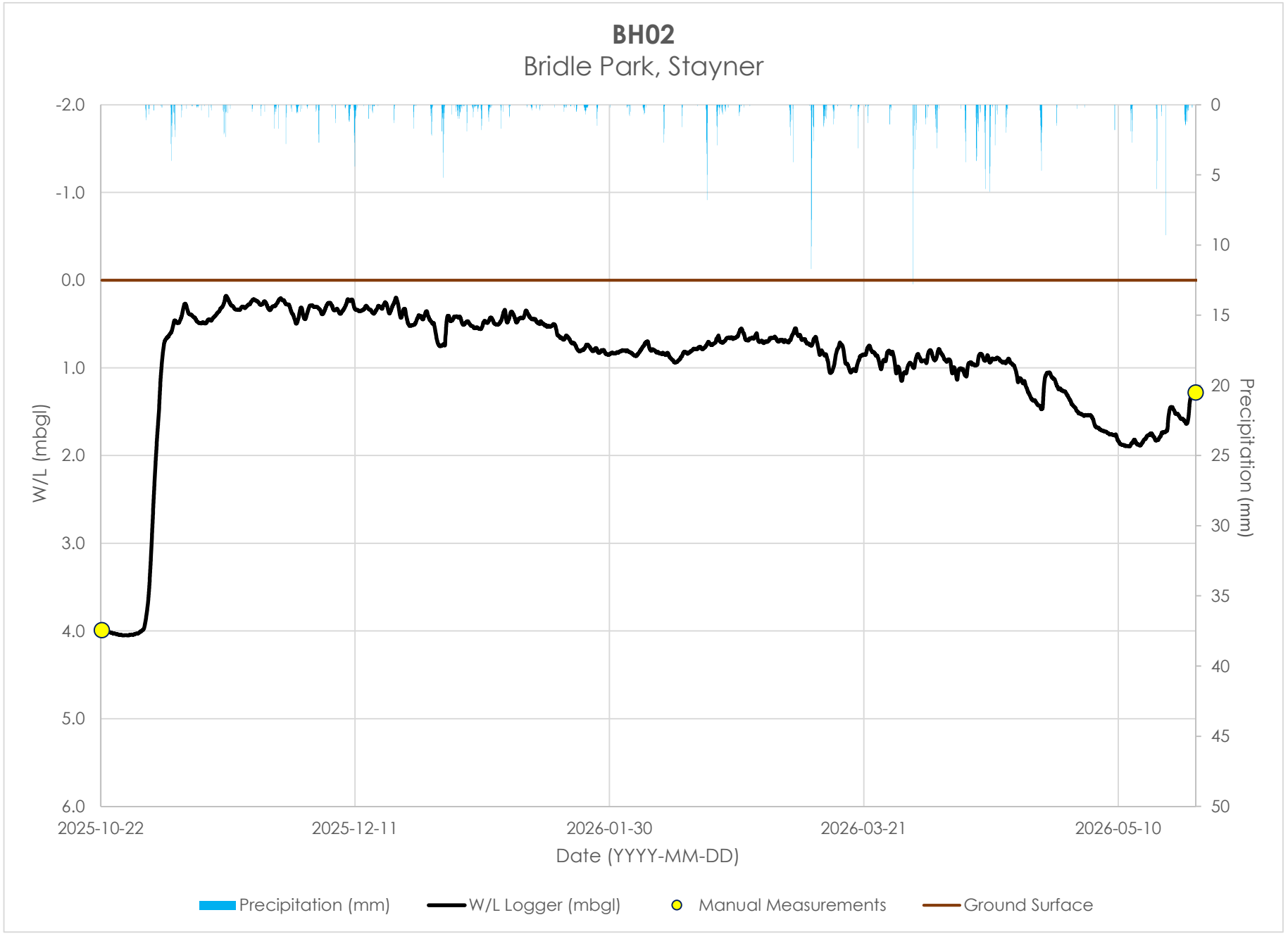
DEPTH (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	GRAPHIC LOG	MATERIAL DESCRIPTION
	SS 1	100	2-4-4-11 (8)		Dark brown, silty sand, trace to some clay, contains organic materials (TOPSOIL)
					0.36 Brown to grey SILTY SAND, trace to some clay
1	SS 2	100	10-12-13-10 (25)		1.07 Brown to grey gravelly silt, some sand, trace clay with possible cobbles (GLACIAL TILL)
2	SS 3	100	7-8-9-5 (17)		
	SS 4	100	4-5-6-9 (11)		
3	SS 5	100	5-6-9-10 (15)		
4	SS 6	100	5-10-17-17 (27)		
5	SS 7	100	10-22-29-26 (51)		5.20 Bottom of borehole at 5.20 meters.

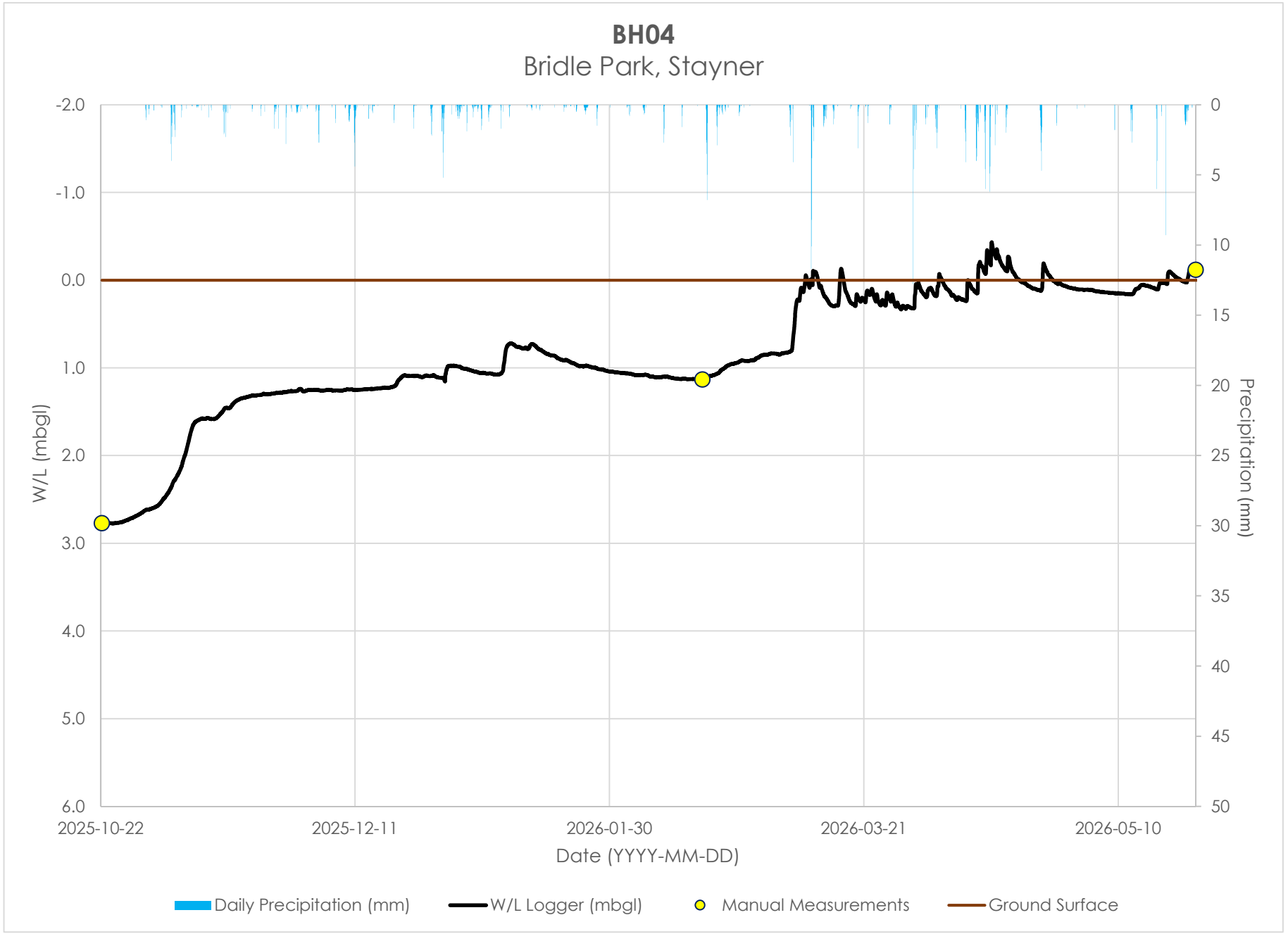
GENERAL BH / TP / WELL BRIDLE PARK - STAYNER LOGS-DESKTOP-77URD5P-2-DESKTOP-77URD5P.GPJ GINT STD CANADA LAB.GDT 4/28/22

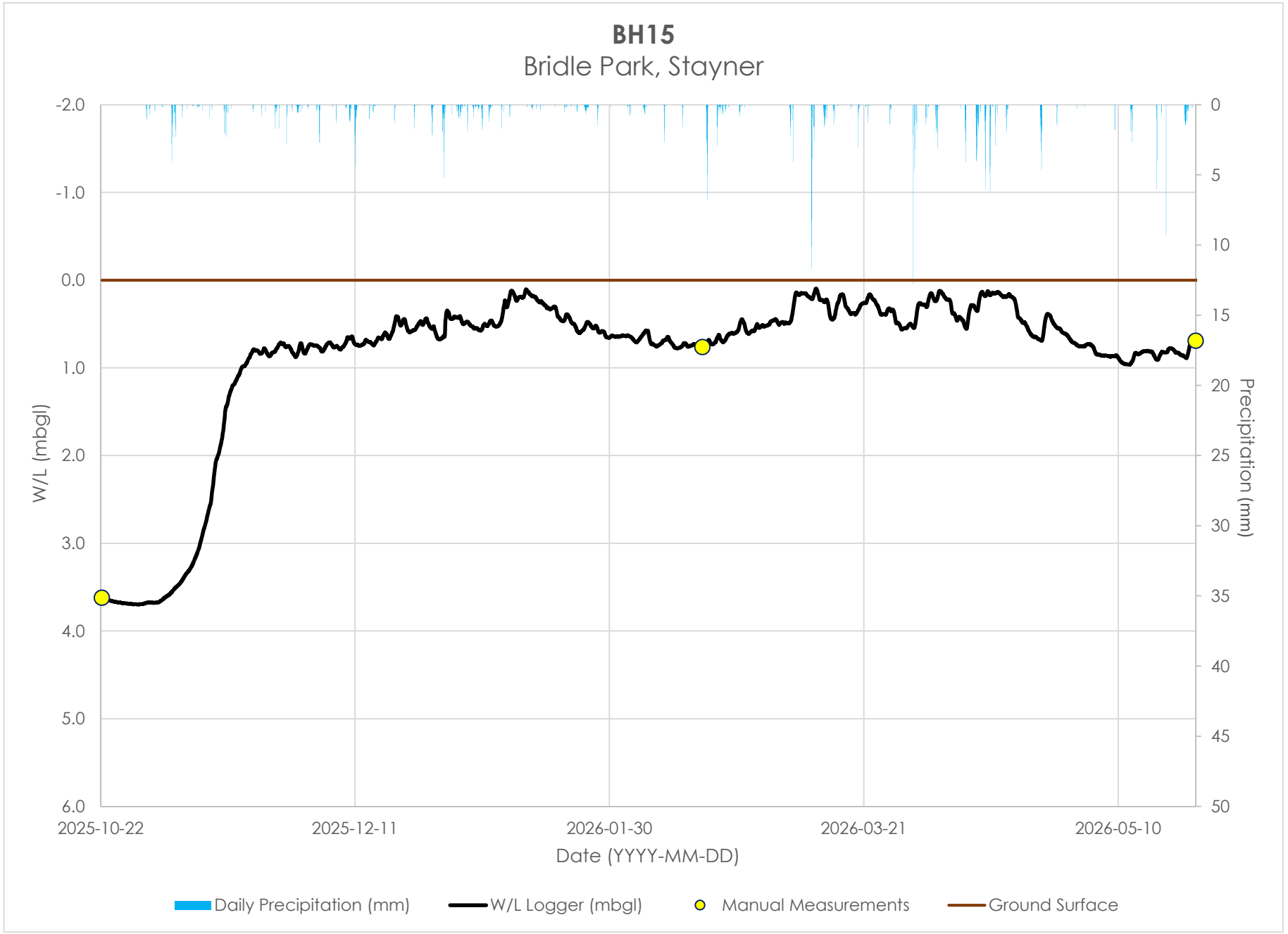
APPENDIX E

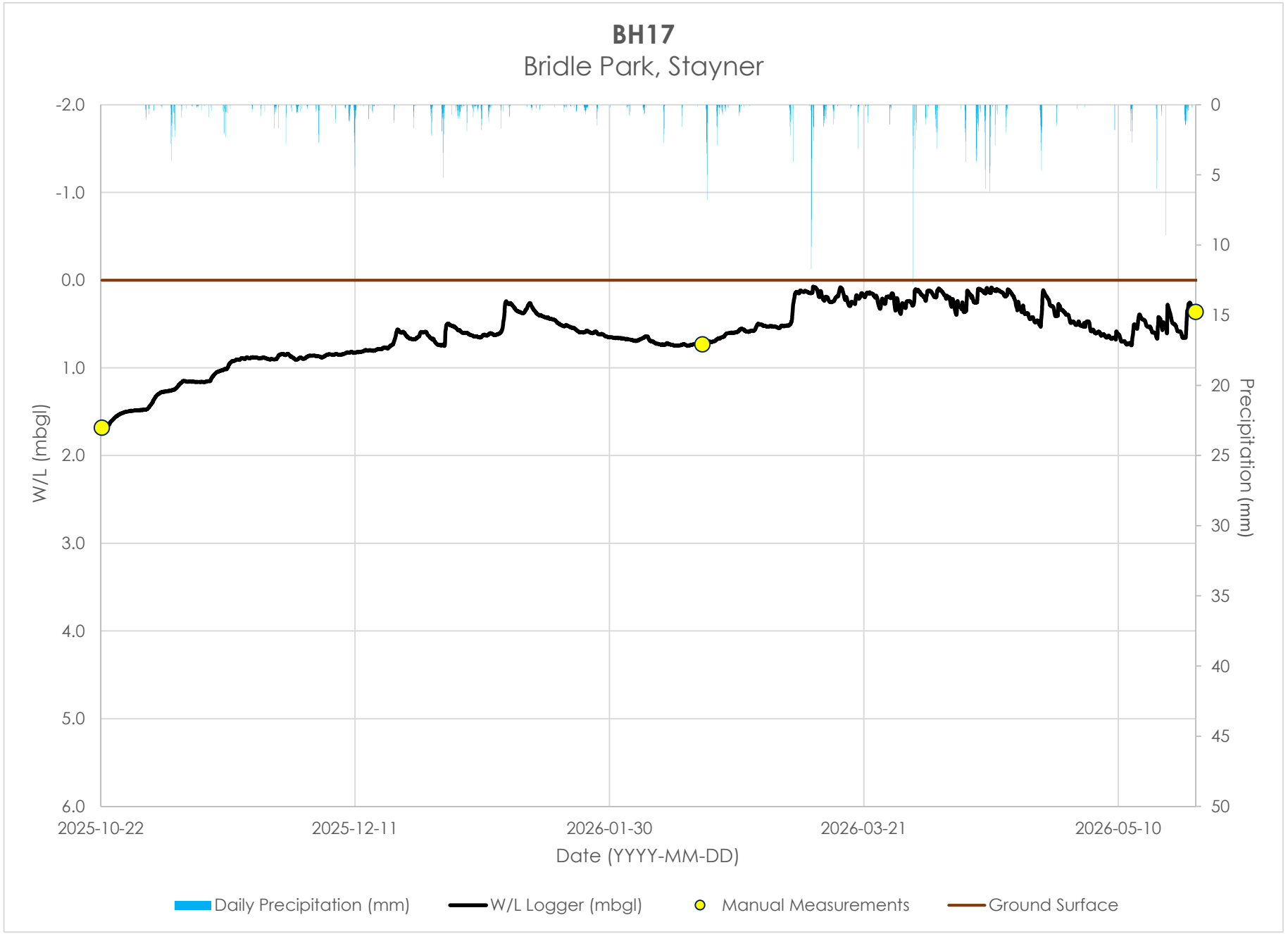
Hydrographs

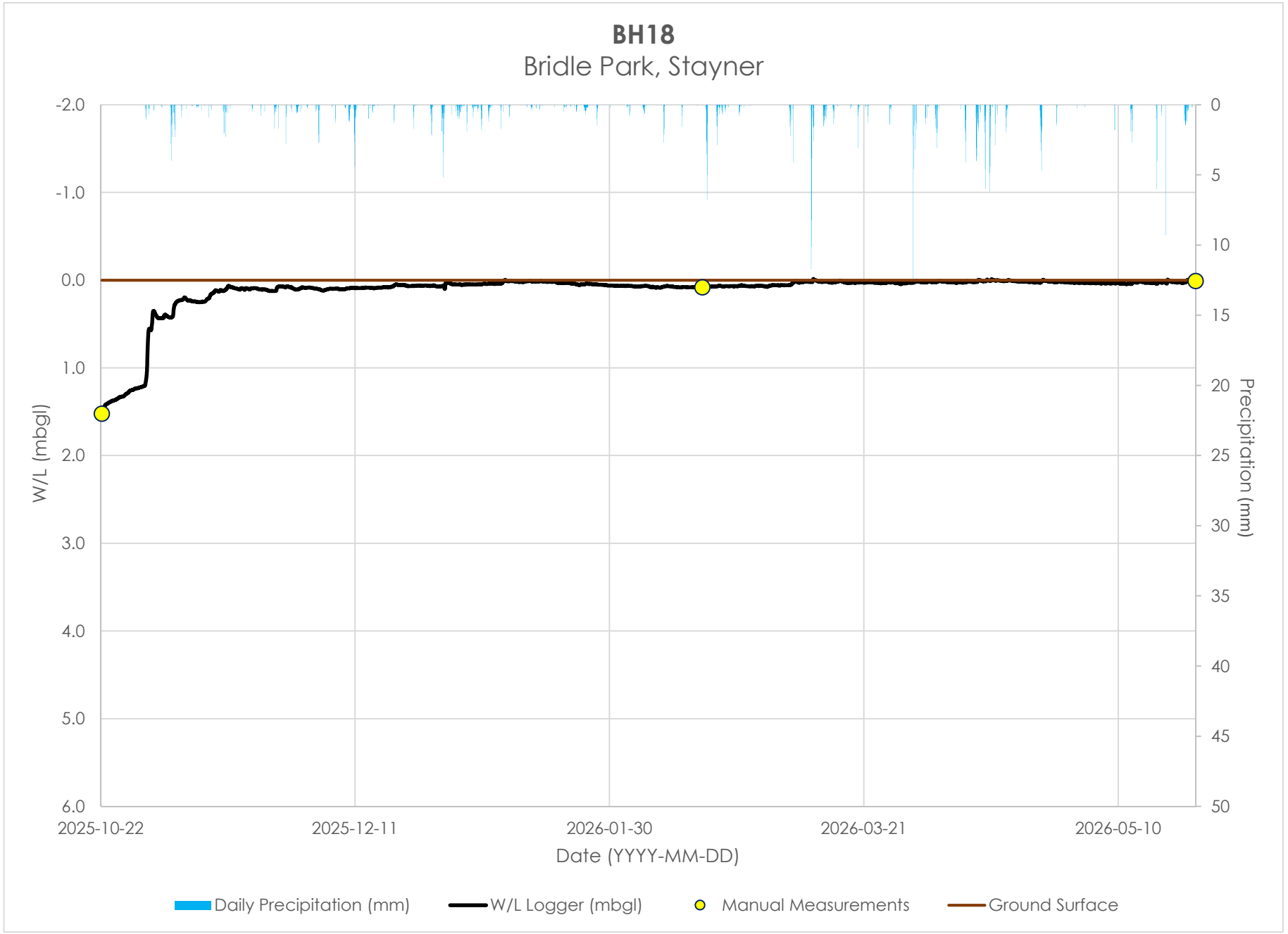

BH01
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface

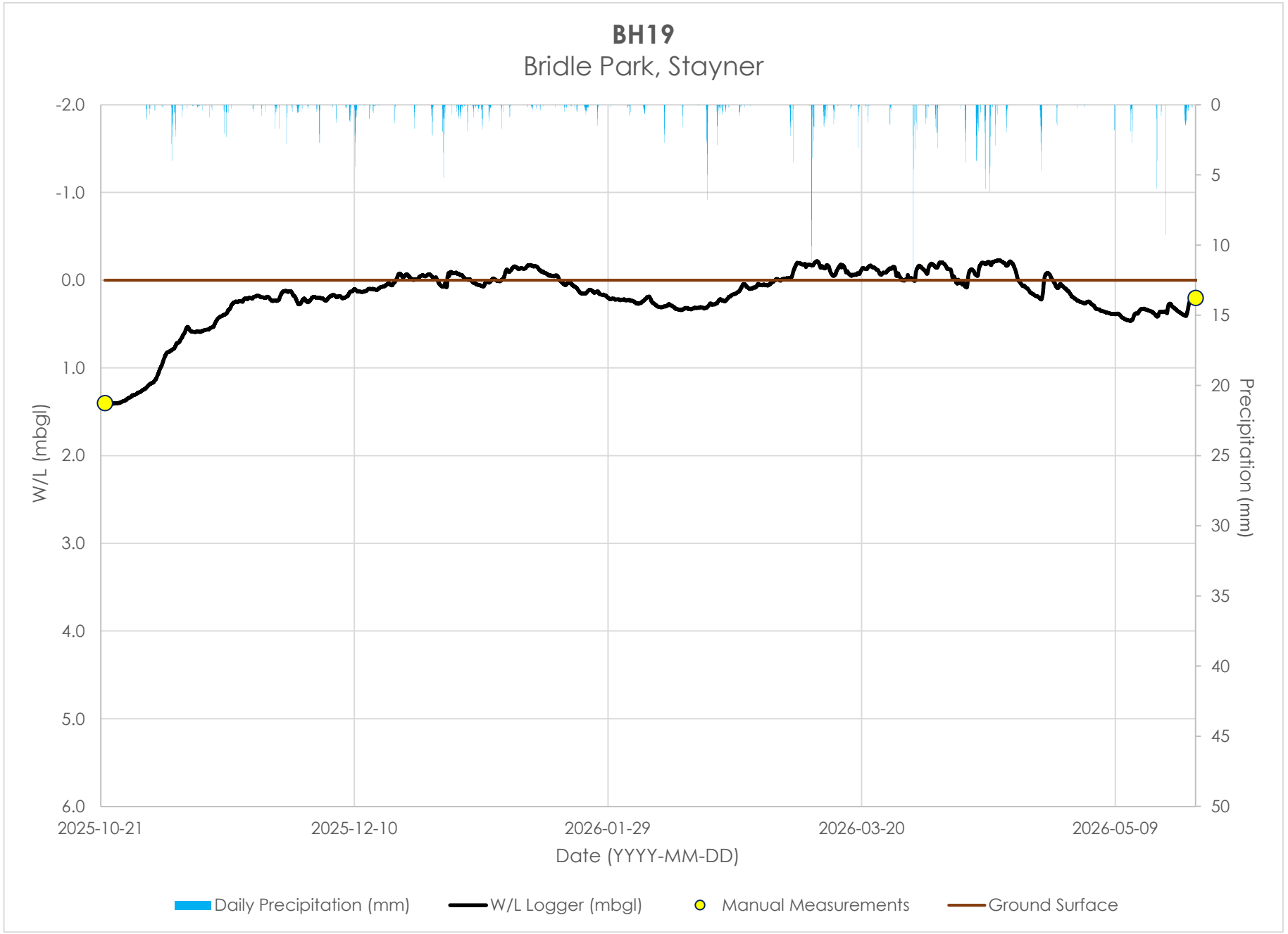

BH02
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface

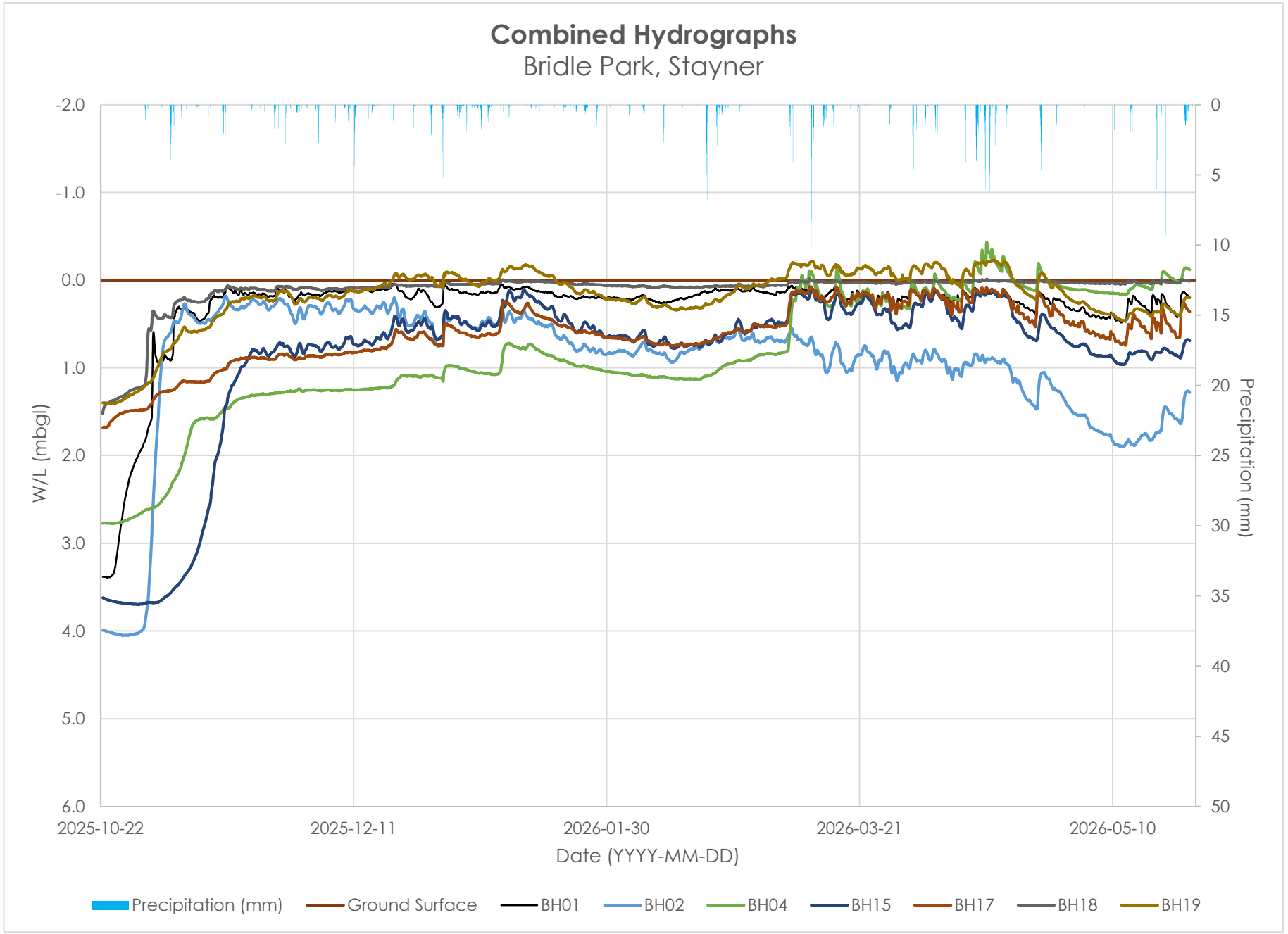

BH04
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Daily Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface


BH15
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Daily Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface


BH17
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Daily Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface


BH18
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Daily Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface


BH19
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-21
2025-12-10
2026-01-29
2026-03-20
2026-05-09
Date (YYYY-MM-DD)
Daily Precipitation (mm)
W/L Logger (mbgl)
Manual Measurements
Ground Surface


Combined Hydrographs
Bridle Park, Stayner
-2.0
-1.0
0.0
1.0
2.0
3.0
4.0
5.0
6.0
W/L (mbgl)
0
5
10
15
20
25
30
35
40
45
50
Precipitation (mm)
2025-10-22
2025-12-11
2026-01-30
2026-03-21
2026-05-10
Date (YYYY-MM-DD)
Precipitation (mm)
Ground Surface
BH01
BH02
BH04
BH15
BH17
BH18
BH19

APPENDIX F

Groundwater Quality Results

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
http://www.agatlabs.com

CLIENT NAME: **CROZIER & ASSOCIATES**
301-40 HURON STREET
COLLINGWOOD, ON L9Y4R3
905-875-0026

ATTENTION TO: **Kelly Reid**

PROJECT: **Bridle Park**

AGAT WORK ORDER: **26T437001**

WATER ANALYSIS REVIEWED BY: **Yris Verastegui, Inorganic Team Lead**

DATE REPORTED: **Jun 04, 2026**

PAGES (INCLUDING COVER): **13**

VERSION+: **1**

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

+Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Services Representative for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
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- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.*
- *This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, SCC and NELAP.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized*

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

CLIENT NAME: CROZIER & ASSOCIATES

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2026-05-26

DATE REPORTED: 2026-06-04

			SAMPLE DESCRIPTION:		BH18
			SAMPLE TYPE:		Water
			DATE SAMPLED:		2026-05-25
Parameter	Unit	G / S: A	G / S: B	RDL	7769774
Electrical Conductivity	µS/cm			2	328
pH	pH Units	6.5-8.5		NA	8.24
Hardness (as CaCO3) (Calculated)	mg/L	80-100		0.5	206
Total Dissolved Solids	mg/L	500		10	318[<A]
Alkalinity (as CaCO3)	mg/L	30-500		5	211
Fluoride	mg/L		1.5	0.05	0.06[<B]
Chloride	mg/L	250		0.10	1.32[<A]
Nitrate as N	mg/L		10.0	0.05	0.10[<B]
Nitrite as N	mg/L		1.0	0.05	<0.05[<B]
Bromide	mg/L			0.05	<0.05
Sulphate	mg/L	500		0.10	4.64[<A]
Ortho Phosphate as P	mg/L			0.10	<0.10
Ammonia as N	mg/L			0.02	0.03
Total Phosphorus	mg/L			0.02	0.02
Total Organic Carbon	mg/L			0.5	0.8
Apparent Colour	TCU	5		2.50	20.6[>A]
Turbidity	NTU	5		0.5	15.8[>A]
Total Calcium	mg/L			0.32	45.2
Total Magnesium	mg/L			0.34	22.5
Total Potassium	mg/L			1.15	2.06
Total Sodium	mg/L	200	20	0.45	7.56[<B]
Total Aluminum	mg/L	0.1		0.010	0.289[>A]
Total Antimony	mg/L		0.006	0.0006	<0.0006[<B]
Total Arsenic	mg/L		0.01	0.001	<0.001[<B]
Total Barium	mg/L		1.0	0.002	0.035[<B]
Total Beryllium	mg/L			0.001	<0.001
Total Boron	mg/L		5.0	0.010	0.033[<B]
Total Cadmium	mg/L		0.005	0.0001	<0.0001[<B]

Certified By: Iris Verástegui

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Certificate of Analysis

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

CLIENT NAME: CROZIER & ASSOCIATES

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

DRINKING WATER - Water Quality Assessment (mg/L)

DATE RECEIVED: 2026-05-26

DATE REPORTED: 2026-06-04

			SAMPLE DESCRIPTION:		BH18
			SAMPLE TYPE:		Water
			DATE SAMPLED:		2026-05-25
Parameter	Unit	G / S: A	G / S: B	RDL	7769774
Total Chromium	mg/L		0.05	0.003	<0.003[<B]
Total Cobalt	mg/L			0.0005	<0.0005
Total Copper	mg/L	1		0.002	<0.002[<A]
Total Iron	mg/L	0.3		0.050	0.721[>A]
Total Lead	mg/L		0.010	0.0005	<0.0005[<B]
Total Manganese	mg/L	0.05		0.002	0.031[<A]
Total Mercury	mg/L		0.001	0.0001	<0.0001[<B]
Total Molybdenum	mg/L			0.002	<0.002
Total Nickel	mg/L			0.003	<0.003
Total Selenium	mg/L		0.01	0.002	<0.002[<B]
Total Silver	mg/L			0.0001	<0.0001
Total Strontium	mg/L			0.005	0.331
Total Thallium	mg/L			0.0003	<0.0003
Total Tin	mg/L			0.002	<0.002
Total Titanium	mg/L			0.010	<0.010
Total Tungsten	mg/L			0.010	<0.010
Total Uranium	mg/L		0.02	0.0005	<0.0005[<B]
Total Vanadium	mg/L			0.002	<0.002
Total Zinc	mg/L	5		0.020	<0.020[<A]
Total Zirconium	mg/L			0.004	<0.004

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards - Aesthetic Objectives and Operational Guidelines, B Refers to O. Reg 169/03 - Ontario Drinking Water Quality Standards. Na value derived from O. Reg 248
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

7769774 Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

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Exceedance Summary

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

CLIENT NAME: CROZIER & ASSOCIATES

ATTENTION TO: Kelly Reid

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
7769774	BH18	ON 169/03 AO/OG	DRINKING WATER - Water Quality Assessment (mg/L)	Apparent Colour	TCU	5	20.6
7769774	BH18	ON 169/03 AO/OG	DRINKING WATER - Water Quality Assessment (mg/L)	Hardness (as CaCO3) (Calculated)	mg/L	80-100	206
7769774	BH18	ON 169/03 AO/OG	DRINKING WATER - Water Quality Assessment (mg/L)	Total Aluminum	mg/L	0.1	0.289
7769774	BH18	ON 169/03 AO/OG	DRINKING WATER - Water Quality Assessment (mg/L)	Total Iron	mg/L	0.3	0.721
7769774	BH18	ON 169/03 AO/OG	DRINKING WATER - Water Quality Assessment (mg/L)	Turbidity	NTU	5	15.8

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Quality Assurance

CLIENT NAME: CROZIER & ASSOCIATES

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

Water Analysis

Report Date: Jun 04, 2026

PARAMETER	Batch	Sample Id	DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
DRINKING WATER - Water Quality Assessment (mg/L)															
Electrical Conductivity	7769774	7769774	328	328	0.0%	< 2	94%	90%	110%						
pH	7769774	7769774	8.24	8.20	0.5%	NA	100%	90%	110%						
Total Dissolved Solids	7775076		1720	1720	0.0%	< 10	98%	80%	120%						
Alkalinity (as CaCO3)	7769774	7769774	211	212	0.5%	< 5	104%	80%	120%						
Fluoride	7758868		<0.05	<0.05	NA	< 0.05	109%	70%	130%	102%	80%	120%	112%	70%	130%
Chloride	7758868		0.44	0.44	NA	< 0.10	99%	70%	130%	103%	80%	120%	103%	70%	130%
Nitrate as N	7758868		<0.05	<0.05	NA	< 0.05	100%	70%	130%	102%	80%	120%	99%	70%	130%
Nitrite as N	7758868		<0.05	<0.05	NA	< 0.05	102%	70%	130%	105%	80%	120%	109%	70%	130%
Bromide	7758868		<0.05	<0.05	NA	< 0.05	107%	70%	130%	104%	80%	120%	102%	70%	130%
Sulphate	7758868		16.8	17.0	1.2%	< 0.10	99%	70%	130%	102%	80%	120%	98%	70%	130%
Ortho Phosphate as P	7758868		<0.10	<0.10	NA	< 0.10	107%	70%	130%	99%	80%	120%	93%	70%	130%
Ammonia as N	7758101		<0.02	<0.02	NA	< 0.02	101%	70%	130%	91%	80%	120%	101%	70%	130%
Total Phosphorus	7779762		0.04	0.04	NA	< 0.02	97%	70%	130%	96%	80%	120%	105%	70%	130%
Total Organic Carbon	7771353		146	144	1.4%	< 0.5	97%	90%	110%	103%	90%	110%	NA	80%	120%
Apparent Colour	7762670		<2.50	<2.50	NA	< 2.5	101%	90%	110%						
Turbidity	7769774	7769774	15.8	14.8	6.5%	< 0.5	NA	80%	120%						
Total Calcium	7769774	7769774	45.2	46.7	3.3%	< 0.20	101%	70%	130%	101%	80%	120%	111%	70%	130%
Total Magnesium	7769774	7769774	22.5	23.1	2.6%	< 0.10	95%	70%	130%	94%	80%	120%	84%	70%	130%
Total Potassium	7769774	7769774	2.06	1.95	NA	< 0.50	94%	70%	130%	94%	80%	120%	99%	70%	130%
Total Sodium	7769774	7769774	7.56	7.75	2.5%	< 0.10	95%	70%	130%	95%	80%	120%	93%	70%	130%
Total Aluminum	7772312		0.532	0.520	2.3%	< 0.010	93%	70%	130%	108%	80%	120%	94%	70%	130%
Total Antimony	7772312		<0.0006	<0.0006	NA	< 0.0006	99%	70%	130%	97%	80%	120%	102%	70%	130%
Total Arsenic	7772312		<0.001	<0.001	NA	< 0.001	99%	70%	130%	93%	80%	120%	97%	70%	130%
Total Barium	7772312		<0.002	<0.002	NA	< 0.002	100%	70%	130%	100%	80%	120%	103%	70%	130%
Total Beryllium	7772312		<0.001	<0.001	NA	< 0.001	99%	70%	130%	112%	80%	120%	93%	70%	130%
Total Boron	7772312		0.032	0.030	NA	< 0.010	99%	70%	130%	104%	80%	120%	87%	70%	130%
Total Cadmium	7772312		<0.0001	<0.0001	NA	< 0.0001	97%	70%	130%	98%	80%	120%	94%	70%	130%
Total Chromium	7772312		<0.003	<0.003	NA	< 0.003	98%	70%	130%	98%	80%	120%	97%	70%	130%
Total Cobalt	7772312		0.0010	0.0015	NA	< 0.0005	96%	70%	130%	101%	80%	120%	97%	70%	130%
Total Copper	7772312		0.016	0.016	0.0%	< 0.002	102%	70%	130%	99%	80%	120%	92%	70%	130%
Total Iron	7772312		1.07	1.13	5.5%	< 0.050	95%	70%	130%	103%	80%	120%	97%	70%	130%
Total Lead	7772312		0.0033	0.0033	0.0%	< 0.0005	93%	70%	130%	94%	80%	120%	88%	70%	130%
Total Manganese	7772312		0.401	0.425	5.8%	< 0.002	100%	70%	130%	106%	80%	120%	91%	70%	130%
Total Mercury	7769774	7769774	<0.0001	<0.0001	NA	< 0.0001	99%	70%	130%	98%	80%	120%	97%	70%	130%
Total Molybdenum	7772312		0.007	0.007	NA	< 0.002	99%	70%	130%	101%	80%	120%	105%	70%	130%
Total Nickel	7772312		0.023	0.025	8.3%	< 0.003	93%	70%	130%	97%	80%	120%	96%	70%	130%
Total Selenium	7772312		<0.002	0.002	NA	< 0.002	96%	70%	130%	98%	80%	120%	89%	70%	130%
Total Silver	7772312		<0.0001	<0.0001	NA	< 0.0001	92%	70%	130%	95%	80%	120%	94%	70%	130%
Total Strontium	7772312		0.123	0.132	7.1%	< 0.005	94%	70%	130%	103%	80%	120%	115%	70%	130%

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Quality Assurance

CLIENT NAME: CROZIER & ASSOCIATES

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

Water Analysis (Continued)

Report Date: Jun 04, 2026			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Total Thallium	7772312		<0.0003	<0.0003	NA	< 0.0003	89%	70%	130%	97%	80%	120%	90%	70%	130%
Total Tin	7772312		<0.002	<0.002	NA	< 0.002	98%	70%	130%	101%	80%	120%	99%	70%	130%
Total Titanium	7772312		<0.010	<0.010	NA	< 0.010	107%	70%	130%	102%	80%	120%	113%	70%	130%
Total Tungsten	7772312		<0.010	<0.010	NA	< 0.010	101%	70%	130%	106%	80%	120%	98%	70%	130%
Total Uranium	7772312		<0.0005	<0.0005	NA	< 0.0005	92%	70%	130%	103%	80%	120%	102%	70%	130%
Total Vanadium	7772312		<0.002	<0.002	NA	< 0.002	98%	70%	130%	105%	80%	120%	100%	70%	130%
Total Zinc	7772312		0.069	0.069	NA	< 0.020	101%	70%	130%	100%	80%	120%	99%	70%	130%
Total Zirconium	7772312		<0.004	<0.004	NA	< 0.004	95%	70%	130%	95%	80%	120%	99%	70%	130%

Comments: NA Signifies Not Applicable
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By: Iris Verástegui

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Method Summary

CLIENT NAME: CROZIER & ASSOCIATES

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Electrical Conductivity	INOR-93-6000	modified from SM 2510 B	PC TITRATE
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Hardness (as CaCO3) (Calculated)	MET-93-6105	modified from EPA SW-846 6010C & 200.7 & SM 2340 B	CALCULATION
Total Dissolved Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE
Alkalinity (as CaCO3)	INOR-93-6000	Modified from SM 2320 B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Chloride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Bromide	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ortho Phosphate as P	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
Ammonia as N	INOR-93-6059	modified from SM 4500-NH3 H	LACHAT FIA
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER
Total Organic Carbon	INOR-93-6049	modified from SM 5310 B	SHIMADZU CARBON ANALYZER
Apparent Colour	INOR-93-6074	modified from SM 2120 B	LACHAT FIA
Turbidity	INOR-93-6000	modified from SM 2130 B	PC TITRATE
Total Calcium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Magnesium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Potassium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Sodium	MET-93-6105	modified from EPA 6010D	ICP/OES
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Barium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Beryllium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Boron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Iron	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Method Summary

CLIENT NAME: CROZIER & ASSOCIATES

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Strontium	INOR-93-6003	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Thallium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Tungsten	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Uranium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Vanadium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS
Total Zirconium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS

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Accreditations and Associations

CLIENT NAME: CROZIER & ASSOCIATES

AGAT WORK ORDER: 26T437001

PROJECT: Bridle Park

ATTENTION TO: Kelly Reid

SAMPLING SITE:

SAMPLED BY:

Accreditations

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Standards Council of Canada (SCC)
Canadian Association for Laboratory Accreditation (CALA)
Canadian Council of Independent Laboratories (CCIL)
American Association for Laboratory Accreditation (A2LA)
ANSI National Accreditation Board (ANAB)
Arizona Department of Health Services (ADHS) – Tempe AZ0851 / AZR000526095, Calgary 2910 AZ0845 / CN00931, Calgary 2420 AZ0843 / CN00932, Mississauga Coopers AZ0847 / CN00929, Mississauga McAdam AZ0848 / CN00930
Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP)
Ontario Ministry of the Environment, Conservation and Parks (MECP)
New York State Department of Health (NYS DOH)

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Associations

As a leader in science and technology, AGAT Laboratories is proud to hold a number of professional partnerships with key industry organizations and associations. Following is a list of just some of the organizations with which we are currently involved. Association memberships may be limited to specific locations and/or personnel. Please contact AGAT Laboratories for specifics regarding association memberships.

Association des firmes de génie-conseil du Québec (AFG)
Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Association Québécois de Vérification (AQVE)
British Columbia Environmental Industry Association (BCEIA)
Canadian Energy Geoscience Association (CEGA)
Canadian Land Reclamation Association (CLRA)
Conseil des entreprises en technologies environnementales du Québec (CETEQ)
Conseil Patronal de l'Environnement du Québec (CPEQ)
Energy NL
Environmental Services Association of Alberta (ESAA)/ Environmental Services Association Maritimes (ESAM)
Ontario Environmental Industry Association (ONEIA)
Réseau Environnement
The NELAC Institute (TNI)

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AGAT Laboratories

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Mississauga, ON L4Z 1N9

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Drinking Water Chain of Custody Record

Laboratory Use Only

Arrival Condition: ☐ Good ☐ Poor (complete notes)

Arrival Temperature:

AGAT Job Number: 26T437001

Notes:

Client Information

Company: Cozier Consulting Engineers
Contact: Kelly Reid
Address: 70 Huron st, suite 100
Collingwood, ON L9Y 4L4
Phone: 705 446 3510 Fax:
PO #:
Client Project #: 1508-7499
AGAT Quotation #:

Report Information

1. Name: Kelly Reid
Email: Kreid@cfcozier.ca
2. Name:
Email:

Report Format

☑ Single Sample per page
☐ Multiple Samples per page

Turnaround Time Required (TAT) *

Regular TAT 7 to 14 business days ☐
5 to 7 business days ☑

Rush TAT (please provide prior notification) 3 to 4 business days ☐ Rush
2 business days ☐ surcharges
1 business days ☐ apply

Date Required (Rush surcharges may apply)

Facility Type (Check all that are applicable)

☐ Large OR ☐ Small
☐ Residential OR ☐ Non-Residential
☐ Municipal OR ☐ Non-Municipal

+ Water Type

Regulated Drinking Water (RDW)
Drinking Water (DW)
Private Well (PW)

Requirements (Check one)

☑ O. Regulation 170 ☐ Not Applicable
☐ O. Regulation 243 ☐ Federal
☐ O. Regulation 319 ☐ Other

IS THIS WATER CURRENTLY CONSUMED BY HUMANS? ☐ Yes ☑ No

DO THE RESULTS REQUIRE REPORTING TO THE MECP OR LOCAL PUBLIC HEALTH UNIT? ☐ Yes ☑ No

FOR WATER SUBMITTED AS RAW(R), IS THE SAMPLE CONSUMED PRIOR TO ANY TREATMENT? ☐ Yes ☑ No

CLIENT IS RESPONSIBLE TO COMPLETE AND SUBMIT LAB SERVICE NOTIFICATION (LSN) FORM TO THE MECP/PHU. FAILURE TO DO SO MAY DELAY REPORTING.

NOTIFICATION INFORMATION MUST BE COMPLETE BELOW UPON SUBMISSION OF SAMPLES. LABORATORY ANALYSIS WILL NOT COMMENCE UNTIL ALL INFORMATION HAS BEEN PROVIDED.

SAMPLE IDENTIFICATION/LOCATION	DATE SAMPLED	TIME SAMPLED	WATER TYPE *	# OF CONTAINERS	CHLORINE RESIDUAL (incl. Units)	STANDING	FLUSHED	COMMENTS/STANDING TIME (IN MINUTES)	E.coli, Total Coliforms
BH18	2026-05-25	12:00 AM PM	R, P	7	N/A		X		X water quality analysis package
		AM PM							
		AM PM							
		AM PM							
		AM PM							
		AM PM							

Kelly Reid Kelly Reid

* TAT is exclusive of weekends and statutory holidays. Prior arrangements must be made with the laboratory in order to submit Microbiology samples on Fridays

NOTIFICATION INFORMATION - (required to report adverse results as per the *Safe Drinking Water Act*) - **Laboratory analysis will not commence until all information is received.**

INFORMATION FOR ADVERSE REPORTING

Waterworks Name: Phone: Fax:
DWS# (ie: Waterworks #): After Hours Phone:

MEDICAL OFFICER OF HEALTH (MOH)

Reg on:
Attn/Contact:
Phone: Fax:
Email:

Kelly Reid Kelly Reid
Samples Relinquished By (Print Name and Sign)

Date/Time: 2026-05-25 3:00pm
Samples Received By (Print Name and Sign)

Date/Time:

Samples Relinquished By (Print Name and Sign)

Date/Time:

Samples Received By (Print Name and Sign)

Date/Time:

Pink Copy - Client
Yellow/Golden Copy AGAT
White Copy - AGAT

Page 1 of 1

N°: DW 63863

1 – Unpreserved
8.9 11.7 9.2°C

AGAT Laboratories
5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: Crozier Consulting Engineers
Contact: Kelly Reid
Address: 70 Huron St, Suite 100
Collingwood, ON L9Y 4L4
Phone: 705-446-3510 Fax:
Reports to be sent to:
1. Email: kreid@cfcrozier.ca
2. Email:

Project Information:

Project: Bridle Park
Site Location: Stayner
Sampled By: Kelly Reid
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐
Company: Crozier Consulting Engineers
Contact: Marcy Hatt
Address: 70 Huron St, Suite 100 Collingwood, ON
Email: mhatt@cfcrozier.ca

Regulatory Requirements:

(Please check all applicable boxes)

☐ Regulation 153/04
Table _____ *Indicate One*
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture *(Check One)*
☐ Coarse
☐ Fine

☐ Excess Soils R406
Table _____ *Indicate One*
☐ Regulation 558
☐ CCME

☑ Sewer Use ☑ Sanitary ☑ Storm
Simcoe *Region*
☐ Prov. Water Quality Objectives (PWQO)
☑ Other O.Reg. 170 *Indicate One*

Is this submission for a **Record of Site Condition?** ☐ Yes ☒ No

Report Guideline on *Certificate of Analysis* ☑ Yes ☐ No

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Laboratory Use Only

Work Order #: 26T437001
Cooler Quantity:
Arrival Temperatures:
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Turnaround Time (TAT) Required:

Regular TAT ☑ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC	O. Reg 153: Aroclors	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: Include Moisture ☐ Sulphide ☐	Water Quality Analysis Package					Potentially Hazardous or High Concentration (Y/N)
BH18	2026-05-25	12:00 PM	7	GW		N												X					2
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					
		AM PM																					

Samples Relinquished By (Print Name and Sign): Kelly Reid	Date: 2026-05-25	Time: 3:00 pm	Samples Received By (Print Name and Sign):	Date: May 26/26	Time: 10:10 AM
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Page 1 of 1
N°: T - 140965

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Date Issued: April 21, 2022

Document ID: DIV-78-1511.022

AGAT Laboratories

Non-Reportable Drinking Water Sample Inquiry Form

This form is to ensure your water is tested and reported in accordance with Ontario Regulation 248/03 for testing of Drinking Water under the Safe Drinking Water Act. We require the information below to help uphold our high standard of regulatory compliance, for both AGAT as a laboratory and you, as our valued customer. Please ensure all information is filled out completely and accurately. If you have any questions, please do not hesitate to contact your AGAT Client Project Manager at 905-712-5100.

(1) What is the purpose for your testing? Please provide details below.

Water Quality Analysis

(2) Please answer the following questions.

(a) Is there a request from a Public Health Inspector or a Ministry of Environment Drinking Water Inspector to complete this testing? ☐ Yes ☒ No
If Yes, please contact an AGAT Client Project Manager at 905-712-5100

(b) Is there a provincial order in effect for your water system? ☐ Yes ☒ No
If Yes, please provide details below including limit for the test parameter if not listed with a standard under O.Reg.169/03

(c) Does your facility have a drinking water system (DWS) number provided by either MECP or MOHLTC? ☐ Yes ☒ No

(i) If yes, why is the sample not reportable to either MECP or MOHLTC? Please provide details below.

(ii) If yes, is the test for sodium and/or fluoride? ☐ Yes ☐ No

- If the test is for sodium and/or fluoride, was sodium and/or fluoride testing completed and reported to the ***MECP*** in the last 57 months or ***MOHLTC*** in the last 60 months?

☐ Yes ☐ No N/A

As per the SWDA, Sodium and fluoride (if required by DWS) are required to be tested every 5 years (60 months) by the operator. The sodium and/or fluoride adverse are not required to be reported if two samples are less than 5 years apart.

Document #: ADM-78-2533.004
Issued Date: 2020-08-25

(d) Is the water collected from a Federally owned, operated or regulated property or water source? ☐ Yes ☒ No

If Yes, please indicate this on the COC under Requirements

(3) If you are private home owner looking to test your drinking water, please answer the following questions: N/A

(i) Are you consuming this water from the point of sample collection? ☐ Yes ☐ No

(ii) Do you have a water treatment unit installed in your system? ☐ Yes ☐ No

(iii) Is your water collected before or after treatment?

☐ Before ☐ After ☐ Not Applicable

(iv) Are you testing your water due to concerns regarding your plumbing?

☐ Yes ☐ No

If Yes, have you done any improvements to your plumbing recently? Please provide details below.

For further assistance, please contact the MECP at the following phone and email:

(1) For inquiries related to O.Reg.170 or O.Reg.318/319

Email: waterforms@ontario.ca

Phone Number: 1-866-793-2588

(2) For inquiries related to O.Reg.243 (Schools and Daycares)

Phone Number: 1-855-515-1331.

Company Name: Crozier Consulting Engineers

DWCOC#: (if applicable)

Name: Kelly Reid (please print name)

Date: 2026-05-25 (yyyy-mm-dd)

Signature: Kelly Reid

AGAT WorkOrder #: (To be entered by AGAT CPM)

Document #: ADM-78-2533.004
Issued Date: 2020-08-25

APPENDIX G

Water Balance Calculations

CROZIER

Project Information

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Pre-Development Conditions

Catchment ID	**PRE-1**	**EP-1**	**EP-2**	**EP-3**								
Catchment Area (m^2)	462800	63700	148500	11300								
Pervious Area (m^2)	460400	63700	148500	11300								
Impervious Area (m^2)	2445	0	0	0								
Percent Imperviousness (%)	0.5%	0%	0%	0%								
Infiltration Factors												
Topography - Description	Flat	Flat	Flat	Flat								
Topography - Infiltration Factor	0.30	0.30	0.30	0.30								
Soil - Description	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam								
Soil - Infiltration Factor	0.30	0.30	0.30	0.30								
Cover - Description	Shallow Rooted Crops	Mature Forests	Mature Forests	Mature Forests								
Cover - Infiltration Factor	0.10	0.20	0.20	0.20								
Total Infiltration Factor	0.70	0.80	0.80	0.80								
Soil Moisture Capacity (mm)	150	400	400	400								

Post-Development Conditions

Catchment ID	**POST-1**	**POST-2**	**POST-3**	**POST-4**	**POST-5**	**POST-6**	**POST-7**	**SCHOOL**	**POND**	**EP-1**	**EP-2**	**EP-3**
Catchment Area (m^2)	310600	13200	18700	19300	15900	21600	700	21200	41600	63700	148500	11300
Pervious Area (m^2)	141727	5870	10607	8751	6586	9798	364	3188	0	63700	148500	11300
Impervious Area (m^2)	168873	7330	8093	10549	9314	11802	336	18012	41600	0	0	0
Percent Imperviousness (%)	54%	56%	43%	55%	59%	55%	48%	85%	100%	0%	0%	0%
Infiltration Factors												
Topography - Description	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat	Flat
Topography - Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Soil - Description	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam	Fine Sandy Loam
Soil - Infiltration Factor	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
Cover - Description	Other	Other	Other	Other	Other	Other	Other	Other	Other	Mature Forests	Mature Forests	Mature Forests
Cover - Infiltration Factor	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20
Total Infiltration Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.80	0.80	0.80
Soil Moisture Capacity (mm)	75	75	100	75	75	75	75	75	75	400	400	400

Canadian Climate Normals 1991 - 2020 Data

Composite Station Metadata

All stations used in the composite for all Normals and Extremes elements are listed. Station metadata includes station name, station identifiers, coordinates, and elevation.
Composite Station Name: EGBERT CS

Station Name	Climate ID	WMO ID	TC ID	Latitude	Longitude	Elevation (m)
EGBERT CS	611E001	71296	XET	44°14'00.000" N	79°47'00.000" W	251
EGBERT CARE	611KBE0			44°14'00.000" N	79°47'00.000" W	252

Code Legend

A = WMO "3 and 5 rule" (i.e. no more than 3 consecutive and no more than 5 total missing for either temperature or precipitation)
B = At least 25 years
C = At least 20 years
D = At least 15 years

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Temperature														
Daily Average (°C)	-7.2	-6.4	-1.3	5.6	12.3	17.5	20.1	19.2	15.3	8.9	2.7	-3.2	7	A
Precipitation														
Precipitation (mm)	54.7	44.7	47.9	61.6	73.9	83	77.9	82.6	72.3	65.4	71.8	57.6	793.2	D
Days with Rainfall														
Days with Rainfall >= 0.2 mm	4	3.3	5.9	10.9	13.1	11.6	11.8	11.8	12.8	14.4	10.8	5.4	115.6	D
Days with Rainfall >= 5 mm	1.6	1.3	1.7	3.1	5	4.1	4.6	4.6	4.9	3.8	3.9	1.6	40.2	D
Days with Rainfall >= 10 mm	0.81	0.56	0.65	1.8	2.1	3	2.6	2.9	2.6	1.7	1.6	0.56	20.8	D
Days with Rainfall >= 25 mm	0	0	0	0.38	0.44	0.69	0.81	0.56	0.38	0.44	0.25	0.06	4	D
Days with Rainfall >= 50 mm	0	0	0	0	0	0.13	0	0	0	0	0.06	0	0.19	D
Days with Rainfall >= 100 mm	0	0	0	0	0	0	0	0	0	0	0	0	0	D

CROZIER

Climate Parameters

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

PROJECT LOCATION Stayner, Clearview Township
PROJECT LATITUDE ° **44**

Month	Mean Temperature (C°)[1]	Heat Index [i =(t/5)$^{1.514}$]	α	Potential Evapotranspiration (PET) (mm)	Correction Factor[2]	Adjusted Potential Evapotranspiration (APET) (mm)	Precipitation (P) (mm)[1]
January	-7.2	0.00		0.0	1.37	0.0	54.7
February	-6.4	0.00		0.0	0.82	0.0	44.7
March	-1.3	0.00		0.0	1.02	0.0	47.9
April	5.6	1.19		25.7	1.13	29.1	61.6
May	12.3	3.91		59.6	1.27	75.7	73.9
June	17.5	6.66		86.8	1.29	112.0	83.0
July	20.1	8.22		100.7	1.3	130.9	77.9
August	19.2	7.67		95.9	1.2	115.0	82.6
September	15.3	5.44		75.2	1.04	78.2	72.3
October	8.9	2.39		42.2	0.95	40.1	65.4
November	2.7	0.39		11.8	0.8	9.5	71.8
December	-3.2	0.00		0.0	0.76	0.0	57.6
TOTAL	7.0	**35.9**	**1.1**	**497.9**		**590.4**	**793.4**

NOTES: 1. Precipitation and temperature data referenced from Environment Canada (EGBERT CS).
2. Latitude adjustment/correction factors determined based on site location assuming 12 hours of sunlight per day for 30 days

CROZIER

Pre-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**PRE-1**												
Catchment Parameters	**Pervious Area**			46.04 ha	**Impervious Area**			0.24 ha	**Total Area**			46.28 ha	
	Soil Moisture Holding Capacity			150 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	109	114	99	75	40	9	0	**552**
Storage (mm)	150	150	150	150	148	122	86	69	66	92	150	150	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	4	58	**242**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	3	40	**169**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	1	17	**72**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	13,390	34,842	50,210	52,594	45,710	34,522	18,456	4,352	0	**254,076**
Impervious ET (m^3)	20	16	18	23	27	30	29	30	27	24	26	21	**291**
Pervious Infiltration (m^3)	17,629	14,406	15,437	10,479	0	0	0	0	0	0	1,329	18,563	**77,843**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	7,555	6,174	6,616	4,491	0	0	0	0	0	0	570	7,956	**33,361**
Impervious Runoff (m^3)	114	93	100	128	154	172	162	172	150	136	149	120	**1,649**

Pre-Development Water Balance Summary: Catchment PRE-1				
Pre-Development Evapotranspiration	254367	m^3/yr	549.6	mm/yr
Pre-Development Infiltration	77843	m^3/yr	168.2	mm/yr
Pre-Development Runoff	35010	m^3/yr	75.6	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Evapotranspiration does not occur when average temperature is below zero.
- Infiltration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Pre-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**EP-1**												
Catchment Parameters	**Pervious Area**			6.37 ha	**Impervious Area**			0.00 ha	**Total Area**			6.37 ha	
	Soil Moisture Holding Capacity			400 mm	**Infiltration Factor**			0.80	**% Impervious Evaporation**			15%	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	111	124	108	77	40	9	0	**574**
Storage (mm)	400	400	400	400	398	370	324	299	295	320	382	400	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	0	40	**220**
Infiltration (mm)	44	36	38	26	0	0	0	0	0	0	0	32	**176**
Surface Water Runoff (mm)	11	9	10	7	0	0	0	0	0	0	0	8	**44**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	1853	4821	7061	7887	6871	4886	2554	602	0	**36535**
Impervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Infiltration (m^3)	2788	2278	2441	1657	0	0	0	0	0	0	0	2040	**11204**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	697	569	610	414	0	0	0	0	0	0	0	510	**2801**
Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Pre-Development Water Balance Summary: Catchment EP-1				
Pre-Development Evapotranspiration	36535	m^3/yr	574	mm/yr
Pre-Development Infiltration	11204	m^3/yr	176	mm/yr
Pre-Development Runoff	2801	m^3/yr	44	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Pre-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**EP-2**												
Catchment Parameters	**Pervious Area**			14.85 ha	**Impervious Area**			0.00 ha	**Total Area**			14.85 ha	
	Soil Moisture Holding Capacity			400 mm	**Infiltration Factor**			0.80	**% Impervious Evaporation**			15%	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	111	124	108	77	40	9	0	**574**
Storage (mm)	400	400	400	400	398	370	324	299	295	320	382	400	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	0	40	**220**
Infiltration (mm)	44	36	38	26	0	0	0	0	0	0	0	32	**176**
Surface Water Runoff (mm)	11	9	10	7	0	0	0	0	0	0	0	8	**44**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	4319	11239	16461	18387	16017	11391	5953	1404	0	**85172**
Impervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Infiltration (m^3)	6498	5310	5691	3863	0	0	0	0	0	0	0	4756	**26119**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	1625	1328	1423	966	0	0	0	0	0	0	0	1189	**6530**
Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Pre-Development Water Balance Summary: Catchment EP-2				
Pre-Development Evapotranspiration	85172	m^3/yr	574	mm/yr
Pre-Development Infiltration	26119	m^3/yr	176	mm/yr
Pre-Development Runoff	6530	m^3/yr	44	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Pre-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**EP-3**												
Catchment Parameters	**Pervious Area**			1.13 ha	**Impervious Area**			0.00 ha	**Total Area**			1.13 ha	
	Soil Moisture Holding Capacity			400 mm	**Infiltration Factor**			0.80	**% Impervious Evaporation**			15%	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	111	124	108	77	40	9	0	**574**
Storage (mm)	400	400	400	400	398	370	324	299	295	320	382	400	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	0	40	**220**
Infiltration (mm)	44	36	38	26	0	0	0	0	0	0	0	32	**176**
Surface Water Runoff (mm)	11	9	10	7	0	0	0	0	0	0	0	8	**44**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	329	855	1253	1399	1219	867	453	107	0	**6481**
Impervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Infiltration (m^3)	494	404	433	294	0	0	0	0	0	0	0	362	**1987**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	124	101	108	73	0	0	0	0	0	0	0	90	**497**
Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Pre-Development Water Balance Summary: Catchment EP-3				
Pre-Development Evapotranspiration	6481	m^3/yr	574	mm/yr
Pre-Development Infiltration	1987	m^3/yr	176	mm/yr
Pre-Development Runoff	497	m^3/yr	44	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-1**												
Catchment Parameters	**Pervious Area**			14.17 ha	**Impervious Area**			16.89 ha	**Total Area**			31.06 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	4122	10724	15092	14611	12928	10419	5681	1340	0	**74917**
Impervious ET (m^3)	1386	1132	1213	1560	1872	2102	1973	2092	1831	1657	1819	1459	**20098**
Pervious Infiltration (m^3)	5427	4435	4752	3226	0	0	0	0	0	0	2717	5714	**26271**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	2326	1901	2037	1383	0	0	0	0	0	0	1164	2449	**11259**
Impervious Runoff (m^3)	7852	6416	6876	8842	10608	11914	11182	11857	10378	9388	10306	8268	**113886**

Post-Development Water Balance Summary: Catchment POST-1				
Post-Development Evapotranspiration	95014.2	m^3/yr	305.9	mm/yr
Post-Development Infiltration	26270.6	m^3/yr	84.6	mm/yr
Post-Development Runoff	125145.2	m^3/yr	402.9	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-2**												
Catchment Parameters	**Pervious Area**			0.59 ha	**Impervious Area**			0.73 ha	**Total Area**			1.32 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	171	444	625	605	535	432	235	55	0	**3103**
Impervious ET (m^3)	60	49	53	68	81	91	86	91	79	72	79	63	**872**
Pervious Infiltration (m^3)	225	184	197	134	0	0	0	0	0	0	113	237	**1088**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	96	79	84	57	0	0	0	0	0	0	48	101	**466**
Impervious Runoff (m^3)	341	279	298	384	460	517	485	515	450	407	447	359	**4943**

Post-Development Water Balance Summary: Catchment POST-2				
Post-Development Evapotranspiration	3975.2	m^3/yr	301.2	mm/yr
Post-Development Infiltration	1088.1	m^3/yr	82.4	mm/yr
Post-Development Runoff	5409.6	m^3/yr	409.8	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-3**												
Catchment Parameters	**Pervious Area**			1.06 ha	**Impervious Area**			0.81 ha	**Total Area**			1.87 ha	
	Soil Moisture Holding Capacity			100 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	108	108	95	74	40	9	0	**539**
Storage	100	100	100	100	98	73	43	31	29	55	100	100	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	17	58	**255**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	12	40	**178**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	5	17	**76**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	308	803	1143	1147	1003	786	425	100	0	**5715**
Impervious ET (m^3)	66	54	58	75	90	101	95	100	88	79	87	70	**963**
Pervious Infiltration (m^3)	406	332	356	241	0	0	0	0	0	0	127	428	**1890**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	174	142	152	103	0	0	0	0	0	0	55	183	**810**
Impervious Runoff (m^3)	376	308	330	424	508	571	536	568	497	450	494	396	**5458**

Post-Development Water Balance Summary: Catchment POST-3				
Post-Development Evapotranspiration	6678.4	m^3/yr	357.1	mm/yr
Post-Development Infiltration	1890.1	m^3/yr	101.1	mm/yr
Post-Development Runoff	6268.1	m^3/yr	335.2	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-4**												
Catchment Parameters	**Pervious Area**			0.88 ha	**Impervious Area**			1.05 ha	**Total Area**			1.93 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	254	662	932	902	798	643	351	83	0	**4626**
Impervious ET (m^3)	87	71	76	97	117	131	123	131	114	103	114	91	**1255**
Pervious Infiltration (m^3)	335	274	293	199	0	0	0	0	0	0	168	353	**1622**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	144	117	126	85	0	0	0	0	0	0	72	151	**695**
Impervious Runoff (m^3)	490	401	430	552	663	744	699	741	648	586	644	516	**7114**

Post-Development Water Balance Summary: Catchment POST-4				
Post-Development evapotranspiration	5881.0	m^3/yr	304.7	mm/yr
Post-Development Infiltration	1622.0	m^3/yr	84.0	mm/yr
Post-Development Runoff	7809.5	m^3/yr	404.6	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-5**												
Catchment Parameters	**Pervious Area**			0.66 ha	**Impervious Area**			0.93 ha	**Total Area**			1.59 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	192	498	701	679	601	484	264	62	0	**3481**
Impervious ET (m^3)	76	62	67	86	103	116	109	115	101	91	100	80	**1108**
Pervious Infiltration (m^3)	252	206	221	150	0	0	0	0	0	0	126	266	**1221**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	108	88	95	64	0	0	0	0	0	0	54	114	**523**
Impervious Runoff (m^3)	433	354	379	488	585	657	617	654	572	518	568	456	**6281**

Post-Development Water Balance Summary: Catchment POST-5				
Post-Development evapotranspiration	4589.7	m^3/yr	288.7	mm/yr
Post-Development Infiltration	1220.7	m^3/yr	76.8	mm/yr
Post-Development Runoff	6804.6	m^3/yr	428.0	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-6**												
Catchment Parameters	**Pervious Area**			0.98 ha	**Impervious Area**			1.18 ha	**Total Area**			2.16 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	285	741	1043	1010	894	720	393	93	0	**5179**
Impervious ET (m^3)	97	79	85	109	131	147	138	146	128	116	127	102	**1405**
Pervious Infiltration (m^3)	375	307	329	223	0	0	0	0	0	0	188	395	**1816**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	161	131	141	96	0	0	0	0	0	0	80	169	**778**
Impervious Runoff (m^3)	549	448	481	618	741	833	781	829	725	656	720	578	**7959**

Post-Development Water Balance Summary: Catchment POST-6				
Post-Development evapotranspiration	6583.7	m^3/yr	304.8	mm/yr
Post-Development Infiltration	1816.1	m^3/yr	84.1	mm/yr
Post-Development Runoff	8737.7	m^3/yr	404.5	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POST-7**												
Catchment Parameters	**Pervious Area**			0.04 ha	**Impervious Area**			0.03 ha	**Total Area**			0.07 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	11	28	39	38	33	27	15	3	0	**192**
Impervious ET (m^3)	3	2	2	3	4	4	4	4	4	3	4	3	**40**
Pervious Infiltration (m^3)	14	11	12	8	0	0	0	0	0	0	7	15	**67**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	6	5	5	4	0	0	0	0	0	0	3	6	**29**
Impervious Runoff (m^3)	16	13	14	18	21	24	22	24	21	19	21	16	**227**

Post-Development Water Balance Summary: Catchment POST-7				
Post-Development evapotranspiration	232.4	m^3/yr	332.0	mm/yr
Post-Development Infiltration	67.5	m^3/yr	96.4	mm/yr
Post-Development Runoff	255.5	m^3/yr	365.0	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**SCHOOL**					
Catchment Parameters	**Pervious Area**	0.32 ha	**Impervious Area**	1.80 ha	**Total Area**	2.12 ha
	Soil Moisture Holding Capacity	75 mm	**Infiltration Factor**	0.70	**% Impervious Evaporation**	15%

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	93	241	340	329	291	234	128	30	0	**1685**
Impervious ET (m^3)	148	121	129	166	200	224	210	223	195	177	194	156	**2144**
Pervious Infiltration (m^3)	122	100	107	73	0	0	0	0	0	0	61	129	**591**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	52	43	46	31	0	0	0	0	0	0	26	55	**253**
Impervious Runoff (m^3)	837	684	733	943	1131	1271	1193	1265	1107	1001	1099	882	**12147**

Post-Development Water Balance Summary: Catchment SCHOOL				
Post-Development evapotranspiration	3829.0	m^3/yr	180.6	mm/yr
Post-Development Infiltration	591.0	m^3/yr	27.9	mm/yr
Post-Development Runoff	12400.1	m^3/yr	584.9	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**POND**												
Catchment Parameters	**Pervious Area**			0.00 ha	**Impervious Area**			4.16 ha	**Total Area**			4.16 ha	
	Soil Moisture Holding Capacity			75 mm	**Infiltration Factor**			0.70	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	106	103	91	74	40	9	0	**529**
Storage	75	75	75	75	73	50	25	16	15	40	75	75	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	27	58	**265**
Infiltration (mm)	38	31	34	23	0	0	0	0	0	0	19	40	**185**
Surface Water Runoff (mm)	16	13	14	10	0	0	0	0	0	0	8	17	**79**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Impervious ET (m^3)	341	279	299	384	461	518	486	515	451	408	448	359	**4951**
Pervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Impervious Runoff (m^3)	1934	1581	1694	2178	2613	2935	2755	2921	2557	2313	2539	2037	**28055**

Post-Development Water Balance Summary: Catchment POND				
Post-Development evapotranspiration	4950.8	m^3/yr	119.0	mm/yr
Post-Development Infiltration	0.0	m^3/yr	0.0	mm/yr
Post-Development Runoff	28054.6	m^3/yr	674.4	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**EP-1**												
Catchment Parameters	**Pervious Area**			6.37 ha	**Impervious Area**			0.00 ha	**Total Area**			6.37 ha	
	Soil Moisture Holding Capacity			400 mm	**Infiltration Factor**			0.80	**% Impervious Evaporation**			15%	
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	111	124	108	77	40	9	0	**574**
Storage	400	400	400	400	398	370	324	299	295	320	382	400	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	0	40	**220**
Infiltration (mm)	44	36	38	26	0	0	0	0	0	0	0	32	**176**
Surface Water Runoff (mm)	11	9	10	7	0	0	0	0	0	0	0	8	**44**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	1853	4821	7061	7887	6871	4886	2554	602	0	**36535**
Impervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Infiltration (m^3)	2788	2278	2441	1657	0	0	0	0	0	0	0	2040	**11204**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	697	569	610	414	0	0	0	0	0	0	0	510	**2801**
Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Post-Development Water Balance Summary: Catchment EP-1				
Post-Development evapotranspiration	36534.9	m^3/yr	573.5	mm/yr
Post-Development Infiltration	11203.7	m^3/yr	175.9	mm/yr
Post-Development Runoff	2800.9	m^3/yr	44.0	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**EP-2**					
Catchment Parameters	**Pervious Area**	14.85 ha	**Impervious Area**	0.00 ha	**Total Area**	14.85 ha
	Soil Moisture Holding Capacity	400 mm	**Infiltration Factor**	0.80	**% Impervious Evaporation**	15%

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	111	124	108	77	40	9	0	**574**
Storage	400	400	400	400	398	370	324	299	295	320	382	400	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	0	40	**220**
Infiltration (mm)	44	36	38	26	0	0	0	0	0	0	0	32	**176**
Surface Water Runoff (mm)	11	9	10	7	0	0	0	0	0	0	0	8	**44**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	4319	11239	16461	18387	16017	11391	5953	1404	0	**85172**
Impervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Infiltration (m^3)	6498	5310	5691	3863	0	0	0	0	0	0	0	4756	**26119**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	1625	1328	1423	966	0	0	0	0	0	0	0	1189	**6530**
Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Post-Development Water Balance Summary: Catchment EP-2				
Post-Development evapotranspiration	85171.6	m^3/yr	573.5	mm/yr
Post-Development Infiltration	26118.6	m^3/yr	175.9	mm/yr
Post-Development Runoff	6529.7	m^3/yr	44.0	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

CROZIER

Post-Development Water Balance

Thornthwaite & Mather Method

Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Project Name: **Bridle Park**
Location: **Stayner, Clearview Township**

Catchment ID	**EP-3**												
Catchment Parameters	**Pervious Area**			1.13 ha	**Impervious Area**			0.00 ha	**Total Area**			1.13 ha	
	Soil Moisture Holding Capacity			400 mm	**Infiltration Factor**			0.80	**% Impervious Evaporation**			15%	

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Precipitation	55	45	48	62	74	83	78	83	72	65	72	58	**793**
Pervious Area Water Balance													
Evapotranspiration (mm)	0	0	0	29	76	111	124	108	77	40	9	0	**574**
Storage	400	400	400	400	398	370	324	299	295	320	382	400	
Water Surplus (mm)	55	45	48	33	0	0	0	0	0	0	0	40	**220**
Infiltration (mm)	44	36	38	26	0	0	0	0	0	0	0	32	**176**
Surface Water Runoff (mm)	11	9	10	7	0	0	0	0	0	0	0	8	**44**
Impervious Area Water Balance													
Evaporation (mm)	8	7	7	9	11	12	12	12	11	10	11	9	**119**
Surface Water Runoff (mm)	46	38	41	52	63	71	66	70	61	56	61	49	**674**
Combined Water Balance													
Pervious ET (m^3)	0	0	0	329	855	1253	1399	1219	867	453	107	0	**6481**
Impervious ET (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Infiltration (m^3)	494	404	433	294	0	0	0	0	0	0	0	362	**1987**
Impervious Infiltration (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pervious Runoff (m^3)	124	101	108	73	0	0	0	0	0	0	0	90	**497**
Impervious Runoff (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Post-Development Water Balance Summary: Catchment EP-3				
Post-Development evapotranspiration	6481.1	m^3/yr	573.5	mm/yr
Post-Development Infiltration	1987.5	m^3/yr	175.9	mm/yr
Post-Development Runoff	496.9	m^3/yr	44.0	mm/yr

NOTES: 1.The infiltration factor is determined using the MECP methodology outlined in the Stormwater Management Planning and Design Manual 2003.

2. Assumptions:

- Surplus water is unavailable for runoff and recharge in months where water losses from APET exceed precipitation inputs.
- Evapotranspiration does not occur when average temperature is below zero.
- Approximately 15% of the precipitation on impervious surfaces will evaporate.
- When calculating the water balance, evaporation is subtracted from precipitation, then soil storage is replenished. If any precipitation remains it is considered surplus and divided between infiltration and runoff

Project: Bridle Park
Project No.: 1508-7498
Created By: NOC
Checked By:
Date: 2026.06.26

Design Storm Determination

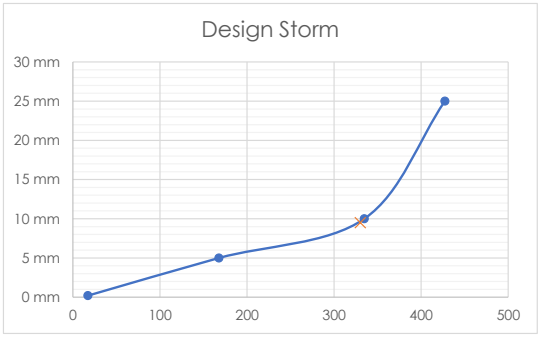
Water Balance/Water Budget Assessment

Days with Precipitation (From Climate Data)

Storm Event (mm)	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
≥ 0.2 mm	10.9	13.1	11.6	11.8	11.8	12.8	14.4	**86**
≥ 5 mm	3.1	5	4.1	4.6	4.6	4.9	3.8	**30**
≥ 10 mm	1.8	2.1	3	2.6	2.9	2.6	1.7	**17**
≥ 25 mm	0.38	0.44	0.69	0.81	0.56	0.38	0.44	**3.7**
≥ 50 mm	0	0	0.13	0	0	0	0	**0.1**
≥ 100 mm	0	0	0	0	0	0	0	**0.0**

Available Precipitation

Storm Event (mm)	Total Days Per Year	Incremental Precipitation (mm/yr)	Cummulative Precipitation (mm/yr)
≥ 0.20 mm	86.4	17.3	17.3
≥ 5 mm	30.1	150.5	167.8
≥ 10 mm	16.7	167.0	334.8
≥ 25 mm	3.7	92.5	427.3
≥ 50 mm	0.1	6.5	433.8
≥ 100 mm	0.0	0.0	433.8
Total	**137**	**433.8**	



Infiltration Deficit Target:	43,277	m^3/yr	
Area contributing to mitigation:	137,955	m^2	Assumes 50% of impervious area contributes to LIDs
	314	mm/yr	
Runoff Coefficient for Impervious Area:	0.95		Runoff coefficient for surface draining to LID
Design Precipitation:	330	mm/yr	
Therefore Design Storm:	9.5	mm	Depth of runoff to be infiltrated from contributing Areas

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Project: Bridle Park
Project No.: 1508-7498
Created By: EC
Checked By: KR
Date: 2026.07.31

Site Water Balance Summary

Thornthwaite & Mather Method

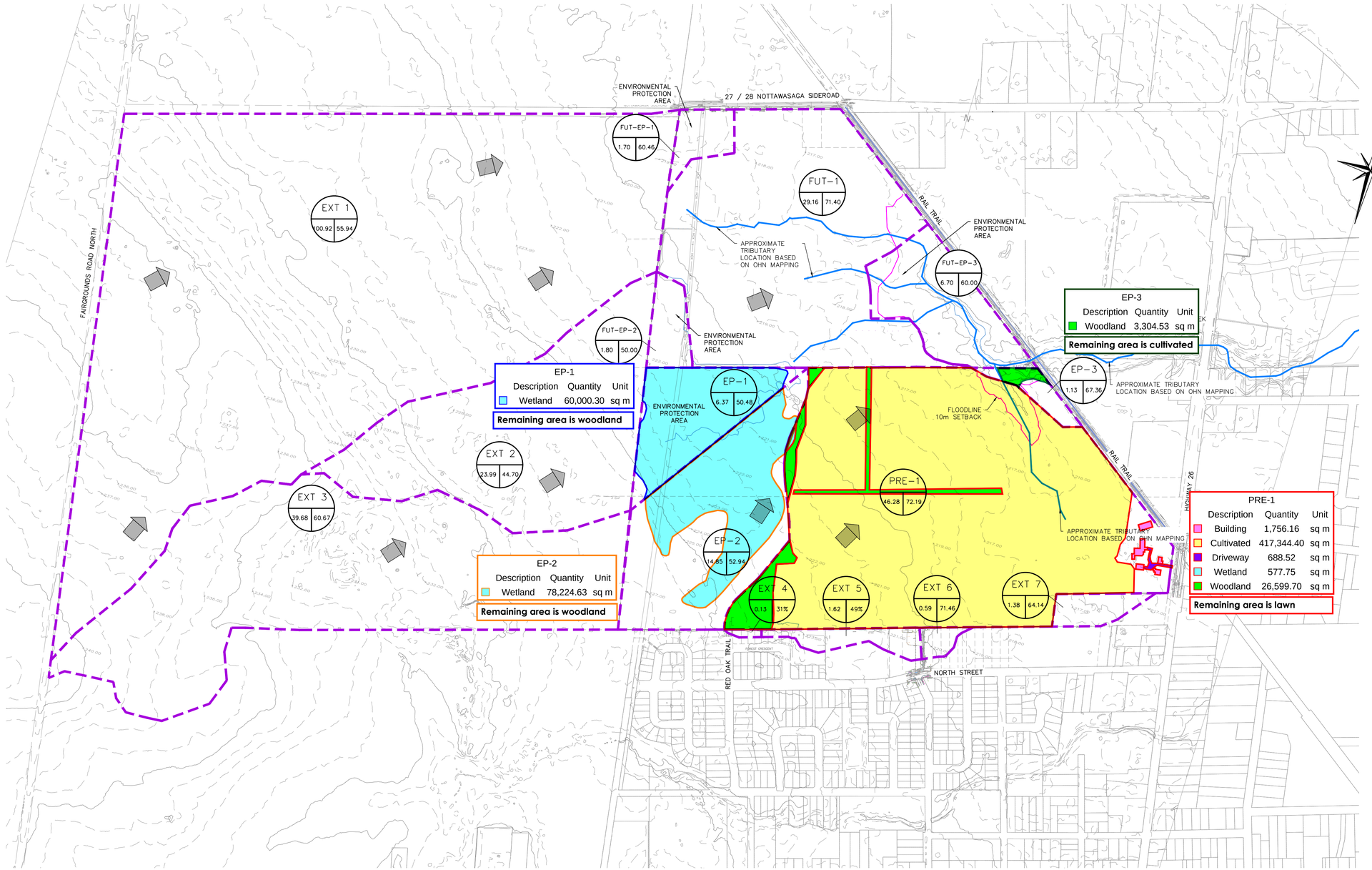
Pre-Development Water Balance							
Catchment ID	Area	Evapotranspiration		Infiltration		Runoff	
	(ha)	(m^3/yr)	(mm/yr)	(m^3/yr)	(mm/yr)	(m^3/yr)	(mm/yr)
PRE-1	46.28	254,367	550	77,843	168	35,010	76
EP-1	6.37	36,535	574	11,204	176	2,801	44
EP-2	14.85	85,172	574	26,119	176	6,530	44
EP-3	1.13	6,481	574	1,987	176	497	44
Total	**68.63**	**382,555**	**557**	**117,153**	**171**	**44,838**	**65**

Post-Development Water Balance							
Catchment ID	Area	Evapotranspiration		Infiltration		Runoff	
	(ha)	(m^3/yr)	(mm/yr)	(m^3/yr)	(mm/yr)	(m^3/yr)	(mm/yr)
POST-1	31.06	95014	306	26271	85	125145	403
POST-2	1.32	3975	301	1088	82	5410	410
POST-3	1.87	6678	357	1890	101	6268	335
POST-4	1.93	5881	305	1622	84	7810	405
POST-5	1.59	4590	289	1221	77	6805	428
POST-6	2.16	6584	305	1816	84	8738	405
POST-7	0.07	232	332	67	96	256	365
SCHOOL	2.12	3829	181	591	28	12400	585
POND	4.16	4951	119	0	0	28055	674
EP-1	6.37	36535	574	11204	176	2801	44
EP-2	14.85	85172	574	26119	176	6530	44
EP-3	1.13	6481	574	1987	176	497	44
Total	**68.63**	**259,922**	**379**	**73876**	**108**	**210,712**	**307**

Site Water Balance Summary							
Scenario	Area	Evapotranspiration		Infiltration		Runoff	
	(ha)	(m^3)	(mm)	(m^3)	(mm)	(m^3)	(mm)
Pre-Dev.	68.63	382555	557	117153	171	44838	65
Post-Dev.	68.63	259922	379	73876	108	210712	307
Difference	0	-122633	-179	-43277	-63	165875	242
% Difference	0%	-32%	-32%	-37%	-37%	370%	370%

Annual Infiltration Deficit **43277** m^3

63 mm



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BENCHMARK NOTE

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MINISTRY OF NATURAL RESOURCES AND FORESTRY VERTICAL BENCHMARK NUMBER 00820038059 HAVING AN ORTHOMETRIC ELEVATION OF 216.832 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928:1978).

BENCHMARK LOCATED ON THE WEST SIDE OF HWY 26 IN TOWN OF STAYER, APPROXIMATELY 300 M NORTH OF HWY 26 EAST. POINT SET ON THE WEST FACE OF THE NORTH END OF A WING WALL ALONG THE ASPHALT SIDEWALK.

Town: CLEARVIEW TOWNSHIP

No.	ISSUE	DATE: YYYY/MM/DD
0	ISSUED FOR RED-LINED DRAFT PLAN APPROVAL	2026/07/23

Engineer | Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Project: BRIDLE PARK (STAYNER, ONTARIO) TOWNSHIP OF CLEARVIEW

Drawing: PRE-DEVELOPMENT DRAINAGE PLAN

CROZIER

Drawn By	Design By	Project
O.P.	N.O.C./A.M.	1508-7498
Check By	Check By	Drawing
N.O.C.	J.L.A./T.M.G.	FIG6

C:\Users\oparovyk\DC\ACCDocs\Crozier Consulting Engineers\1508-7498 Bridle Park Stayner\Project Files\Civil_Sheets\FLOODPLAIN FIGs\7498_FIG4 PRE-DEV DR.dwg, FIG6, 2026-07-23 12:06:44 PM, oparovyk

Assumed:
Single Detached Units = 55% IMP
Semi Detached Units = 70% IMP
Townhouse Units = 70% IMP
School Block = 85% IMP

ROW based on 20m Township ROW standards

POST - 1		
Description	Quantity	Unit
POST-1 - Park	2.33	ha
POST-1 - Sidewalk	0.06	ha
POST-1 - Single Detached	14.01	ha
POST-1 - Townhouse	3.54	ha
POST-1 SEMI Detached	0.15	ha
POST 1 - Road	5,777.27	m

School		
Description	Quantity	Unit
School Block	2.12	ha

POST - 2		
Description	Quantity	Unit
POST-2 - Sidewalk	0.02	ha
POST-2 - Single Detached	1.29	ha

POST - 3		
Description	Quantity	Unit
POST-3 - Sidewalk		ha
POST-3 - Single Detached	1.47	ha

POST - 4		
Description	Quantity	Unit
POST-4 - Single Detached	1.92	ha

POST - 5		
Description	Quantity	Unit
POST-5 - Single Detached	0.06	ha
POST-5 - Single Detached	0.82	ha
POST-5 - Townhouse	0.02	ha
POST 5 - Road	362.46	m

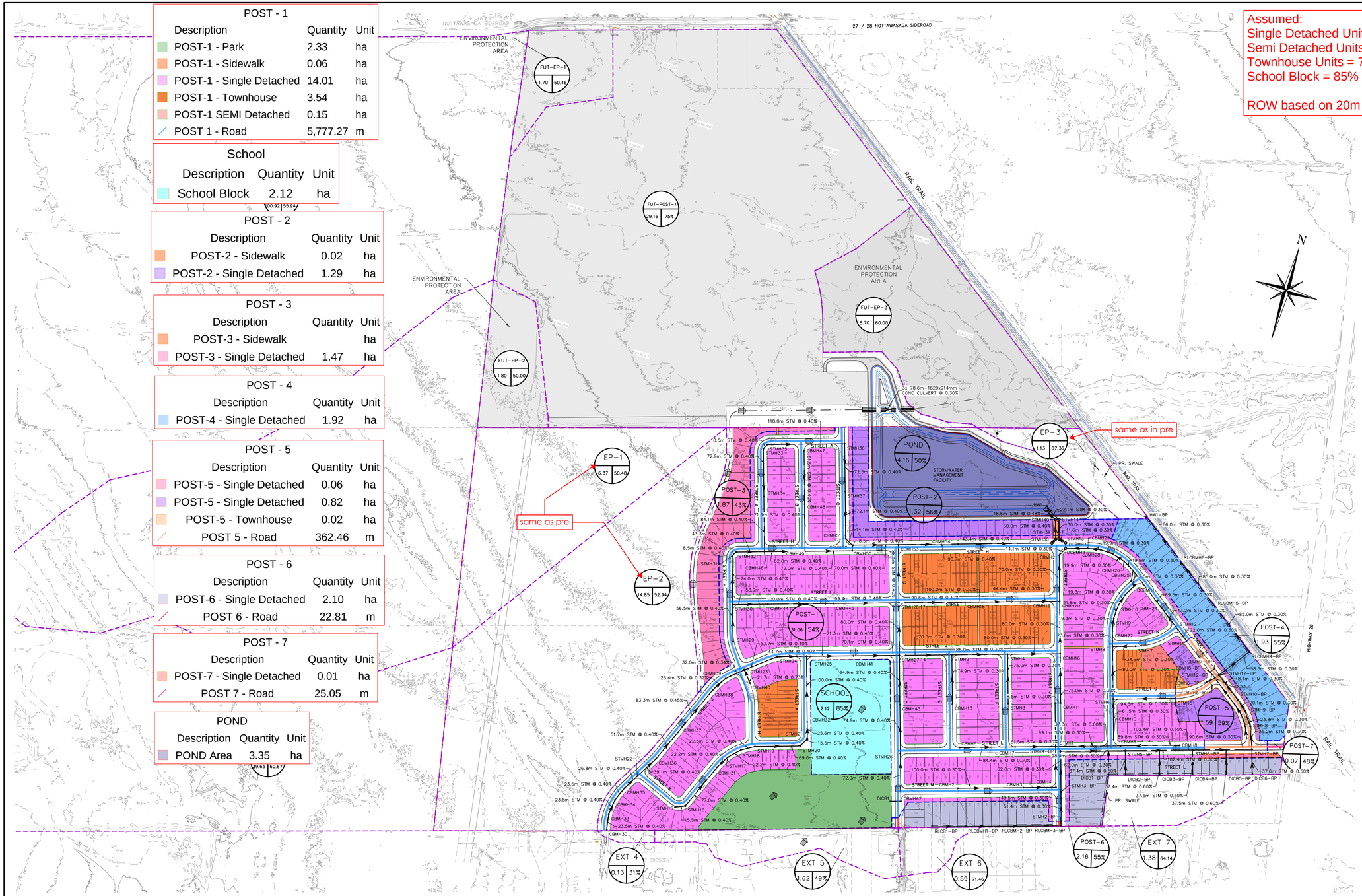
POST - 6		
Description	Quantity	Unit
POST-6 - Single Detached	2.10	ha
POST 6 - Road	22.81	m

POST - 7		
Description	Quantity	Unit
POST-7 - Single Detached	0.01	ha
POST 7 - Road	25.05	m

POND		
Description	Quantity	Unit
POND Area	3.35	ha



LEGEND
- EX. TREELINE
- PR. PROPERTY LIMITS
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- PRE DEVELOPMENT CATCHMENT AREA
- POST DEVELOPMENT CATCHMENT AREA
- PROPOSED OVERLAND FLOW DIRECTION
- ID — CATCHMENT IDENTIFICATION
- X.X | X.XX — PERCENT IMPERVIOUS, % (STANDHYD) CURVE NUMBER (NASHYD)
- CATCHMENT AREA (ha)



100 0m 100 200
SCALE: 1:3000

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BENCHMARK NOTE

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MINISTRY OF NATURAL RESOURCES AND FORESTRY VERTICAL BENCHMARK NUMBER 00820038059 HAVING AN ORTHOMETRIC ELEVATION OF 216.832 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928:1978).

BENCHMARK LOCATED ON THE WEST SIDE OF HWY 26 IN TOWN OF STAYER, APPROXIMATELY 300 M NORTH OF HWY 26 EAST. POINT SET ON THE WEST FACE OF THE NORTH END OF A WING WALL ALONG THE ASPHALT SIDEWALK.

Town: CLEARVIEW TOWNSHIP

No.	ISSUE	DATE: YYYY/MM/DD
0	ISSUED FOR RED-LINED DRAFT PLAN APPROVAL	2026/07/23

Engineer

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Engineer

Project: BRIDLE PARK (STAYNER, ONTARIO) TOWNSHIP OF CLEARVIEW

Drawing: POST-DEVELOPMENT DRAINAGE PLAN

CROZIER

Drawn By	Design By	Project
O.P.	N.O.C./A.M.	1508-7498
Check By	Check By	Drawing
N.O.C.	J.L.A./T.M.G.	FIG8

C:\Users\oparovyk\DC\ACCDocs\Crozier Consulting Engineers\1508-7498 Bridle Park Stayner\Project Files\Civil_Sheets\FSR FIGs\7498_FIG8 POST-DEV DR PLAN.dwg, FIG8, 2026-07-30 2:34:06 PM, oparovyk

FIGURES





KEY PLAN

LEGEND

SITE BOUNDARY

Project:

BRIDLE PARK STAYNER

KINGSMAN GROUP

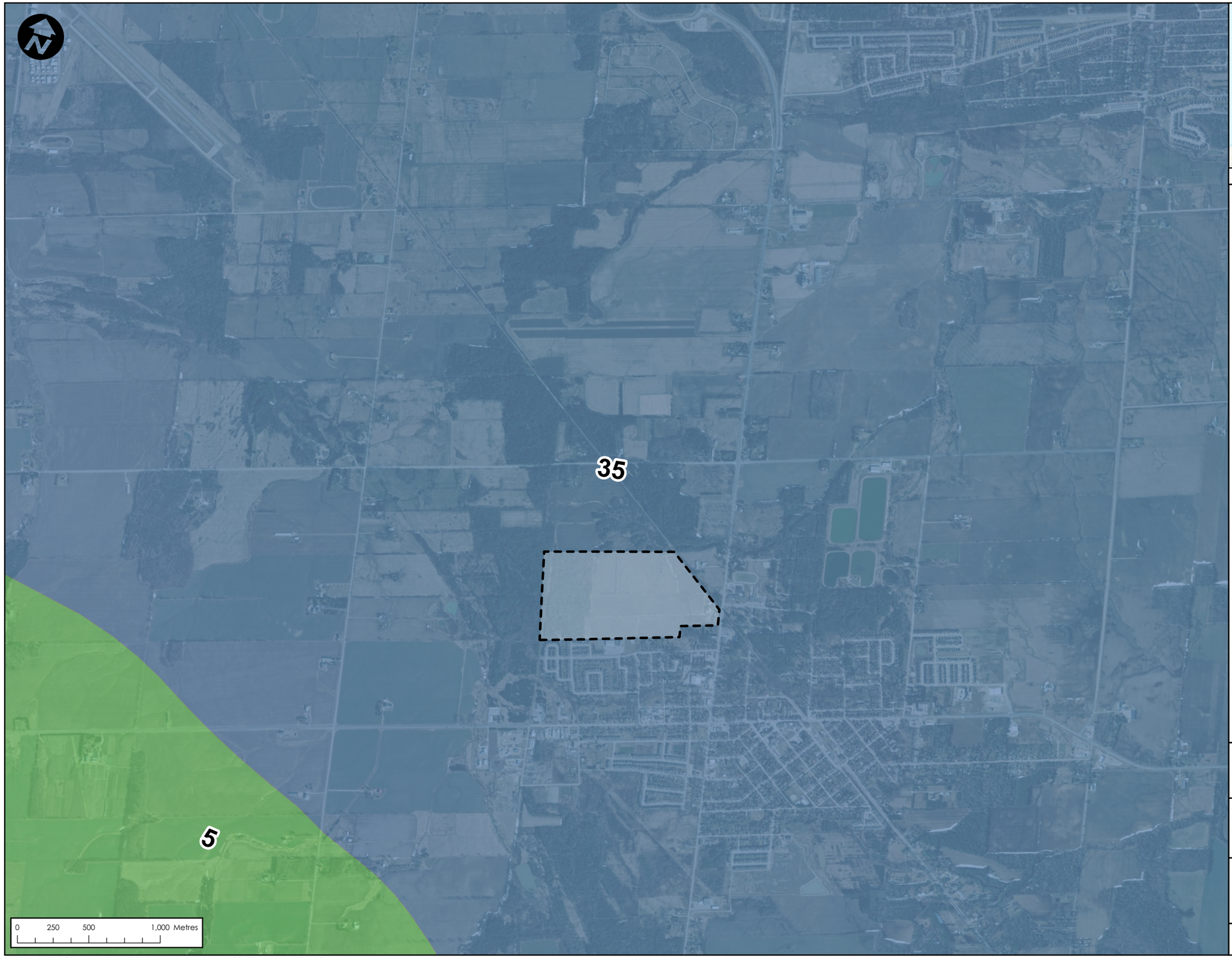
Title:

SITE LOCATION PLAN

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 1**

BASE MAP SOURCE: Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan





KEY PLAN

LEGEND

SITE BOUNDARY

PHYSIOGRAPHY (OGS)

5, HORSESHOE MORAINES

35, SIMCOE LOWLANDS

Project:

BRIDLE PARK STAYNER

KINGSMAN GROUP

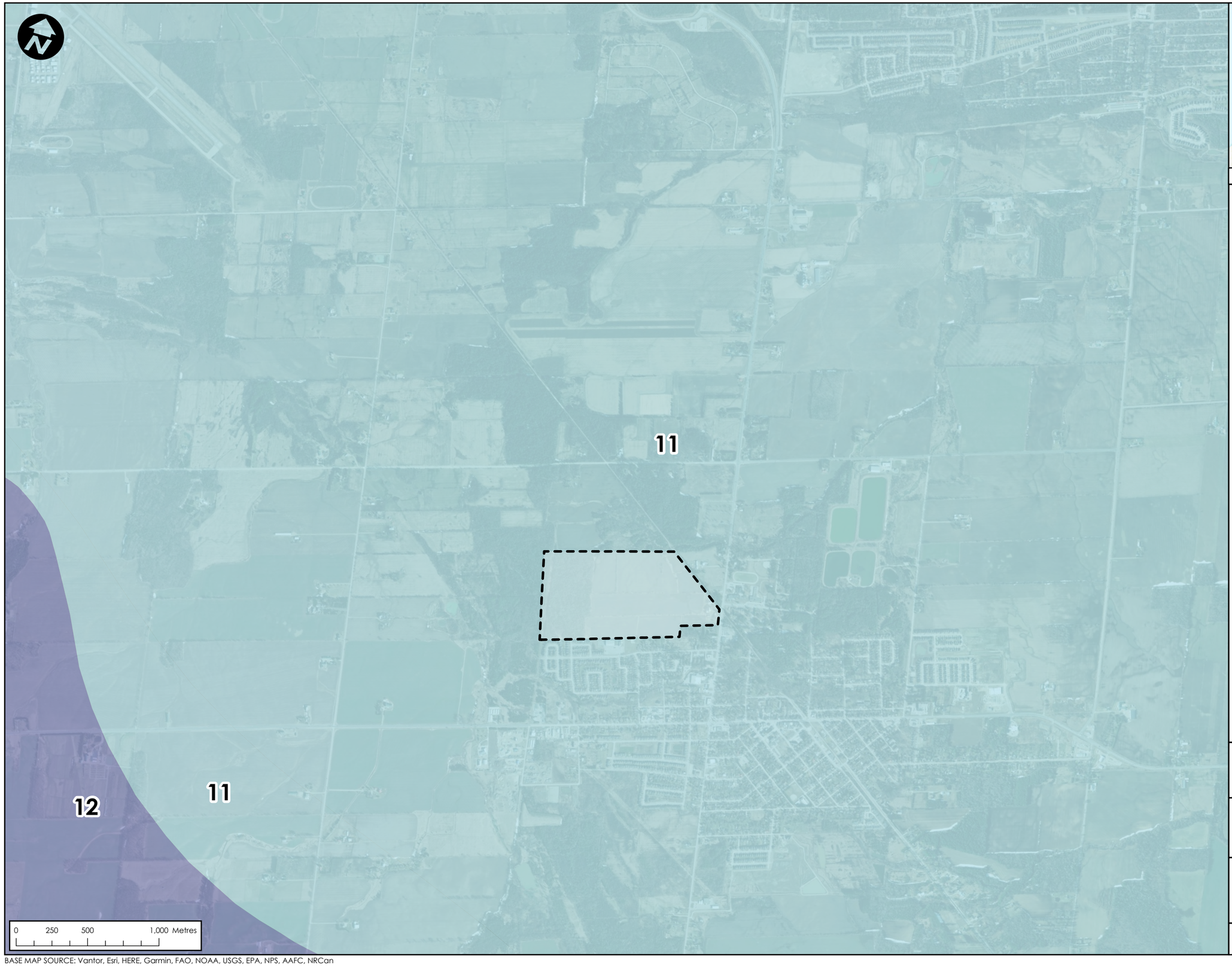
Title:

PHYSIOGRAPHY

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 2**

BASE MAP SOURCE: Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan





KEY PLAN

LEGEND

SITE BOUNDARY

BEDROCK GEOLOGY (OGS)

12: BLUE MOUNTAIN

11: LINDSAY

Project:

BRIDLE PARK STAYNER

KINGSMAN GROUP

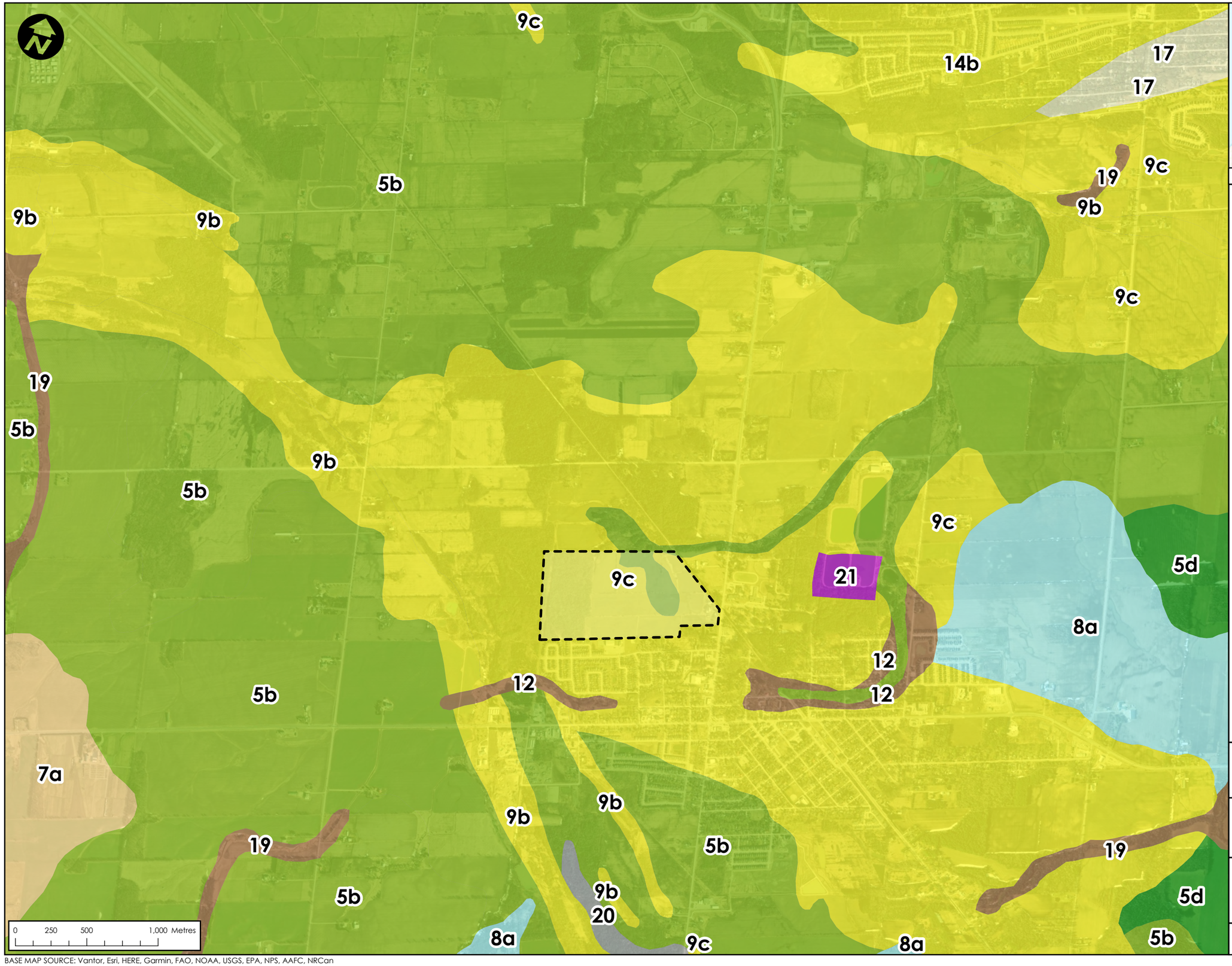
Title:

BEDROCK GEOLOGY

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 3**

BASE MAP SOURCE: Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan





LEGEND

- SITE BOUNDARY

SURFICIAL GEOLOGY (OGS)

- 5B: STONE-POOR, CARBONATE-DERIVED SILTY TO SANDY TILL
- 5D: GLACIOLACUSTRINE-DERIVED SILTY TO CLAYEY TILL
- 7A: SANDY DEPOSITS
- 8A: MASSIVE-WELL LAMINATED
- 9B: LITTORAL-FORESHORE DEPOSITS
- 9C: FORESHORE-BASINAL DEPOSITS
- 12: OLDER ALLUVIAL DEPOSITS
- 14B: LITTORAL-FORESHORE DEPOSITS
- 17: EOLIAN DEPOSITS
- 19: MODERN ALLUVIAL DEPOSITS
- 20: ORGANIC DEPOSITS
- 21: MAN-MADE DEPOSITS

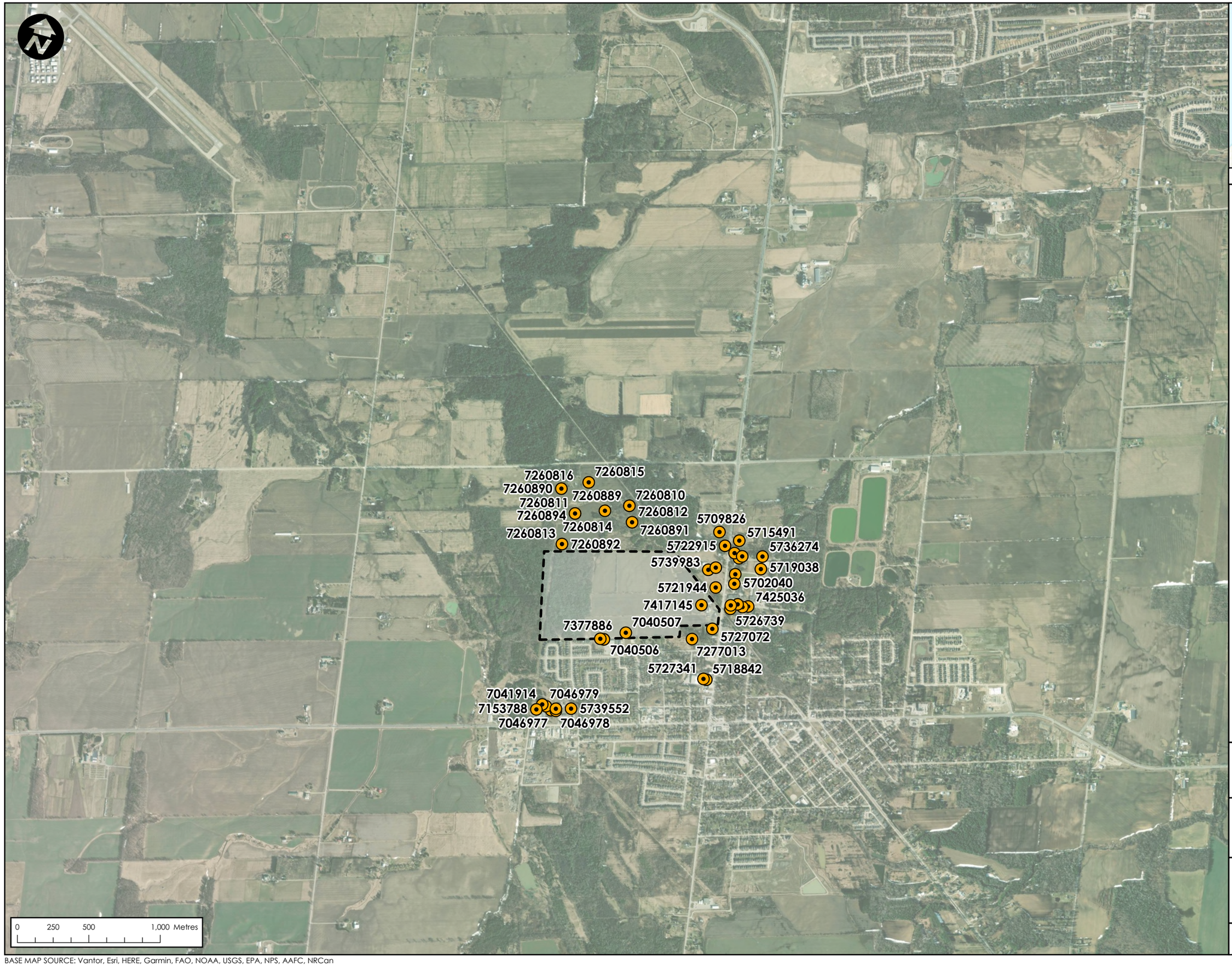
Project:
BRIDLE PARK STAYNER
KINGSMAN GROUP

Title:
SURFICIAL GEOLOGY

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 4**

BASE MAP SOURCE: Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan





LEGEND

- SITE BOUNDARY
- MECP WELLS (ONTARIO WWIS)

Project:

BRIDLE PARK STAYNER

KINGSMAN GROUP

Title:

MECP WELL LOCATION PLAN

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 5**

BASE MAP SOURCE: Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan





LEGEND

- SITE BOUNDARY
- MONITORING WELL LOCATIONS

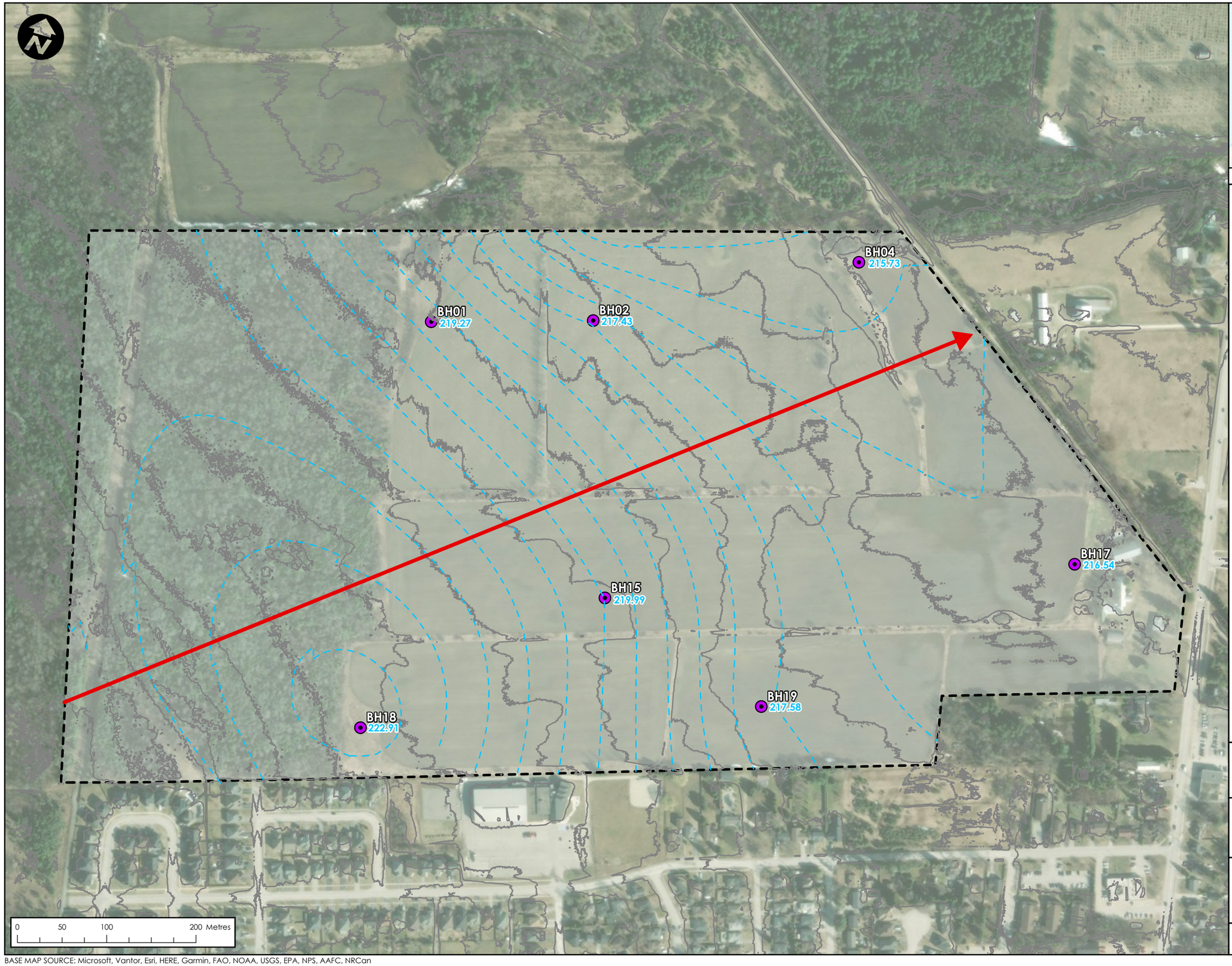
Project:
BRIDLE PARK STAYNER
KINGSMAN GROUP

Title:
MONITORING WELL LOCATION PLAN

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 6**

BASE MAP SOURCE: Microsoft, Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan





KEY PLAN

LEGEND

- SITE BOUNDARY
- CONTOUR (1M)
- INTERPRETED GROUNDWATER CONTOUR
- INTERPRETED GROUNDWATER FLOW DIRECTION
- MONITORING WELL LOCATIONS
- 400.00 SEASONAL HIGH GROUNDWATER LEVEL

Project:
BRIDLE PARK STAYNER
KINGSMAN GROUP

Title:
INTEPRETED GROUNDWATER FLOW DIRECTION

CROZIER

Date:	Drawn By:	Approved By:	
2026-06-04	B.A.S	K.R	**Figure 7**

BASE MAP SOURCE: Microsoft, Vantor, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS, AAFC, NRCan