

Hydrogeological Study

Proposed Residential Development

4850 Bank Street
Ottawa, Ontario

Prepared for Regional Group
Report PH5087-REP.01.R3
dated June 1, 2026

Table of Contents

1.0 INTRODUCTION	1
1.1 Background	1
1.2 Scope of Work.....	1
2.0 RELATED REPORTS	2
3.0 METHOD OF INVESTIGATION	3
3.1 Records Review	3
3.2 Field Program.....	3
3.3 Laboratory Testing	6
3.4 Monitoring Well Installations.....	6
3.5 Water Level Measurements	6
3.6 Surveying	6
4.0 REVIEW AND EVALUATION	7
4.1 Physical Setting.....	7
4.2 Geology.....	8
4.3 Hydrogeological Setting (Conceptual Model)	9
5.0 SITE SPECIFIC WATER BUDGET ASSESSMENT	17
5.1 Calculations.....	17
5.2 Pre and Post-Development Water Budget	20
6.0 GROUNDWATER IMPACT ASSESSMENT	22
6.1 Impact of Proposed Development on Surrounding Infrastructure.....	22
6.2 Impact of Proposed Development on Existing Well Users	23
6.3 Impact of Proposed Development on the Environment	24
6.4 Adjacent PTTW/EASRs/ECAs	24
7.0 ASSESSMENT AND RECOMMENDATIONS.....	26
7.1 Sources of Contamination	26
7.2 Surface Water Features	26
7.3 Existing Wells.....	27
7.4 Water Taking Permitting Requirements	27
7.5 Infiltration Potential.....	27
8.0 CLOSURE.....	29
9.0 REFERENCES	30

Figures

Drawing PH5087-1 - Site Plan
Drawing PH5087-2 - MECP Water Well Location Plan
Drawing PH5087-3 - Surficial Geology Plan
Drawing PH5087-4 - Bedrock Geology Plan
Drawing PH5087-5 – Overburden Groundwater Contour Plan
Drawing PH5087-6 - Pre-Development Terrain Composition Plan
Drawing PH5087-7 - Post-Development Terrain Composition Plan
Monitoring Well Water Elevation Plots

Appendices

- Appendix 1 Soil Profile and Test Data Sheets
Drawing PG6912-1 - Test Hole Location Plan
- Appendix 2 Table 6 - Monthly Water Balance for Soil With 75 mm Water Holding Capacity at the Ottawa International Airport
Table 7 - Monthly Water Balance for Soil With 300 mm Water Holding Capacity at the Ottawa International Airport
Table 8 - Pre-Development Annual Water Budget Calculations
Table 9 - Post-Development Annual Water Budget Calculations
Table 10 - Western Catchment Pre-Development Annual Water Budget Calculations
Table 11 - Western Catchment Post-Development Annual Water Budget Calculations
Table 12 - Eastern Catchment Pre-Development Annual Water Budget Calculations
Table 13 - Eastern Catchment Post-Development Annual Water Budget Calculations
- Appendix 3 Hydraulic Conductivity Results - Falling and Rising Head Tests
Sample Calculations - Dupuit Forchheimer
- Appendix 4 City of Ottawa - Salt Management Plan - Appendix A (October, 2011)
- Appendix 5 Surrounding Water Well Records

1.0 INTRODUCTION

1.1 Background

Paterson Group (Paterson) was retained by Regional Group to conduct a hydrogeological study for the proposed residential development located at 4850 Bank Street in the City of Ottawa (hereinafter referred to as the “subject site”). The location of the subject site is shown on Drawing PH5087-1 - Site Plan appended to this report. This report incorporates the findings of Paterson Report PG6912-1 prepared concurrently.

1.2 Scope of Work

Paterson has completed this report in accordance with the scope prepared by Paterson. As per the agreed upon scope, the purpose of this study was to:

- Complete a groundwater impact assessment to determine potential impacts to adjacent infrastructure, well users and the surrounding environment.

Additionally, the study was to include the standard components of a Water Budget Assessment as per the City of Ottawa’s Water Budget Assessment Terms of Reference, which included the following:

- Review related higher-level studies.
- Conduct pre and post-development water budget analyses, including water budget equations, to determine the hydrogeological function of the subject site in order to assess the need for supplemental stormwater management measures.
- Develop a conceptual model to characterize pre and post-development hydrologic and hydrogeologic site conditions.
- Identify sensitive hydrologic and hydrogeologic features (if any) within the study area.
- Identify water budget targets (if applicable) to mitigate post-development hydrologic and hydrogeologic impacts.
- Identify how climate change projections may impact the water budget.

2.0 RELATED REPORTS

In addition to a review of the general literature summarized in the following sections and in the 'References' section of this report (MECP water well mapping, available geological and physiographic mapping), Paterson reviewed the following site-specific/related reports:

- ❑ PG6912-1 Geotechnical Investigation - Proposed Residential Development & Off-Site Sewer Installation - 4850 Bank Street - prepared by Paterson Group concurrently with this study.
- ❑ S4 Leitrim Urban Expansion Area - Serviceability Report - prepared by Arcadis concurrently with this study.
- ❑ Leitrim West Urban Expansion Area - S4 Environmental Impact Study prepared by Arcadis – prepared concurrently with this study.
- ❑ Pathways at Findlay Creek - Constructed Channel Monitoring (Year 5) - prepared by Cambium Inc. - October 30, 2024.
- ❑ PE6336-1 Phase I-II Environmental Site Assessment - 4850 Bank Street - prepared by Paterson Group - December 20, 2023.
- ❑ Environmental Management Plan for the Remer and Idone Lands - Ottawa, Ontario - Prepared by Golder Associates - February 2015

3.0 METHOD OF INVESTIGATION

3.1 Records Review

A review of available geological, and hydrogeological data was completed as a part of this assessment. However, the literature review and previous reports did not provide site-specific data regarding overburden and bedrock aquifers, recharge and discharge conditions or flow contributions to the nearby water features. Further detail is provided in the following sections.

3.2 Field Program

The geotechnical and hydrogeological field programs were developed to assess geology, groundwater conditions, hydraulic gradients and the overall hydrologic/hydrogeologic function of the subject site. The test holes were advanced to various depths across the site to assess hydrogeological and geotechnical conditions.

Geotechnical field investigations were completed by Paterson at the subject site between December 2023 and February 2026. During this time, 24 boreholes were advanced to a maximum depth of 8.5 m below ground surface (bgs). The location of the test holes are shown on Drawing PG6912-1 - Test Hole Location Plan, included in Appendix 1.

Soil samples were obtained from the boreholes by means of split spoon sampling and the sampling of shallow soils directly from auger flights. Split-spoon samples were taken at approximate 0.76 m intervals. In addition to soil sampling, rock core samples were obtained with the use of a standard diamond drill bit. The depth at which split-spoon, auger samples and rock core samples were obtained from the test holes are shown as "**SS**", "**AU**" and "**RC**", respectively, on the Soil Profile and Test Data sheets, included in Appendix 1.

All samples were classified on site, placed in sealed plastic bags and were transported to our laboratory for further review and testing. Transportation of the samples was completed in accordance with ASTM D4220-95 (2007) - Standard Practice for Preserving and Transporting Soils. Rock core samples were recovered from select boreholes (BH1-25 and BH2-25) drilled during the July 2025 geotechnical investigation using a core barrel and diamond drilling techniques. The bedrock samples were classified on site, placed in hard cardboard core boxes and transported to Paterson's laboratory.

The Standard Penetration Test (SPT) was conducted in conjunction with the recovery of the split-spoon samples. The SPT results are recorded as "N" values on the Soil Profile and Test Data sheets. The "N" value is the number of blows required to drive the split-spoon sampler 300 mm into the ground after an initial penetration of 150 mm using a 63.5 kg hammer falling from a height of 760 mm. This test was done in accordance with ASTM D1586-11 - Standard Method for Penetration Test and Split-Barrel Sampling of Soils.

The recovery value and a Rock Quality Designation (RQD) value were calculated for each drilled section of bedrock and are presented on the borehole logs. The recovery value is the length of the bedrock sample recovered over the length of the drilled section. The RQD value is the total length of intact rock pieces longer than 100 mm over the length of the core run. The values indicate the bedrock quality.

Reference should be made to the Soil Profile and Test Data sheets presented in Appendix 1 for specific details of the soil profiles encountered at the test hole locations.

Drawdown Analysis - Hydraulic Conductivity Testing

Hydraulic conductivity testing (slug testing) was completed at the monitoring wells installed during the geotechnical investigations completed between December 2023 and February 2026. Falling head and rising head tests (slug tests) were completed in accordance with ASTM Standard Test Method D 4404 - Field Procedure for Instantaneous Change in Head (Slug) Tests for Determining Hydraulic Properties of Aquifers.

Slug testing was completed during the months of July 2025 and February 2026 by Paterson personnel. The general test method consisted of measuring the static water level in the well, followed by inducing a near-instantaneous change of head in the well and subsequent monitoring of water level recovery with an electronic water level meter and a water level data logger. The change in head was induced by the introduction of either an acetal slug, 0.9 m in length and 38 mm in diameter, or a metal slug, 1.0 m in length and 19 mm in diameter, depending on the well diameter. The slug was introduced to raise the groundwater level in the monitoring well, following which the decrease in water level over time was monitored (falling head test). Once the water level had stabilized (or nearly stabilized), the slug was then removed to lower the groundwater level, following which the increase in water level over time was monitored (rising head test).

Following the completion of the slug tests, the test data was analyzed using the AQTESOLV Pro Version 4.5 aquifer analysis software package by HydroSOLVE Inc. and the results were processed as per the method set out by Hvorslev (1951). Assumptions inherent in the Hvorslev method include a homogeneous aquifer of infinite extent and a screen length significantly greater than the monitoring well diameter. The assumption regarding screen length and well diameter is considered to be met based upon a typical length of 1.52 m and a diameter of 0.03 to 0.05 m.

While the idealized assumptions regarding aquifer extent, homogeneity are not strictly met in this case (or in any real-world situation), it has been our experience that the Hvorslev method produces effective point estimates of hydraulic conductivity in conditions similar to those encountered at the subject site. Hvorslev analysis is based on the line of best fit through the field data (hydraulic head recovery vs. time), plotted on a semi-logarithmic scale.

Infiltration Testing

In-situ infiltration testing was conducted at the subject site during the month of July 2025 using a Pask (Constant Head) Permeameter. At each testing location, up to two in-situ infiltration tests were conducted at depths of approximately 0.5 to 1.0 m below ground surface (bgs). The tests were conducted to provide general coverage of the subject site and are shown on Drawing PG6912-1 - Test Hole Location Plan included in Appendix 1.

At each testing location, an 83 mm diameter hole was excavated using a Riverside/ Bucket auger to remove topsoil and other subsoil material until the desired testing elevation. Up to two holes were advanced at each testing location to approximately 0.5 and 1.0 m bgs. All soil from the auger flights was visually inspected and initially classified on site. An aggregated soil sample was gathered at each test location. Each test was conducted by filling the permeameter reservoir with water and inverting it into the hole, ensuring it was relatively vertical and resting at the bottom of the hole. The water level of the reservoir was monitored at 0.5 to 5 minute intervals until the rate of fall out of the permeameter reached equilibrium, known as a quasi “steady state” flow rate. Quasi steady state flow was considered to be obtained once 3 to 5 consecutive rate of fall readings with identical values were measured. The values for the steady state rate of fall were recorded for each test. The steady state rate of fall was converted to a field saturated hydraulic conductivity value (K_{fs}) using the Engineering Technology Canada Ltd. conversion tables. Unfactored infiltration rates were estimated based on the methodology outlined in Appendix C of the Credit Valley Conservation’s Low Impact Development Stormwater Management Planning and Design Guide.

3.3 Laboratory Testing

All soil samples were retained for laboratory review following the field portion of the subsurface investigation. The soils were classified in general accordance with ASTM D2488-09a, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). Based on the soil descriptions across the subject site during the geotechnical investigations, these samples are considered to be sufficiently representative of the site.

3.4 Monitoring Well Installations

As part of the geotechnical field programs completed between December 2023 and February 2026, monitoring wells were installed in select boreholes to permit the monitoring of groundwater levels and conduct drawdown analyses. The well installations were compliant with ASTM D5092 standards.

3.5 Water Level Measurements

Following the completion of the December 2023, July 2025 and February 2026 drilling programs, groundwater levels were measured at the monitoring well locations. Water levels were measured using an electronic water level meter relative to the ground surface elevation at each location and are noted on the Soil Profile and Test Data sheets, included in Appendix 1.

In addition to the manual groundwater level measurements, select wells were outfitted with dataloggers to record long-term fluctuations in monitoring well water elevations. The monitoring program began in summer 2025 and extended until May 21, 2026 to capture spring-high groundwater levels. Groundwater monitoring data is presented in the Monitoring Well Water Elevation Plots in the Figures section of this report.

3.6 Surveying

The test hole locations and ground surface elevations at each test hole location completed by Paterson were surveyed using a GPS unit with respect to a geodetic datum. The locations and ground surface elevations for each test hole are presented on Drawing PG6912-1 - Test Hole Location Plan, included in Appendix 1.

4.0 REVIEW AND EVALUATION

4.1 Physical Setting

At the time of the field investigations, the subject site was undeveloped and heavily forested with mature trees and grass/shrubs. The subject site is located in the City of Ottawa, Ontario and is bordered by Bank Street to the east, forested land and a driving range to the south, forested land and a wetland to the west and a residential development and commercial properties to the north. The location of the subject site is shown on Drawing PH5087-1 - Site Plan, appended to this report.

Based on mapping provided by the Ministry of Conservation and Parks (MECP) Source Protection Information Atlas, the subject site is located within the Castor River subwatershed. There are several surface water features located within the subject site and within 500 m of the subject site. These include unnamed scratch ditches, drainage ditches and conveyance channels. Also, the Leitrim Wetlands lies west of the subject site. The ground surface at the subject site generally slopes downwards to the east and west from the central portion of the subject site. The site is generally at grade with adjacent roadways and properties. The site slopes from east to west with an elevation difference of approximately 6-8 m.

According to available mapping from the Ontario Geologic Survey (OGS; MRD 228), the majority of the subject site is located in the sand plains physiographic region. The eastern tip of the subject site is located in the limestone plains physiographic region. The sand plains region is characterized by silty sand deposits. The limestone plains region is characterized by limestone bedrock. These are generally consistent with field observations at the subject site.

4.2 Geology

Surficial Geology

Overburden mapping provided by the OGS was reviewed as part of this assessment. Available mapping (MRD 128) indicates that overburden soils throughout the subject site consist of till (stone-poor, sandy silt to silty sand-textured till on paleozoic terrain). Overburden soil mapping is shown on Drawing PH5087-3 - Surficial Geology Plan, appended to this report.

Overburden soils identified during the geotechnical investigations by Paterson between December 2023 and February 2026 were generally consistent with the available mapping. Soils generally consisted of topsoil overlying a glacial till deposit followed by bedrock. Fill material was encountered at one (1) borehole location. The fill material generally consisted of brown silty sand with gravel, crushed stone and trace clay, extending to a maximum observed depth of 0.9 m bgs. The glacial till deposit generally consisted of a silty sand matrix with varying amounts of gravel, cobbles and boulders, extending to a maximum observed depth of 6.7 m bgs.

Specific details are provided on the Soil Profile and Test Data Sheets included in Appendix 1 of this report. More details regarding the overburden soils can be found in Paterson Report PG6912-1 prepared concurrently with this report.

Bedrock Geology

Bedrock was encountered between 5.0 to 5.2 m bgs during Paterson's 2025 geotechnical field investigation and cored to a maximum depth of 8.5 m bgs. The bedrock was observed to vary from poor to excellent quality. Based on available mapping, the overburden drift thickness at the subject site ranges between 3 and 15 m. Bedrock geology mapping is shown on Drawing PH5087-4 - Bedrock Geology Plan, appended to this report.

Karst Features

The term "karst" refers to a geologic formation characterized by the dissolution of carbonate bedrock, such as limestone or dolostone. In order for karstification to occur, precipitation must be able to infiltrate the top of the bedrock, causing dissolution which enlarges previously existing joints and bedding planes. Based on available mapping by the OGS (GRS 005), the subject site is located within an area that does not contain karstic landforms.

4.3 Hydrogeological Setting (Conceptual Model)

Based on the field investigations at the subject site, Paterson used borehole data, existing water well records, topography, monitoring well water levels, hydraulic conductivity and infiltration rates to develop a conceptual model of the transport fate of surface water and groundwater at the subject site. Information related to the conceptual flow model is described below.

Existing Aquifer Systems

Aquifer systems may be defined as geological media, either overburden soils or fractured bedrock, which permit the movement of groundwater under hydraulic gradients. In general, aquifer systems may be present in overburden soils or bedrock. Groundwater was observed within the overburden soils at the subject site and the soils consist of moderate hydraulic conductivities. Given the limited quantity of groundwater within the overburden aquifer, it is not considered an adequate source for water supply wells. If water supply wells are still in use in the vicinity of the subject site, it is anticipated that they are accessing bedrock aquifers.

Based on a review of the MECP water well record database, available geological mapping and field investigations, Paterson has identified two (2) aquifer systems in the vicinity of the study area which consist of the overburden aquifer and underlying bedrock aquifer. The bedrock aquifer system consists of dolostone or dolostone and sandstone of the Oxford or March Formations, respectively. Given the temporal variability between the water well records and lack of geodetic elevation references, we were only able to approximate a potentiometric surface of the deeper bedrock aquifer which was inferred to range between approximately 2 to 15 m bgs. Surrounding water well records are included in Appendix 5.

Groundwater Levels

Piezometers and monitoring wells were installed across the subject site for the purpose of monitoring groundwater levels. The piezometers and monitoring wells were installed in the overburden and bedrock. Groundwater levels were observed to be between 0.13 and 1.23 m bgs in the piezometers and between 0.34 and 2.47 m bgs in the monitoring wells. The initial groundwater level measurements are shown on the Soil Profile and Test Data Sheets included in Appendix 1. Groundwater elevations that were collected on March 20, 2026 were used to determine hydraulic gradients and the general groundwater flow direction at the subject site which is shown on Drawing PH5087-5 - Groundwater Contour Plan appended to this report. The manual groundwater level measurements are presented in Table 1 below.

Table 1 – Summary of Manual Groundwater Level Measurements

Borehole ID	Ground Surface Elevation (m asl)	Manual Groundwater Level Measurement		Date Recorded
		Depth (m bgs)	Elevation (m asl)	
BH 1A-26*	100.90	0.72	100.18	May 21, 2026
BH 2-26*	102.50	0.66	101.84	May 21, 2026
BH 3-26*	102.62	0.34	102.28	May 21, 2026
BH 4-26*	103.35	1.26	102.10	May 21, 2026
BH 3-25*	109.30	0.06	109.24	May 21, 2026
BH 1-23*	102.56	1.52	101.04	May 21, 2026
BH 6C-23*	101.59	0.94	100.66	May 21, 2026
BH 10-23*	103.35	0.51	102.84	May 21, 2026
BH 1A-26*	100.9	1.01	99.90	March 20, 2026
BH 2-26*	102.50	0.73	101.77	March 20, 2026
BH 3-26*	102.62	0.51	102.11	March 20, 2026
BH 4-26*	103.35	0.86	102.49	March 20, 2026
BH 3-25*	109.30	0.72	108.58	March 20, 2026
BH 1-23*	102.56	0.80	101.76	March 20, 2026
BH 6C-23*	101.59	0.68	100.91	March 20, 2026
BH 10-23*	103.35	0.29	103.06	March 20, 2026
BH 1A-26*	100.90	1.58	99.32	February 26, 2026
BH 2-26*	102.50	0.96	101.54	February 26, 2026
BH 3-26*	102.62	0.57	102.05	February 26, 2026
BH 4-26*	103.35	1.67	101.68	February 26, 2026
BH 3-25*	109.30	1.67	107.63	February 26, 2026
BH 1-23*	102.56	1.96	100.60	February 26, 2026
BH 6C-23*	101.59	1.19	100.40	February 26, 2026
BH 10-23*	103.35	0.68	102.67	February 26, 2026
BH 1-25*	101.45	1.74	99.71	July 3, 2025
BH 2-25	103.07	2.18	100.89	July 3, 2025
BH 3-25*	109.30	1.99	107.31	July 3, 2025
BH 1-23*	102.56	2.47	100.09	July 3, 2025
BH 2A-23*	102.25	2.09	100.16	July 3, 2025
BH 6C-23*	101.59	1.21	100.38	July 3, 2025
BH 10-23*	103.35	1.25	102.10	July 3, 2025
BH 1-23*	102.56	1.40	101.16	January 29, 2024
BH 2A-23*	102.25	0.94	101.31	January 29, 2024
BH 10-23*	103.35	0.26	103.09	January 29, 2024
BH 1-23*	102.56	1.30	101.26	December 15, 2023
BH 2A-23*	102.25	0.80	101.45	December 15, 2023
BH 3-23	105.46	1.23	104.23	December 15, 2023
BH 4-23	106.70	Dry	-	December 15, 2023
BH 5-23	107.88	0.40	107.48	December 15, 2023
BH 6C-23*	101.59	0.76	100.83	December 15, 2023
BH 7-23	109.28	0.66	108.62	December 15, 2023
BH 8A-23	107.22	0.27	106.95	December 15, 2023
BH 9-23	106.87	0.13	106.74	December 15, 2023

Table 1 – Summary of Manual Groundwater Level Measurements				
Borehole ID	Ground Surface Elevation (m asl)	Manual Groundwater Level Measurement		Date Recorded
		Depth (m bgs)	Elevation (m asl)	
BH 10-23*	103.35	0.39	102.96	December 15, 2023
Note: The ground surface elevation at each borehole location was surveyed by Paterson using a handheld GPS and was referenced to a geodetic datum. *Borehole instrumented with groundwater monitoring well.				

Van Essen TD-Diver dataloggers were installed at all monitoring well locations to collect water level readings at a minimum of one (1) reading every 24 hours.

The long-term groundwater monitoring program began in summer 2025 and extended to May 21, 2026. The monitoring data was compared with Environment and Natural Resources Canada precipitation data from the Ottawa International Airport over the same timeframe as the monitoring program. The monitoring data from each monitoring location is presented on the Monitoring Well Water Elevation Plots appended to this report.

Horizontal Hydraulic Gradients

Due to the nature of the water levels obtained from field work conducted at the subject site (groundwater monitoring wells), the absolute direction of horizontal hydraulic gradients in the vicinity of the subject site was not determined. However, using the available data, it was possible to approximate the horizontal hydraulic gradients in the overburden materials given that the horizontal hydraulic gradient between any 2 points is the slope of the hydraulic head between those points:

$$i = h_2 - h_1 / L$$

Where: i = horizontal gradient
 h = water elevation (m asl)
 L = horizontal distance between test hole locations

Using the above noted formula, the horizontal hydraulic gradients within the eastern portion of the site were observed to be in an approximate easterly orientation with a magnitude of approximately 0.022 to 0.025 m/m in the glacial till deposit within the study area. The horizontal hydraulic gradients within the western portion of the site were observed to be in an approximate westerly orientation with a magnitude of approximately 0.016 to 0.17 m/m in the glacial till deposit towards the Leitrim Wetlands within the study area. The approximate groundwater flow directions are presented on Drawing PH5087-5 – Overburden Groundwater

Contour Plan, appended to this report. Regional groundwater flow in the overburden is expected to be in a southeasterly orientation towards Castor River which is consistent with available watershed mapping.

Hydraulic Conductivity

Hydraulic conductivity testing (slug testing) was completed by Paterson as part of the field investigations at the subject site. The test data was analyzed as per the method set out by Hvorslev (1951). The testing yielded hydraulic conductivity values of 5.27×10^{-8} to 1.50×10^{-5} m/sec for glacial till and 1.05×10^{-4} to 1.20×10^{-4} m/sec for bedrock. Hydraulic conductivity results are summarized in Table 2 below and have been included in Appendix 3.

Table 2 – Summary of Hydraulic Conductivity (Slug) Testing Results					
Test Hole ID	Ground Surface Elevation (m asl)	Testing Elevation (m asl)	Hydraulic Conductivity (m/sec)	Test Type	Soil Type
BH1A-26	100.10	96.95-97.45	5.02×10^{-6}	Falling Head	Glacial Till
			1.50×10^{-5}	Rising Head	
BH2-26	102.50	98.11-98.61	3.33×10^{-7}	Falling Head	Glacial Till
			3.01×10^{-7}	Rising Head	
BH3-26	102.62	99.67-100.17	3.18×10^{-7}	Falling Head	Glacial Till
			2.36×10^{-7}	Rising Head	
BH4-26	103.35	98.78-100.30	5.27×10^{-8}	Falling Head	Glacial Till
			7.75×10^{-8}	Rising Head	
BH1-25	101.45	93.17-94.67	1.05×10^{-4}	Falling Head	Bedrock
			1.20×10^{-4}	Rising Head	
BH3-25	109.30	103.15-104.65	1.33×10^{-6}	Falling Head	Glacial Till
			2.03×10^{-6}	Rising Head	
BH1-23	102.56	98.80-100.30	3.71×10^{-7}	Falling Head	Glacial Till
BH6C-23	101.59	96.97-98.47	9.00×10^{-6}	Falling Head	Glacial Till
			1.21×10^{-5}	Rising Head	
BH10-23	103.35	98.27-99.77	4.28×10^{-6}	Falling Head	Glacial Till
			5.01×10^{-6}	Rising Head	

In-Situ Infiltration Testing

In-situ infiltration testing was conducted by Paterson using a Pask (Constant Head Well) Permeameter across the subject site to determine the field saturated hydraulic conductivities (K_{fs}) and their respective unfactored infiltration rates of the unsaturated overburden soils. The tests were conducted in a manor to provide general coverage across the subject site. The measured K_{fs} values varied between 9.3×10^{-8} and 8.5×10^{-6} m/sec for the glacial till unsaturated overburden soils. The variations in the K_{fs} values are dependent on the composition/compaction of the

glacial till at a given location. In-situ infiltration testing results can be found below in Table 3.

Test ID	Ground Surface Elevation (m asl)	Infiltration Testing Elevation (m asl)	K_{fs} (m/sec)	Material
PT1-25	101.67	101.17	2.7×10^{-7}	Glacial Till
		100.67	9.3×10^{-8}	Glacial Till
PT2-25	105.82	105.32	5.3×10^{-6}	Glacial Till
		104.82	8.5×10^{-6}	Glacial Till
PT3-25	107.29	106.79	2.7×10^{-7}	Glacial Till
		106.49	1.4×10^{-7}	Glacial Till
PT4-25	109.49	108.99	2.1×10^{-6}	Glacial Till
		108.54	1.1×10^{-6}	Glacial Till
PT5-25	106.11	105.56	1.4×10^{-7}	Glacial Till

*Field saturated hydraulic conductivity (K_{fs})

Groundwater Recharge and Discharge

In general, groundwater will follow the path of least resistance from areas of higher hydraulic head to areas of lower hydraulic head. Upward and downward hydraulic gradients are typically indicative of areas of discharge and recharge, respectively.

It is our interpretation that there is some recharge occurring at the subject site due to the soils identified at the time of the field investigations, and the infiltration testing results at the subject site. Recharge of the shallow overburden aquifer will occur as precipitation infiltrates the subsoils where it will flow vertically downward through the unsaturated surficial soils before intercepting the overburden aquifer. However, it should be noted that the site is not mapped as a significant groundwater recharge area (SGRA) by the MECP.

With regards to discharge zones, neither the topographical nor geological conditions are suitable for discharge to be occurring on a large scale at the subject site.

The subject site intersects one subwatershed as previously mentioned. However, within the confines of the subject site, shallow groundwater was found to have flow generally travelling in an eastward direction within the eastern portion of the subject site, and in a western direction within the western portion of the subject site, given the topographic relief.

It should be noted that the subject site is not identified by the MECP as a drinking water protection zone.

Catchment Areas

The subject site is located within the Castor River subwatershed. As shown on Drawing PH5087-5 - Groundwater Contour Plan, the groundwater flows in an eastward direction within the eastern portion of the subject site, and in a western direction towards the Leitrim Wetlands within the western portion of the subject site. Therefore, it is Paterson's opinion that the subject site is predominantly characterized by two catchment areas.

Based on discussions with the civil design team and preliminary servicing drawings available at the time of report preparation, the site will continue to be characterized by two catchment areas under post-development which will function similarly to pre-development conditions. However, it is anticipated that the size of the western catchment area will increase to allow for increased hydration to the adjacent Leitrim Wetlands as per recommendations by South Nation Conservation (SNC).

Groundwater Inflow/Dewatering Requirements

Three (3) potential sources of dewatering have been identified at the subject site. The sources consist of the excavation footprints related to the building foundations, servicing trenches and western stormwater management pond (SWMP). Details regarding the excavation footprints and depths for each potential dewatering source were based on the information available at the time of report preparation. Therefore, the building, servicing and SWMP excavations are assumed to encompass an area of approximately 750 m², 125 m² and 4,200 m², respectively, for a preliminary dewatering assessment.

Based on available conceptual drawings for the site, excavation sizes were estimated based on proposed building footprints, typical servicing excavation sizes based on previous experience at similar sites and the proposed SWMP footprint.

The infiltration rates provided for the following sources were calculated using the Dupuit Forchheimer method:

$$Q = \pi k((h_0^2 - h_p^2) / \ln(R/r))$$

- k = hydraulic conductivity (m/sec)
- h_0 = thickness of the aquifer (m)

- h_p = thickness of the aquifer from the base of the excavation to the base of the aquifer (m)
- R = effective drawdown radius for the excavation (m)
- r = equivalent radius of the excavation (m)

The groundwater infiltration calculations for the excavation footprints are provided in Appendix 3 of this report.

The stratigraphy within the anticipated saturated depth of the building excavations generally consists of a glacial till deposit. Specific design details were not available at the time of report preparation. For the purpose of this study, it has been assumed the buildings will consist of slab-on-grade construction or one basement level with a maximum excavation depth of 3 m bgs. Calculations are based on an excavation size of approximately 750 m² and a saturated depth of 3 m. Using a representative hydraulic conductivity of 9.3×10^{-7} m/sec (geometric mean of the calculated hydraulic conductivities from overburden wells), the steady state volume of groundwater inflow is estimated to be between approximately 16,000 to 18,000 L/day, per excavation.

The servicing trench excavations are anticipated to primarily encounter saturated glacial till material with the potential to intercept shallow saturated bedrock in some locations. Specific design details were not available at the time of report preparation. For the purpose of this study, it has been assumed the servicing trenches will have a maximum excavation depth of 5 m bgs. Calculations are based on an excavation size of approximately 125 m² and a saturated depth of 4 m within the glacial till and 1 m within the bedrock. Using a representative hydraulic conductivity of 9.3×10^{-7} m/sec and 1.1×10^{-4} (geometric mean of the calculated hydraulic conductivities from overburden and bedrock wells, respectively), the steady state volume of groundwater inflow is estimated to be between approximately 9,000 to 10,000 L/day and 780,000 to 820,000 L/day, per excavation within the glacial till and bedrock, respectively.

The stratigraphy within the anticipated saturated depth of the western SWMP excavation generally consists of a glacial till deposit. Based on available drawings at the time of report preparation, it is anticipated that the SWMP excavation will have a maximum excavation depth of approximately 3 m bgs. Calculations are based on an excavation size of approximately 4,200 m² and a saturated depth of 3 m. Using a representative hydraulic conductivity of 9.3×10^{-7} m/sec (geometric mean of the calculated hydraulic conductivities from overburden wells), the steady state groundwater inflow is anticipated to be between approximately 50,000 to 55,000 L/day.

It should be noted that the above estimated inflow values are unfactored. It is recommended that source specific dewatering calculations be completed once more specific development details are available.

5.0 SITE SPECIFIC WATER BUDGET ASSESSMENT

The site-specific water budget assessment (SSWB) was conducted to determine the hydrogeological function of the subject site, to identify infiltration potential and to identify opportunities for supplemental stormwater management measures. At the time of the field investigations the study area mainly consisted of mature trees, grass and shrubs. The pre and post-development terrain compositions are illustrated on Drawings PH5087-6 - Pre-Development Terrain Composition Plan and PH5087-7 - Post-Development Terrain Composition Plan, appended to this report. It should be noted that the future Earl Armstrong extension was excluded from the water budget study area as it is not a component to the current serviceability study for the development.

5.1 Calculations

Thornthwaite and Mather Water Balance Calculations

When falling precipitation intercepts the ground, three possible outcomes arise. The water can either evaporate/transpire back into the atmosphere (evapotranspiration), infiltrate into the surface soils (infiltration) or leave the area as runoff.

The method employed by Thornthwaite and Mather (1957) was used along with modelling software by Environment Canada's Engineering Climate Services Unit (EC-ECS) to determine the partitioning of water throughout various portions of the hydrologic cycle. Inputs into the modelling program included monthly temperature, precipitation, water holding capacities and site latitude. Using the long-term averages of these variables, it was possible to calculate annual potential and actual evapotranspiration, change in soil moisture storage and the water surplus.

The formula employed by Thornthwaite and Mather is as follows:

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

Where:

- S = surplus (mm/year)
- R = annual runoff (mm/year)
- I = annual infiltration (mm/year)
- P = annual precipitation (mm/year)
- ET = annual evapotranspiration (mm/year).

Shallow unsaturated soils within the study area generally consisted of topsoil overlying a glacial till deposit. Given the similar soil profiles across the entire study area, the above noted calculations were carried out for the soil moisture holding capacity of a fine sandy loam.

Based on the location of the site within the Ottawa area, climatic data was obtained from the climate station located at the McDonald-Cartier International Airport covering the period of January 1939 to December 2022. The information was provided by Environment Canada's Engineering Climate Services Unit and is presented in Appendix 2 of the report.

Table 4, below, displays the soil types present within the study area and their associated water holding capacities (WHC) as well as the actual evapotranspiration (AET) and surplus data. For the purposes of this study, AET values were used as they account for accumulated soil moisture deficit. This deficit represents the volume of water retained within the available pore spaces of the soil and is subtracted from the potential evapotranspiration (PET) value to more accurately calculate the water surplus. The monthly/annual water balance data is presented in Tables 6 and 7 in Appendix 2 of this report. For the purpose of this study, 70% of the detached homes property footprints are considered to be impervious surfaces (100% of surplus will result in runoff) and 30% are considered to be urban lawns.

Table 4 - Site Specific Water Surplus Information			
Land Use Unit	Water Holding Capacity (mm)	Actual Evapotranspiration (mm/year)	Surplus Water (mm/year)
Impervious Surfaces	N/A	145*	759
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	75	525	378
Mature Forests (Fine Sandy Loam)	300	605	298

Table reproduced using WHC values from MOE (2003) - Stormwater Management Planning and Design Manual and modelling data from Environment Canada's Engineering Climate Services Unit.
 *Values based on evaporation information for urban areas (16% of precipitation) included in the Eastern Ontario Water Resources Management Study prepared by CH2M HILL Canada Limited (March 30, 2001).

Infiltration Factors

In order to break down the surplus water values for the various materials into infiltration and runoff, various factors must be considered. The MOE Stormwater Management Planning and Design Manual (2003) lists three main factors that

contribute to surface water infiltration rates.

The first factor is topography, which is broken down further into three sections: flat and average slope, rolling land and hilly land. Flat and average slope provides the greatest potential for infiltration and has the largest infiltration factor applied to it (0.3), while the other two have progressively lower infiltration factors (rolling land is 0.2 and hilly land is 0.1).

The second factor is soil, which is also broken down further into three sections: tight impervious clay, medium combinations of clay and loam and open sandy loam. Open sandy loam provides the greatest potential for infiltration (infiltration factor of 0.4) while the other two have progressively lower potential for infiltration to occur (infiltration factor for medium combinations of clay and loam is 0.2 and for tight impervious clay is 0.1).

The final factor the MOE manual uses to partition infiltration from runoff is land cover. It is broken down into two sections: open fields/cultivated lands and woodlands. Woodlands have greater infiltration potential and an infiltration factor of 0.2. Open fields and cultivated lands have lower potential and with an infiltration factor of 0.1. A summary of the MOE manual's descriptors and their associated infiltration factors is shown below in Table 5.

Table 5 - MOE (2003) Infiltration Factors	
Description of Area/Development Site	Value of Infiltration Factor
Topography	
Flat and average slope (<0.6 m/km)	0.30
Rolling land (slope of 2.8-3.8 m/km)	0.20
Hilly land (slope of 28-47 m/km)	0.10
Soil	
Tight impervious clay	0.10
Medium combinations of clay and loam	0.20
Open sandy loam	0.40
Cover	
Open fields/cultivated lands	0.10
Woodlands	0.20
Table reproduced from MOE (2003) - Stormwater Management Planning and Design Manual.	

The topography of the study area is classified as hilly land (slope of 28-47 m/km throughout the subject site) Therefore, a pre-development topography infiltration factor of 0.1 was given for the materials analysed on this property. In order for development to proceed, it is expected that alterations will be made to the topography of the site. In general, it is expected that the overall slope of the site will be reduced to accommodate buildings and parking areas. Therefore, the

topography of the subject site under post-development conditions will consist of a mix rolling and hilly land and was therefore assigned a post-development topography infiltration factor of 0.15. An infiltration factor of 0 was assigned to the impervious surfaces due to its negligible infiltration capacity.

As previously discussed, soils within the study area generally consisted of topsoil overlying a glacial till deposit. Therefore, a pre-development soil infiltration factor of 0.3 was given for the materials analysed on this property. Under post-development conditions, the majority of the site will consist of either landscaped areas or impervious surfaces, with soil infiltration factors ranging from 0.3 for fine sandy loam to 0 for impervious surfaces.

At the time of the field investigations, the subject site generally consisted of mature forest. A pre-development vegetation infiltration factor of 0.2 was therefore used for the site. Post-development, it is expected the majority of the trees remaining on site will be removed to accommodate buildings, parking areas and roadways. As such, a post-development vegetation infiltration factor of 0.1 was assigned to the site, except for impervious surfaces, which were given an infiltration factor of 0 due to its negligible potential to benefit from vegetation cover.

The pre and post-development infiltration factors for all materials considered are included in the water budget calculations provided in Table 8 and Table 9 included in Appendix 2 of this report.

5.2 Pre and Post-Development Water Budget

The pre-development water budget analysis conducted for the study area determined that an estimated 21,992,400 L/year of surplus water currently infiltrates the surface soils. The remaining estimated 14,661,600 L/year of surplus leaves the site as runoff.

The post-development water budget analysis determined that an estimated 6,168,925 L/year of surplus water will infiltrate the surface soils and approximately 72,011,680 L/year will leave the site as runoff. These values equate to an approximate decrease in infiltration of 72% and an increase in runoff of 391%.

The main variable that changed from pre-development conditions to post-development conditions was the addition of approximately 8.8 hectares of impervious surfaces. This results in reducing the area of pervious materials throughout the subject site, therefore, reducing the overall infiltration potential of the subject site. The remaining areas that are not being converted to impervious surfaces will become landscaped surfaces characterized by urban lawn (fine sandy

loam) material. Also, it should be noted that the SWMP area was excluded from the post-development water budget analysis given that this area is designed to manage stormwater runoff and does not contribute to the infiltration or runoff potential of the site.

It is important to note that the post-development water budget analysis for the subject site does not consider any potential infiltration of the impervious surfaces (100% runoff was taken as a conservative approach). In reality, some portion of surface water that lands on impervious surfaces infiltrates (asphalt is not 100% impervious) or is diverted to grassed areas where additional infiltration may occur. As such, the post-development runoff volumes should be considered a conservative estimate and not expected to definitively represent future conditions.

Details of the pre and post-development water budget analyses are presented in Tables 8 and 9, included in Appendix 2 of this report. Additional water budget calculations were completed for each catchment area and are also included in Appendix 2.

6.0 GROUNDWATER IMPACT ASSESSMENT

6.1 Impact of Proposed Development on Surrounding Infrastructure

As previously discussed, soils within the subject site generally consisted of topsoil, overlying a glacial till deposit. The expected groundwater infiltration will be encountered within the glacial till deposit.

The steady-state radius of influence calculations completed were based upon the Sichardt equation as shown below. The assumed setting for the analytical solution was one in which open cut trenches were used to install the services at the subject site, creating an unconfined condition which would allow use of the equation to determine the radius of influence.

$$R = 3000 * \Delta h(K^{0.5})$$

Where: R = radius of influence (m)
 Δh = expected groundwater drawdown (m)
 K = hydraulic conductivity (m/sec).

For the purposes of completing the calculations, the following values were used in the analysis for the glacial till:

- Δh = 3 to 5 m for the glacial till and 1 m for the bedrock.
- K = 5.27×10^{-8} to 1.50×10^{-5} m/sec for the glacial till and 1.05×10^{-4} to 1.20×10^{-4} m/sec for the bedrock.

Using the above equation and assumptions, a radius of influence of approximately < 5 to 58 m will develop as a steady state condition within the glacial till, extending from the edge of the excavation, depending on the groundwater levels and hydraulic properties of the specific soils encountered. If shallow bedrock removal is required, a radius of influence of approximately 31 to 33 m will develop as a steady state condition based on the hydraulic conductivity values measured at the bedrock well location.

The surrounding area consists of mostly low-rise residential homes and commercial properties. The buildings located within the theoretical radius of influence are generally expected to be founded on the glacial till deposit. The majority of the groundwater infiltration is expected to occur within the glacial till with minimal compressibility. Furthermore, water takings are also expected to be short term in duration, given the nature of the development. As such, adverse

effects to surrounding infrastructure related to dewatering activities at the subject site are expected to be negligible.

6.2 Impact of Proposed Development on Existing Well Users

A search of the Ontario Water Well Records online mapping database indicates there are a number of wells within 500 m of the site as depicted on Drawing PH5087-2 - MECP Water Well Location Plan, appended to this report. However, it is expected that the majority of these wells are either no longer in use due to their installation dates and developed nature of the region or are monitoring well installations. Additionally, the majority of properties surrounding the site are serviced by municipal water supplies. Any wells that may still be in use are cased well below the anticipated excavation depths associated with the proposed development and are accessing the deeper bedrock aquifer. Furthermore, the properties that reside on the eastern boundary of the subject site will have the opportunity to connect to municipal services once the development proceeds. Therefore, it is anticipated that the existing wells will either no longer be in use or have adequate vertical and horizontal separation from proposed construction activities. Therefore, dewatering activities at the subject site are not expected to cause any interference to the water supply of surrounding properties or other negative impacts.

As the potential to interfere with the water quality/quantity of existing well users in the area is negligible, a water well sampling program is not recommended for the aforementioned water takings. If the adjacent properties that reside on the eastern site boundary do not elect to connect to the municipal water supply, a water well sampling program may be required and details of the monitoring program will be determined at the detailed design phase of the planning process.

If wells are found to remain in existence on the subject site, they should be decommissioned in accordance with Ontario Regulation 903.

If construction activities are shown to cause negative impacts to the water supplies of existing well users, the developer shall take action to make available a supply of water equivalent in quality and quantity of their typical takings or shall compensate those affected for reasonable costs for doing so, or shall reduce water taking amounts to alleviate the negative impacts. The contractor shall provide temporary water supplies, to those affected, to meet their typical takings or compensate such persons for reasonable costs associated to do so until permanent restoration of the affected water supply or an equivalent source.

6.3 Impact of Proposed Development on the Environment

A search of the MECP Environmental Site Registry for Records Site Condition (RSCs) was conducted as part of the assessment of the site, neighbouring properties and the general area. No RSCs were identified within the 500 m of the subject site.

A Phase II Environmental Site Assessment (ESA) was completed by Paterson for the subject site. All soil samples were found to be in compliance with MECP Table 2 Residential standards. All groundwater samples were found to be in compliance with MECP Table 2 Potable standards.

There are several surface water features located within the subject site and within 500 m of the subject site. These include unnamed scratch ditches, drainage ditches and conveyance channels. Also, the Leitrim Wetlands lies west of the subject site.

As per the Environmental Impact Study (EIS) prepared by Arcadis, select drainage features located within the subject site are expected to be infilled/removed as part of the proposed development. However, removal of these features is not anticipated to negatively impact the overall hydrogeologic or hydrologic function of the site, given the proposed stormwater management system will convey runoff from a larger catchment area than pre-development conditions through conventional stormwater management measures, thus increasing hydration to this natural feature. Additionally, it is anticipated that water directed towards the wetland will infiltrate the subsoils offsite, helping to maintain the overall hydrogeologic function of the area, despite the localized infiltration deficit within the subject site itself. Therefore, given that the EIS did not identify impacts to features outside the development area and the stormwater management measures discussed above, impacts to the surrounding natural environment as a result of the proposed development are anticipated to be negligible.

6.4 Adjacent PTTW/EASRs/ECAs

A search of the MECP Permit to Take Water (PTTW) database provided one (1) PTTW within a 500 m radius of the subject site.

PTTW 2014-BAQMK2 is registered to 4840 Bank St. Ltd. and is located within the residential development currently under construction to the north of the subject site. The above noted permit contains 2 sources (Services Trenches and Miscellaneous Poned Areas) with a maximum taking of 5,200,000 L/day.

A search of the MECP Environmental Activity and Sector Registry (EASR) database provided one (1) active EASR within a 500 m radius of the subject site.

EASR R-009-7232525387 is registered to RON EASTERN CONSTRUCTION LTD. and is located within the residential development currently under construction to the north of the subject site. The above noted permit contains 2 sources (Building Excavation and Servicing Excavation) with a maximum taking of 400,000 L/day, per source.

Based on available mapping (GeoOttawa), it is expected that the servicing has been completed for the adjacent residential development at 4840 Bank Street. Therefore, it is unlikely that dewatering between the two sites would be taking place concurrently. Cumulative impacts related to anticipated dewatering activities for the proposed development from adjacent water taking permits are not anticipated.

With respect to Environmental Compliance Approvals (ECAs), given the nature of the development in the area (residential and commercial), there are several ECAs that exist for various purposes in the areas bordering the site. Eight (8) ECAs were found to be in relation to existing stormwater management systems in the area. Upon review of the aforementioned ECAs, the ECAs generally relate to installations of new sanitary and storm sewers for new residential developments along with stormwater management strategies on the respective sites. As the ECAs relate to municipal stormwater infrastructure, no concerns were found from a hydrogeological perspective in relation to the subject site.

7.0 ASSESSMENT AND RECOMMENDATIONS

7.1 Sources of Contamination

Based on the soil and groundwater samples collected at the subject site as part of the Phase II ESA investigation, all soil and groundwater samples were found to be in compliance with MECP Table 2 Residential standards and MECP Table 2 Potable standards, respectively.

Prior to and during site development, it is recommended that construction best management practices with respect to fuels and chemical handling, spill prevention, and erosion and sediment control be followed. This will minimize the potential for the introduction of contaminants to the soil, surface water, or groundwater at the subject site.

It is anticipated that the material on site will be disposed of as per Ontario Regulation 406/19 – On-site and Excess Soil Management.

With respect to stormwater runoff quality, it is recommended that best management practices with respect to operational standards be maintained for any stormwater management facilities constructed for the proposed development. It is also recommended that adherence to the City of Ottawa Salt Management Plan - Appendix A (October, 2011) included in Appendix 4 is enforced to ensure that chloride levels in stormwater runoff are minimized.

7.2 Surface Water Features

There are several surface water features located within the subject site and within 500 m of the subject site. These include unnamed scratch ditches, drainage ditches and conveyance channels. Also, the Leitrim Wetlands lies west of the subject site. However, as previously discussed, the stormwater management strategy will employ measures to increase hydration to adjacent surface water features. Therefore, by implementing the proposed stormwater management strategy and as per the Environmental Impact Study prepared by Arcadis, no significant impacts are expected from the proposed development on the overall hydrologic function of the area or sensitive features.

With respect to water discharge, water that is pumped from on site excavations must be managed in an appropriate manner. The contractor will be required to implement a water management program to dispose of the pumped water. If the discharge point for the pumped water is directed to overland drainage, it is

expected that a multi-barrier approach (such as hay bales, geosocks, silt fence, etc.) to a non-frozen, well vegetated area will be utilized in order to promote re-infiltration prior to reaching a watercourse. Furthermore, if the discharged water is to be directed to overland drainage within 30 m of a water body/watercourse, the turbidity of the water shall not exceed 8 NTU above background levels of the nearest water body. The contractor will be required to maintain appropriate BMPs with respect to sediment and erosion control to ensure negative effects to the surrounding environment are minimized.

7.3 Existing Wells

Any wells within the subject site must be decommissioned prior to construction in accordance with Ontario Regulation 903.

If construction activities are shown to cause negative impacts to the water supplies of existing well users, the developer shall take action to make available a supply of water equivalent in quality and quantity of their typical takings, or shall compensate those affected for reasonable costs for doing so, or shall reduce water taking amounts to alleviate the negative impacts. The contractor shall provide temporary water supplies, to those affected, to meet their typical takings or compensate such persons for reasonable costs associated to do so until permanent restoration of the affected water supply or an equivalent source. As the potential to interfere with the water quality/quantity of existing well users in the area is negligible, a water well monitoring program is not recommended for the proposed development.

7.4 Water Taking Permitting Requirements

If water taking volumes are greater than 50,000 L/day, a MECP water taking Environmental Activity Sector Registry (EASR) or Permit to Take Water (PTTW) will be required. Depending on the nature of the proposed water takings, an additional hydrogeological investigation may be required.

7.5 Infiltration Potential

As previously discussed, surficial soils within the study area generally consisted of topsoil overlying a glacial till deposit with K_{fs} values between 9.3×10^{-8} and 8.5×10^{-6} m/sec. The variations in the K_{fs} values are dependent on the composition/compaction of the glacial till at a given location. Additional infiltration testing may be required once additional development details become available.

As noted above, the results of the water budget analyses completed at the subject site indicated that 21,992,400 L/year of infiltration and 14,661,600 L/year of surface runoff are occurring under pre-development conditions. Under post development conditions, it is expected that there will be a 72% infiltration deficit and a 391% increase in runoff. Therefore, it will likely be necessary to incorporate various stormwater management measures into the design of the development. It should be noted that Paterson's water budget assessment is based on mean water budget values for the soil types at the subject site that were calculated by modeling conducted by EC-ECS. The EC-ECS model is calibrated to historical climate data and does not account for climate change predictions. Therefore, based on the National Capital Commission and City of Ottawa climate change predictions, the stormwater management design team could consider potential seasonal changes (longer spring and shorter winter) and increases in temperature and precipitation when developing their stormwater management strategy.

The stormwater management strategy should target methods best suited to mitigate the impacts that may arise due to the post-development decrease in infiltration and increase in runoff at the subject site, while maintaining consideration of site constraints as defined by the Appendix 10 of the City of Ottawa's Sewer Design Guideline and the MECP's Consolidated Linear Infrastructure Environmental Compliance Approval documentation. Based on the site constraints observed at the subject site (i.e., shallow water table confirmed through preliminary data from the groundwater monitoring program), infiltration based Low Impact Development (LID) measures are not recommended at the time of report preparation. Therefore, it is understood that the stormwater management strategy will include conventional stormwater management measures (i.e., end of pipe quality and quantity control) as well as the implementation of Best Management Practices to mitigate impacts related to the post-development water balance. This will be accomplished by directing flows to the adjacent wetland, thereby increasing hydration and maintaining natural function of surrounding features. Despite the post-development infiltration deficit, the majority of runoff will continue to be directed to areas within the same subwatershed, where infiltration will occur offsite, thereby maintaining the natural function of the hydrologic and hydrogeologic systems. An assessment of non-infiltration-based LID measures has been completed by the civil design team and is addressed in the Serviceability Report.

8.0 CLOSURE

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only, and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes.

A hydrogeological review of this nature is a limited sampling of a site. The recommendations are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around the test locations. Should any conditions at the site be encountered which differ from those at the test locations, we request notification immediately in order to permit reassessment of our recommendations.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Regional Group or their agent(s) is not authorized without review by Paterson Group for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.



Zavian Buchanan, E.I.T.



Oliver Blume, P.Geo.



9.0 REFERENCES

Government of Ontario. Provincial Policy Statement 2020 Under the Planning Act.

Engineering Technologies Canada Ltd, "ETC Pask (Constant Head Well) Permeameter – User Guide", dated March 2016.

Transportation Association of Canada, "Syntheses of Best Practices – Road Salt Management", dated 2013.

"Characterization of Ottawa's Watersheds", Prepared for the City of Ottawa, dated March 2011.

"Surficial Geology of Southern Ontario (MRD128)", Prepared by the Ontario Geological Survey, 2010

"Karst of Southern Ontario and Manitoulin Island (GRS005)" Prepared by the Ontario Geological Survey, 2008

"Paleozoic Geology of Southern Ontario (MRD219)", Prepared by the Ontario Geological Survey, 2007

"Physiography of Southern Ontario (MRD228)", Prepared by the Ontario Geological Survey, 2007

Chapman, L.J., and Putnam, D. F. "The Physiography of Southern Ontario, Third Edition". Ontario Ministry of Natural Resources, 1984.

Freeze, R.A., and Cherry, J.A. "Groundwater". Prentice-Hall, Inc., 1979.

FIGURES

DRAWING PH5087-1 - SITE PLAN

DRAWING PH5087-2 - MECP WATER WELL LOCATION PLAN

DRAWING PH5087-3 - SURFICIAL GEOLOGY PLAN

DRAWING PH5087-4 - BEDROCK GEOLOGY PLAN

DRAWING PH5087-5 - GROUNDWATER CONTOUR PLAN

DRAWING PH5087-6 - PRE-DEVELOPMENT TERRAIN COMPOSITION PLAN

DRAWING PH5087-7 - POST-DEVELOPMENT TERRAIN COMPOSITION PLAN

MONITORING WELL WATER ELEVATION PLOTS



LEGEND:

— STUDY AREA

SCALE: 1:3000

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

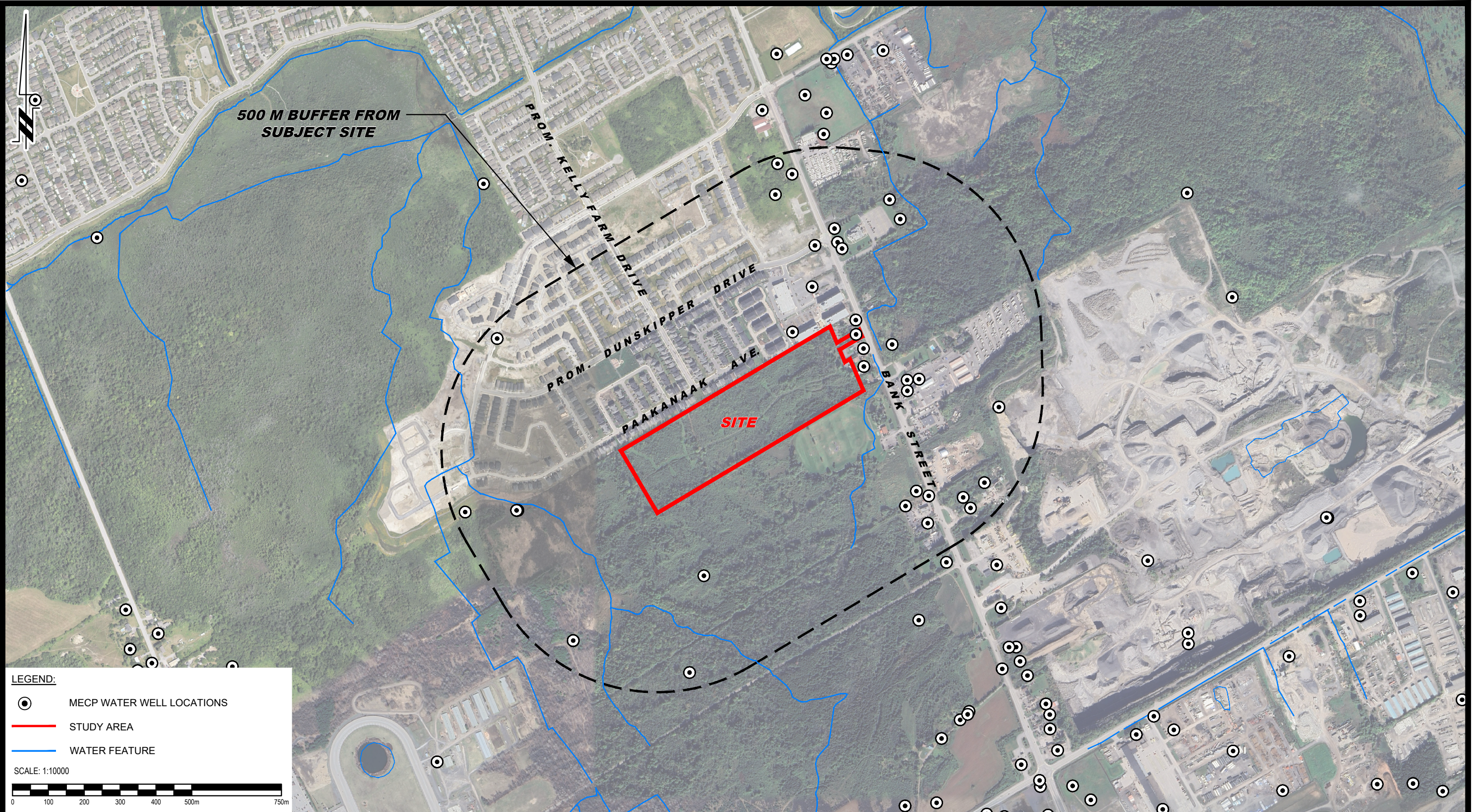
NO.	REVISIONS	DATE	INITIAL

REGIONAL GROUP
 HYDROGEOLOGICAL STUDY
 PROPOSED RESIDENTIAL DEVELOPMENT
 4850 BANK STREET

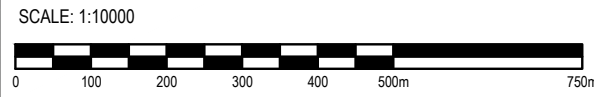
OTTAWA, ONTARIO

Title: **SITE PLAN**

Scale:	1:3000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-1
Approved by:	OB	Revision No.:	



LEGEND:
 ● MECP WATER WELL LOCATIONS
 — STUDY AREA
 — WATER FEATURE



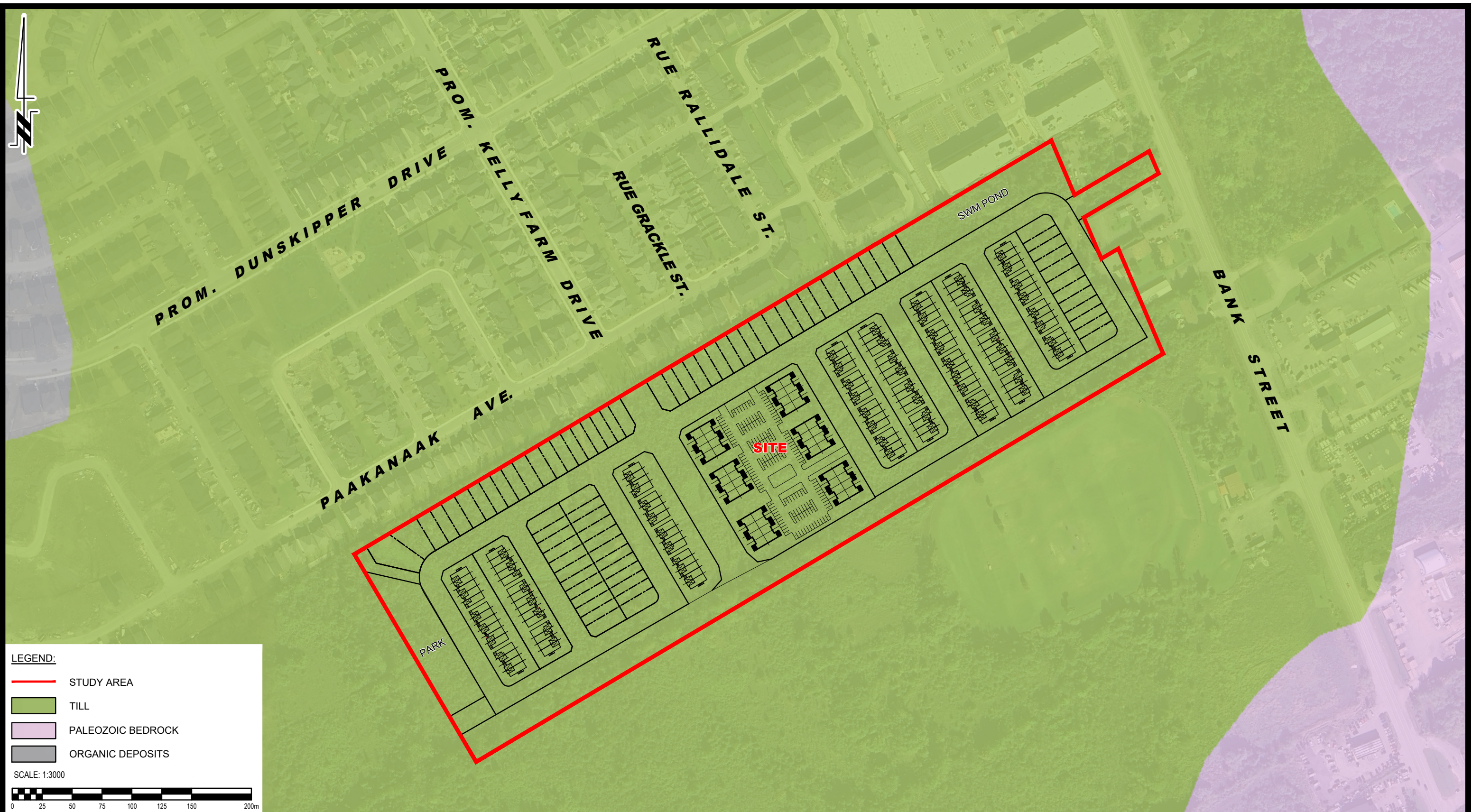
PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

REGIONAL GROUP
 HYDROGEOLOGICAL STUDY
 PROPOSED RESIDENTIAL DEVELOPMENT
 4850 BANK STREET
 OTTAWA, ONTARIO

Title: **MECP WATER WELL LOCATION PLAN**

Scale:	1:10000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-2
Approved by:	OB	Revision No.:	



LEGEND:

- STUDY AREA
- TILL
- PALEOZOIC BEDROCK
- ORGANIC DEPOSITS

SCALE: 1:3000

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL

**REGIONAL GROUP
 HYDROGEOLOGICAL STUDY
 PROPOSED RESIDENTIAL DEVELOPMENT
 4850 BANK STREET**

OTTAWA, ONTARIO

SURFICIAL GEOLOGY PLAN

Scale:	1:3000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-3
Approved by:	OB	Revision No.:	



LEGEND:

- STUDY AREA
- MARCH FORMATION, SANDSTONE, DOLOMITIC SANDSTONE, DOLOSTONE
- OXFORD FORMATION, DOLOSTONE, MINOR SHALE AND SANDSTONE

SCALE: 1:3000

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

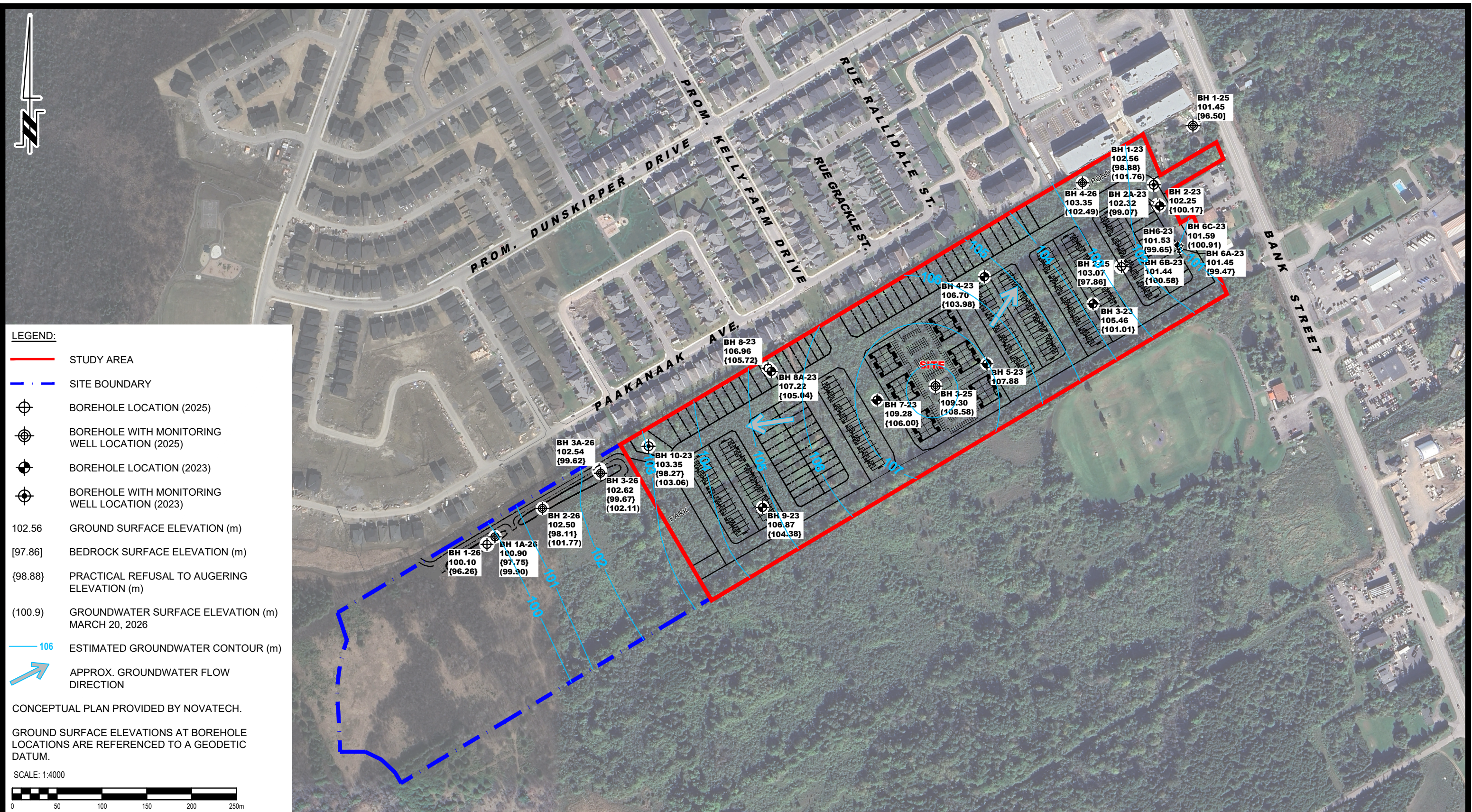
NO.	REVISIONS	DATE	INITIAL

**REGIONAL GROUP
 HYDROGEOLOGICAL STUDY
 PROPOSED RESIDENTIAL DEVELOPMENT
 4850 BANK STREET**

OTTAWA, ONTARIO

BEDROCK GEOLOGY PLAN

Scale:	1:3000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-4
Approved by:	OB	Revision No.:	



LEGEND:

- STUDY AREA
- - - SITE BOUNDARY
- BOREHOLE LOCATION (2025)
- BOREHOLE WITH MONITORING WELL LOCATION (2025)
- BOREHOLE LOCATION (2023)
- BOREHOLE WITH MONITORING WELL LOCATION (2023)
- 102.56 GROUND SURFACE ELEVATION (m)
- {97.86} BEDROCK SURFACE ELEVATION (m)
- {98.88} PRACTICAL REFUSAL TO AUGERING ELEVATION (m)
- (100.9) GROUNDWATER SURFACE ELEVATION (m) MARCH 20, 2026
- 106 ESTIMATED GROUNDWATER CONTOUR (m)
- APPROX. GROUNDWATER FLOW DIRECTION

CONCEPTUAL PLAN PROVIDED BY NOVATECH.

GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.

SCALE: 1:4000

PATERSON GROUP
 9 AURIGA DRIVE
 OTTAWA, ON
 K2E 7T9
 TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
2	UPDATED GROUNDWATER ELEVATION & ADDED 2026 BOREHOLE LOCATIONS	08/04/2026	OB
1	UPDATED GROUNDWATER ELEVATION	16/10/2025	OB

**REGIONAL GROUP
 HYDROGEOLOGICAL STUDY
 PROPOSED RESIDENTIAL DEVELOPMENT
 4850 BANK STREET**

OTTAWA, ONTARIO

Title: OVERBURDEN GROUNDWATER CONTOUR PLAN

Scale:	1:4000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-5
Approved by:	OB	Revision No.:	2



LEGEND:

- WATER BUDGET STUDY AREA
- - - CATCHMENT BOUNDARY
- MATURE FORESTS (FINE SANDY LOAM)

SCALE: 1:3000

9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

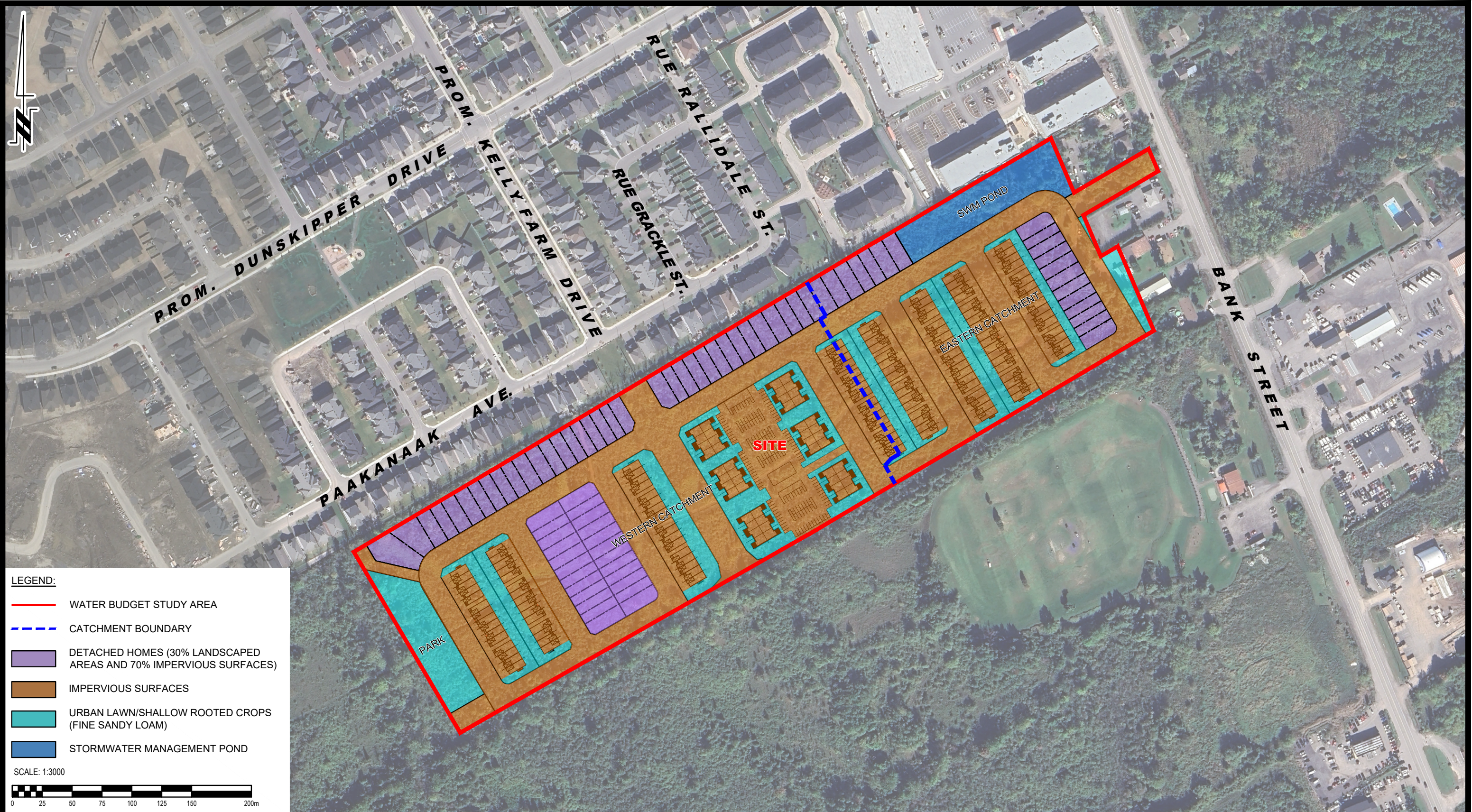
NO.	REVISIONS	DATE	INITIAL
1	UPDATED WATER BUDGET STUDY AREA	16/10/2025	OB

**REGIONAL GROUP
HYDROGEOLOGICAL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
4850 BANK STREET**

OTTAWA, ONTARIO

Title: **PRE-DEVELOPMENT TERRAIN COMPOSITION PLAN**

Scale:	1:3000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-6
Approved by:	OB	Revision No.:	1



LEGEND:

- WATER BUDGET STUDY AREA
- - - CATCHMENT BOUNDARY
- DETACHED HOMES (30% LANDSCAPED AREAS AND 70% IMPERVIOUS SURFACES)
- IMPERVIOUS SURFACES
- URBAN LAWN/SHALLOW ROOTED CROPS (FINE SANDY LOAM)
- STORMWATER MANAGEMENT POND

SCALE: 1:3000



9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
1	UPDATED WATER BUDGET STUDY AREA	16/10/2025	OB

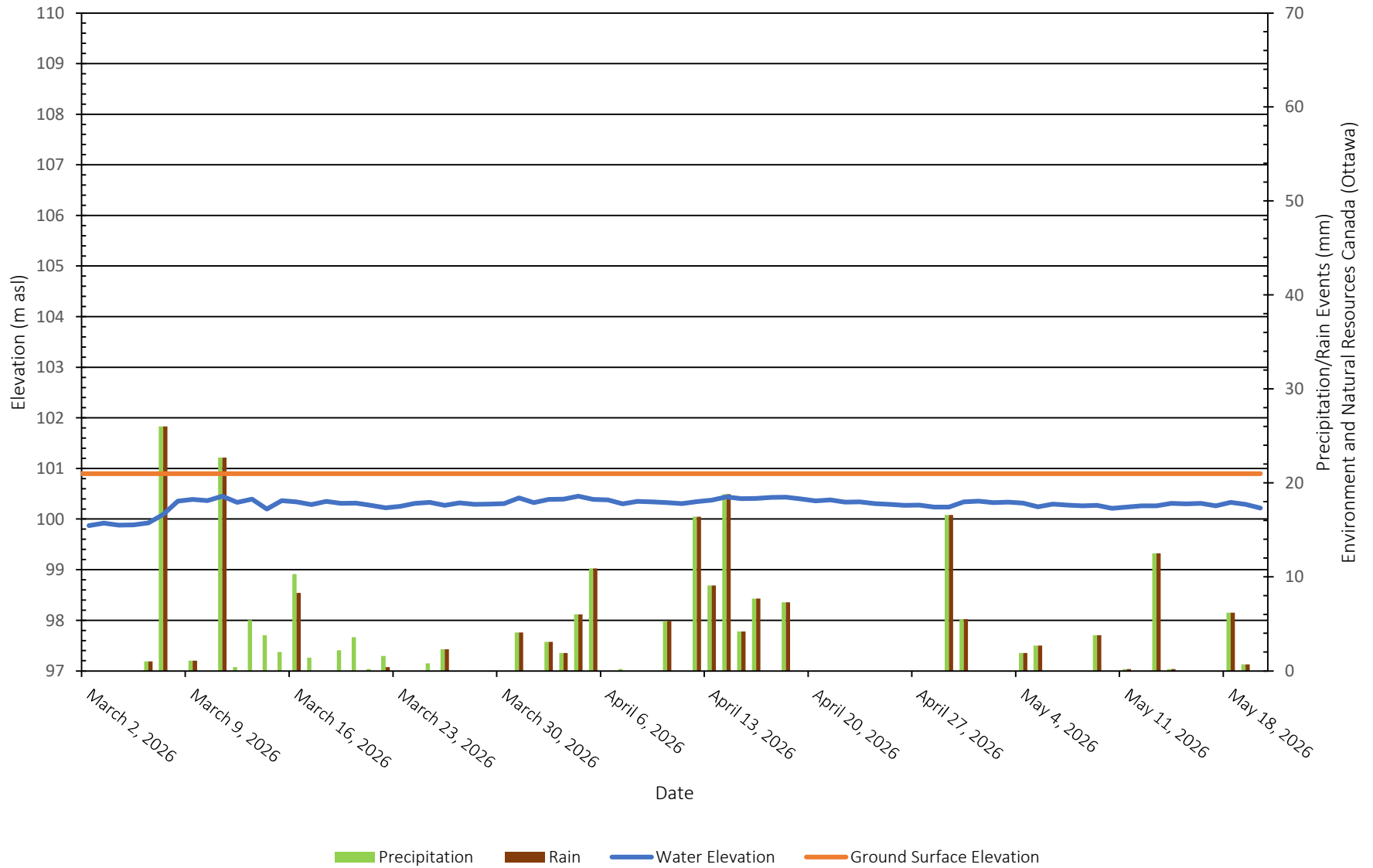
**REGIONAL GROUP
HYDROGEOLOGICAL STUDY
PROPOSED RESIDENTIAL DEVELOPMENT
4850 BANK STREET**

OTTAWA, ONTARIO

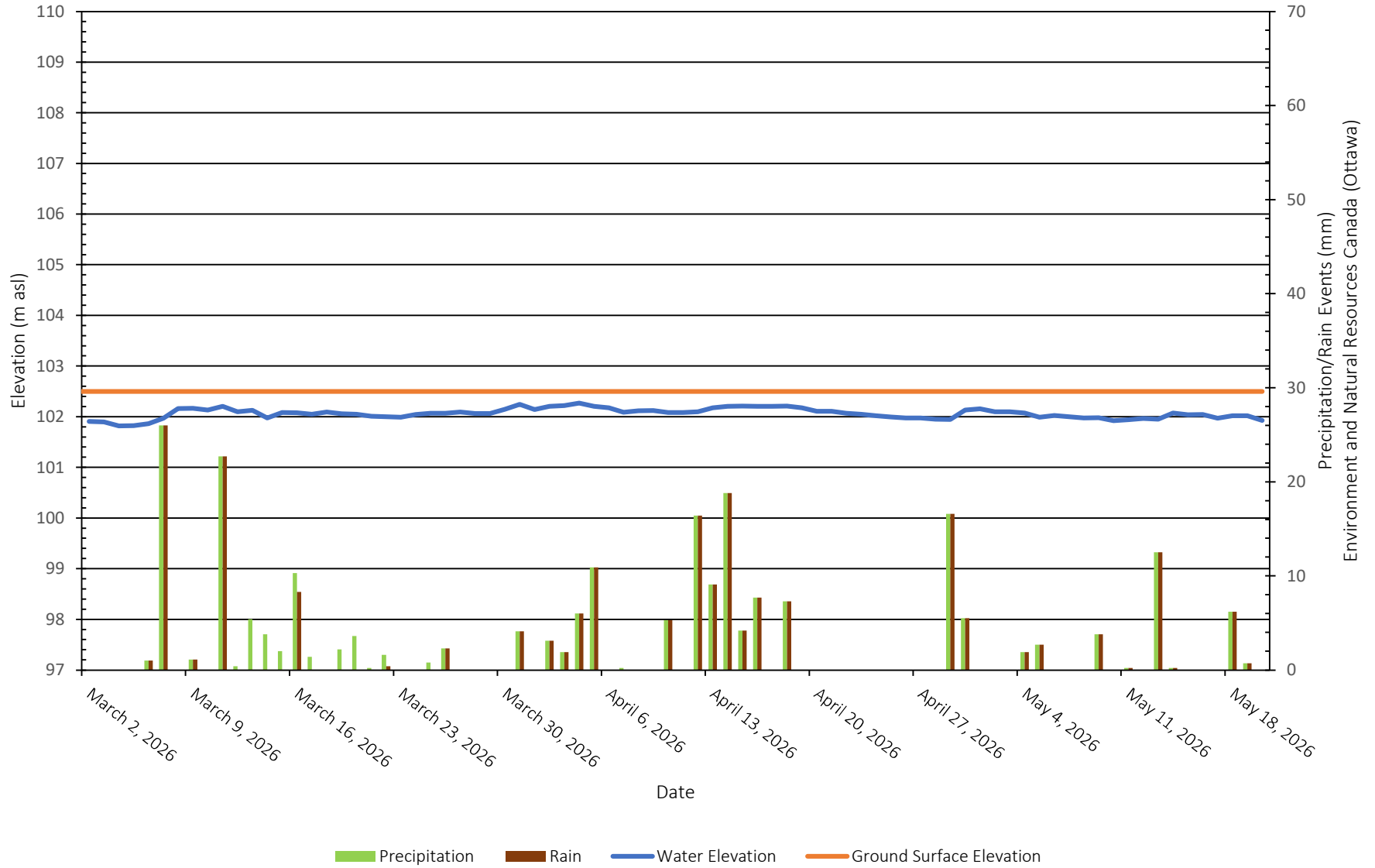
POST-DEVELOPMENT TERRAIN COMPOSITION PLAN

Scale:	1:3000	Date:	08/2025
Drawn by:	GK	Report No.:	PH5087-REP.01
Checked by:	ZB	Dwg. No.:	PH5087-7
Approved by:	OB	Revision No.:	1

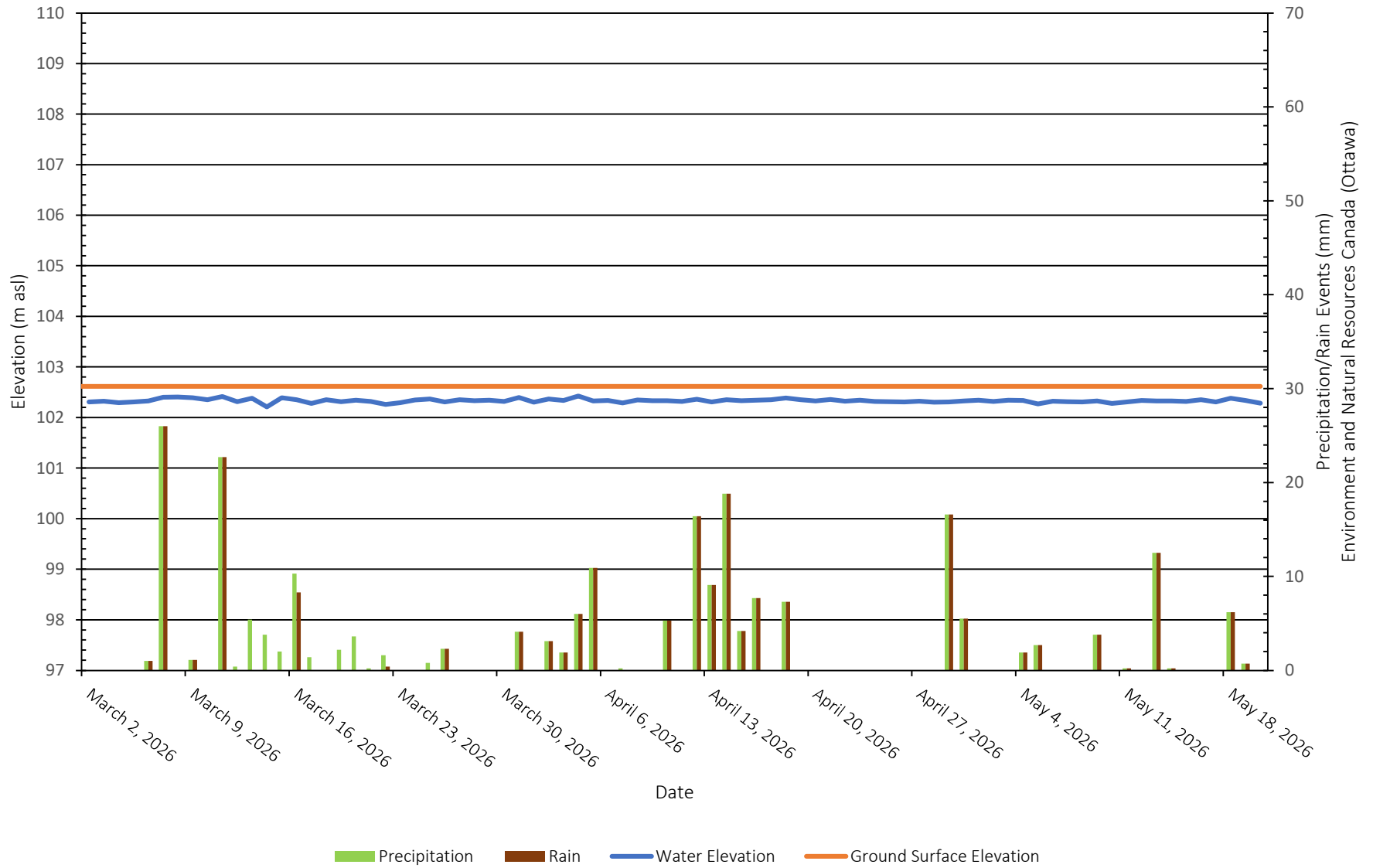
BH1A-26 - Monitoring Well Water Elevations



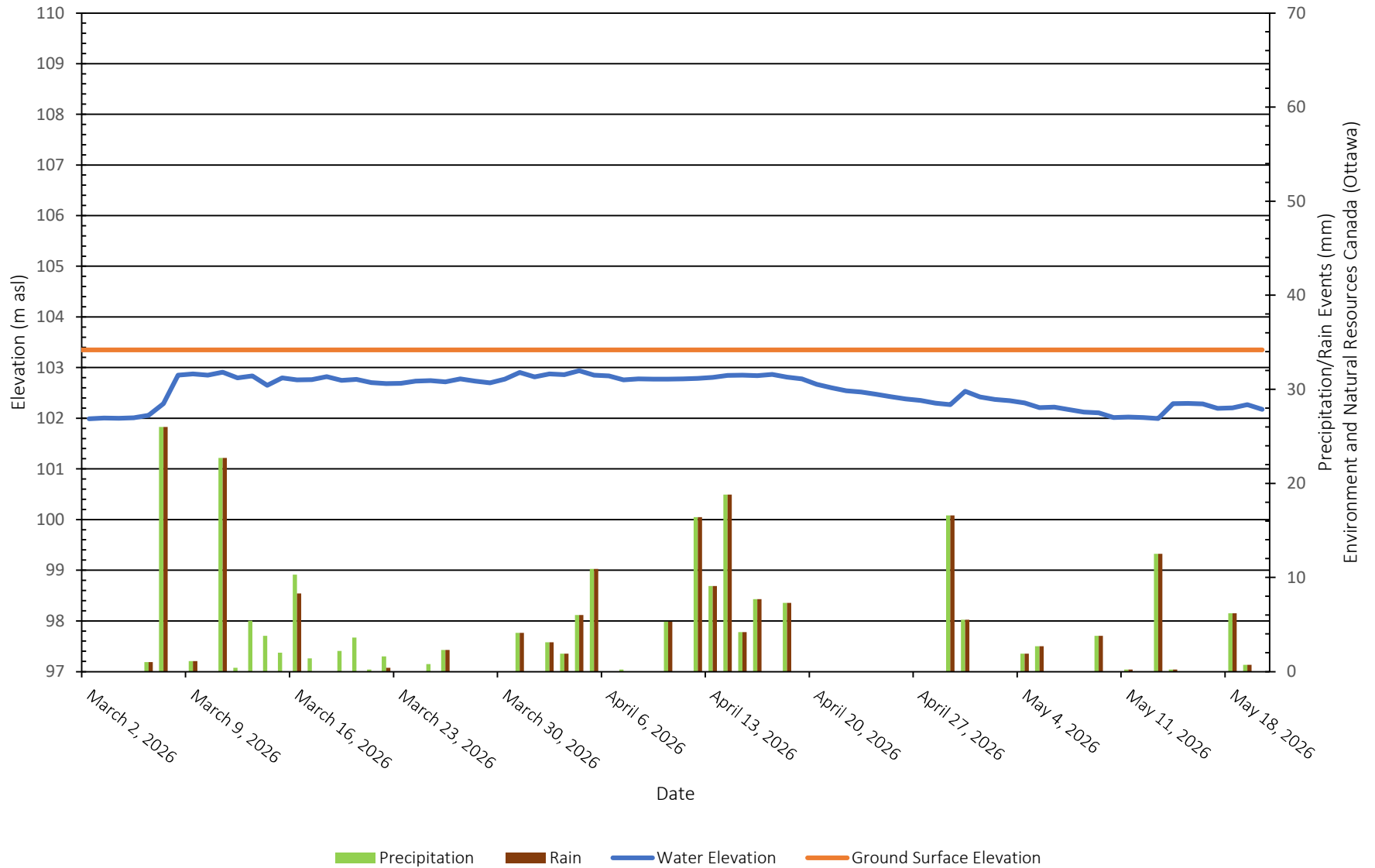
BH2-26 - Monitoring Well Water Elevations



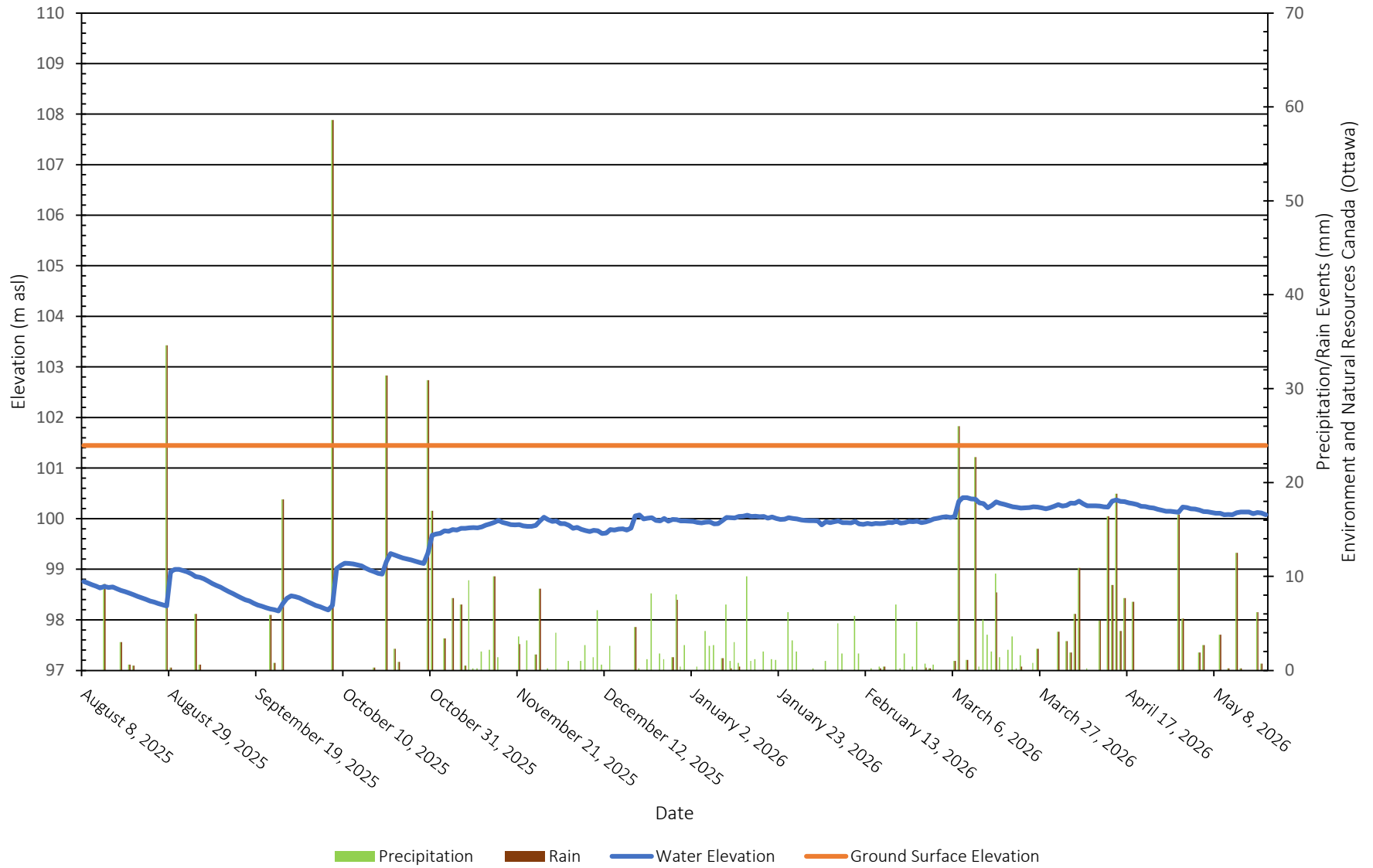
BH3-26 - Monitoring Well Water Elevations



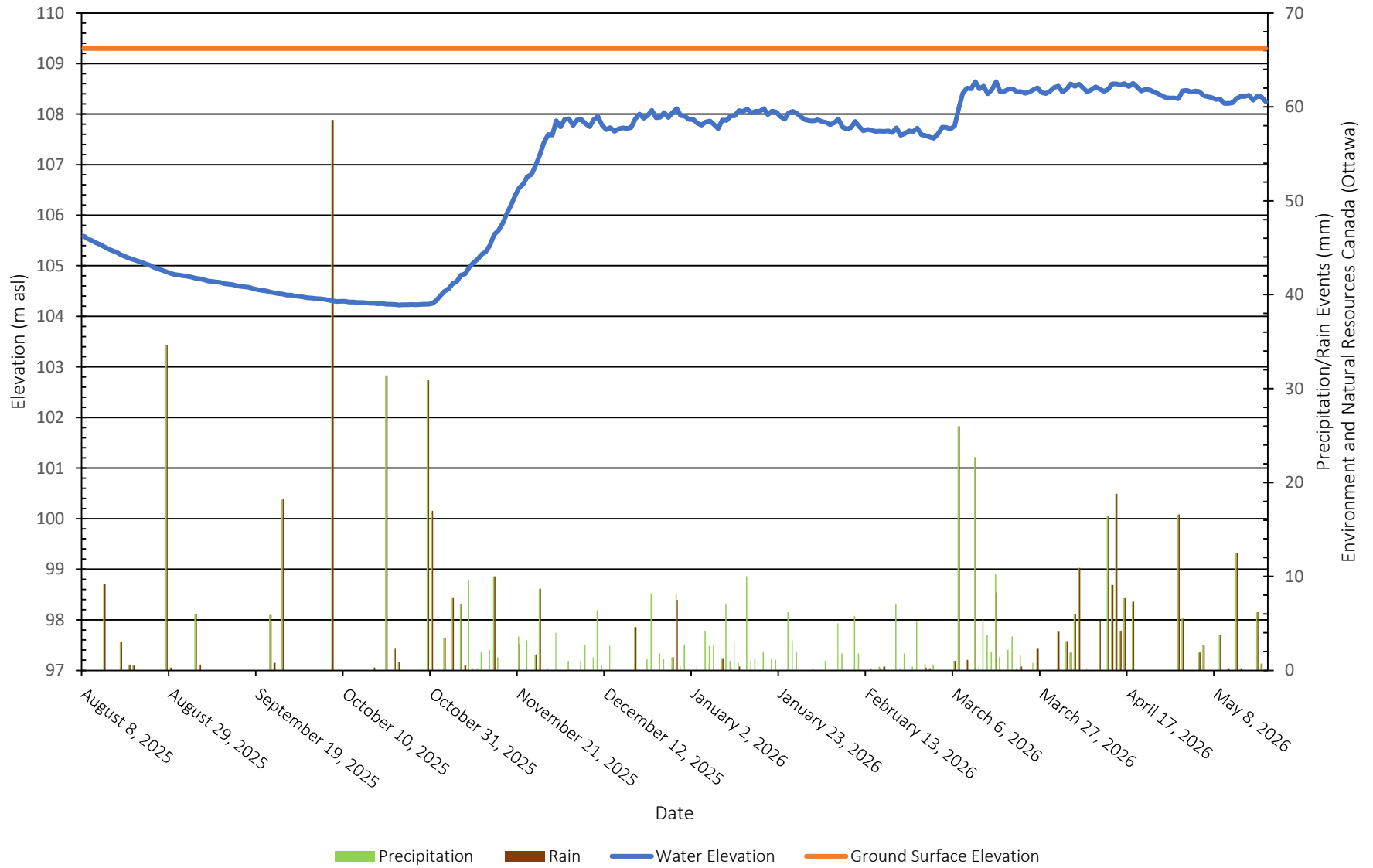
BH4-26 - Monitoring Well Water Elevations



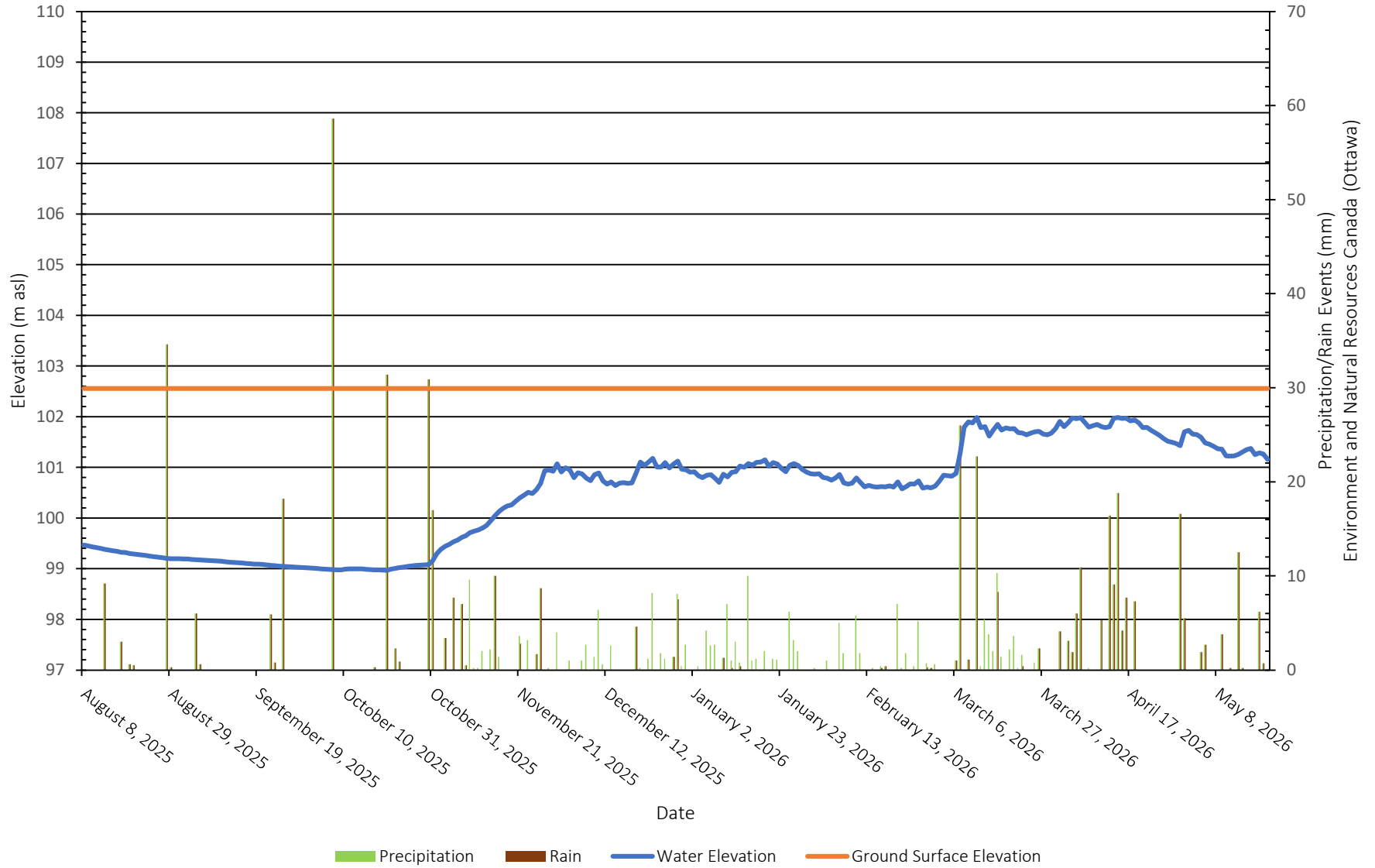
BH1-25 - Monitoring Well Water Elevations



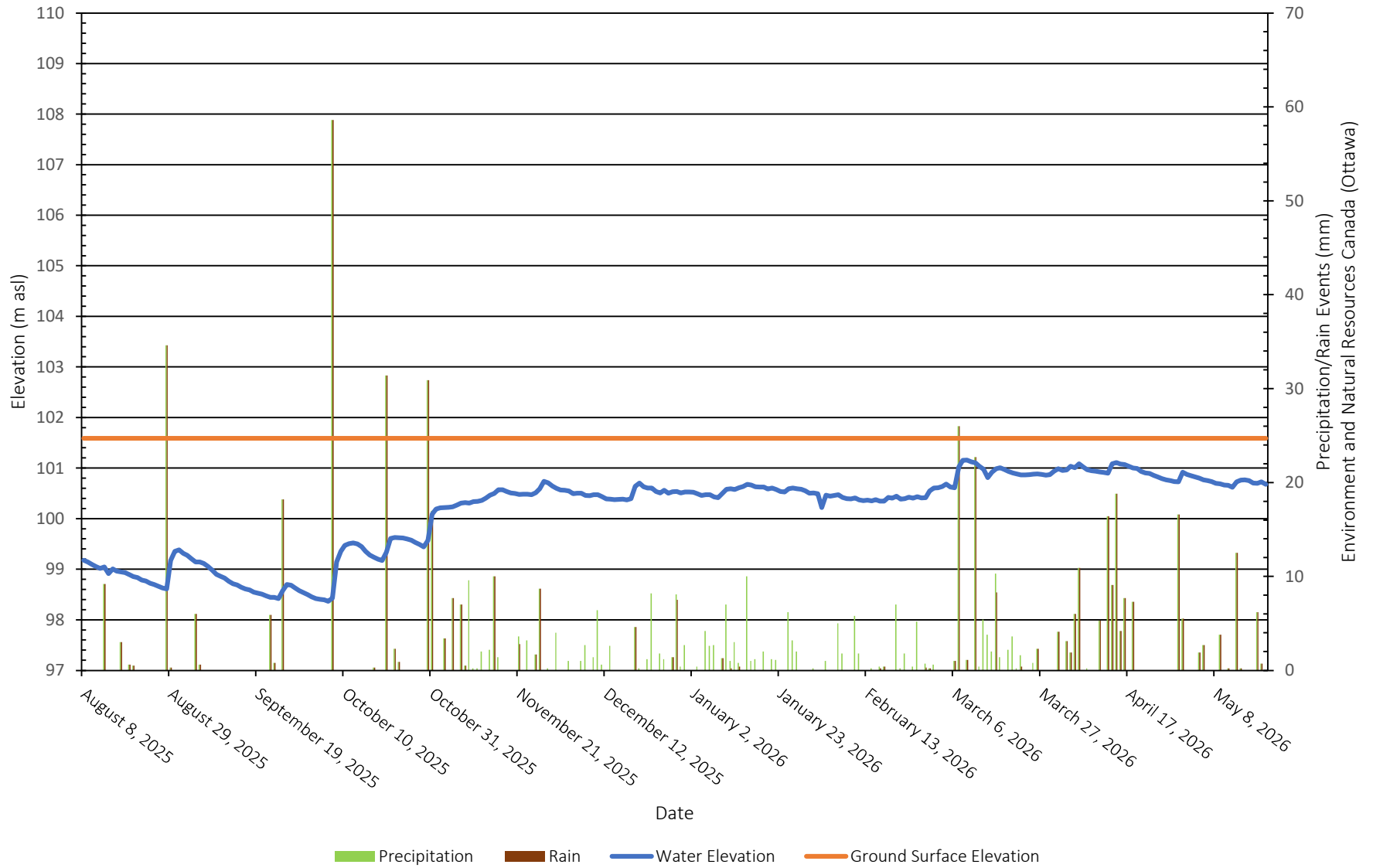
BH3-25 - Monitoring Well Water Elevations



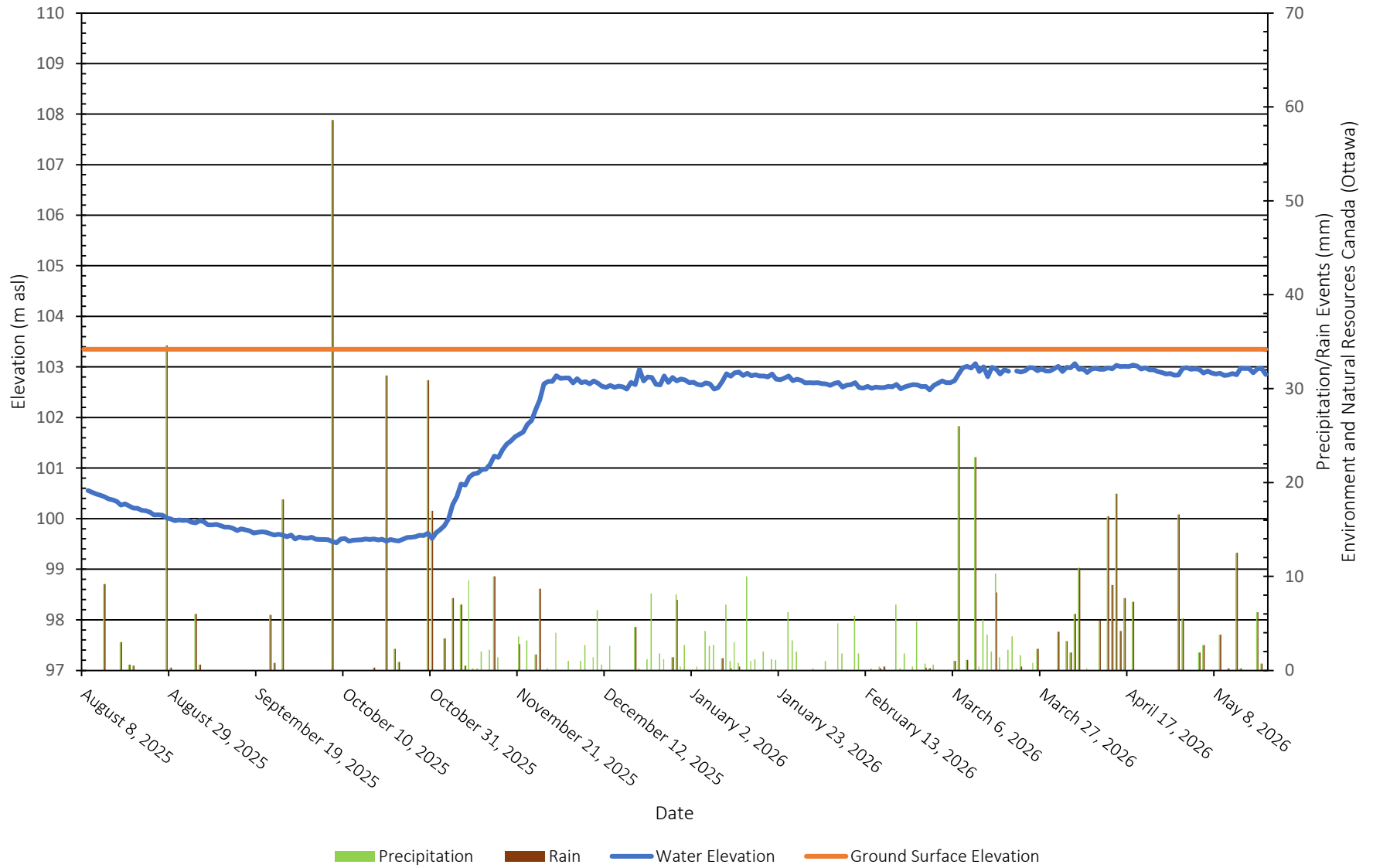
BH1-23 - Monitoring Well Water Elevations



BH6C-23 - Monitoring Well Water Elevations



BH10-23 - Monitoring Well Water Elevations



APPENDIX 1

SOIL PROFILE AND TEST DATA SHEETS

DRAWING PG6912-1 - TEST HOLE LOCATION PLAN

COORD. SYS.: MTM ZONE 9 EASTING: 375605.85 NORTHING: 5018610.34 ELEVATION: 100.10

PROJECT: Proposed Development FILE NO.: **PG6912**

ADVANCED BY: Track Mounted Drill Rig

REMARKS: Datum: NAD1983 (Canada) Geoid: HT2-2010 DATE: February 19, 2026 HOLE NO.: **BH 1-26**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)	
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40	60			80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)	PL (%)			WATER CONTENT (%)
GROUND SURFACE												
TOPSOIL										100		
0.46m [99.64m]												
GLACIAL TILL: Very dense, brown silty sand, with gravel, trace clay, occasional cobbles		1	SS 1	25	1-1-3-4 4					99		
		2	SS 2	100	20-36-50-/ 86/0.18					98		
- Grey by 3.0 m depth		3	SS 3	50	15-41-33-30 74/0.3					97		
3.84m [96.26m]		4								96		
End of Borheole		5								95		
Practical refusal to augering at 3.84 m depth		6								94		
		7								93		
		8										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 EASTING: 375614.75 NORTHING: 5018618.75 ELEVATION: 100.90

PROJECT: Proposed Development FILE NO.: **PG6912**

ADVANCED BY: Track Mounted Drill Rig

REMARKS: Datum: NAD1983 (Canada) Geoid: HT2-2010 DATE: February 19, 2026 HOLE NO.: **BH 1A-26**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			MONITORING WELL CONSTRUCTION	ELEVATION (m)	
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40	60			80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)	PL (%)			WATER CONTENT (%)
							20	40	60			80
GROUND SURFACE												
Refer to BH 1-26 for soil profile		0								100.90		
		1								100		
		2								99		
		3								98		
3.15m [97.75m]		3.15								97.75		
End of Borehole												
Practical refusal to augering at 3.15 m depth												
(GWL at 1.58 m depth - February 26, 2026)												
		4								97		
		5								96		
		6								95		
		7								94		
		8								93		

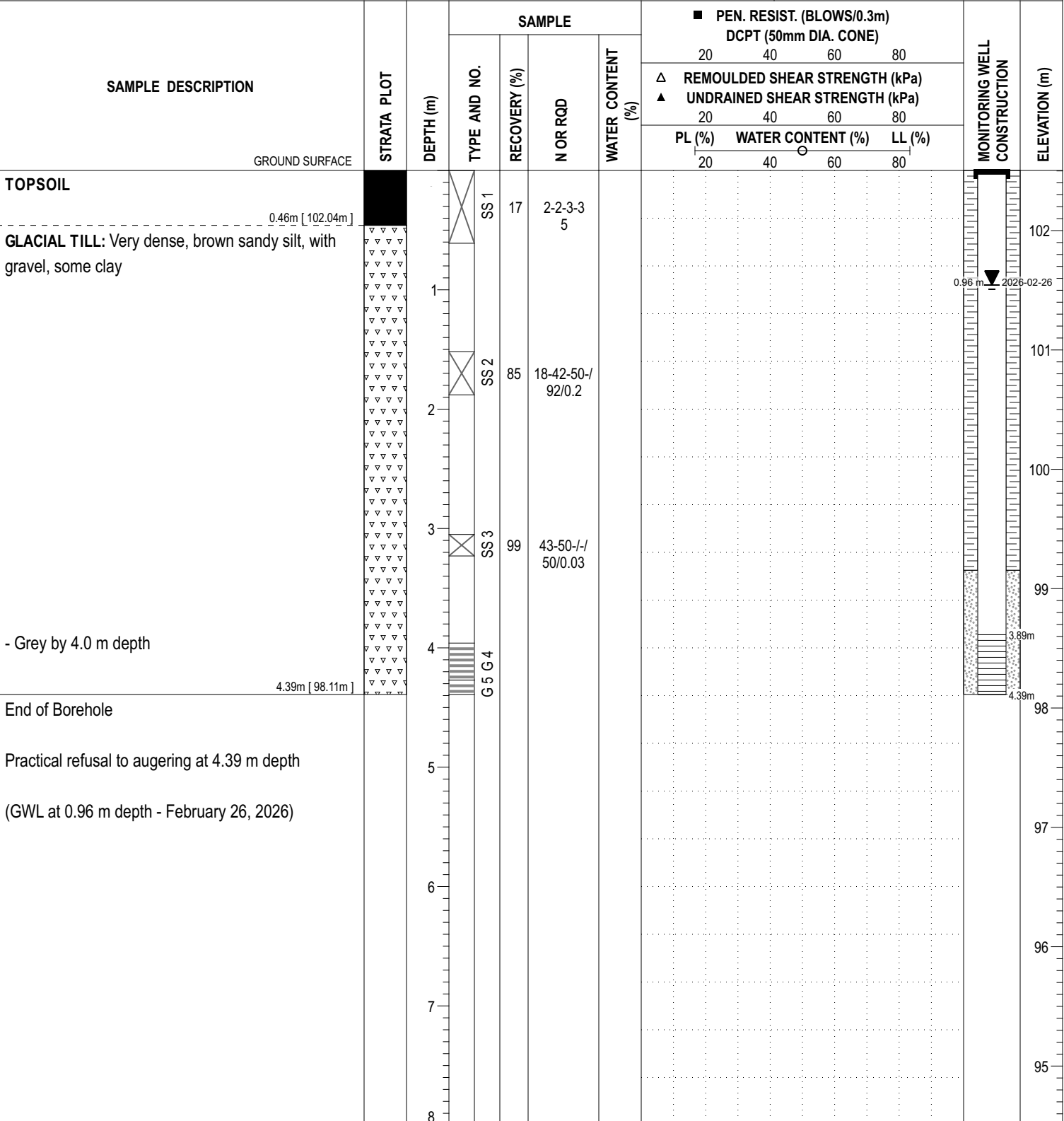
DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 EASTING: 375667.72 NORTHING: 5018650.43 ELEVATION: 102.50

PROJECT: Proposed Development FILE NO.: **PG6912**

ADVANCED BY: Track Mounted Drill Rig

REMARKS: Datum: NAD1983 (Canada) Geoid: HT2-2010 DATE: February 20, 2026 HOLE NO.: **BH 2-26**



DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

P:\AutoCAD Drawings\Test Hole Data Files\PG6912\data\splite 2026-04-10, 14:54 Paterson_Template DR

COORD. SYS.: MTM ZONE 9 EASTING: 375732.61 NORTHING: 5018689.73 ELEVATION: 102.62

PROJECT: Proposed Development FILE NO.: **PG6912**

ADVANCED BY: Track Mounted Drill Rig

REMARKS: Datum: NAD1983 (Canada) Geoid: HT2-2010 DATE: February 20, 2026 HOLE NO.: **BH 3-26**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			MONITORING WELL CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
GROUND SURFACE												
TOPSOIL												
		0.51m [102.11m]	SS 1	8	1-2-2-1 4				0.57m			
GLACIAL TILL: Dense, brown silty sand, with gravel, trace clay, occasional cobbles and boulders												
			SS 2	74	39-50-/-/ 50/0.15				2.45m			
			G 3						2.95m			
2.95m [99.67m]												
End of Borehole												
Practical refusal to augering at 2.95 m depth												
(GWL at 0.57 m depth - February 26, 2026)												

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 375730.93 **NORTHING:** 5018693.49 **ELEVATION:** 102.54

PROJECT: Proposed Development **FILE NO. :** PG6912

ADVANCED BY: Track Mounted Drill Rig

REMARKS: Datum: NAD1983 (Canada) Geoid: HT2-2010 **DATE:** February 20, 2026 **HOLE NO. :** BH 3A-26

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				■ PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)	
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40	60			80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)	PL (%)			WATER CONTENT (%)
							20	40	60			80
GROUND SURFACE												
Refer to BH 3-26 for soil profile		0								102.54		
		1								101.54		
		2								100.54		
2.92m [99.62m]		2.92								99.62		
End of Borehole		3								98.62		
Practical refusal to augering at 2.92 m depth		4								97.62		
		5								96.62		
		6								95.62		
		7								94.62		
		8								93.62		

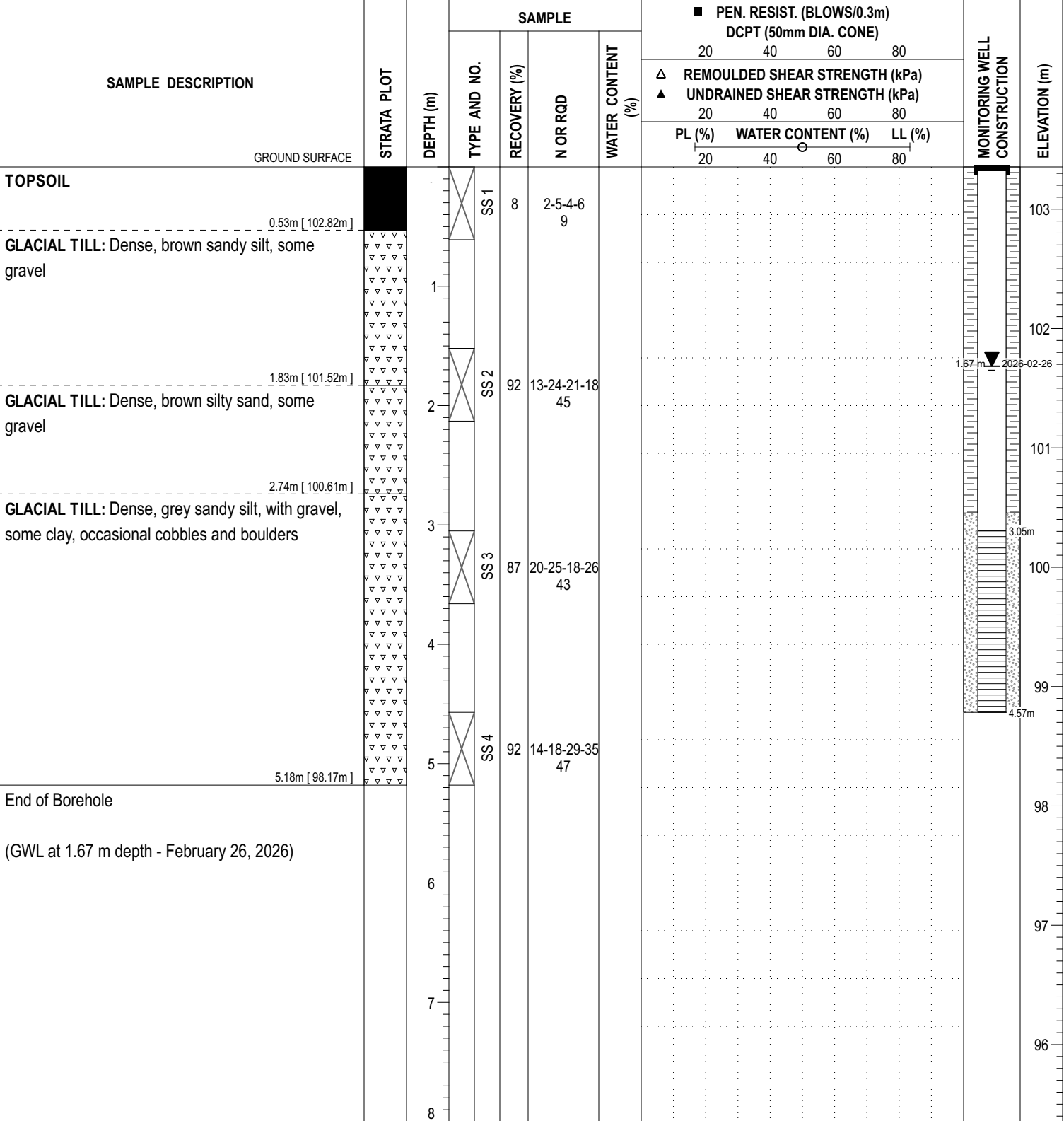
DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 EASTING: 376270.05 NORTHING: 5019013.74 ELEVATION: 103.35

PROJECT: Proposed Development FILE NO.: **PG6912**

ADVANCED BY: Track Mounted Drill Rig

REMARKS: Datum: NAD1983 (Canada) Geoid: HT2-2010 DATE: February 20, 2026 HOLE NO.: **BH 4-26**



P:\AutoCAD Drawings\Test Hole Data Files\PG6912\data\splite 2025-04-10, 14:54 Paterson_Template DR

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 EASTING: 376393.34 NORTHING: 5019077.45 ELEVATION: 101.45

PROJECT: Proposed Residential Development FILE NO.: **PG6912**

ADVANCED BY: CME-55 Low Clearance Drill HOLE NO.: **BH 1-25**

REMARKS: DATE: June 18, 2025

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			MONITORING WELL CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
											20	40
GROUND SURFACE												
FILL: Compact, brown silty sand with gravel and crushed stone 0.61m [100.84m]			AU 1							101		
FILL: Compact, brown silty sand, trace gravel 0.91m [100.55m]		1	SS 2	58	2-5-12-10 17					100		
GLACIAL TILL: Very dense, brown silty fine sand with gravel, trace clay, occasional cobbles and boulders		2	SS 3	85	9-24-50-/ 74/0.05					99		
			SS 4	63	50-/-/-/ 50/0.13					98		
		3	SS 5	46	14-45-50-/ 95/0.03					97		
GLACIAL TILL: Very dense, grey silty fine sand with gravel, cobbles and boulders 3.20m [98.25m]		4	RC 1	71						96		
BEDROCK: Poor quality bedrock 4.95m [96.50m]		5	RC 2	100	RQD 65					95		
		6	RC 3	100	RQD 31					94		
- Vertical fractures from 5.94 m to 6.96 m depth - Excellent quality bedrock below 6.96 m depth 8.46m [93.00m]		7	RC 4	100	RQD 90					93		
		8								92		
End of Borehole		8.46m [93.00m]										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 EASTING: 376313.61 NORTHING: 5018920.17 ELEVATION: 103.07

PROJECT: Proposed Residential Development FILE NO.: **PG6912**

ADVANCED BY: CME-55 Low Clearance Drill HOLE NO.: **BH 2-25**

REMARKS: DATE: June 18, 2025

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
GROUND SURFACE												
TOPSOIL: with organics 0.18m [102.89m]			AU 1									
GLACIAL TILL: Very dense, brown silty fine sand with gravel, trace clay, occasional cobbles and boulders 1.98m [101.09m]		1	SS 2	74	12-25-50- / 75/0.1							
			SS 3	73	29-50- /- / 50/0.05							
GLACIAL TILL: Very dense, grey silty fine sand with gravel, cobbles and boulders 5.21m [97.86m]		2	SS 4	76	32-50- /- / 50/0.05							
			SS 5	0	50- /- /- / 50/0.03							
			RC 1	89								
			RC 2	100	RQD 57							
BEDROCK: Excellent quality bedrock 7.06m [96.01m]		5	RC 3	100	RQD 100							
End of Borehole		7										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

P:/AutoCAD Drawings/Test Hole Data Files/PE69xx/PG6912/data.sjlitte 2025-07-10, 12:08 Paterson_Template AE

COORD. SYS.: MTM ZONE 9 EASTING: 376106.17 NORTHING: 5018786.90 ELEVATION: 109.30

PROJECT: Proposed Residential Development FILE NO.: **PG6912**

ADVANCED BY: CME-55 Low Clearance Drill HOLE NO.: **BH 3-25**

REMARKS: DATE: June 20, 2025

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			MONITORING WELL CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
							20	40			60	80
GROUND SURFACE												
TOPSOIL: with organics		0.20m [109.10m]	AU 1									
GLACIAL TILL: Very dense, brown silty fine sand, some gravel, cobbles and boulders		1	SS 2	90	12-15-51-50 66/0.05							
		2	SS 3	66	19-50-/-/ 50/0.08							
		3	SS 4	90	49-50-/-/ 50/0.03							
		4	SS 5	109	50-/-/-/ 50/0.08							
		5	SS 6	66	14-50-/-/ 50/0.08							
- Grey by 4.57 m depth		6	SS 7	60	42-50-/-/ 50/0.05				4.63m			
- Cobbles and boulders decreasing with depth		7	SS 8	8	15-24-18-17 42							
- Silty fine to medium sand by 6.10 m depth		8	SS 9	92	10-16-21-20 37				6.15m			
End of Borehole		6.71m [102.59m]										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 376203.99 **NORTHING:** 5019601.65 **ELEVATION:** 96.09

PROJECT: Proposed Residential Development **FILE NO.:** PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** July 7, 2025 **HOLE NO.:** BH 4-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
							20	40			60	80
GROUND SURFACE												
FILL: Brown silty sand with gravel and crushed stone 0.69m [95.40m]			AU 1							96		
FILL: Compact, brown silty sand with gravel, trace clay 1.52m [94.57m]		1	SS 2	50	2-8-7-5 15					95		
TOPSOIL: with organics, trace sand 1.83m [94.26m]			SS 3	58	5-5-5-11 10					94		
GLACIAL TILL: Very dense, brown silty fine sand, occasional cobbles 2.97m [93.12m]		2	SS 4	83	14-25-24-30 49					93		
GLACIAL TILL: Very dense, grey silty sand with gravel, cobbles and boulders 3.23m [92.86m]		3	SS 5	73	15-50-/-/ 50/0.13					93		
End of Borehole		4								92		
Practical refusal to augering at 3.23 m depth on inferred boulders		5								91		
		6								90		
		7								89		
		8								88		
		9								87		
		10										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 376242.76 **NORTHING:** 5019509.68 **ELEVATION:** 96.49

PROJECT: Proposed Residential Development **FILE NO.:** PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** July 7, 2025 **HOLE NO.:** BH 5-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
GROUND SURFACE												
FILL: Compact, brown silty sand with gravel and crushed stone		0 to 1.07m	AU 1						96			
TOPSOIL: with organics with sand, trace grass		1.07m to 1.37m	SS 2	33	3-8-4-3 12				95			
GLACIAL TILL: Compact to dense, brown silty fine sand with gravel, occasional cobbles, trace clay		1.37m to 3.15m	SS 3	83	2-10-14-9 24				94			
			SS 4	92	19-22-19-22 41				93			
End of Borehole			SS 5	0	50-/-/- 50/0.05				92			
Practical refusal to augering at 3.15 m depth on inferred boulders									91			
									90			
									89			
									88			
									87			

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 EASTING: 376283.28 NORTHING: 5019413.06 ELEVATION: 97.68

PROJECT: Proposed Residential Development FILE NO.: **PG6912**
 ADVANCED BY: CME-55 Low Clearance Drill
 REMARKS: DATE: July 7, 2025 HOLE NO.: **BH 6-25**

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
							20	40			60	80
GROUND SURFACE												
ASPHALT 0.05m [97.63m]			AU 1									
FILL: Granular, crushed stone, some sand 0.61m [97.07m]												
FILL: Compact, brown silty sand with gravel 1.22m [96.46m]		1	SS 2	42	5-7-3-6 10				97			
TOPSOIL: with organics, sand, trace clay and gravel 1.52m [96.16m]												
GLACIAL TILL: Dense to very dense, brown silty fine sand with gravel, cobbles and boulders 1.52m [96.16m]		2	SS 3	67	7-16-14-13 30				96			
			SS 4	85	50-/-/-/ 50/0.13				95			
		3	SS 5	92	30-48-51-42 99				94			
GLACIAL TILL: Very dense, grey silty fine sand with gravel, cobbles and boulders 3.51m [94.17m]		4	SS 6	79	20-26-21-50 47/0.13				93			
End of Borehole 4.50m [93.18m]		5							92			
Practical refusal to augering at 4.50 m depth		6							91			
		7							90			
		8							89			
		9							88			
		10										





DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 376306.21 **NORTHING:** 5019357.57 **ELEVATION:** 98.42

PROJECT: Proposed Residential Development **FILE NO.:** PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** July 7, 2025 **HOLE NO.:** BH 7-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
							20	40			60	80
GROUND SURFACE												
ASPHALT 0.05m [98.37m]			AU 1							98		
FILL: Granular, crushed stone and gravel, some sand 0.61m [97.81m]		1	SS 2	42	16-29-18-10 47					97		
FILL: Dense, brown silty sand with gravel, trace topsoil and clay 1.83m [96.59m]		2	SS 3	100	4-8-6-15 14					96		
GLACIAL TILL: Compact to very dense, brown silty fine sand with gravel, cobbles and boulders 4.14m [94.28m]		3	SS 4	67	13-30-28-42 58					95		
			SS 5	54	14-50-/-/ 50/0.13					94		
End of Borehole		4	SS 6	77	26-52-50-/ 102/0.03					93		
Practical refusal to augering at 4.14 m depth		5								92		
		6								91		
		7								90		
		8								89		
		9										
		10										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 376361.10 **NORTHING:** 5019231.96 **ELEVATION:** 100.48

PROJECT: Proposed Residential Development **FILE NO.:** PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** July 7, 2025 **HOLE NO.:** BH 8-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
GROUND SURFACE												
ASPHALT 0.05m [100.43m]			AU 1									
FILL: Granular, crushed stone, some sand 0.61m [99.87m]		1	SS 2	33	8-26-21-17 47				100			
FILL: Dense, brown silty sand, trace gravel 1.45m [99.03m]		2	SS 3	75	8-12-24-29 36				99			
GLACIAL TILL: Dense, brown silty fine sand with gravel, cobbles and boulders 2.34m [98.14m]		2	SS 4	0	50-/-/- 50/0.03				98			
End of Borehole		3							97			
Practical refusal to augering at 2.34 m depth		3							96			
		4							95			
		5							94			
		6							93			
		7							92			
		8							91			
		9							90			
		10							89			

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 376401.58 **NORTHING:** 5019136.66 **ELEVATION:** 101.22

PROJECT: Proposed Residential Development **FILE NO. :** PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** July 7, 2025 **HOLE NO. :** BH 9-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE			PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)		
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40			60	80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)			PL (%)	WATER CONTENT (%)
							20	40			60	80
GROUND SURFACE												
ASPHALT 0.05m [101.17m]			AU 1							101		
FILL: Granular, crushed stone, some sand 0.61m [100.61m]												
FILL: Compact, brown silty sand with gravel, trace clay and topsoil 1.45m [99.77m]		1	SS 2	33	8-5-4-9 9					100		
GLACIAL TILL: Dense, brown silty fine sand with gravel, cobbles and boulders 2.11m [99.11m]		2	SS 3	66	12-16-24-50 40/0.05					99		
End of Borehole												
Practical refusal to augering at 2.11 m depth		3								98		
		4								97		
		5								96		
		6								95		
		7								94		
		8								93		
		9								92		
		10										

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.

COORD. SYS.: MTM ZONE 9 **EASTING:** 376435.21 **NORTHING:** 5019057.96 **ELEVATION:** 101.23

PROJECT: Proposed Residential Development **FILE NO.:** PG6912

ADVANCED BY: CME-55 Low Clearance Drill

REMARKS: **DATE:** July 7, 2025 **HOLE NO.:** BH10-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE				PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE)			PIEZOMETER CONSTRUCTION	ELEVATION (m)	
			TYPE AND NO.	RECOVERY (%)	N OR RQD	WATER CONTENT (%)	20	40	60			80
							△ REMOULDED SHEAR STRENGTH (kPa)	▲ UNDRAINED SHEAR STRENGTH (kPa)	PL (%)			WATER CONTENT (%)
GROUND SURFACE												
FILL: Compact, brown silty sand with gravel 0.61m [100.62m]		0.61	AU 1								101	
FILL: Compact, brown silty sand with asphalt, some gravel 1.45m [99.78m]		1.45	SS 2	33	8-7-25-14 32						100	
FILL: Loose to compact, brown silty sand with gravel, trace clay and topsoil 2.21m [99.02m]		2.21	SS 3	42	4-4-4-6 8						99	
Compact, grey, medium SAND, some gravel 2.44m [98.79m]		2.44	SS 4	58	6-9-26-32 35						98	
GLACIAL TILL: Dense, grey silty fine sand with gravel 2.95m [98.28m]		2.95									97	
End of Borehole											96	
Practical refusal to augering at 2.95 m depth											95	
											94	
											93	
											92	

DISCLAIMER: THE DATA PRESENTED IN THIS SHEET IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHOM IT WAS PRODUCED. THIS SHEET SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic	EASTING: 376352.245	NORTHING: 5019009.799	ELEVATION: 102.56
PROJECT: Proposed Development			FILE NO. PG6912
BORINGS BY: CME 55 Track-Mounted Mechanical Auger			HOLE NO. BH 1-23
REMARKS:			
DATE: December 11, 2023			

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface																
TOPSOIL with organics, trace clay		AU 1				0										
0.15 m EL 102.41 m																
GLACIAL TILL: Very dense, brown silty sand to sandy silt, some gravel and boulders, occasional cobble																
		SS 2	83	50		1										
- silt content increasing with depth																
		SS 3	100	+50		2										
- grey by 2.2m depth																
		SS 4	83	18												
- compact between 2.3m to 2.9m depth																
		SS 5	100	+50		3										
		SS 6		+50		4										
3.76 m EL 98.8 m																
End of Test Hole																
Practical refusal to augering at 3.76m depth																
(GWL @ 1.30 m - Dec. 15, 2023)																
						5										
						6										
						7										

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376358.876 **NORTHING:** 5018986.132 **ELEVATION:** 102.25

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 2-23

REMARKS:

DATE: December 11, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 102.25 m																
GLACIAL TILL: Brown clayey silt with gravel and occasional cobble, trace organics		AU 1				0										
0.46 m																
EL 101.79 m																
GLACIAL TILL: Dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	63	48		1										
- very dense by 1.2m depth																
		SS 3	76	+50		2										
2.08 m																
EL 100.17 m																
End of Test Hole						3										
Practical refusal to augering at 2.08m depth						4										
						5										
						6										
						7										

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376356.813 **NORTHING:** 5018986.889 **ELEVATION:** 102.32

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 2A-23

REMARKS:

DATE: December 11, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction	
							0	50	100	0	50	100	0	50	100		
Ground Surface						0											
EL 102.32 m																	
Overburden						0											
Augered to 2.18 m depth						1											
						2											
2.18 m EL 100.14 m		SS 1	86	+50		2.5											
GLACIAL TILL: Very dense, grey silty sand to sandy silt with gravel and boulders, occasional cobble						3											
- trace clay by 3.0m depth						3.25											
3.25 m EL 99.07 m		SS 2	100	+50		3.5											
End of Test Hole						4											
Practical refusal to augering at 3.25m depth (GWL @ 0.80 m - Dec. 15, 2023)						5											
						6											
						7											

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376284.113 **NORTHING:** 5018877.194 **ELEVATION:** 105.46 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 3-23

REMARKS:

DATE: December 11, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)		Piezometer Construction	
							0	50	100	0	50	100	0	50		100
Ground Surface						0										
EL 105.46 m																
TOPSOIL with organics						0 to 0.25										
EL 105.21 m		AU 1				0.25										
GLACIAL TILL: Compact, brown silty sand to sandy silt, trace gravel						0.25 to 1.0										
		SS 2	42	12		1.0										
- no gravel by 1.5m depth						1.0 to 2.21										
		SS 3	83	19		2.21										
EL 103.25 m						2.21										
GLACIAL TILL: Very dense, grey silty sand to sandy silt with gravel and boulders, occasional cobble						2.21 to 3.0										
		SS 4	75	+50		3.0										
		SS 5	100	+50		3.0 to 4.0										
- trace clay by 3.8m depth						4.0 to 4.45										
		SS 6	78	+50		4.45										
EL 101.01 m						4.45										
End of Test Hole						4.45										
Practical refusal to augering at 4.45m depth						4.45 to 5.0										
(GWL @ 1.23 m - Dec. 15, 2023)						5.0 to 7.0										

RSLog / Geotechnical Test Pit - Geodetic / paterson-group / admin / December 20, 2023 09:56 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376162.967 **NORTHING:** 5018907.818 **ELEVATION:** 106.7 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 4-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 106.7 m																
TOPSOIL with organics		AU 1				0										
0.1 m EL 106.6 m																
GLACIAL TILL: Brown clayey silt, some gravel and boulders, occasional cobble		SS 2	100	46		1										
0.46 m EL 106.24 m																
GLACIAL TILL: Dense to very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 3	88	+50		2										
		SS 4	67	+50		3										
2.72 m EL 103.98 m																
End of Test Hole						3										
Practical refusal to augering at 2.72m depth (Dried Borehole - Dec. 15, 2023)						4										
						5										
						6										
						7										

RSLog / Geotechnical Test Pit - Geodetic / paterson-group / admin / December 20, 2023 09:56 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376165.452 **NORTHING:** 5018810.785 **ELEVATION:** 107.88 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 11, 2023

HOLE NO. BH 5-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)		Piezometer Construction	
							0	50	100	0	50	100	0	50		100
Ground Surface																
EL 107.88 m						0										
TOPSOIL with organics						0 to 0.3										
0.3 m EL 107.58 m		AU 1				0.3										
GLACIAL TILL: Brown clayey silt with gravel, occasional cobble						0.3 to 0.61										
0.61 m EL 107.27 m		SS 2	83	43		0.61										
GLACIAL TILL: Dense to very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 3	100	+50		0.61 to 1.0										
		SS 4	100	+50		1.0 to 1.5										
		SS 5	100	+50		1.5 to 2.0										
- grey by 3.0m depth		SS 6	100	+50		2.0 to 2.5										
		SS 7	100	46		2.5 to 3.0										
- dense by 4.6m depth		SS 8	75	34		3.0 to 4.6										
						4.6 to 5.94										
5.94 m EL 101.94 m						5.94										
End of Test Hole						6.0										
(GWL @ 0.40 m - Dec. 15, 2023)						0.40										

RSLog / Geotechnical Test Pit - Geodetic / paterson-group / admin / December 20, 2023 09:56 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376381.101 **NORTHING:** 5018941.64 **ELEVATION:** 101.53

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 6-23

REMARKS:

DATE: December 13, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 101.53 m																
TOPSOIL with organics						0 to 0.25										
0.25 m EL 101.28 m																
GLACIAL TILL: Brown clayey silt, trace gravel		AU 1				0.25 to 0.61										
0.61 m EL 100.92 m																
GLACIAL TILL: Compact, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	75	19		0.61 to 1.58										
- very dense by 1.5m depth		SS 3	89	+50		1.58 to 1.88										
1.88 m EL 99.65 m																
End of Test Hole						1.88										
Practical refusal to augering at 1.88m depth																

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



**PATERSON
GROUP**

SOIL PROFILE AND TEST DATA

GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 376380 **NORTHING:** 5018939.186 **ELEVATION:** 101.45

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 6A-23

REMARKS:

DATE: December 13, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction	
							0	50	100	0	50	100	0	50	100		
Ground Surface						0											
EL 101.45 m																	
Overburden						0											
Augered to 1.98 m depth						1											
						2											
1.98 m EL 99.47 m																	
End of Test Hole						3											
Practical refusal to augering at 1.98m depth						4											
						5											
						6											
						7											

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376380.758 **NORTHING:** 5018936.262 **ELEVATION:** 101.44

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 6B-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction			
							0	50	100	0	50	100	0	50	100				
Ground Surface						0													
EL 101.44 m																			
Overburden						0													
Augered to 0.86 m depth						0.86 m													
EL 100.58 m																			
End of Test Hole						1													
Practical refusal to augering at 0.86m depth																			
						2													
						3													
						4													
						5													
						6													
						7													

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic	EASTING: 376378.444	NORTHING: 5018942.565	ELEVATION: 101.59
PROJECT: Proposed Development			FILE NO. PG6912
BORINGS BY: CME 55 Track-Mounted Mechanical Auger			HOLE NO. BH 6C-23
REMARKS:			
DATE: December 13, 2023			

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 101.59 m																
TOPSOIL with organics						0 to 0.25										
0.25 m EL 101.34 m																
GLACIAL TILL: Brown clayey silt, trace gravel and boulders						0.25 to 0.61										
0.61 m EL 100.98 m																
GLACIAL TILL: Compact to dense, brown silty sand with gravel, cobble and boulders						0.61 to 2.21										
- grey by 2.1m depth																
2.21 m EL 99.38 m																
GLACIAL TILL: Dense to very dense, grey silty sand with gravel, cobble and boulders, trace clay		SS 1	67	43		2.21 to 3.0										
		SS 2	0	+50		3.0 to 4.0										
- boulders by 3.4m depth																
		RC 1	35			4.0 to 4.62										
4.62 m EL 96.97 m																
End of Test Hole						4.62 to 5.0										
(GWL @ 0.76 m - Dec. 15, 2023)																

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 376042.873 **NORTHING:** 5018770.725 **ELEVATION:** 109.28 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 7-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 109.28 m																
TOPSOIL with organics						0										
0.18 m EL 109.1 m		AU 1														
GLACIAL TILL: Brown clayey silt with gravel						1										
0.51 m EL 108.77 m		SS 2	75	30												
GLACIAL TILL: Dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble						2										
- very dense by 1.5m depth		SS 3		+50												
		SS 4	50	+50												
		SS 5	100	+50		3										
3.28 m EL 106 m						4										
End of Test Hole						5										
Practical refusal to augering at 3.28m depth						6										
(GWL @ 0.66 m - Dec. 15, 2023)						7										

RSLog / Geotechnical Test Pit - Geodetic / December 20, 2023 09:56 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 375921.34 **NORTHING:** 5018806.672 **ELEVATION:** 106.96 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 8-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction	
							0	50	100	0	50	100	0	50	100		
Ground Surface																	
EL 106.96 m						0											
TOPSOIL with organics						0.15 m											
EL 106.81 m		AU 1															
GLACIAL TILL: Brown clayey silt with gravel						0.69 m											
EL 106.27 m		SS 2	100	+50													
GLACIAL TILL: Very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble, trace clay						1.24 m											
EL 105.72 m																	
End of Test Hole																	
Practical refusal to augering at 1.24m depth																	
						2											
						3											
						4											
						5											
						6											
						7											

RSLog / Geotechnical Test Pit - Geodetic / paterson-group / admin / December 20, 2023 09:56 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



PATERSON GROUP

SOIL PROFILE AND TEST DATA GEOTECHNICAL INVESTIGATION

4850 Bank Street, Ottawa, Ontario

DATUM: Geodetic **EASTING:** 375924.947 **NORTHING:** 5018803.173 **ELEVATION:** 107.22 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH 8A-23

REMARKS:

DATE: December 13, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction	
							0	50	100	0	50	100	0	50	100		
Ground Surface						0											
EL 107.22 m																	
Overburden						0											
Augered to 0.69 m depth						0.69 m											
EL 106.54 m																	
GLACIAL TILL: Very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble			100	+50		1											
		SS 1				2											
2.18 m																	
EL 105.04 m																	
End of Test Hole						3											
Practical refusal to augering at 2.18m depth						4											
(GWL @ 0.27 m - Dec. 15, 2023)						5											
						6											
						7											

RSLog / Geotechnical Test Pit - Geodetic / paterson-group / admin / December 20, 2023 09:56 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 375914.663 **NORTHING:** 5018651.441 **ELEVATION:** 106.87 m

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

REMARKS:

DATE: December 13, 2023

HOLE NO. BH 9-23

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Piezometer Construction	
							0	50	100	0	50	100	0	50	100		
Ground Surface						0											
EL 106.87 m																	
TOPSOIL with organics		AU 1				0.13 m											
EL 106.74 m																	
GLACIAL TILL: Brown clayey silt with gravel						0.48 m											
EL 106.39 m																	
GLACIAL TILL: Very dense, brown silty sand to sandy silt with gravel and boulders, occasional cobble		SS 2	100	+50		1											
		SS 3	100	+50		2											
		SS 4	80	+50		2.49 m											
- grey by 2.2m depth																	
EL 104.38 m																	
End of Test Hole						3											
Practical refusal to augering at 2.49m depth						4											
(GWL @ 0.13 m - Dec. 15, 2023)						5											
						6											
						7											

RSLog / Geotechnical Test Pit - Geodetic / paterson-group / admin / December 20, 2023 09:57 AM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



DATUM: Geodetic **EASTING:** 375787.732 **NORTHING:** 5018720.138 **ELEVATION:** 103.35

PROJECT: Proposed Development

FILE NO. PG6912

BORINGS BY: CME 55 Track-Mounted Mechanical Auger

HOLE NO. BH10-23

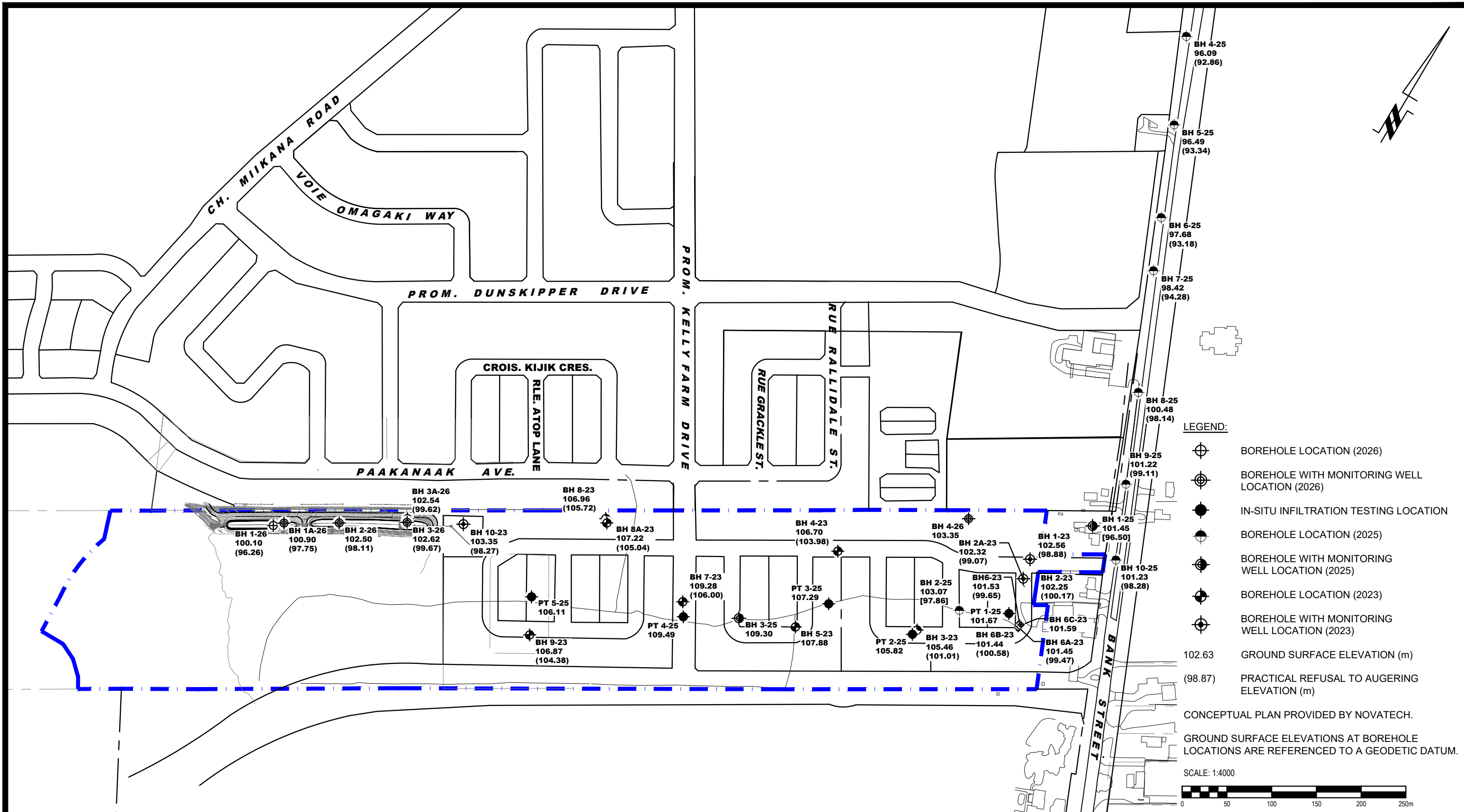
REMARKS:

DATE: December 13, 2023

SAMPLE DESCRIPTION	STRATA PLOT	Sample No.	SAMPLE % RECOVERY	N VALUE or RQD	WATER CONTENT %	DEPTH (m)	Remoulded Shear Strength (kPa)			Peak Shear Strength (kPa)			Pen. Resist. Blows/0.3m (50 mm Dia. Cone)			Monitoring Well Construction
							0	50	100	0	50	100	0	50	100	
Ground Surface						0										
EL 103.35 m																
TOPSOIL with organics		AU 1				0										
0.33 m EL 103.02 m																
GLACIAL TILL: Compact, brown silty sand to sandy silt with gravel, occasional cobble		SS 2	46	10		1										
		SS 3	67	24		2										
		SS 4A SS 4B	60	+50		3										
2.21 m EL 101.14 m																
GLACIAL TILL: Dense to very dense, grey silty sand with gravel, cobble, and boulders		SS 5	88	48		4										
		SS 6	63	37		5										
		SS 7	58	+50		6										
5.08 m EL 98.27 m																
End of Test Hole						7										
Practical refusal to augering on inferred boulder or bedrock at 5.08m depth (GWL @ 0.39 m - Dec. 15, 2023)																

RSLog / Geotechnical Borehole - Geodetic - MW / paterson-group / admin / December 20, 2023 12:05 PM

DISCLAIMER: THE DATA PRESENTED IN THIS LOG IS THE PROPERTY OF PATERSON GROUP AND THE CLIENT FOR WHO IT WAS PRODUCED. THIS LOG SHOULD BE READ IN CONJUNCTION WITH ITS CORRESPONDING REPORT. PATERSON GROUP IS NOT RESPONSIBLE FOR THE UNAUTHORIZED USE OF THIS DATA.



- LEGEND:**
- BOREHOLE LOCATION (2026)
 - BOREHOLE WITH MONITORING WELL LOCATION (2026)
 - IN-SITU INFILTRATION TESTING LOCATION
 - BOREHOLE LOCATION (2025)
 - BOREHOLE WITH MONITORING WELL LOCATION (2025)
 - BOREHOLE LOCATION (2023)
 - BOREHOLE WITH MONITORING WELL LOCATION (2023)
 - 102.63 GROUND SURFACE ELEVATION (m)
 - (98.87) PRACTICAL REFUSAL TO AUGERING ELEVATION (m)
- CONCEPTUAL PLAN PROVIDED BY NOVATECH.
GROUND SURFACE ELEVATIONS AT BOREHOLE LOCATIONS ARE REFERENCED TO A GEODETIC DATUM.
- SCALE: 1:4000



9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

NO.	REVISIONS	DD/MM/YYYY	INITIAL
3	ADDED 2026 BOREHOLES BH 1-26 TO BH 4-26	02/03/2026	JP
2	ADDED 2025 IN-SITU INFILTRATION TESTING TO PLAN	08/08/2025	ZB
1	ADDED 2025 BOREHOLES BH 1-25 TO BH 10-25	09/07/2025	PB

REGIONAL GROUP
GEOTECHNICAL INVESTIGATION
PROPOSED RESIDENTIAL DEVELOPMENT
4850 BANK STREET

OTTAWA, ONTARIO

Title: **TEST HOLE LOCATION PLAN**

Scale:	1:4000	Date:	12/2023
Drawn by:	GK	Report No.:	PG6912-1
Checked by:	DR	Dwg. No.:	PG6912-1
Approved by:	SD	Revision No.:	3

APPENDIX 2

TABLE 6 - MONTHLY WATER BALANCE FOR SOIL WITH 75 mm WATER HOLDING CAPACITY AT THE OTTAWA INTERNATIONAL AIRPORT

TABLE 7 - MONTHLY WATER BALANCE FOR SOIL WITH 300 mm WATER HOLDING CAPACITY AT THE OTTAWA INTERNATIONAL AIRPORT

TABLE 8 - PRE-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 9 - POST-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 10 - WESTERN CATCHMENT PRE-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 11 - WESTERN CATCHMENT POST-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 12 - EASTERN CATCHMENT PRE-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

TABLE 13 - EASTERN CATCHMENT POST-DEVELOPMENT ANNUAL WATER BUDGET CALCULATIONS

Table 6 - Monthly Water Balance for Soil With 75 mm Water Holding Capacity at the Ottawa International Airport

Month	Temperature (°C)	Total Precipitation (mm)	Actual Evapotranspiration (mm)	Water Surplus (mm)
January	-10.6	62	0	25
February	-9.0	56	1	26
March	-2.8	65	6	103
April	5.7	73	31	110
May	13.1	76	80	14
June	18.3	85	107	4
July	20.9	88	104	3
August	19.7	85	84	1
September	14.8	82	65	3
October	8.3	76	36	14
November	1.3	77	10	38
December	-6.8	79	1	37
Annual	6	904	525	378

Table 7 - Monthly Water Balance for Soil With 300 mm Water Holding Capacity at the Ottawa International Airport

Month	Temperature (°C)	Total Precipitation (mm)	Actual Evapotranspiration (mm)	Water Surplus (mm)
January	-10.6	62	0	17
February	-9.0	56	1	21
March	-2.8	65	6	91
April	5.7	73	31	105
May	13.1	76	80	14
June	18.3	85	116	4
July	20.9	89	135	3
August	19.7	84	114	1
September	14.8	82	73	2
October	8.3	76	37	6
November	1.3	77	10	16
December	-6.8	80	1	18
Annual	6	904	605	298

Table 8 - Pre-Development Annual Water Budget Calculations											
Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Mature Forest (Fine Sandy Loam)	123,000	298	0.1	0.3	0.2	0.6	0.4	178.8	21,992,400	119.2	14,661,600
Total	123,000								21,992,400		14,661,600

Table 9 - Post-Development Annual Water Budget Calculations											
Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Impervious Surfaces	88,227	759	0	0	0	0	1	0	0	759.0	66,964,378
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	29,673	378	0.15	0.3	0.1	0.55	0.45	207.9	6,168,925	170.1	5,047,302
Stormwater Management Pond	5,100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	123,000								6,168,925		72,011,680
Difference (L/year)									-15,823,475		57,350,080
Percentage Variation									-72%		391%

Table 10 - Western Catchment Pre-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Mature Forest (Fine Sandy Loam)	48,000	298	0.1	0.3	0.2	0.6	0.4	178.8	8,582,400	119.2	5,721,600
Total	48,000								8,582,400		5,721,600

Table 11 - Western Catchment Post-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Impervious Surfaces	57,234	759	0	0	0	0	1	0	0	759.0	43,440,315
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	21,766	378	0.15	0.3	0.1	0.55	0.45	207.9	4,525,165	170.1	3,702,407
Totals	79,000								4,525,165		47,142,722
Difference (L/year)									-4,057,235		41,421,122
Percentage Variation									-47%		724%

Table 12 - Eastern Catchment Pre-Development Annual Water Budget Calculations

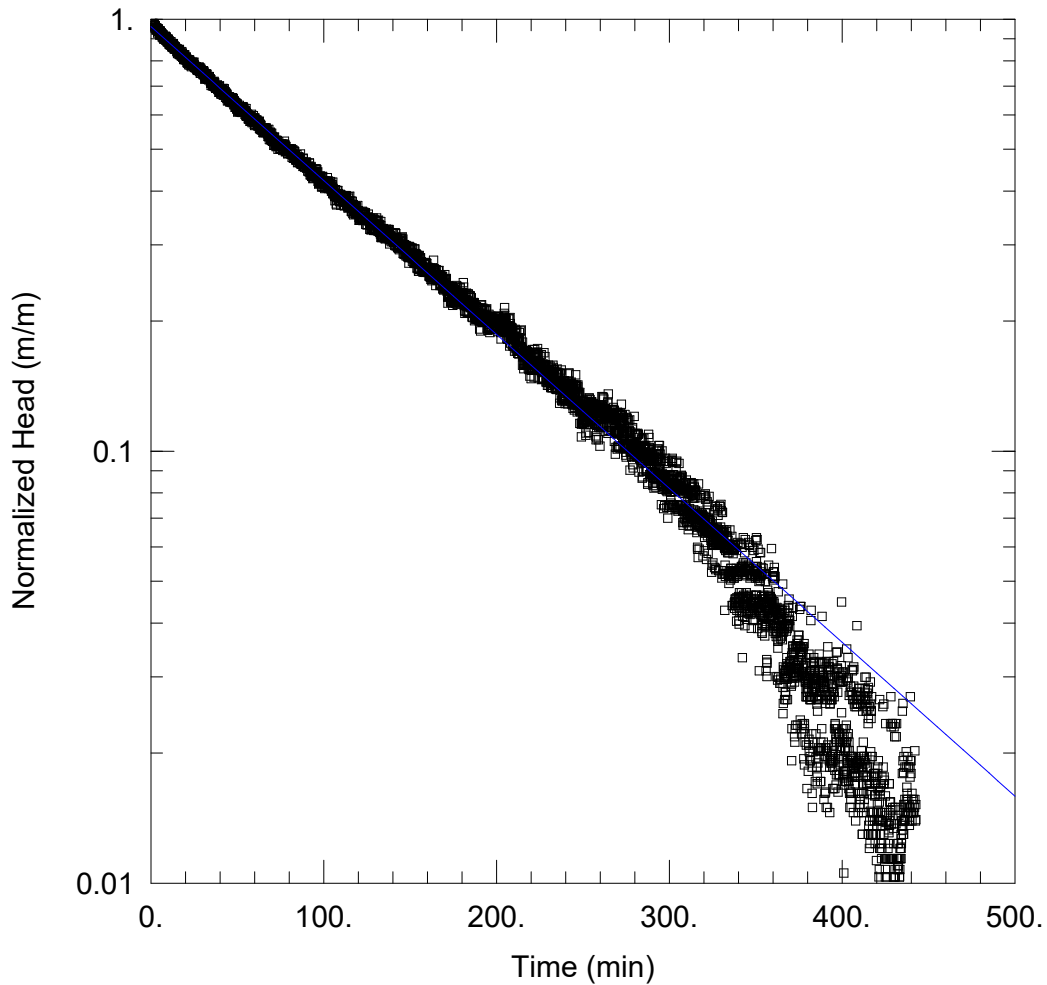
Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Mature Forest (Fine Sandy Loam)	75,000	298	0.1	0.3	0.2	0.6	0.4	178.8	13,410,000	119.2	8,940,000
Total	75,000								13,410,000		8,940,000

Table 13 - Eastern Catchment Post-Development Annual Water Budget Calculations

Land Use Unit	Area (m ²)	Water Surplus (mm)	Topography Factor	Soil Factor	Vegetation Factor	Infiltration Factor	Runoff Factor	Total Infiltration (mm/year)	Total Infiltration (L/year)	Total Runoff (mm/year)	Total Runoff (L/year)
Impervious Surfaces	30,953	759	0	0	0	0	1	0	0	759.0	23,493,688
Urban Lawn/Shallow Rooted Crops (Fine Sandy Loam)	7,946	378	0.15	0.3	0.1	0.55	0.45	207.9	1,652,074	170.1	1,351,697
Stormwater Management Pond	5,100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	44,000								1,652,074		24,845,385
Difference (L/year)									-11,757,926		15,905,385
Percentage Variation									-88%		178%

APPENDIX 3

HYDRAULIC CONDUCTIVITY RESULTS - FALLING AND RISING HEAD TESTS
SAMPLE CALCULATIONS - DUPUIT FORCHHEIMER



BH2-26 - RISING HEAD 1 OF 1

PROJECT INFORMATION

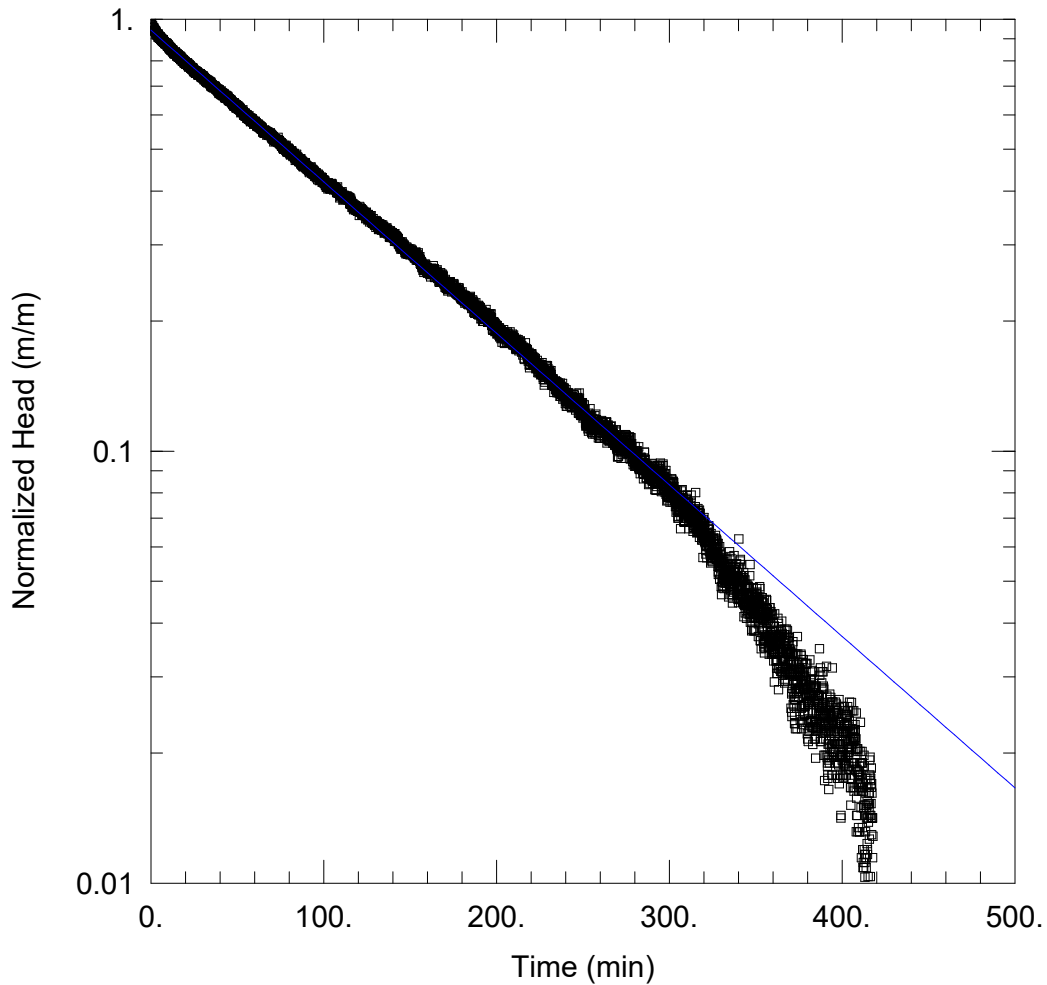
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH2-26
 Test Date: February 26, 2026

WELL DATA (BH2-26)

Initial Displacement: <u>0.474 m</u>	Static Water Column Height: <u>3.49 m</u>
Total Well Penetration Depth: <u>3.49 m</u>	Screen Length: <u>0.5 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 3.008E-7$ m/sec	$y_0 = 0.4552$ m



BH3-26 - RISING HEAD 1 OF 1

PROJECT INFORMATION

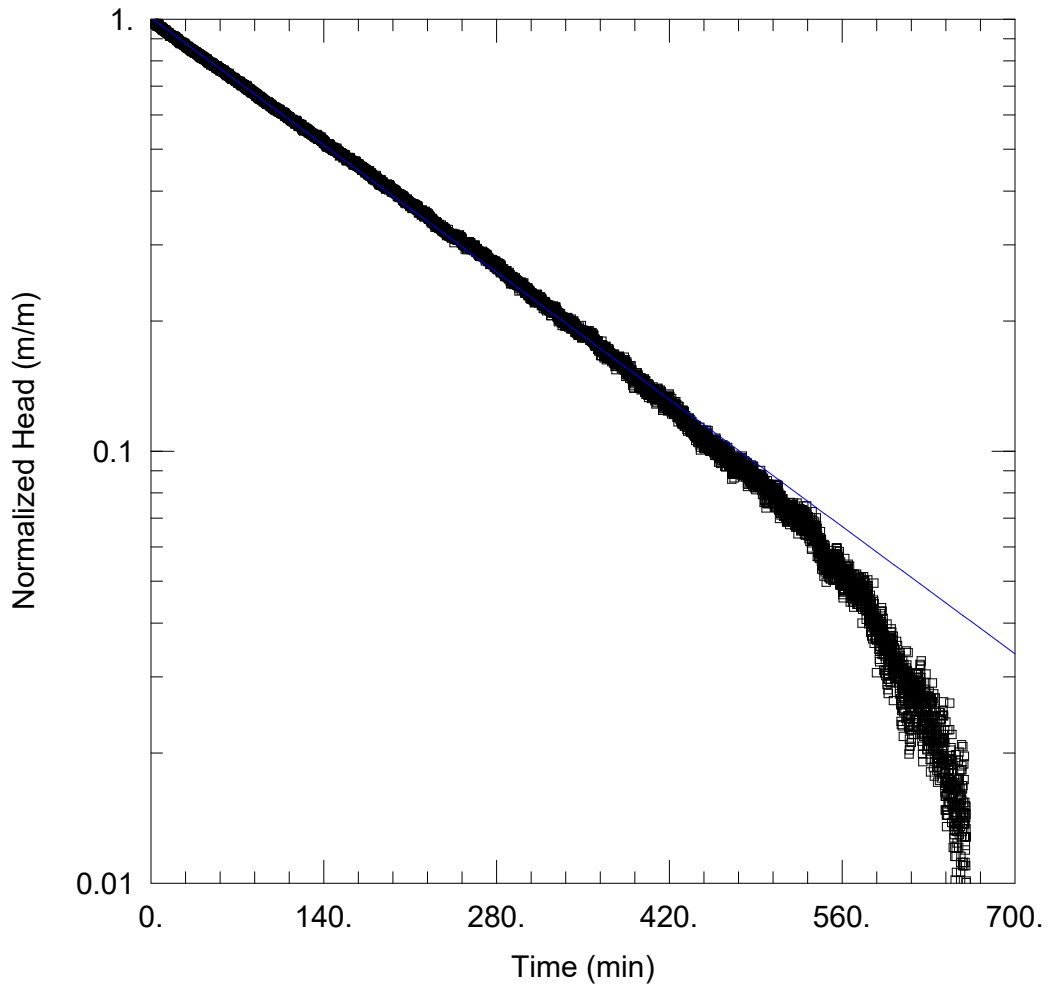
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH3-26
 Test Date: February 26, 2026

WELL DATA (BH3-26)

Initial Displacement: <u>0.502 m</u>	Static Water Column Height: <u>2.39 m</u>
Total Well Penetration Depth: <u>2.39 m</u>	Screen Length: <u>0.5 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 2.363E-7$ m/sec	$y_0 = 0.4731$ m



BH4-26 - RISING HEAD 1 OF 1

PROJECT INFORMATION

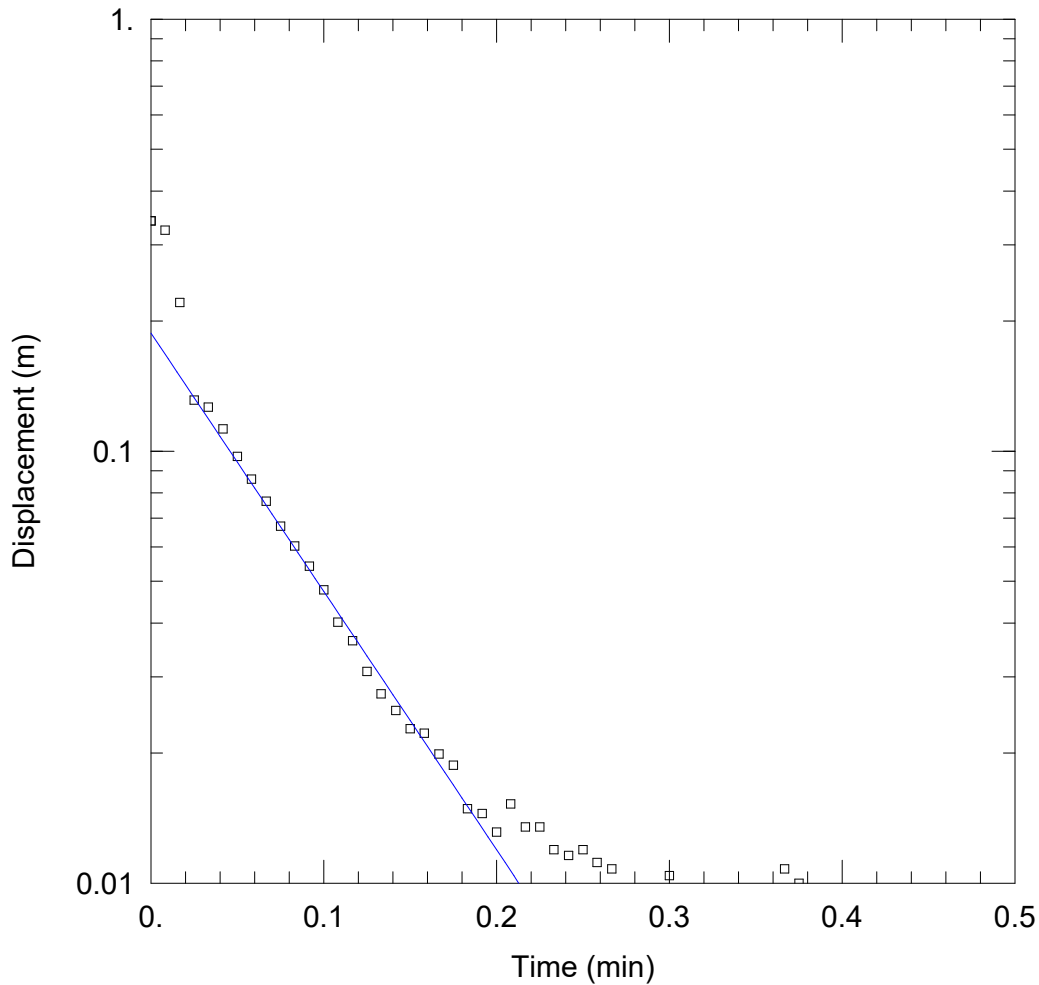
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH4-26
 Test Date: February 26, 2026

WELL DATA (BH4-26)

Initial Displacement: <u>0.528 m</u>	Static Water Column Height: <u>2.92 m</u>
Total Well Penetration Depth: <u>2.92 m</u>	Screen Length: <u>1.52 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 7.746E-8$ m/sec	$y_0 = 0.5318$ m



BH1-25 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

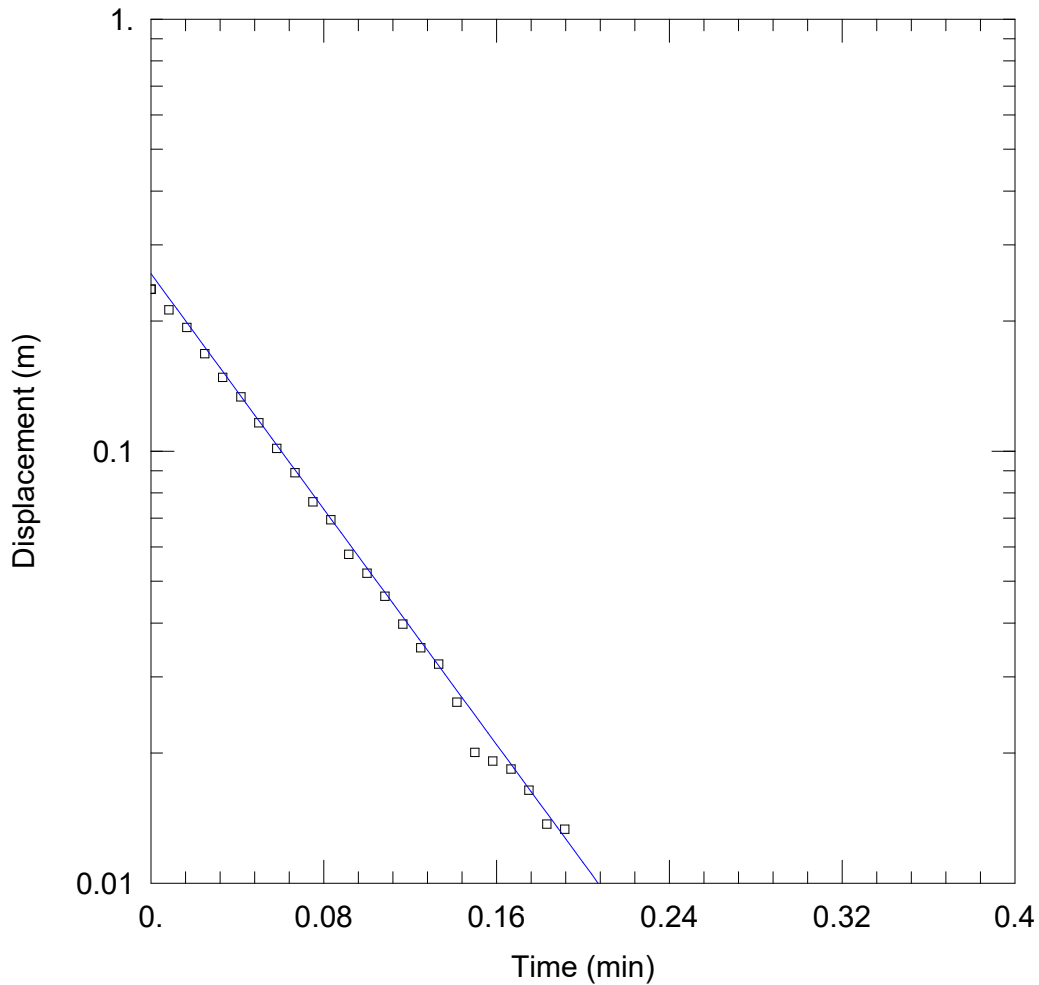
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH1-25
 Test Date: July 3, 2025

WELL DATA (BH1-25)

Initial Displacement: <u>0.341 m</u>	Static Water Column Height: <u>6.54 m</u>
Total Well Penetration Depth: <u>6.54 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.01588 m</u>	Well Radius: <u>0.0381 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>0.000105 m/sec</u>	y0 = <u>0.1876 m</u>



BH1-25 - RISING HEAD 1 OF 1

PROJECT INFORMATION

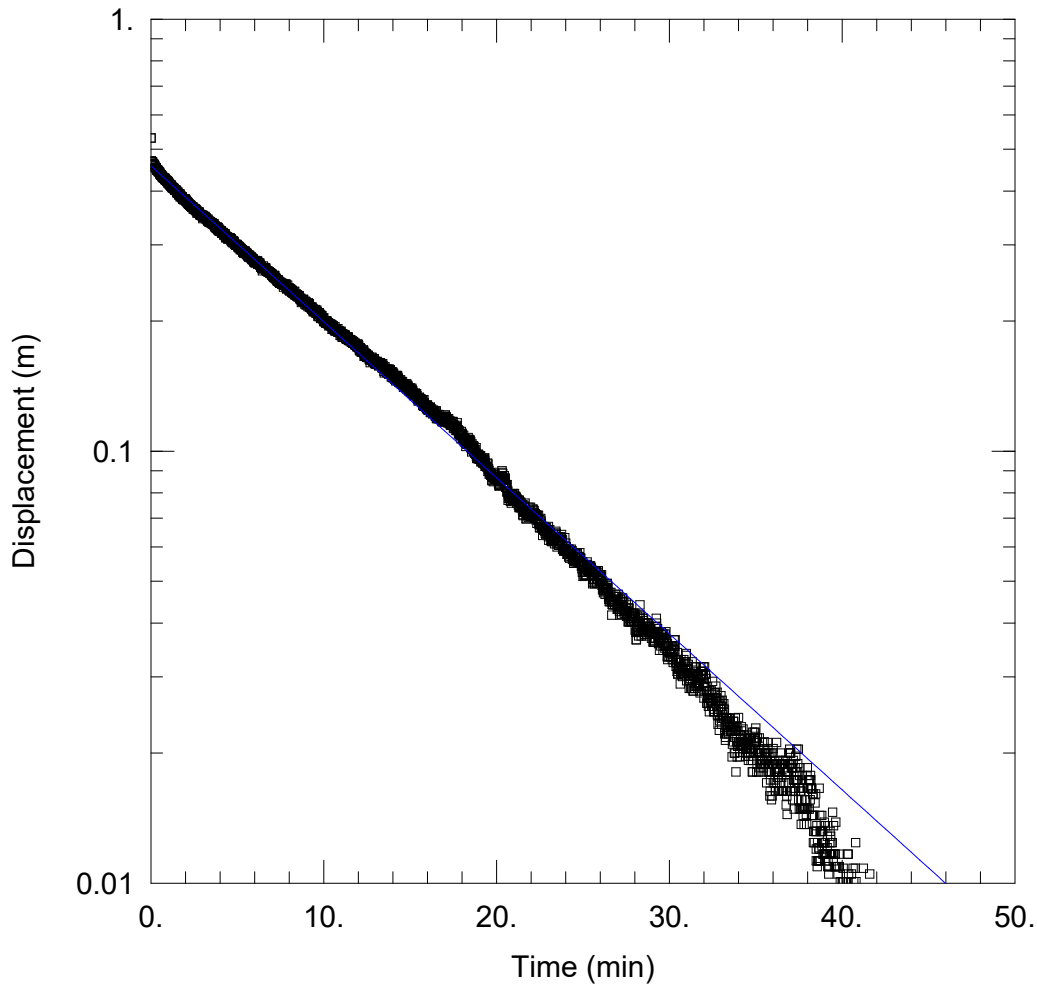
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH1-25
 Test Date: July 3, 2025

WELL DATA (BH1-25)

Initial Displacement: <u>0.237 m</u>	Static Water Column Height: <u>6.54 m</u>
Total Well Penetration Depth: <u>6.54 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.01588 m</u>	Well Radius: <u>0.0381 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>0.0001196 m/sec</u>	y0 = <u>0.2575 m</u>



BH3-25 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

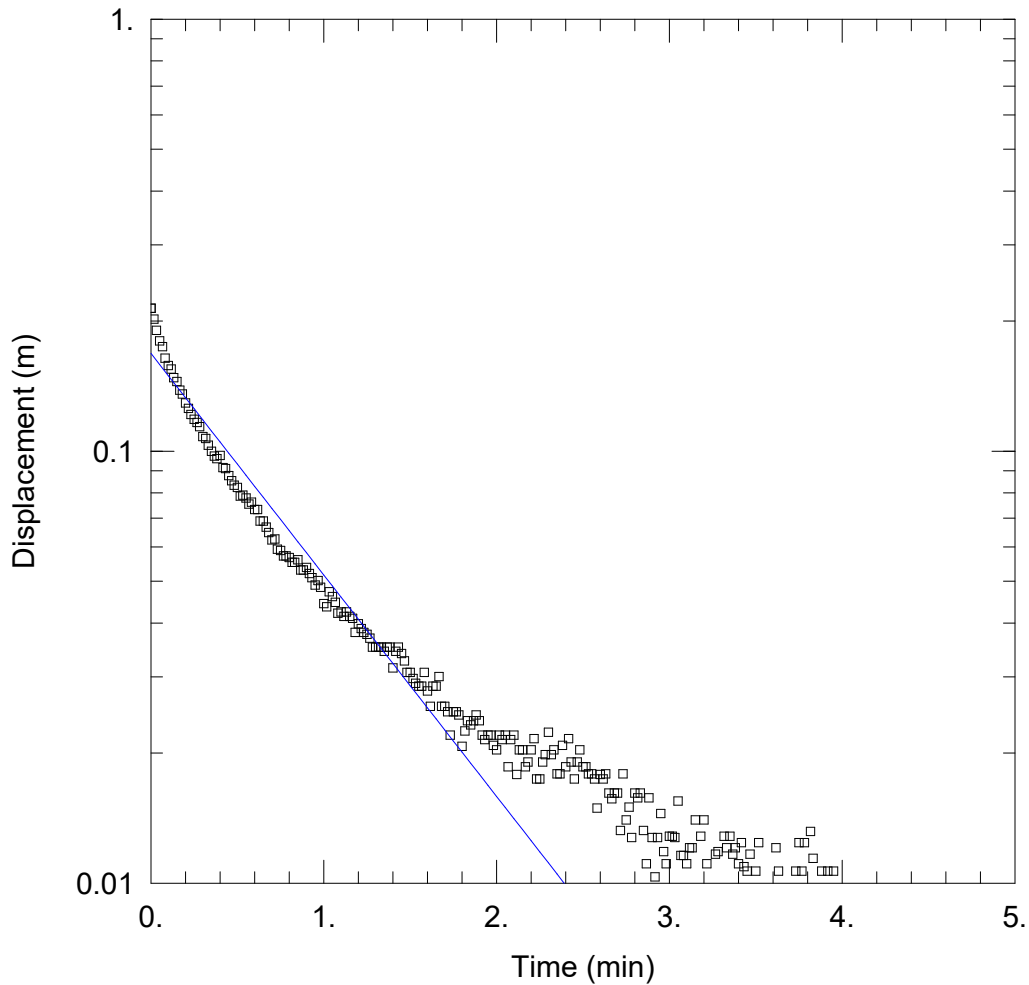
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH3-25
 Test Date: July 3, 2025

WELL DATA (BH3-25)

Initial Displacement: <u>0.531 m</u>	Static Water Column Height: <u>4.17 m</u>
Total Well Penetration Depth: <u>4.17 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 1.327E-6$ m/sec	$y_0 = 0.4572$ m



BH6C-23 - FALLING HEAD 1 OF 1

PROJECT INFORMATION

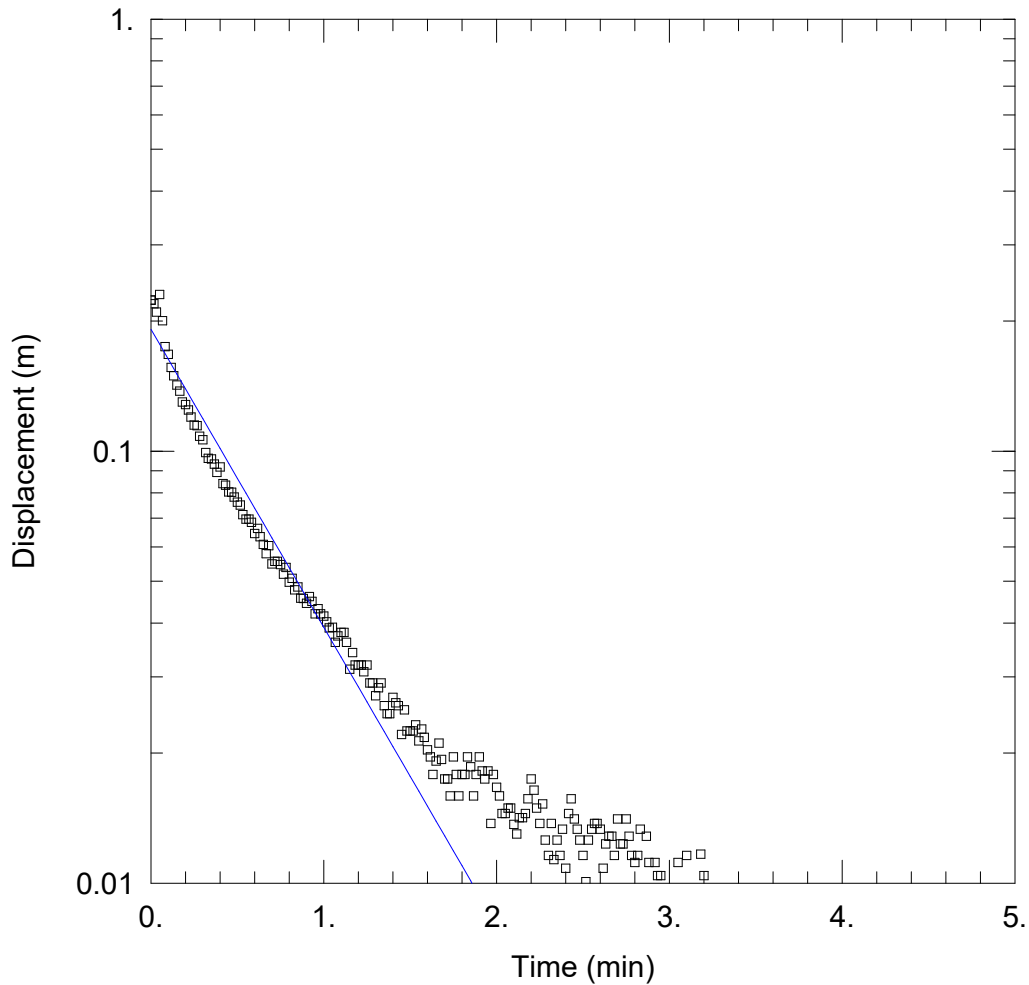
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH6C-23
 Test Date: July 3, 2025

WELL DATA (BH6C-23)

Initial Displacement: <u>0.214 m</u>	Static Water Column Height: <u>3.41 m</u>
Total Well Penetration Depth: <u>3.41 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.01588 m</u>	Well Radius: <u>0.0381 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 9.002E-6$ m/sec	$y_0 = 0.1683$ m



BH6C-23 - RISING HEAD 1 OF 1

PROJECT INFORMATION

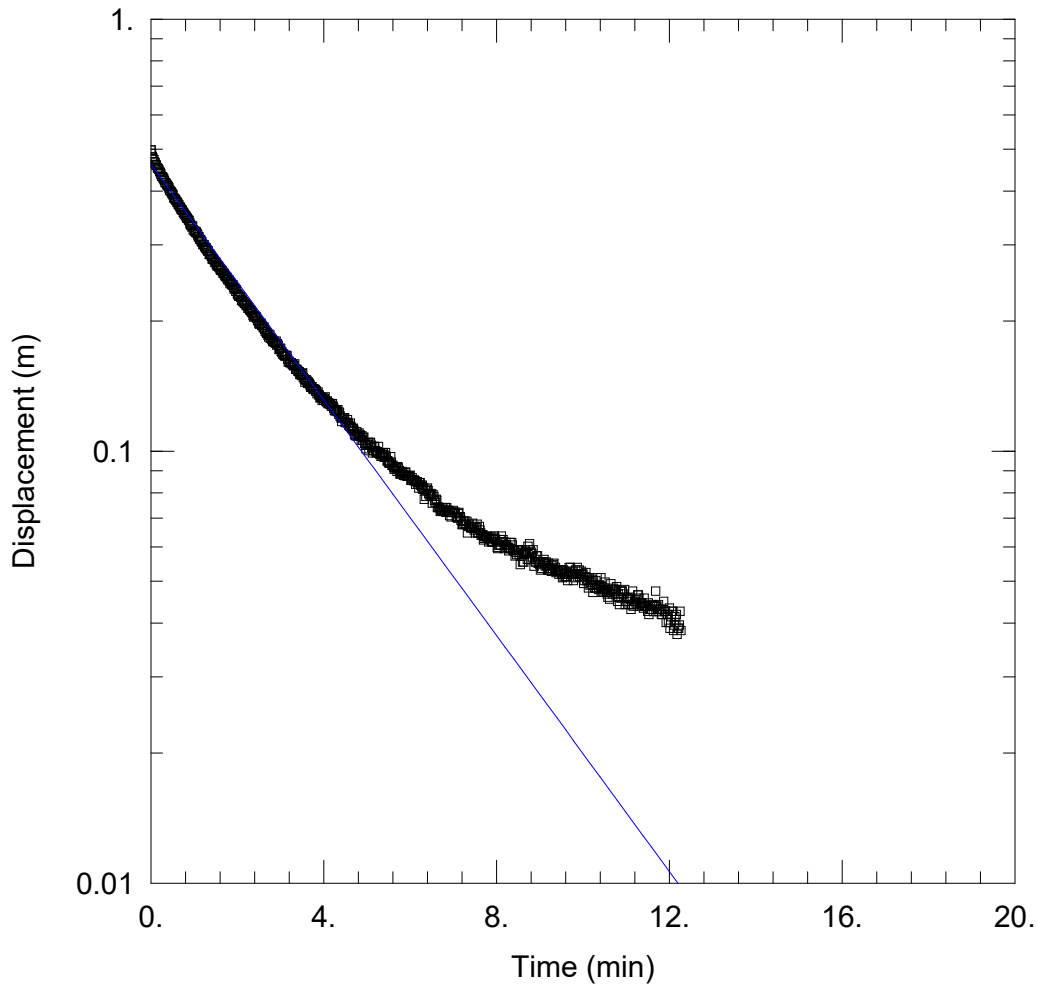
Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH6C-23
 Test Date: July 3, 2025

WELL DATA (BH6C-23)

Initial Displacement: <u>0.224 m</u>	Static Water Column Height: <u>3.41 m</u>
Total Well Penetration Depth: <u>3.41 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.01588 m</u>	Well Radius: <u>0.0381 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
$K = 1.211E-5$ m/sec	$y_0 = 0.1914$ m



BH10-23 - RISING HEAD 1 OF 1

PROJECT INFORMATION

Company: Paterson Group Inc.
 Client: Regional Group
 Project: PH5087
 Location: 4850 Bank Street
 Test Well: BH10-23
 Test Date: July 3, 2025

WELL DATA (BH10-23)

Initial Displacement: <u>0.498 m</u>	Static Water Column Height: <u>3.84 m</u>
Total Well Penetration Depth: <u>3.84 m</u>	Screen Length: <u>1.524 m</u>
Casing Radius: <u>0.0254 m</u>	Well Radius: <u>0.1045 m</u>

SOLUTION

Aquifer Model: <u>Unconfined</u>	Solution Method: <u>Hvorslev</u>
K = <u>5.011E-6 m/sec</u>	y0 = <u>0.4612 m</u>

Estimated Groundwater Inflow

Regional Group - 4850 Bank Street - Building Excavation

Dupuit-Forchheimer Equation

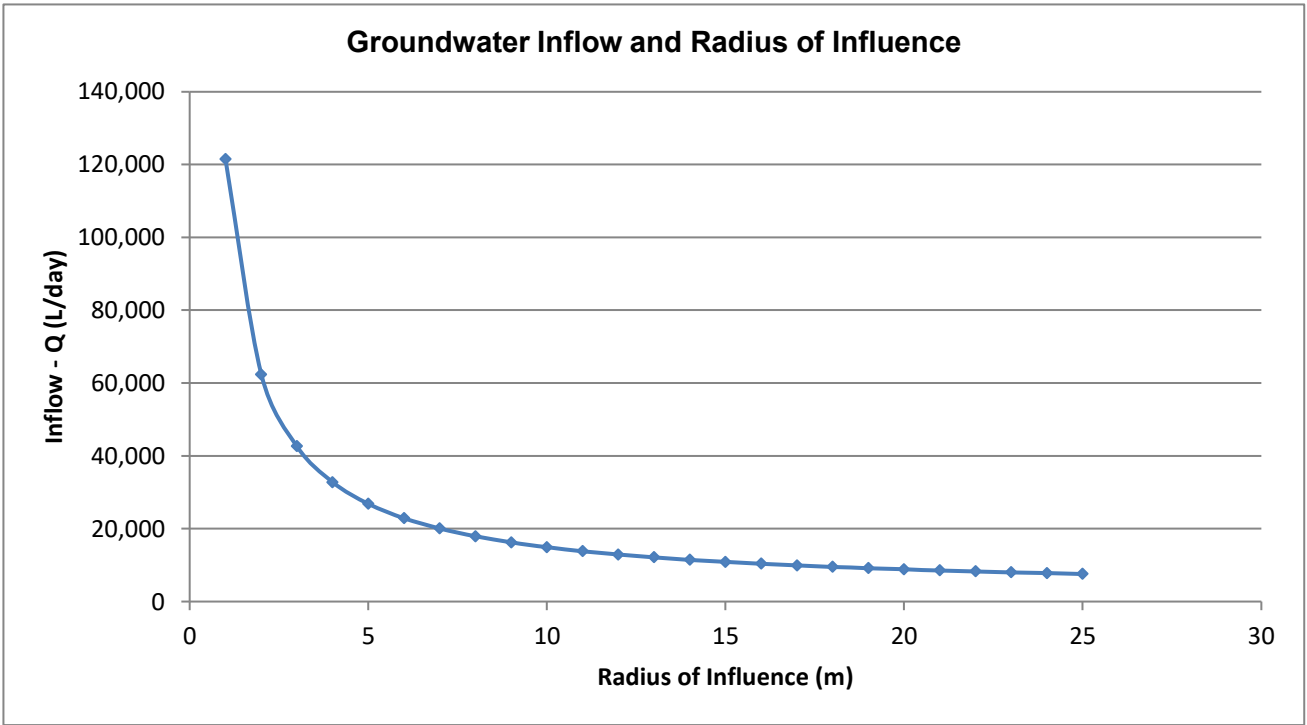
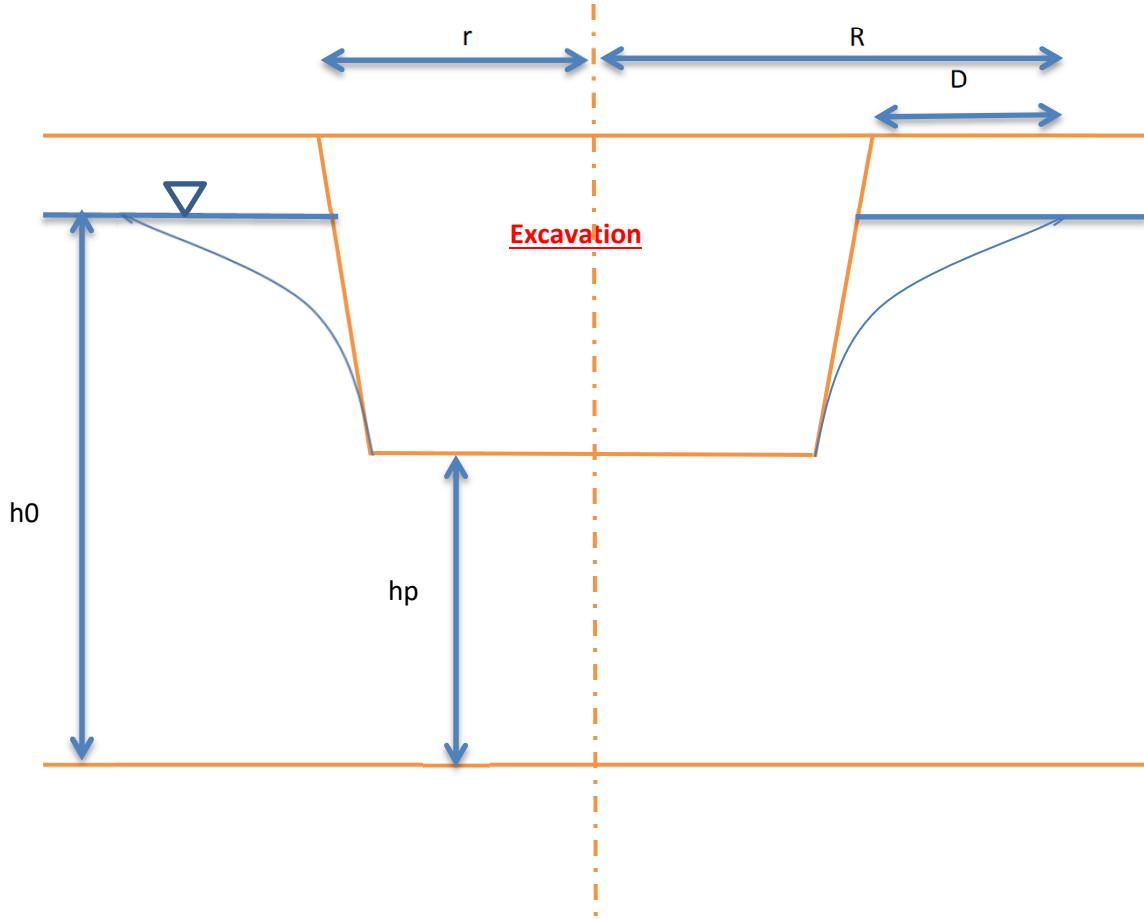
$$Q = \pi K ((h_0^2 - h_p^2) / \ln(R/r))$$

K (m/sec) = 9.29E-07
 h0 (m) = 6
 hp (m) = 3
 r (m) = 17.35

Equivalent Radius of Excavation = A+B=Pi*r
 Excavation Width (A) = 26.5 m
 Excavation Length (B) = 28 m
 Perimeter Length = 109 m
 Equivalent Radius (r) = 17.35 m

R	Distance to edge of excavation (D)
18.35	1.00
19.35	2.00
20.35	3.00
21.35	4.00
22.35	5.00
23.35	6.00
24.35	7.00
25.35	8.00
26.35	9.00
27.35	10.00
28.35	11.00
29.35	12.00
30.35	13.00
31.35	14.00
32.35	15.00
33.35	16.00
34.35	17.00
35.35	18.00
36.35	19.00
37.35	20.00
38.35	21.00
39.35	22.00
40.35	23.00
41.35	24.00
42.35	25.00
43.35	26.00
44.35	27.00
45.35	28.00
46.35	29.00
47.35	30.00

Q (m^3/s)	Q (m^3/day)	Q (L/day)
0.0014	121.5	121,481
0.0007	62.4	62,396
0.0005	42.7	42,683
0.0004	32.8	32,814
0.0003	26.9	26,882
0.0003	22.9	22,921
0.0002	20.1	20,085
0.0002	18.0	17,953
0.0002	16.3	16,291
0.0002	15.0	14,958
0.0002	13.9	13,864
0.0001	12.9	12,950
0.0001	12.2	12,174
0.0001	11.5	11,507
0.0001	10.9	10,927
0.0001	10.4	10,418
0.0001	10.0	9,967
0.0001	9.6	9,565
0.0001	9.2	9,204
0.0001	8.9	8,879
0.0001	8.6	8,583
0.0001	8.3	8,313
0.0001	8.1	8,066
0.0001	7.8	7,839
0.0001	7.6	7,629
0.0001	7.4	7,434
0.0001	7.3	7,254
0.0001	7.1	7,085
0.0001	6.9	6,928
0.0001	6.8	6,781



Estimated Groundwater Inflow

Regional Group - 4850 Bank Street - Servicing Excavation

Dupuit-Forchheimer Equation

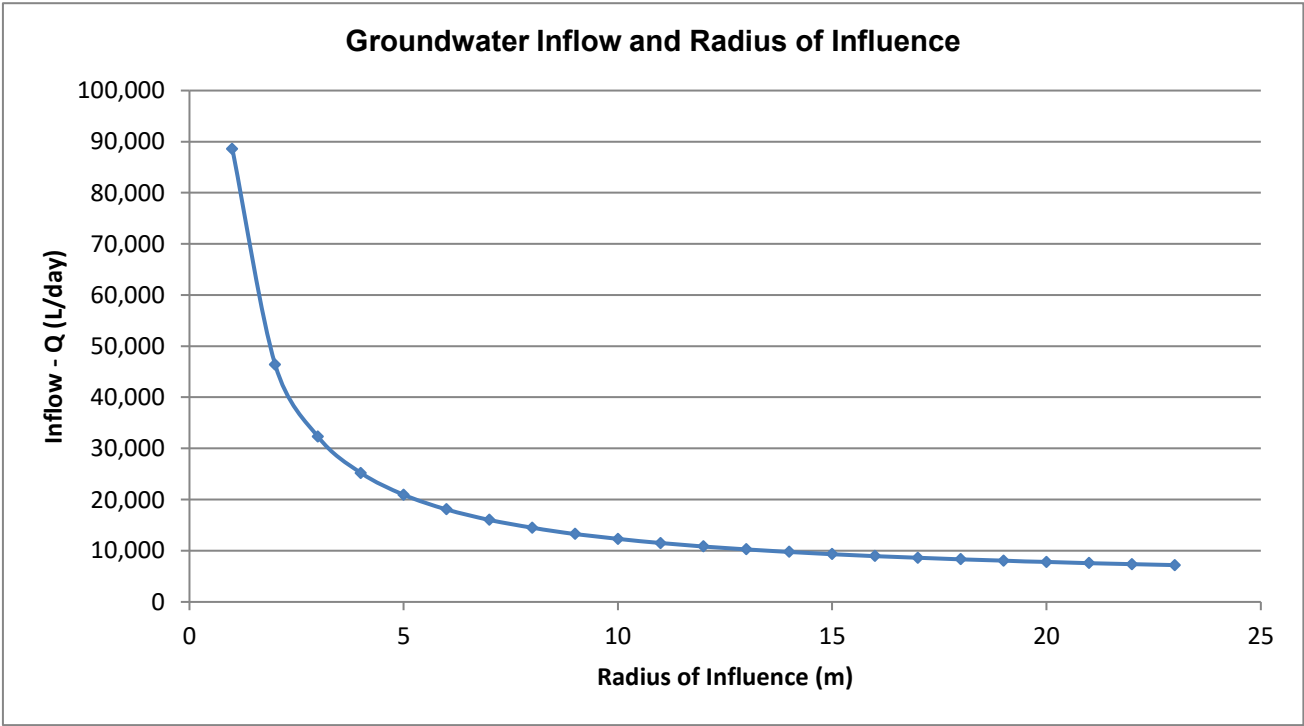
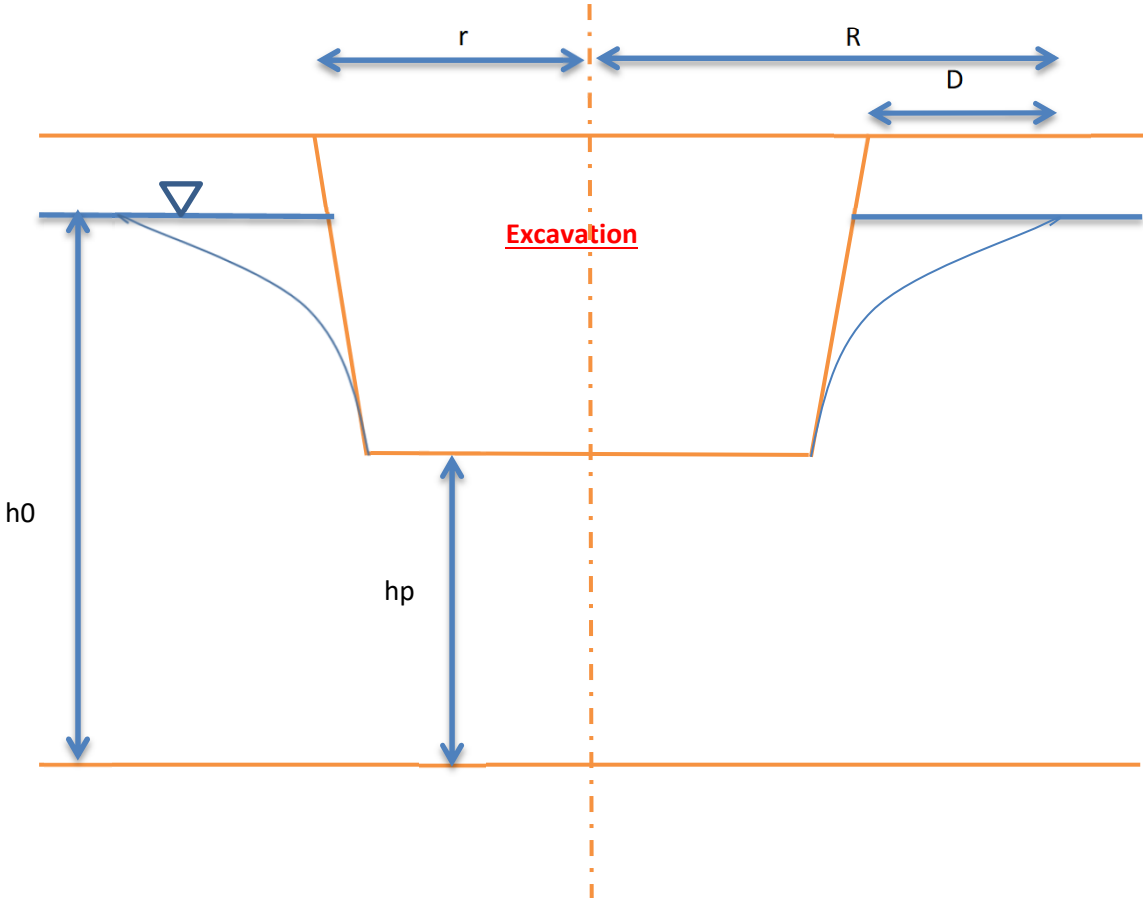
$$Q = \pi K ((h_0^2 - h_p^2) / \ln(R/r))$$

K (m/sec) = 9.29E-07
 h0 (m) = 6
 hp (m) = 1
 r (m) = 9.55

Equivalent Radius of Excavation = A+B=Pi*r
 Excavation Width (X) = 5 m
 Excavation Length (Y) = 25 m
 Perimeter Length = 60 m
 Equivalent Radius (r) = **9.55 m**

R	Distance to edge of excavation (D)
10.55	1.00
11.55	2.00
12.55	3.00
13.55	4.00
14.55	5.00
15.55	6.00
16.55	7.00
17.55	8.00
18.55	9.00
19.55	10.00
20.55	11.00
21.55	12.00
22.55	13.00
23.55	14.00
24.55	15.00
25.55	16.00
26.55	17.00
27.55	18.00
28.55	19.00
29.55	20.00
30.55	21.00
31.55	22.00
32.55	23.00
33.55	24.00
34.55	25.00
35.55	26.00
36.55	27.00
37.55	28.00
38.55	29.00
39.55	30.00

Q (m^3/s)	Q (m^3/day)	Q (L/day)
0.0010	88.6	88,617
0.0005	46.4	46,412
0.0004	32.3	32,304
0.0003	25.2	25,225
0.0002	21.0	20,959
0.0002	18.1	18,102
0.0002	16.0	16,050
0.0002	14.5	14,503
0.0002	13.3	13,292
0.0001	12.3	12,318
0.0001	11.5	11,516
0.0001	10.8	10,844
0.0001	10.3	10,271
0.0001	9.8	9,778
0.0001	9.3	9,347
0.0001	9.0	8,968
0.0001	8.6	8,631
0.0001	8.3	8,330
0.0001	8.1	8,059
0.0001	7.8	7,813
0.0001	7.6	7,589
0.0001	7.4	7,385
0.0001	7.2	7,197
0.0001	7.0	7,024
0.0001	6.9	6,863
0.0001	6.7	6,714
0.0001	6.6	6,575
0.0001	6.4	6,446
0.0001	6.3	6,324
0.0001	6.2	6,210



Estimated Groundwater Inflow

Regional Group - 4850 Bank Street - Servicing Excavation (Bedrock Removal)

Dupuit-Forchheimer Equation

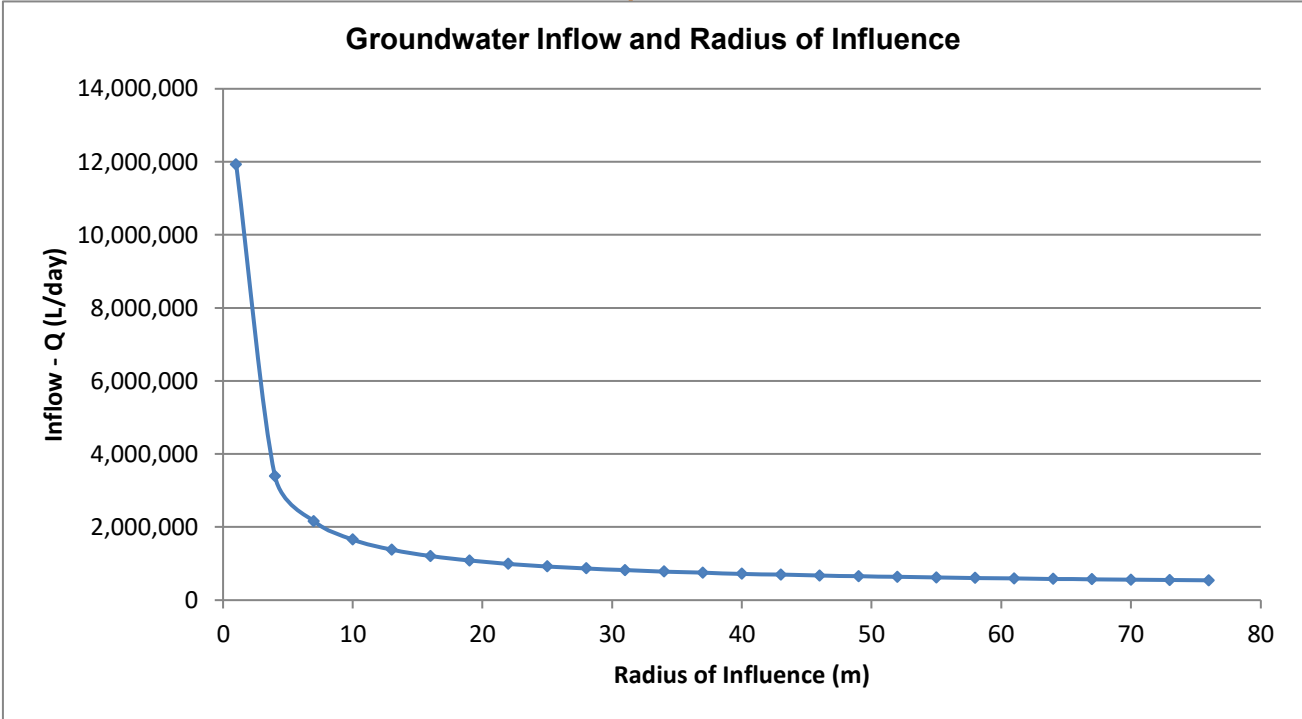
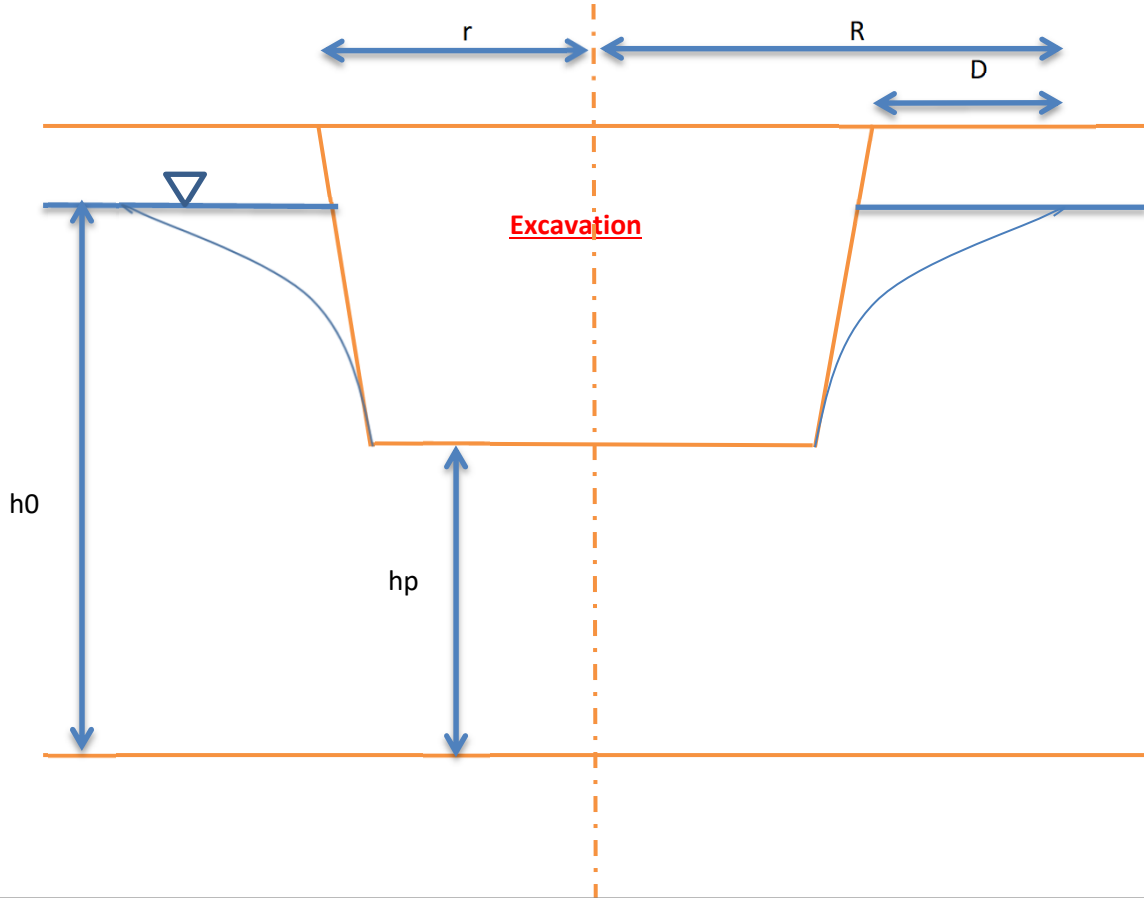
$$Q = \pi K \frac{(h_0^2 - h_p^2)}{\ln(R/r)}$$

K (m/sec) = 1.12E-04
 h₀ (m) = 20
 h_p (m) = 19
 r (m) = 9.55

Equivalent Radius of Excavation = A+B=Pi + r
 Excavation Width (X) = 5 m
 Excavation Length (Y) = 25 m
 Perimeter Length = 60 m
 Equivalent Radius (r) = 9.55 m

R	Distance to edge of excavation (D)
10.55	1.00
13.55	4.00
16.55	7.00
19.55	10.00
22.55	13.00
25.55	16.00
28.55	19.00
31.55	22.00
34.55	25.00
37.55	28.00
40.55	31.00
43.55	34.00
46.55	37.00
49.55	40.00
52.55	43.00
55.55	46.00
58.55	49.00
61.55	52.00
64.55	55.00
67.55	58.00
70.55	61.00
73.55	64.00
76.55	67.00
79.55	70.00
82.55	73.00
85.55	76.00
88.55	79.00
91.55	82.00
94.55	85.00
97.55	88.00

Q (m ³ /s)	Q (m ³ /day)	Q (L/day)
0.1381	11931.4	11,931,372
0.0393	3396.3	3,396,334
0.0250	2161.0	2,160,970
0.0192	1658.5	1,658,496
0.0160	1382.9	1,382,932
0.0140	1207.4	1,207,412
0.0126	1085.0	1,085,011
0.0115	994.3	994,295
0.0107	924.1	924,059
0.0100	867.9	867,862
0.0095	821.7	821,731
0.0091	783.1	783,080
0.0087	750.1	750,147
0.0084	721.7	721,692
0.0081	696.8	696,814
0.0078	674.8	674,843
0.0076	655.3	655,269
0.0074	637.7	637,697
0.0072	621.8	621,815
0.0070	607.4	607,377
0.0069	594.2	594,179
0.0067	582.1	582,058
0.0066	570.9	570,879
0.0065	560.5	560,527
0.0064	550.9	550,906
0.0063	541.9	541,937
0.0062	533.6	533,550
0.0061	525.7	525,686
0.0060	518.3	518,293
0.0059	511.3	511,326



Estimated Groundwater Inflow

Regional Group - 4850 Bank Street - SWMP Excavation

Dupuit-Forchheimer Equation

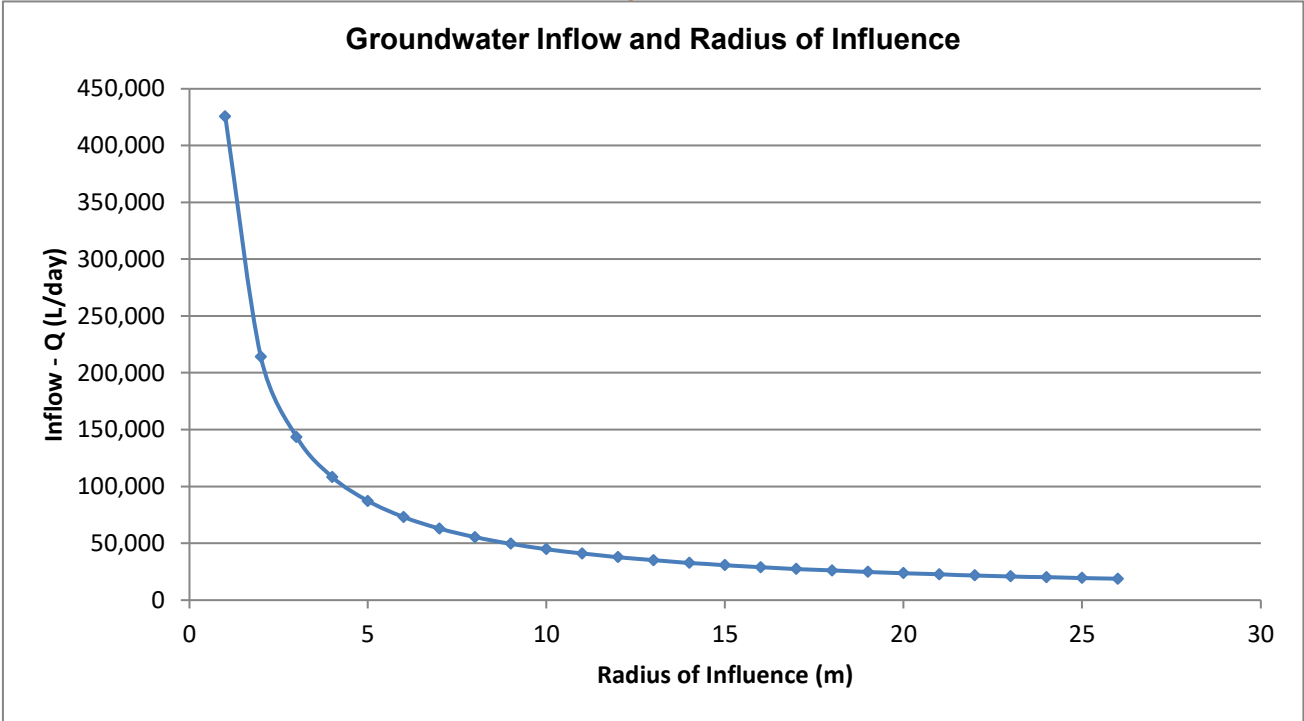
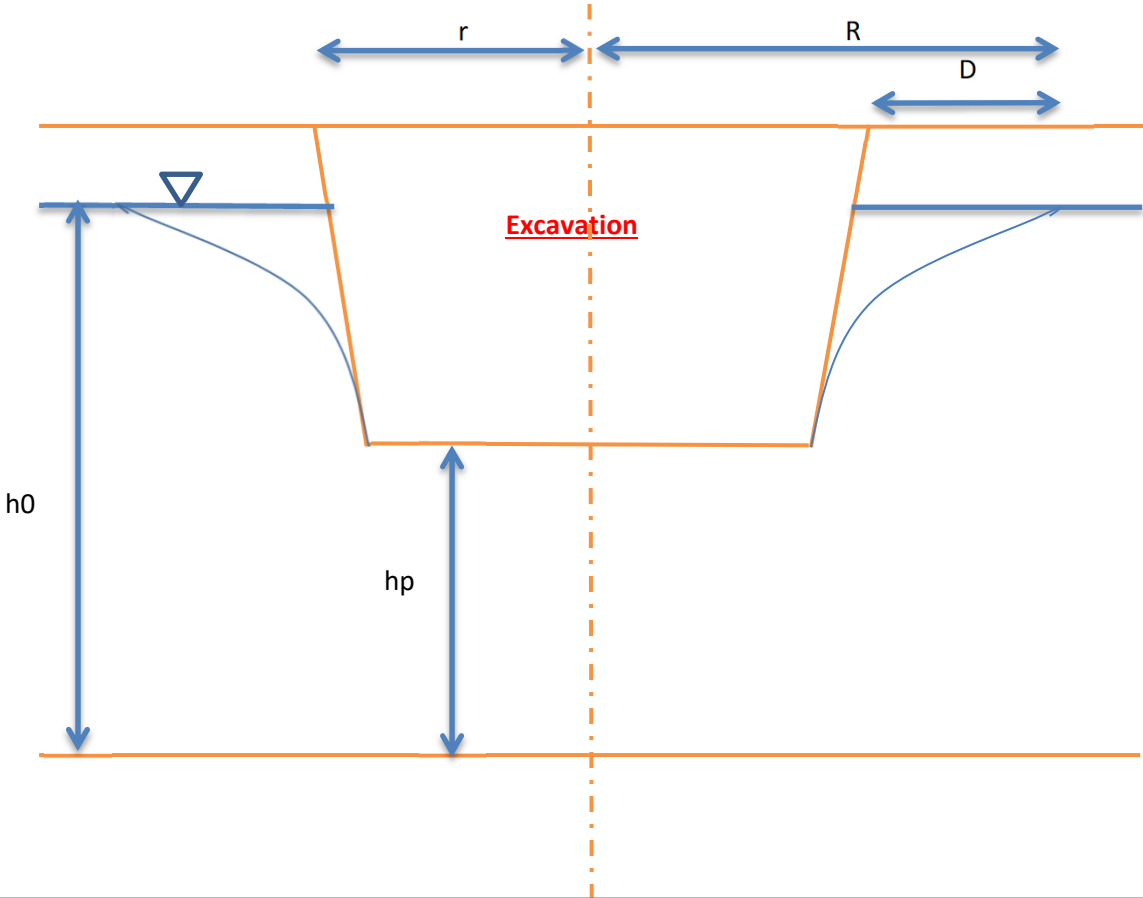
$$Q = \pi K \frac{(h_0^2 - h_p^2)}{\ln(R/r)}$$

K (m/sec) = 9.29E-07
 h₀ (m) = 5
 h_p (m) = 2
 r (m) = 79.90

Equivalent Radius of Excavation = A+B=Pi + r
 Excavation Width (X) = 18 m
 Excavation Length (Y) = 233 m
 Perimeter Length = 502 m
 Equivalent Radius (r) = 79.90 m

R	Distance to edge of excavation (D)
80.90	1.00
81.90	2.00
82.90	3.00
83.90	4.00
84.90	5.00
85.90	6.00
86.90	7.00
87.90	8.00
88.90	9.00
89.90	10.00
90.90	11.00
91.90	12.00
92.90	13.00
93.90	14.00
94.90	15.00
95.90	16.00
96.90	17.00
97.90	18.00
98.90	19.00
99.90	20.00
100.90	21.00
101.90	22.00
102.90	23.00
103.90	24.00
104.90	25.00
105.90	26.00
106.90	27.00
107.90	28.00
108.90	29.00
109.90	30.00

Q (m ³ /s)	Q (m ³ /day)	Q (L/day)
0.0049	425.7	425,713
0.0025	214.2	214,172
0.0017	143.7	143,655
0.0013	108.4	108,394
0.0010	87.2	87,235
0.0008	73.1	73,128
0.0007	63.0	63,049
0.0006	55.5	55,489
0.0006	49.6	49,608
0.0005	44.9	44,903
0.0005	41.1	41,052
0.0004	37.8	37,842
0.0004	35.1	35,125
0.0004	32.8	32,796
0.0004	30.8	30,777
0.0003	29.0	29,009
0.0003	27.4	27,449
0.0003	26.1	26,062
0.0003	24.8	24,820
0.0003	23.7	23,703
0.0003	22.7	22,691
0.0003	21.8	21,771
0.0002	20.9	20,931
0.0002	20.2	20,160
0.0002	19.5	19,451
0.0002	18.8	18,795
0.0002	18.2	18,189
0.0002	17.6	17,625
0.0002	17.1	17,100
0.0002	16.6	16,610



APPENDIX 4

CITY OF OTTAWA - SALT MANAGEMENT PLAN - APPENDIX A - OCTOBER 171,
2011

City of Ottawa
Public Works and Services Department
Surface Operations Branch

**Salt Management Plan
Appendix A**

MATERIAL APPLICATION POLICY

CONTENT

Maintenance Quality Standards – Snow and Ice Control on Roads
 General Information
 Use of Liquid Chemicals
Material Application Guideline and Policy – Bare Pavement Roads
Material Application Guideline and Policy – Centre-Bare Roads
Material Application Guideline and Policy – Snow Packed Roads
Blast Policy

*The Surface Operations Branch District Managers, Area Managers
and Zone Supervisors have been consulted through
the development of this document.*

REVISION INFO

Rev	Date	By	Description
3.1	Jan 10 2007		
3.2	Oct 31 2011	D Vander Wal	<ul style="list-style-type: none">• Removed 50/50 mix per Dan O'Keefe.• Removed specific references to Sodium and Calcium Chloride as new product for 2011 is a Multi-Chloride Brine. Changed liquid application rate from 46 (6%) to 39L/tonne (5%).• Removed Dry and Wet salt rates for pavement temperatures below -18C.• Updated Epoke rates to match Appendix B and added wet rates to obtain 20% reduction when pre-wetting.• Removed separate rate table for Hwy 174 Epoke spreaders since the resulting lane-km rates are the same as other bare pavement.

COUNCIL APPROVED MAINTENANCE QUALITY STANDARDS

For snow clearing, resources are to be deployed and snow clearing completed as defined in the Table below. If the depth of snow accumulation is less than the minimum for deployment, then resources may be deployed subject to road conditions resulting from previous snow accumulations or from forecasted weather conditions.

For treating icy roads, resources are to be deployed as soon as practicable after becoming aware of the icy conditions. Icy roads are to be treated within the times defined in the Table below after becoming aware of the icy conditions.

MAINTENANCE QUALITY STANDARD SNOW AND ICE CONTROL ON ROADS						
Road Maintenance Class	Road Type	Minimum Depth of Snow Accumulation for Deployment of Resources <i>(Depth as per MMSMH)</i>	Time to Clear Snow Accumulation From the End of Snow Accumulation or Time to Treat Icy Conditions <i>(Time as per MMSMH)</i>	Treatment Standard		
				Bare Pavement	Centre-Bare	Snow Packed
1	A	High Priority Roads	2 h <i>(3-4 h)</i>	√		
	B			√		
2	A	Most Arterials	As accumulation begins <i>(2.5-8 cm depending on class)</i>	√		
	B			√		
3	A			Most Major Collectors	4 h <i>(8-12 h)</i>	√
	B	√				
4	A	Most Minor Collectors	5 cm <i>(8 cm)</i>	√		
	B				√	
	C					√
5	A, C	Residential Roads	7 cm <i>(10 cm)</i>			√
	B	and Lanes	10 cm <i>(not defined)</i>			√

Note - MMSMH refers to Ontario Regulation 239/02, Minimum Maintenance Standards for Municipal Highways shown for comparison purposes.

- **Bare Pavement:** requires that snow and ice be controlled, cleared and/or prevented for the full traveled road pavement width, including flush medians of 2 m width or less, paved shoulders and/or adjacent cycling lanes. It does not include parking lanes.
- **Centre-Bare:** requires that snow and ice be controlled, cleared and/or prevented in a strip down the middle of the road pavement width for a minimum width of 2.5 m on each side of centre-line.
- **Snow-Packed:** requires that snow and ice be cleared and that ruts and/or potholes that may cause poor vehicle control be leveled off. Abrasive or deicing materials are applied at intersections, hills and sharp curves.

LIQUID CHEMICALS

Application Rates and Reductions

USE OF LIQUID CHEMICALS					
Chemical	Use	Application Ratio	Chemical Concentration	Application Rate	Dry Salt Reduction
<i>CaCl</i> , <i>MgCl</i> , or <i>Multi-Chloride</i>	Pre-Wetting	5% by weight	Varies (28%-35%)	39L / t	20% ¹
<i>CaCl</i> , <i>MgCl</i> , or <i>Multi-Chloride</i>	Straight Liquid Application	N/A	Varies	60 to 100L/ lane-km	-

¹ The Epoke controller does not support setting a separate reduction percentage – the rate will only be reduced by the set liquid application ratio (5%).

Pre-Wetted Salt

- Pre-wetting salt is a recommended practice to enhance the performance of the road salt.
- When salt is pre-wet, the brine solution is formed quicker than dry salt and more material is retained on the road surface. It is the brine solution that prevents or breaks the bond between the road surface and snow/ice.
- The enhanced performance of the salt as well as the retention of salt on the road surface facilitates achieving a bare road more quickly and maintains bare pavement longer. As a result, a reduction in salt application rates can achieve the same effectiveness as dry salt application at traditional rates.

Practical temperature ranges for Pre-Wetted Salt (WET SALT)

- Sodium Chloride Brine (NaCl):
 - o From 0 to -9°C (0 to -12°C as per pre-wetting practices in urban areas)
- Calcium Chloride (CaCl₂), Magnesium Chloride (MgCl), and Multi-Chloride Brines with a minimum eutectic temperature of -30°C:
 - o From 0 to -15°C (0 to -18°C as per pre-wetting practices in urban areas)

Direct Liquid Applications (DLA)

- Anti-icing by Direct Liquid Application is a recommended practice to treat frost and black ice conditions in the shoulder seasons at pavement temperatures between 0 and -10°C.
- Liquid should be applied to treat forecasted conditions at the following rates:

Winter Event	Litres / LaneKm	mL / m ² (at 3m width)
Frost	60	20
Light Snow	60 to 80	25
Moderate to Heavy Snow, Freezing Rain	80 to 100	30

- DLA should be applied:
 - o As close to the beginning of the winter event as possible
 - o When the air and pavement temperatures are both below +5°C currently and forecasted to remain below +5°C within the next 12 hours.
 - o When the air and pavement temperatures are a minimum of 10°C above the eutectic temperature of the DLA liquid and forecasted to do so for the next 24 hours.
- DLA should NOT be applied:

- When the relative humidity is below 60% and the air and pavement temperatures are between 0°C and +5°C.
- More than once in a three-day period unless a Winter Event (frost, snow, freezing rain or rain) has removed the product from the pavement. Note that DLA liquid can remain on the pavement up to several days after the initial application.

GENERAL INFORMATION

When the Pavement Temperature is below –18°C

- Below –18°C, the salt melting action is close to none.
- Below –18°C, the use of salt shall be discontinued and replaced by an abrasive.
- Multiple factors can affect the performance of de-icing chemicals and abrasives below pavement temperature of –18°C. Under such conditions, supervisors shall select the most appropriate material based on the current and expected traffic volume, current and forecasted weather and road conditions.

Abrasives

- Accepted abrasives are Sand and Grit
- Straight abrasive does contain salt to prevent the stockpile from freezing. The goal is to minimize the amount of salt mixed with the abrasives. The objective is to use an engineered abrasive of 5% salt / 95% sand or grit by volume. The following interim abrasive ratios are accepted (where the engineered ratio cannot be achieved due to equipment and material storage constraints)
 - 10% salt / 90% sand or grit by volume

Rush Hours and Forecasted Conditions

- Supervisors are responsible for making timely material application calls based on forecasted conditions and expected traffic peak hours.

Freezing Rain

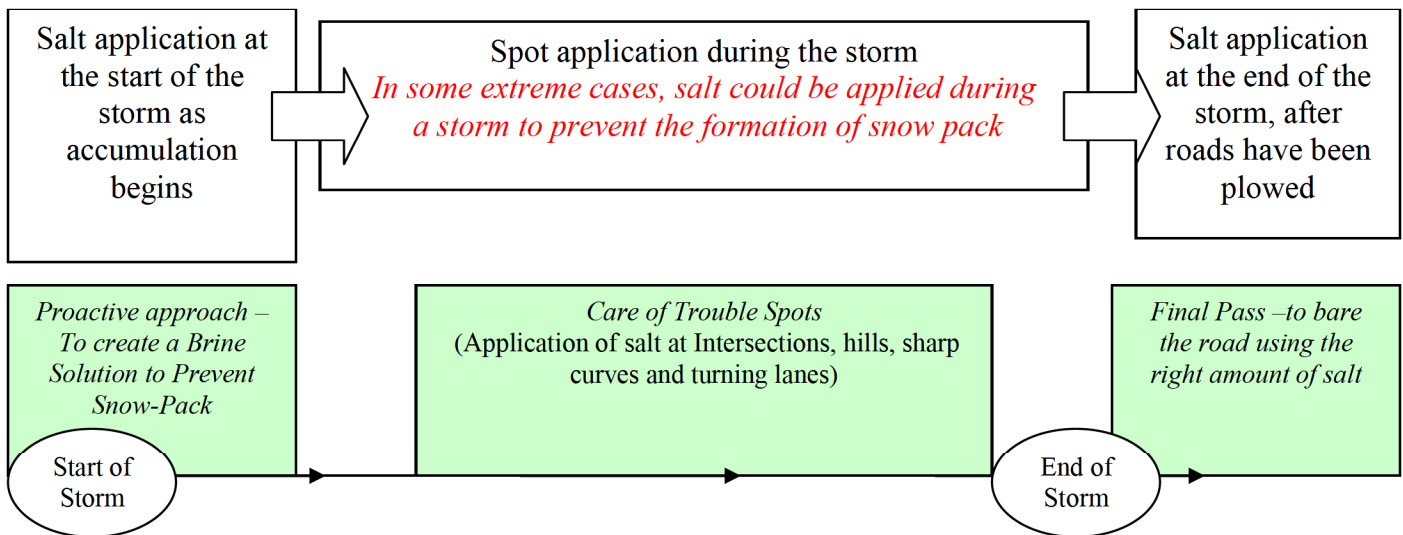
- When Freezing Rain occurs, abrasive materials (sand or grit) will be applied on snow packed roads on a continuous basis (to the full Road Width).
- Snow Packed Roads – where available, graders with ice blades shall drag the roads to aid traction.

MATERIAL APPLICATION POLICY					
BARE PAVEMENT					
Pavement Temperature °C	Material	Frost and Black Ice Kg/2-lane km	Light Snow <1cm/hr Kg/2-lane km	Heavy Snow >1cm/hr Kg/2-lane km	Freezing Rain Kg/2-lane km
0 to -5°C	DRY SALT	70	100	140	230
	WET SALT	55	80	110	185
-5 to -10°C	DRY SALT	85	140	180	230
	WET SALT	70	110	145	185
-10 to -18°C	DRY SALT	85	180	230	230
	WET SALT	70	145	185	185
< -18°C*	ABRASIVE	350	350	350	-

* Refer to the General Information Section for additional information when the Pavement Temperature is below -18°C. When forecasted warming conditions are expected, dry/wet rates of 180/145, and 230/185 may provide some baring-off benefit.

* Note: Use wet rates where pre-wetting capable spreaders and liquid supply is available.

Timing of Application – BARE PAVEMENT ROADS



Start of the Storm
Salt shall be spread just at the beginning of the icy precipitation.

End of Storm
Salt shall not be spread once bare pavement is achieved and when no further precipitation is forecasted.

MATERIAL APPLICATION POLICY BARE PAVEMENT (EPOKE SPREADERS)									
Pavement Temperature °C	Material	Frost and Black Ice		Light Snow <1cm/hr		Heavy Snow >1cm/hr		Freezing Rain	
		g/m ²	Width	g/m ²	Width	g/m ²	Width	g/m ²	Width
0 to -5°C	DRY Salt (WET Salt)*	70kg/2ln-km		100kg/2ln-km		140kg/2ln-km		230kg/2ln-km	
		35 (30)	2m	50 (43)	2m	70 (60)	2m	115 (98)	2m
		23 (20)	3m	35 (30)	3m	45 (38)	3m	77 (65)	3m
		17 (14)	4m	23 (20)	4m	35 (30)	4m	58 (49)	4m
		17 (14)	5m	20 (17)	5m	28 (24)	5m	45 (38)	5m
-5 to -10°C	DRY Salt (WET Salt)*	85kg/2ln-km		140kg/2ln-km		180kg/2ln-km		230kg/2ln-km	
		45 (38)	2m	70 (60)	2m	90 (77)	2m	115 (98)	2m
		28 (24)	3m	45 (38)	3m	58 (49)	3m	77 (65)	3m
		20 (17)	4m	35 (30)	4m	45 (38)	4m	58 (49)	4m
		17 (14)	5m	28 (24)	5m	35 (30)	5m	45 (38)	5m
-10 to -18°C	DRY Salt (WET Salt)*	85kg/2ln-km		180kg/2ln-km		230kg/2ln-km		230kg/2ln-km	
		45 (38)	2m	90 (77)	2m	115 (98)	2m	115 (98)	2m
		28 (24)	3m	58 (49)	3m	77 (65)	3m	77 (65)	3m
		20 (17)	4m	45 (38)	4m	58 (49)	4m	58 (49)	4m
		17 (14)	5m	35 (30)	5m	45 (38)	5m	45 (38)	5m
< -18°C†	ABRASIVE	350kg/2ln-km		350kg/2ln-km		350kg/2ln-km		-	
		175	2m	175	2m	175	2m	-	-
		115	3m	115	3m	115	3m	-	-
		88	4m	88	4m	88	4m	-	-
		70	5m	70	5m	70	5m	-	-

* When the pre-wetting system is engaged, the dry material output is reduced. The Epoke controller does not support setting a separate reduction percentage – the rate is only reduced by the set liquid application ratio (5%). Material 2 was therefore configured with rates reduced by 15%.

* Use wet rates where pre-wetting capable spreaders and liquid supply is available.

† Refer to the General Information Section for additional information when the Pavement Temperature is below -18°C. When forecasted warming conditions are expected, dry/wet rates of 180/145, and 230/185 may provide some baring-off benefit.

Notes

There are 2 variables affecting the material output on an Epoke salt spreader:

-Material Application Rate in **g/m²** AND Application Width in **m**.

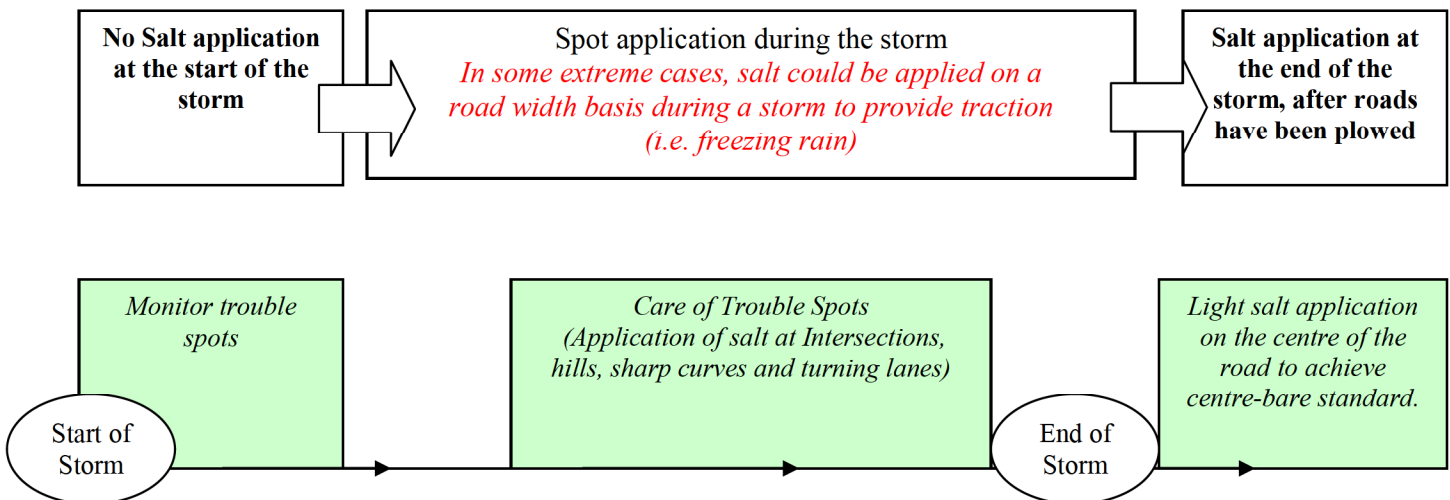
Examples:

- 1- For a rate of 100kg/2ln-km, the Epoke Setup would be 25g/m² at a Width of 4m. OR a rate of 50g/m² at a Width of 2m.
- 2- For a rate of 170kg/2ln-km, the Epoke Setup would be 42g/m² at a Width of 4m. OR a rate of 57g/m² at a Width of 3m.

MATERIAL APPLICATION POLICY CENTRE-BARE PAVEMENT				
Pavement Temperature °C	Material	Frost and Black Ice	Snow	Freezing Rain
		<i>Kg/2-lane km</i>	<i>Kg/2-lane km</i>	<i>Kg/2-lane km</i>
0 to -5°C	DRY SALT	70	100	230
	WET SALT	55	80	185
-5 to -18°C	DRY SALT	85	140	230
	WET SALT	70	110	185
< -18°C	ABRASIVE	350	350	-

Note: Use wet rates where pre-wetting capable spreaders and liquid supply is available.

Timing of Application – CENTRE-BARE PAVEMENT ROADS



Start of the Storm

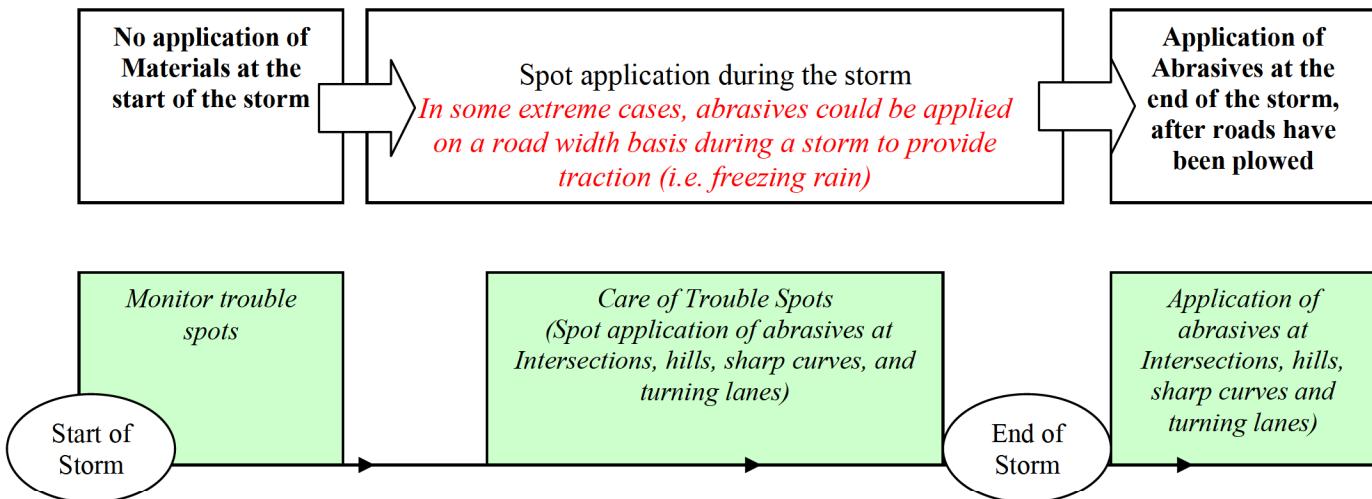
No Salt application at the start of the storm. Monitor trouble spots.

End of Storm

Salt shall not be spread once centre-bare pavement is achieved and when no further precipitation is forecasted.

MATERIAL APPLICATION POLICY (Intersections, Hills and Sharp Curves) SNOW PACKED				
Pavement Temperature °C	Material	Frost and Black Ice <i>Kg/2-lane km</i>	Snow <i>Kg/2-lane km</i>	Freezing Rain <i>Kg/2-lane km</i>
0 to -30°C and below	ABRASIVE	350	350	500

Timing of Application – SNOW PACKED ROADS



Start of the Storm

No application of abrasives at the start of the storm. Monitor trouble spots.

End of Storm

Abrasives shall not be spread once traction is provided.

BLASTING POLICY

The On-Board Electronic Controller's Blast function is an important tool for roadway de-icing operations. It allows operational staff to timely increase the amount of spread material at trouble locations such as steep hills and sharp curves. Although the blast function is indispensable, it should be used with care as its liberal use can lead to significant increases in salt consumption and environmental impacts.

- Supervisory staff shall work toward minimizing the amount of salt being spread using the Blast function to achieve the required maintenance quality standard.
- Many variables come into play during a winter weather event. As such, the call to allow the use of the Blast Function during a winter event is left to the judgment of the supervisory staff, as the first priority is the safety of the traveling public.

The Blast function shall only be used at the following locations:

- Steep Hills
- Elevated Curves
- Intersections (within 30m of the stop line on the approach side only)
- Shade areas
- Right and Left Turning Lanes
- Bus Bays
- Railways (within 30m of the railway crossing on the approach side only)
- Bridge Decks

Caution: when blasting salt on a bridge deck. Rock salt needs heat to dissolve. Spreading salt on a bridge deck could lower its surface temperature to a point where the brine solution will refreeze.

Application:

- The Blast function shall only be used under severe winter conditions
- The Blast function shall not be used during light winter weather events such as light snow, frost, etc.
- The blast function shall not be used while clearing the roads (stripping) at the end of a storm.

On-Board Electronic Controller's Blast function

- The Epoke controllers will blast at the highest material calibration setting.
- The CS-230 controller will blast to its maximum hydraulic power (which can be adjusted if too high)
- The CS-440 controller can be calibrated at a defined Blast rate for each material.
 - o The Blast Rate for Salt is to be set at 300kg/2 lane-km
 - o The Blast Rate for Abrasive is to be set at 500kg/2 lane-km. Note: Suburban/Rural District has a requirement to Blast Abrasives on gravel roads at a rate of 700kg/2 lane-km. To achieve this rate, the spreaders need to be calibrated using two gate settings. The District will provide, every fall, a list of spreaders requiring this specific calibration.

APPENDIX 5

SURROUNDING WATER WELL RECORDS

316/52



GROUND WATER BRANCH
SEP 15 1962
ONTARIO WATER RESOURCES COMMISSION

2176

UTM 1182 4537610 E

15R 561175610 N

The Ontario Water Resources Commission Act

Elev: 4R 03115

WATER WELL RECORD

Basin 251 CARLETON

Township, Village, Town or City FLORESTER

Con. HRF Lot 21

Date completed 20 JULY 62
(day month year)

Address BILLINGS BRIDGE

Casing and Screen Record

Inside diameter of casing 1 1/4
Total length of casing 18
Type of screen -
Length of screen -
Depth to top of screen -
Diameter of finished hole 4

Pumping Test

Static level 6
Test-pumping rate 6 G.P.M.
Pumping level 8
Duration of test pumping 1 HR
Water clear or cloudy at end of test CL
Recommended pumping rate 6 G.P.M.
with pump setting of 30 feet below ground surface

Well Log

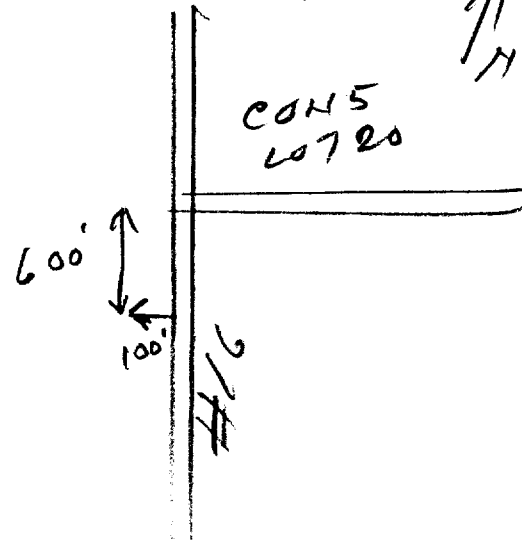
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
CLAY	0	18		
Limestone	18	45	45	F

For what purpose(s) is the water to be used? Home
Is well on upland, in valley, or on hillside? U
Drilling or Boring Firm M MEDSTER
Address 6100
Licence Number 612
Name of Driller or Borer SIMME
Address
Date AUG 28
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



316/52

767
UTM 118Z 45312710 E
Rideau Front
5R 507710810 N
Elev. 4R 03310
Basin 25 21



15 No 2177

The Water-well Drillers Act, 1954
Department of Mines

GROUND WATER BRANCH
MAY 20 1957
ONTARIO WATER RESOURCES COMMISSION

Water-Well Record

County or Territorial District Carleton Township, Village, Town or City Gloucester
in Village, Town or City
Address 40 Lawrence St Ottawa

(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter (s) 2"
Length (s) 21
Type of screen
Length of screen

Static level 6
Pumping rate 800 G.P.H
Pumping level 25 ft
Duration of test 2 hr

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Sand</u>	<u>0</u>	<u>7</u>	<u>60</u>	<u>54</u>	<u>Fresh</u>
<u>Boulders and Sand</u>	<u>17</u>	<u>20</u>			
<u>Wk Sand stone</u>	<u>20</u>	<u>60</u>			

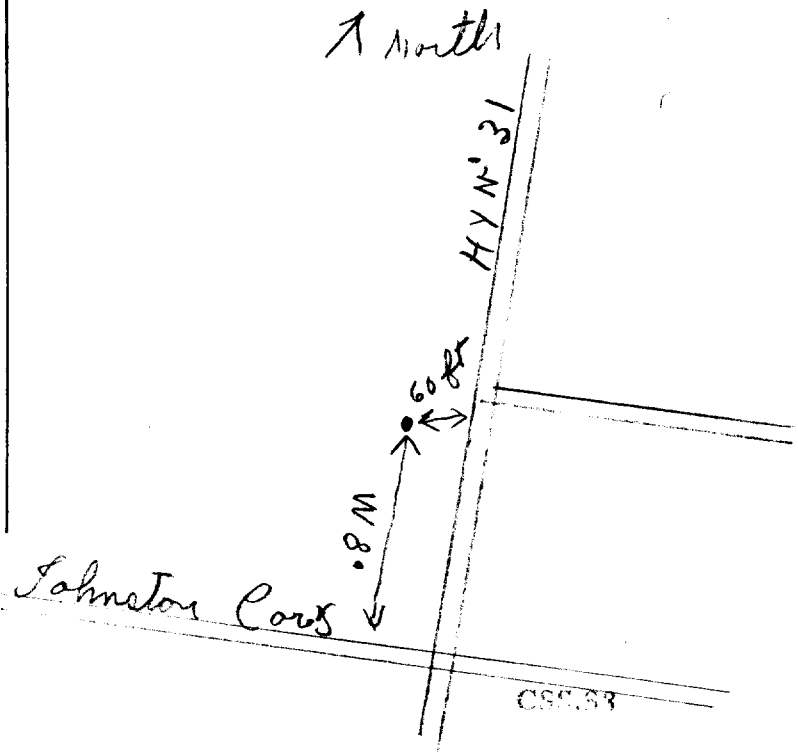
For what purpose(s) is the water to be used? House
Is water clear or cloudy? clear
Is well on upland, in valley, or on hillside? Upland
Drilling firm L. R. Corsette
Address 1252 Base Line Rd Cityville
Name of Driller L. R. Corsette
Address
Licence Number 395

I certify that the foregoing statements of fact are true.

Date May 17/57 L. R. Corsette
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



316/52

UTM | 118 | Z | 453070 | E

| 9 | R | 5016990 | N

Elev. | 9 | R | 0 | 30 | 3 | 4

Basin | 2 | 5 | | | |

Con IV
10 + 22



ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

15
GAPD NO 2478
AUG 19 1957
ONTARIO WATER
RESOURCES COMMISSION

Water-Well Record

County or Territorial District Carleton Township, Village, Town or City Gloucester

in Village, Town or City

Address Belling Bridge

(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 23 feet
Type of screen 1
Length of screen

Static level 13
Pumping rate 240 gal PH
Pumping level 50 feet
Duration of test 1 hour

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>hard gravel</u>			<u>48 feet</u>	<u>37'</u>	<u>fresh</u>
<u>Clay & Sand & boulders</u>	<u>0</u>	<u>18</u>			<u>tracy hard</u>
<u>Very hard limestone</u>	<u>18</u>	<u>50</u>			
<u>Stone Rock</u>					

For what purpose(s) is the water to be used?
house hold use only

Is water clear or cloudy? Clear

Is well on upland, in valley, or on hillside?
uplands

Drilling firm

Address

Name of Driller James Kettle

Address Parrissville

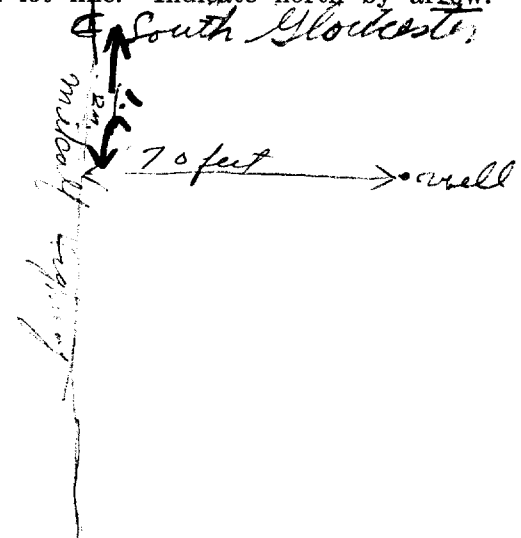
Licence Number 337

I certify that the foregoing statements of fact are true.

Date Aug 5 James Kettle
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



N
V

4p

316/5a



GROUND WATER BRANCH
15 No.
SEP 5 1962
ONTARIO WATER RESOURCES COMMISSION

2181

UTM 118^Z 41513181010^E

5^R 510117151310^N

The Ontario Water Resources Commission Act

Elev. 4^R 03115

WATER WELL RECORD

Basin 25 CHARLETON
County or District

Township, Village, Town or City GLoucester

Con. 4RF Lot 2122

Date completed 26 JULY 62
(day month year)

Address BILLINGS BRIDGE

Casing and Screen Record

Inside diameter of casing 4
Total length of casing 21
Type of screen -
Length of screen -
Depth to top of screen -
Diameter of finished hole 4

Pumping Test

Static level 8
Test-pumping rate 5 G.P.M.
Pumping level 10
Duration of test pumping 1 HR
Water clear or cloudy at end of test CC
Recommended pumping rate 5 G.P.M.
with pump setting of 30 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>CLAY</u>	<u>0</u>	<u>21</u>		
<u>Limestone</u>	<u>21</u>	<u>46</u>	<u>46</u>	<u>F</u>

For what purpose(s) is the water to be used? Home

Is well on upland, in valley, or on hillside? ✓

Drilling or Boring Firm MMEACHER

Address OTTAWA

Licence Number 618

Name of Driller or Borer SDME

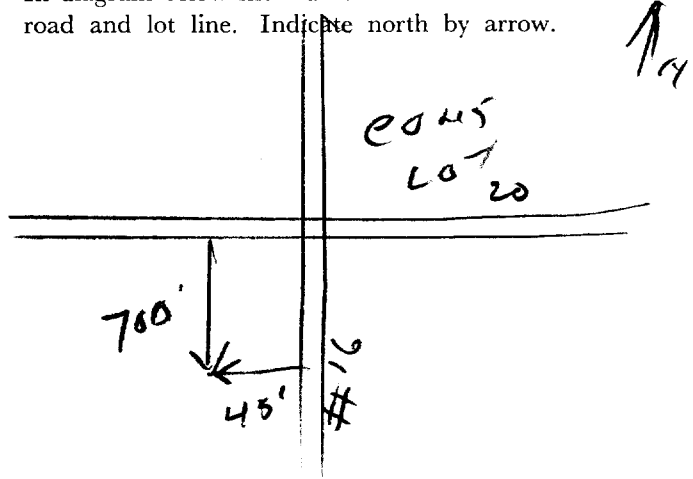
Address

Date 0324

Mmeacher
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



316/52



GROUND WATER BRANCH
JUN 1 1962
15 N. 2
ONTARIO WATER RESOURCES COMMISSION

UTM 18 4527810 E

5 R 5015910 N

The Ontario Water Resources Commission Act

Elev. 4 R 0347

WATER WELL RECORD

Basin 25 Carleton
County or District

Township, Village, Town or City Gloucester

Con IV R.E Lot 23

Date completed 9 May 1962
(day month year)

Address 10 McRostie & Associates OTTAWA

Casing and Screen Record

Inside diameter of casing 6 5/8"
Total length of casing 37'
Type of screen none
Length of screen —
Depth to top of screen —
Diameter of finished hole 6 1/2"

Pumping Test

Static level 7'
Test-pumping rate 100 G.P.M.
Pumping level 15'
Duration of test pumping 24 hrs
Water clear or cloudy at end of test clear
Recommended pumping rate 100 G.P.M.
with pump setting of 15 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
(SANDY loam	0	3		
Fine Sand	3	36		
sandstone	36	51	47	Fresh

For what purpose(s) is the water to be used? RACE TRACK
Domestic & Other Uses

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm McLean Water Supply Ltcl.

Address 1532 Raven Ave
OTTAWA ONT.

Licence Number 196

Name of Driller or Borer H. Sally

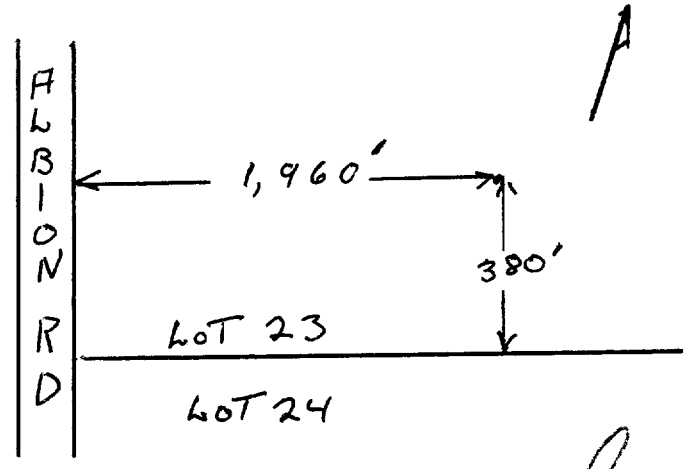
Address

Date May 10, 1962

C.D. McLean
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



310/52



ONTARIO

The Well Drillers Act
Department of Mines, Province of

RECEIVED
DEC 12 1952
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

No. 185

UTM 118Z 415411310E

9R 570116121810N

Elev. 9R 03810
Hidden from

Basin 215

Lot - 24

Water Well Record

County or District Corkton Tp. Gloucester Con. RE Lot 24 Pt. Lot

Acres
including pump)

Pipe and Casing Record

Pumping Test

Casing diameter(s) <u>5 in</u>	Date
Length(s) of casing(s) <u>18 feet</u>	Developed Capacity
Length of screen	Duration of Test <u>1 hour</u>
Type of screen	Pumping Rate <u>200 P.M.</u>
Type of pump	Drawdown <u>22 feet</u>
Capacity of pump	Static level of completed well <u>14 feet</u>
Depth of pump setting	Is well a gravel-wall type?

Water Record

Kind (fresh or mineral) <u>fresh</u>	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
Quality (hard, soft, contains iron, sulphur etc.) <u>hard</u>	<u>24 feet</u>	<u>fresh</u>	<u>42</u>
Appearance (clear, cloudy, coloured) <u>clear</u>	<u>56'</u>		
For what purpose(s) is the water to be used? <u>house</u>			
How far is well from possible source of contamination? <u>30 feet</u>			
What is source of contamination? <u>septic</u>			
Enclose a copy of any mineral analysis that has been made of water			

Well Log

Drift and Bedrock Record

From	To
0 ft.ft.

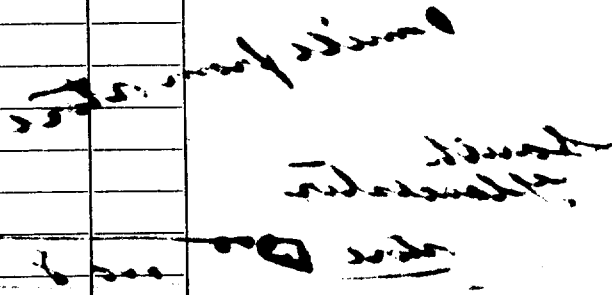
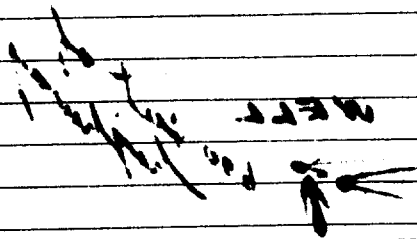
Loam

0 18

gray sand

18 38

56.6
(R)



(over)

Situation: Is well on upland, in valley, or on hillside? hill

Drilling Firm Chunij

Address

Recorded by W. G. Chunij Address Bar

Date Dec 8 Licence Number 365

A 861

316/52

OW

UTM 182 4542110 E

SR 5016440 N

Elev. 4R 0384

Basin 25

Lot 24



RECEIVED

JAN 22 1957

15 No 2186

GEOLOGICAL BRANCH
DEPARTMENT OF MINES

The Water-well Drillers Association
Department of Mines

Water-Well Record

County or Territorial District Carleton Place Township, Village, Town or City Carleton Place

Village, Town or City Carleton Place

Address Bellings Bridge

(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4 inch
Length(s) 16 feet
Type of screen
Length of screen

Static level 8 feet
Pumping rate 219 gal PER-HR
Pumping level 8 feet
Duration of test 1 hr

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Black loam</u>				<u>62 feet</u>	<u>fresh</u>
<u>red soil boulders</u>	<u>0</u>	<u>6</u>			
<u>Black hard limestone</u>	<u>6</u>	<u>35</u>	<u>33 feet</u>		
<u>hard grey limestone</u>	<u>35</u>	<u>60</u>			
<u>DOLOMITE</u>	<u>60</u>	<u>70</u>	<u>70</u>		

For what purpose(s) is the water to be used?
house & use

Is water clear or cloudy? clear

Is well on upland, in valley, or on hillside? valley

Drilling firm

Address

Name of Driller James Kettle

Address Carleton Place

Licence Number 537

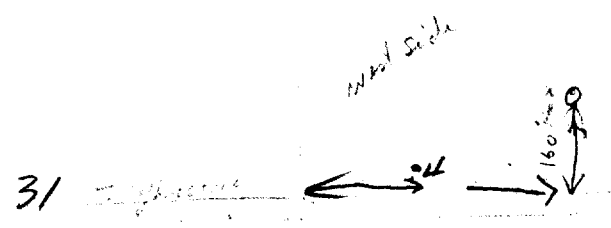
I certify that the foregoing statements of fact are true.

Date Dec 20 James Kettle
Signature of Licensee

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.

JOHNSON'S CORPS



316/50.



GROUND WATER BRANCH
 JUN 15 1962 No. 2189
 ONTARIO WATER RESOURCES COMMISSION

NTM 1182 4526210E

5R 50156110N

The Ontario Water Resources Commission Act

WATER WELL RECORD

Elev. 4R 0365

Basin 215 | Carleton

Township, Village, Town or City Gloucester

Con. IV RF Lot 24

Date completed 25 April 1962
(day month year)

Address 90 McBRIDE ASSOCIATES
OTTAWA

Casing and Screen Record

Inside diameter of casing 6 5/8"
 Total length of casing 51'
 Type of screen none
 Length of screen —
 Depth to top of screen —
 Diameter of finished hole 6 1/2"

Pumping Test

Static level 30'
 Test-pumping rate 8 G.P.M.
 Pumping level 43'
 Duration of test pumping 4 hrs
 Water clear or cloudy at end of test cloudy
 Recommended pumping rate 8 G.P.M.
 with pump setting of 43' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
sandy loam	0	3		
gravel & boulders	3	47		
sandstone	47	60	60	Fresh

For what purpose(s) is the water to be used? RACETRACK
Domestic & Other uses

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm Mcbean Water Supply Ltd.

Address 1532 Raven Ave
OTTAWA

Licence Number 196

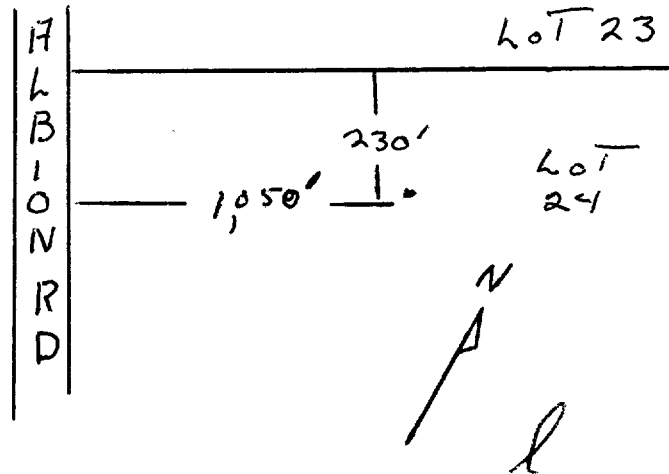
Name of Driller or Borer H. Sally

Date May 10, 1962

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



31G/52



WATER RESOURCES
DIVISION
15 No 2250
JAN 19 1965
ONTARIO WATER
RESOURCES COMMISSION

UTM 118Z 4541110E

Ridgeway Front 50
5R 501169210N

The Ontario Water Resources Commission Act

Elev. 4R 03413
Lot 23

WATER WELL RECORD

Basin 25 | Curleton

Township, Village, Town or City Gloucester

Con. V R F Lot 23

Date completed 14 Dec 1964
(day month year)

Address Box 254 RRG, Ottawa

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 10'
Type of screen none
Length of screen —
Depth to top of screen —
Diameter of finished hole 5"

Pumping Test

Static level 20'
Test-pumping rate 4 G.P.M.
Pumping level 65'
Duration of test pumping 1 1/2 hrs
Water clear or cloudy at end of test cloudy
Recommended pumping rate 4 G.P.M.
with pump setting of 75 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
loam	0	2		
Hard Sandstone	2	65		
Red Granite	65	79	60-79	fresh

For what purpose(s) is the water to be used?

house

Is well on upland, in valley, or on hillside? hillside

Drilling or Boring Firm

McLean Water Supply Ltd

Address 1532 Raven Ave

Ottawa

Licence Number 1328

Name of Driller or Borer H. Sally

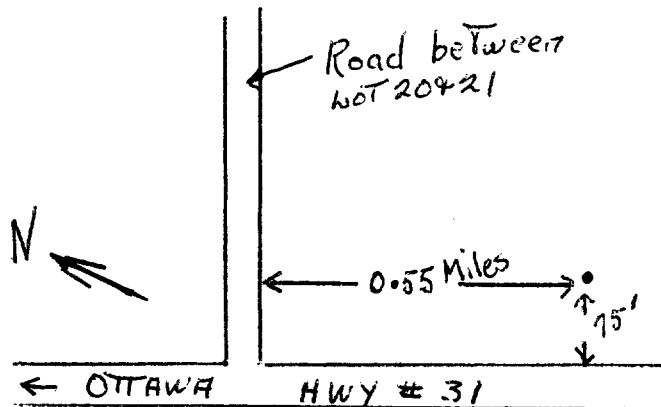
Address

Date Dec 17, 1964

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



316/52

UTM 118Z 4543510E

SR 5101164310N



15 No 2252

GROUND WATER BRANCH

FEB 23 1961

ONTARIO WATER RESOURCES COMMISSION

Elev. 4R 031916

The Ontario Water Resources Commission Act, 1957

Basin 213 124

WATER WELL RECORD

County or District Carleton Township, Village, Town or City Gloucester
 Date completed October 31st, 1960
 Address R.R. No 4, Ottawa Ont.

Casing and Screen Record

Inside diameter of casing 6"
 Total length of casing 18'
 Type of screen -
 Length of screen -
 Depth to top of screen -
 Diameter of finished hole 100'

Pumping Test

Static level 32'
 Test-pumping rate 690 G.P.M.
 Pumping level 90'
 Duration of test pumping 1 hour
 Water clear or cloudy at end of test cloudy
 Recommended pumping rate 5 G.P.M.
 with pumping level of 90'

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
<u>Shaly Limestone</u>	<u>0</u>	<u>22</u>	<u>94</u>		<u>fresh</u>
<u>Shaly Limestone</u>	<u>22</u>	<u>100</u>	<u>98</u>	<u>68'</u>	<u>fresh</u>

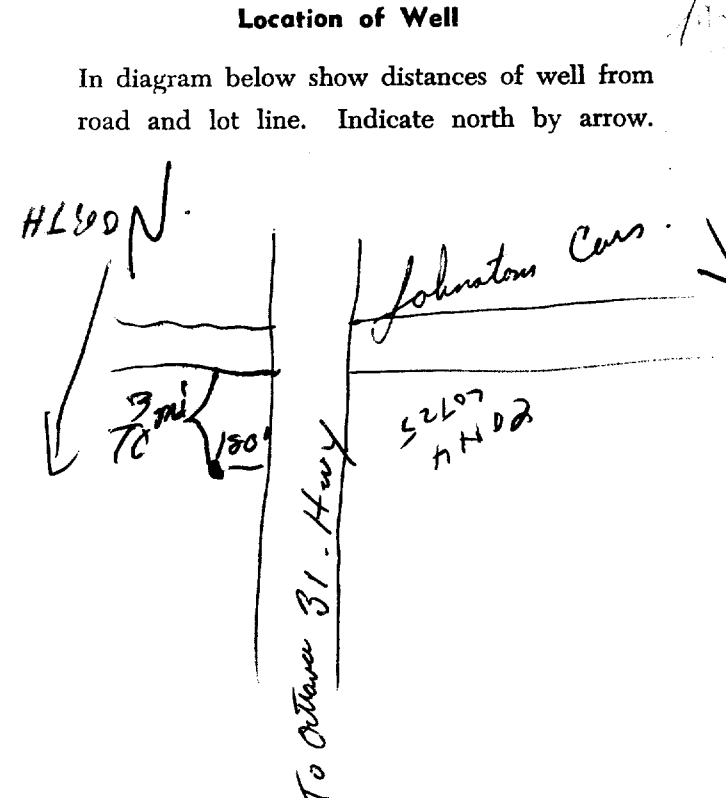
For what purpose(s) is the water to be used?
irrigation

Is well on upland, in valley, or on hillside?
Upland

Drilling Firm J.E. Johnston Drilling Co. Ltd.
 Address 1348 Bank St. Ottawa Ontario

Licence Number 470
 Name of Driller B. Glad
 Address Kars Ontario

Date Feb 20, 1961
J.E. Johnston Drilling
 (Signature of Licensed Drilling Contractor)
On Day W. Henderson



W Rideau front 31G/50



SURFACE WATER BRANCH
FEB 15 1963
ONTARIO WATER RESOURCES COMMISSION

2254

UTM 18 454320 E

5 R 5016669 N The Ontario Water Resources Commission Act

Elev. 4 R 0380

WATER WELL RECORD

Basin 25 | LORRAINE

Township, Village, Town or City FLORESTER

Con. 5 RF Lot 24

Date completed 7 JAN 63
(day month year)

Address S. FLORESTER

Casing and Screen Record

Inside diameter of casing 4

Total length of casing 12

Type of screen -

Length of screen -

Depth to top of screen -

Diameter of finished hole 4

Pumping Test

Static level 9

Test-pumping rate 3 G.P.M.

Pumping level 12

Duration of test pumping 1 hr

Water clear or cloudy at end of test CLEAR

Recommended pumping rate 3 G.P.M.

with pump setting of 70 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	Kind of water (fresh, salty, sulphur)
LORRAINE	0	10		
Limestone	10	75	70	F

For what purpose(s) is the water to be used?

GREENHOUSE

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm

M. McNEIGH

Address

STANWAP

Licence Number 618

Name of Driller or Borer

S. McNEIGH

Address

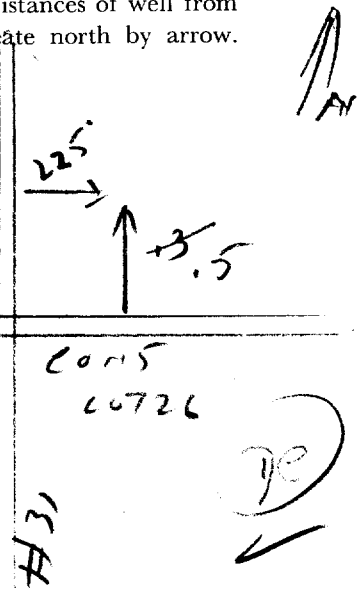
Date

FEB 8/63

(Signature of M. McNeigh)
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.

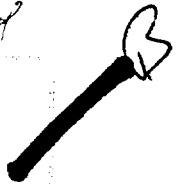




672

9622

3/5/52



APR 2 1968

The Ontario Water Resources Commission Act

WATER WELL RECORD

108 - 4541310
4R 5R 116640
5R 0365
25

County or District Carleton
R.F. Lot 23

Township, Village, Town or City Gloucester

Date completed 05 Aug. 1968
(day month year)

Address Manotick Ont.

Casing and Screen Record

Inside diameter of casing 4 inch
Total length of casing 79
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 4 inch

Pumping Test

Static level 30
Test-pumping rate 10 G.P.M.
Pumping level 35
Duration of test pumping 30 min.
Water clear or cloudy at end of test cloudy
Recommended pumping rate 4 G.P.M.
with pump setting of 30 feet below ground surface

Well Log

Overburden and Bedrock Record

Sandy soil
Brown sand and gravel
grey limestone

From ft.

To ft.

Depth(s) at which water(s) found

Kind of water (fresh, salty, sulphur)

0

3

~~30~~

fresh

3

60

80

60

~~79~~

79

82

For what purpose(s) is the water to be used?

new house

Is well on upland, in valley, or on hillside? upland

Drilling or Boring Firm Maurice Cayer

Address Carleton Place Ont.

Licence Number 2911

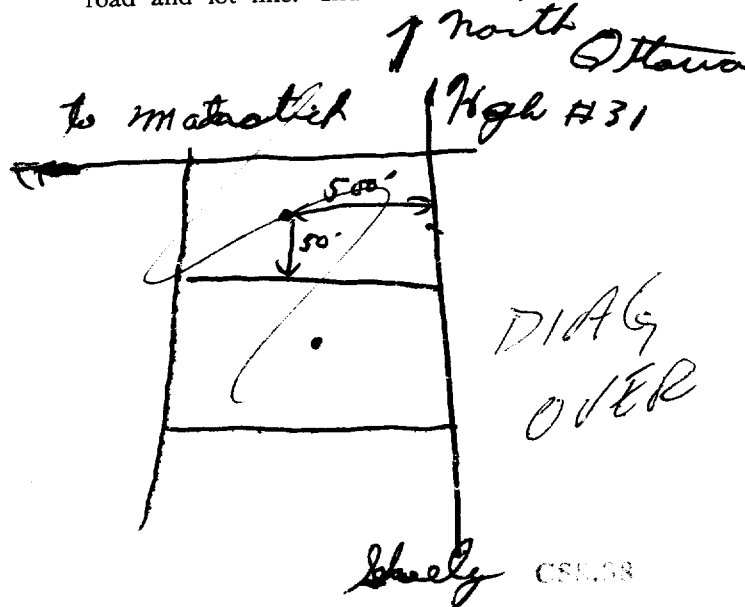
Name of Driller or Borer

Address 51 August 1968

Date 51 August 1968
Maurice Cayer
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.





The Ontario Water Resources Commission Act

WATER WELL RECORD

31 G/5a

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11
1 2

1510717

MUNICIP.

15000

CON.

RF

023

COUNTY OR DISTRICT

CARLETON

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

GLoucester

CON., BLOCK, TRACT, SURVEY, ETC.

9

DATE COMPLETED

DAY 15 MO. 11th YR. 70

31 HIGHWAY KEITRUM

16920

4

ELEVATION 0342

4

25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	RUBBLE	(FILLED IN LOT TO HIGHWAY GRADE)		0	6
GREY	LIMESTONE			6	52

31

0000012

0052215

41

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
20-23	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
25-28	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
66	<input checked="" type="checkbox"/> STEEL	188	0	20
64	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input type="checkbox"/> OPEN HOLE			
	<input type="checkbox"/> STEEL			
	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input checked="" type="checkbox"/> OPEN HOLE			
	<input type="checkbox"/> STEEL			
	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH

61 PLUGGING & SEALING RECORD

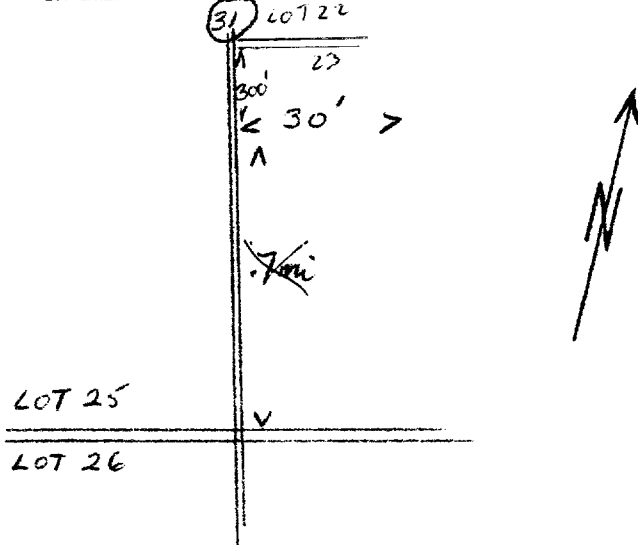
DEPTH SET AT - FEET	MATERIAL AND TYPE
10-13	14-17
18-21	22-25
26-29	30-33

71

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
<input checked="" type="checkbox"/> PUMP	0006 GPM.	22 HOURS 00 MINS.
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
007 FEET	015 FEET	15 MINUTES: 007 FEET
		30 MINUTES: 007 FEET
		45 MINUTES: 007 FEET
		60 MINUTES: 007 FEET
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input checked="" type="checkbox"/> SHALLOW	040 FEET	0005 GPM.

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.



DRILLERS REMARKS:

FINAL STATUS OF WELL	WATER USE	METHOD OF DRILLING
<input checked="" type="checkbox"/> WATER SUPPLY	<input checked="" type="checkbox"/> DOMESTIC	<input checked="" type="checkbox"/> CABLE TOOL
<input type="checkbox"/> OBSERVATION WELL	<input type="checkbox"/> STOCK	<input type="checkbox"/> ROTARY (CONVENTIONAL)
<input type="checkbox"/> TEST HOLE	<input type="checkbox"/> IRRIGATION	<input type="checkbox"/> ROTARY (REVERSE)
<input type="checkbox"/> RECHARGE WELL	<input type="checkbox"/> INDUSTRIAL	<input type="checkbox"/> ROTARY (AIR)
	<input type="checkbox"/> OTHER	<input type="checkbox"/> AIR PERCUSSION
		<input type="checkbox"/> BORING
		<input type="checkbox"/> DIAMOND
		<input type="checkbox"/> JETTING
		<input type="checkbox"/> DRIVING

CONTRACTOR	LICENCE NUMBER
W. MOKOUGHNEY	3701
1110 FISHER	
W. MOKOUGHNEY	
SUBMISSION DATE	
DAY 11 MO. FEB YR. 71	

DATA SOURCE	CONTRACTOR	DATE RECEIVED
1	3701	230271
DATE OF INSPECTION	INSPECTOR	
REMARKS:		

OWRC COPY



The Ontario Water Resources Commission Act WATER WELL RECORD

316/50

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

MUNICIP. 11 1512265 15002 RF 05
CON. 10 14 15 22 23 24

COUNTY OR DISTRICT Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Gloucester
BLOCK, TRACT, SURVEY, ETC. 5 RF LOT 25-27

OWNER (SURNAME FIRST) [REDACTED] ADDRESS [REDACTED] DATE COMPLETED 11-11-72
DAY 24 MO. Nov. YR. 72

PH. 0117050 RC. 4 ELEVATION 9336 RC. A BASIN CODE 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Clay	Sand & Stones	Sandy Clay & Stones	0	3
			Med. gray limestone	3	48

31 0003652812 0048215
32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER			
10-13	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
15-18	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
20-23	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
25-28	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	<input checked="" type="checkbox"/> STEEL			
12	<input type="checkbox"/> GALVANIZED			
13-16	<input type="checkbox"/> CONCRETE			
17-18	<input type="checkbox"/> OPEN HOLE	.250	0+6"	12+6"
19	<input type="checkbox"/> STEEL			
20-23	<input type="checkbox"/> GALVANIZED			
24-25	<input type="checkbox"/> CONCRETE			
26	<input type="checkbox"/> OPEN HOLE			
27-30	<input type="checkbox"/> STEEL			
31	<input type="checkbox"/> GALVANIZED			
32	<input type="checkbox"/> CONCRETE			
33	<input type="checkbox"/> OPEN HOLE			

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)	
	FROM	TO
10-13		14-17
18-21		22-25
26-29		30-33

PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
<input checked="" type="checkbox"/> PUMP	0008 GPM	01 HOURS 00 MINS.
2 <input type="checkbox"/> BAILER		

WATER LEVELS DURING			
15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
004 FEET	004 FEET	004 FEET	004 FEET

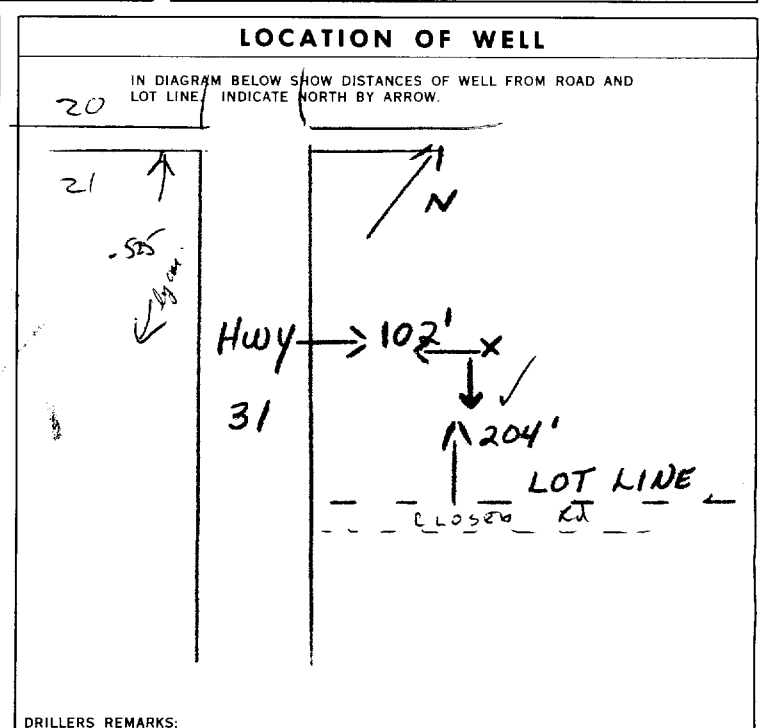
IF FLOWING, GIVE RATE: 4.8 GPM

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 030 FEET

RECOMMENDED PUMPING RATE: 0008 GPM.

50-53 000.2 GPM./FT. SPECIFIC CAPACITY



FINAL STATUS OF WELL

1 WATER SUPPLY
2 OBSERVATION WELL
3 TEST HOLE
4 RECHARGE WELL
5 ABANDONED, INSUFFICIENT SUPPLY
6 ABANDONED, POOR QUALITY
7 UNFINISHED

WATER USE

1 DOMESTIC STOCK
2 IRRIGATION
3 INDUSTRIAL
4 OTHER
5 COMMERCIAL
6 MUNICIPAL
7 PUBLIC SUPPLY
8 COOLING OR AIR CONDITIONING
9 NOT USED

METHOD OF DRILLING

1 CABLE TOOL
2 ROTARY (CONVENTIONAL)
3 ROTARY (REVERSE)
4 ROTARY (AIR)
5 AIR PERCUSSION
6 BORING
7 DIAMOND
8 JETTING
9 DRIVING

NAME OF WELL CONTRACTOR: F. E. Johnston Drilling Co. LICENCE NUMBER: 3002
ADDRESS: P.O. Box 4134 Stn "E" Ottawa, Ont.
NAME OF DRILLER OR BORER: [Signature]
SUBMISSION DATE: DAY _____ MO _____ YR _____

DATA SOURCE: 1 CONTRACTOR: 3002 DATE RECEIVED: 150173
DATE OF INSPECTION: _____ INSPECTOR: K
REMARKS: _____
OFFICE USE ONLY: P X
WI

RC COPY



Ontario

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11

1513436

MUNICIPALITY 15.004

CON. R.F.

31, 9/5a

LOT 22

COUNTY OR DISTRICT LETRIM Ottawa-Carleton	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE GLOUCESTER	CON., BLOCK, TRACT, SURVEY, ETC. IV R.F.	LOT 25-27 22
OWNER (SURNAME FIRST) UNITED CO - OP OF ONTARIO	ADDRESS R. R. #6 OTTAWA, ONTARIO.	DATE COMPLETED DAY 16 MO. 08 YR. 73	

ZONE 21	EASTING 178	NORTHING 1953850	RC 16	ELEVATION 0323	RC 4	Basin Code 26
-------------------	-----------------------	----------------------------	-----------------	--------------------------	----------------	-------------------------

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Top Soil		Soft	0	4
Brown	Soil	Boulder	Hard	4	12
Grey	Limestone	Clay	Soft Porous	12	16
White	Limestone	Limestone Grey	Medium Hard	16	50

31	0004692	000462213	000421505T	0004115T
32				

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0048 10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
06 10-11	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	.188	0	22 13-16
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

SCREEN

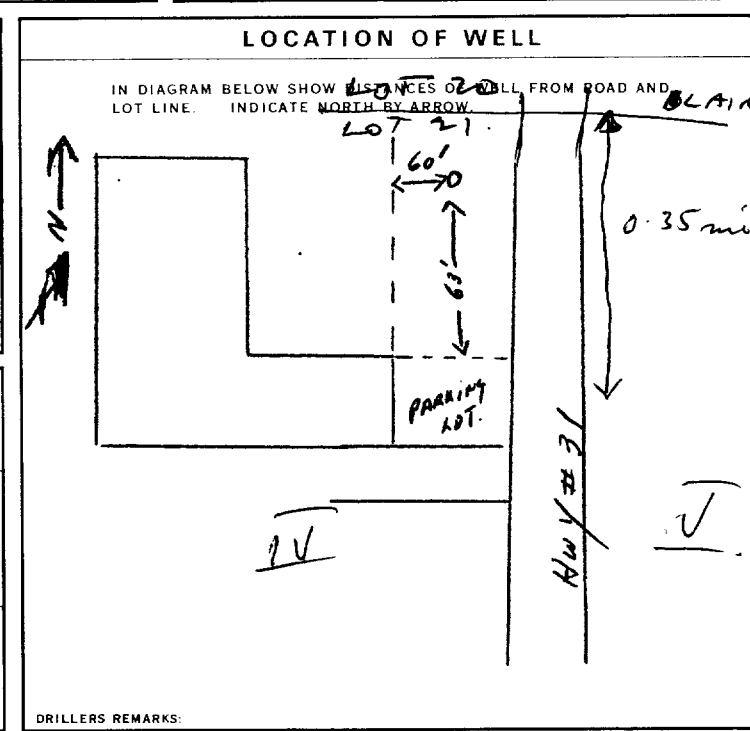
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	
		41-44 80

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM TO	
10-13 14-17	
18-21 22-25	
26-29 30-33 80	

71 PUMPING TEST

PUMPING TEST METHOD 1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	PUMPING RATE GPM 0005	DURATION OF PUMPING 15-16 HOURS 00 MINS
STATIC LEVEL 19-21 014 FEET	WATER LEVEL END OF PUMPING 22-24 025 FEET	WATER LEVELS DURING 15 MINUTES 26-28 030 FEET 30 MINUTES 29-31 030 FEET 45 MINUTES 32-34 030 FEET 60 MINUTES 35-37 030 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT GPM	WATER AT END OF TEST 1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE 1 <input checked="" type="checkbox"/> SHALLOW 2 <input type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 030 FEET	RECOMMENDED PUMPING RATE 0005 GPM



FINAL STATUS OF WELL

1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED, POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	

WATER USE

1 <input checked="" type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
<input type="checkbox"/> OTHER	9 <input type="checkbox"/> NOT USED

METHOD OF DRILLING

1 <input type="checkbox"/> CABLE TOOL	6 <input type="checkbox"/> BORING
2 <input type="checkbox"/> ROTARY (CONVENTIONAL)	7 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	8 <input type="checkbox"/> JETTING
4 <input checked="" type="checkbox"/> ROTARY (AIR)	9 <input type="checkbox"/> DRIVING
5 <input type="checkbox"/> AIR PERCUSSION	

CONTRACTOR

NAME OF WELL CONTRACTOR HAWTHORNE DRILLING LIMITED	LICENCE NUMBER 2557
ADDRESS Box 4218 STATION "E" OTTAWA ONTARIO	
NAME OF DRILLER OR BORER YVON AUBIN	LICENCE NUMBER 2557
SIGNATURE OF CONTRACTOR <i>[Signature]</i>	SUBMISSION DATE DAY 25 MO. 09 YR. 73

OFFICE USE ONLY

DATA SOURCE 1	CONTRACTOR 2557	DATE RECEIVED 28 09 73
DATE OF INSPECTION	INSPECTOR <i>[Signature]</i>	
REMARKS: P-R		



Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

316/5^a

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11

1514664

MUNICIPALITY 15002

CON. RF

04

COUNTY OR DISTRICT Carleton Place	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Gloucester	CON., BLOCK, TRACT, SURVEY, ETC. III RFI	LOT 25-27 022
OWNER (SURNAME FIRST) Canada Industries Ltd.	ADDRESS Hwy #31 Ottawa Ont	DATE COMPLETED DAY 20 MO 02 YR. 75	

ZONE 18	EASTING 453793	NORTHING 5017090	RC 4	ELEVATION 0340	RC 4	BASIN CODE 26	II	III	IV
-------------------	--------------------------	----------------------------	----------------	--------------------------	----------------	-------------------------	----	-----	----

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Sand Gravel	Boulders	Dense	0	13
Black	Shale		Loose	13	30
Grey	Limestone		Sandstone	30	111
White	Sandstone		Sand	111	125

31	00136281113	0030817	0111215	0125118
32				

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	14
15-18	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	19
20-23	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	24
25-28	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	29
30-33	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR	4 <input type="checkbox"/> MINERAL	34-40

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL	1.184	0	22
17-18	1 <input checked="" type="checkbox"/> STEEL		22	0125

SCREEN

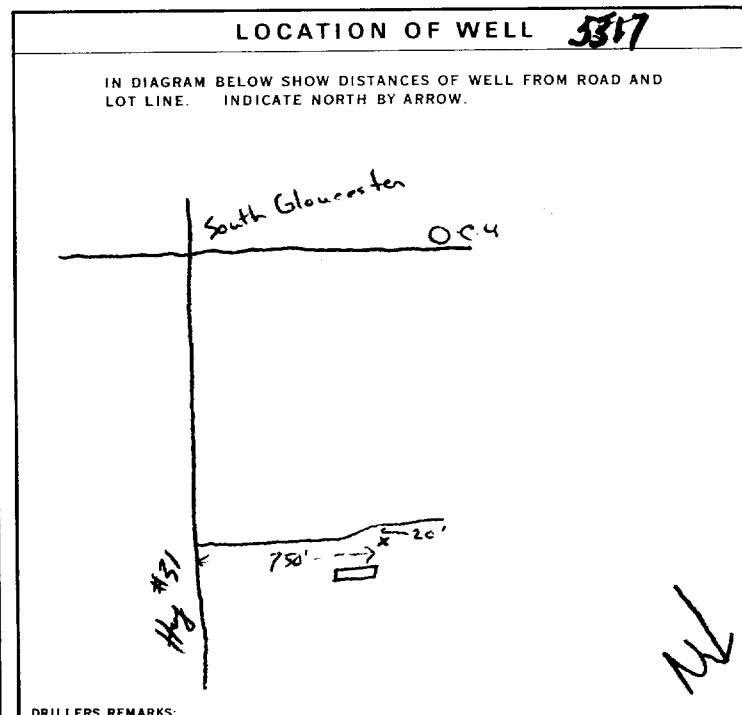
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	

71 PUMPING TEST

PUMPING TEST METHOD 1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	PUMPING RATE 0012 GPM	DURATION OF PUMPING 01 15-16 HOURS 15 MINS
STATIC LEVEL 020 FEET	WATER LEVEL END OF PUMPING 020 FEET	WATER LEVELS DURING
19-21	22-24	15 MINUTES 020 FEET
26-28	29-31	30 MINUTES 020 FEET
32-34	35-37	45 MINUTES 020 FEET
38-41	42	60 MINUTES 020 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT 80 GPM	WATER AT END OF TEST 1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 080 FEET	RECOMMENDED PUMPING RATE 0008 GPM
50-53 0240 GPM./FT. SPECIFIC CAPACITY		



FINAL STATUS OF WELL

1 <input checked="" type="checkbox"/> WATER SUPPLY	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY
2 <input type="checkbox"/> OBSERVATION WELL	6 <input type="checkbox"/> ABANDONED, POOR QUALITY
3 <input type="checkbox"/> TEST HOLE	7 <input type="checkbox"/> UNFINISHED
4 <input type="checkbox"/> RECHARGE WELL	

WATER USE

1 <input type="checkbox"/> DOMESTIC	5 <input type="checkbox"/> COMMERCIAL
2 <input type="checkbox"/> STOCK	6 <input type="checkbox"/> MUNICIPAL
3 <input type="checkbox"/> IRRIGATION	7 <input type="checkbox"/> PUBLIC SUPPLY
4 <input checked="" type="checkbox"/> INDUSTRIAL	8 <input type="checkbox"/> COOLING OR AIR CONDITIONING
9 <input type="checkbox"/> OTHER	9 <input type="checkbox"/> NOT USED

METHOD OF DRILLING

1 <input type="checkbox"/> CABLE TOOL	6 <input type="checkbox"/> BORING
2 <input type="checkbox"/> ROTARY (CONVENTIONAL)	7 <input type="checkbox"/> DIAMOND
3 <input type="checkbox"/> ROTARY (REVERSE)	8 <input type="checkbox"/> JETTING
4 <input type="checkbox"/> ROTARY (AIR)	9 <input type="checkbox"/> DRIVING
5 <input checked="" type="checkbox"/> AIR PERCUSSION	

CONTRACTOR

NAME OF WELL CONTRACTOR Hawthorne Drilling Ltd	LICENCE NUMBER 2558
ADDRESS PO Box 4218 Stat. E.	
NAME OF DRILLER OR BORER A. Emond	LICENCE NUMBER 2558
SIGNATURE OF CONTRACTOR	SUBMISSION DATE DAY 24 MO. 2 YR. 75

OFFICE USE ONLY

DATA SOURCE 1	CONTRACTOR 2558	DATE RECEIVED 2 20 75
DATE OF INSPECTION	INSPECTOR	
REMARKS:		
		P <input checked="" type="checkbox"/>
		WI



The Ontario Water Resources Act WATER WELL RECORD

Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11

1974664

COUNTY OR DISTRICT Carleton	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Gloucester	CON., BLOCK, TRACT, SURVEY, ETC. III	LOT 22
OWNER (SURNAME FIRST) Canadian Industries Ltd.	ADDRESS Hwy # 31	DATE COMPLETED Ottawa Ont	
28-47	48-51	DAY 20 MO 2 YR 75	

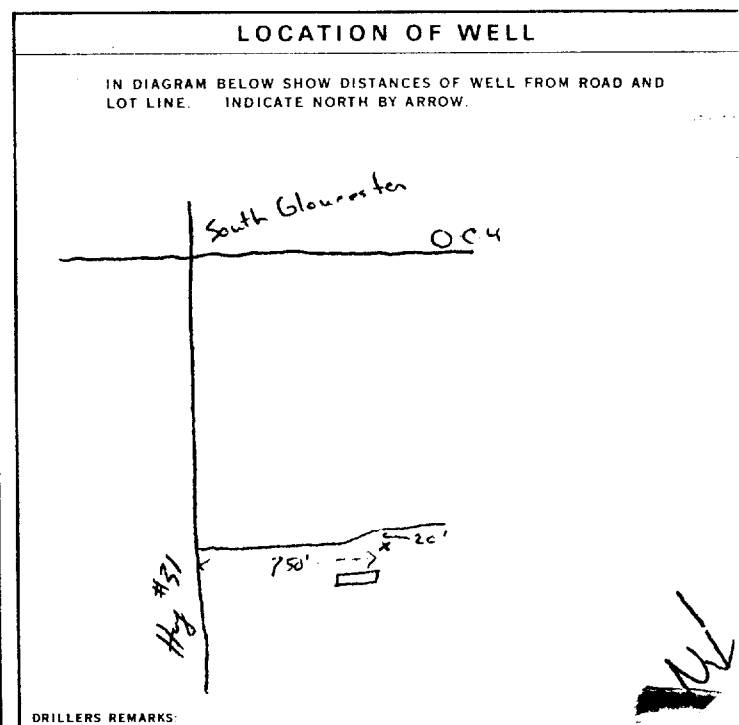
21	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Sand Gravel	Boulders	Dense	0	13
Black	Shale		Loose	13	30
Grey	Limestone		Sandst.	30	111
White	Sandstone		Sand	111	125

31	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

41 WATER RECORD		51 CASING & OPEN HOLE RECORD				61 PLUGGING & SEALING RECORD			
WATER FOUND AT - FEET	KIND OF WATER	INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	SCREEN	SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
32	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 14 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	6 1/4	1 <input checked="" type="checkbox"/> STEEL 12 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	.188	0 22				
111	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 19 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL	5 7/8	1 <input type="checkbox"/> STEEL 19 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		22 125				
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 24 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL								
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 29 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL								
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 34 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL								

71 PUMPING TEST	PUMPING TEST METHOD 1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	PUMPING RATE 12 GPM	DURATION OF PUMPING 15-16 HOURS 15 MINS
	STATIC LEVEL 20 FEET	WATER LEVEL END OF PUMPING 20 FEET	WATER LEVELS DURING 15 MINUTES 20 FEET 30 MINUTES 20 FEET 45 MINUTES 20 FEET 60 MINUTES 20 FEET
	IF FLOWING GIVE RATE —	PUMP INTAKE SET AT 80 FEET	WATER AT END OF TEST 1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> CLOUDY
	RECOMMENDED PUMP TYPE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 80 FEET	RECOMMENDED PUMPING RATE 8 GPM
	50-53 ——— GPM. / FT. SPECIFIC CAPACITY		



FINAL STATUS OF WELL	1 <input checked="" type="checkbox"/> WATER SUPPLY 2 <input type="checkbox"/> OBSERVATION WELL 3 <input type="checkbox"/> TEST HOLE 4 <input type="checkbox"/> RECHARGE WELL	5 <input type="checkbox"/> ABANDONED, INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED, POOR QUALITY 7 <input type="checkbox"/> UNFINISHED
	WATER USE	
	1 <input type="checkbox"/> DOMESTIC 2 <input type="checkbox"/> STOCK 3 <input type="checkbox"/> IRRIGATION 4 <input checked="" type="checkbox"/> INDUSTRIAL 5 <input type="checkbox"/> OTHER	6 <input type="checkbox"/> COMMERCIAL 7 <input type="checkbox"/> MUNICIPAL 8 <input type="checkbox"/> PUBLIC SUPPLY 9 <input type="checkbox"/> COOLING OR AIR CONDITIONING 10 <input type="checkbox"/> NOT USED
METHOD OF DRILLING	1 <input type="checkbox"/> CABLE TOOL 2 <input type="checkbox"/> ROTARY (CONVENTIONAL) 3 <input type="checkbox"/> ROTARY (REVERSE) 4 <input type="checkbox"/> ROTARY (AIR) 5 <input checked="" type="checkbox"/> AIR PERCUSSION	6 <input type="checkbox"/> BORING 7 <input type="checkbox"/> DIAMOND 8 <input type="checkbox"/> JETTING 9 <input type="checkbox"/> DRIVING

CONTRACTOR	NAME OF WELL CONTRACTOR Hawthorne Drilling Ltd	LICENCE NUMBER 2558
	ADDRESS PO Box 4218 Stat. E.	
	NAME OF DRILLER OR BORER A. Emond	LICENCE NUMBER 2558
	SIGNATURE OF CONTRACTOR 	SUBMISSION DATE DAY 24 MO 2 YR 75

OFFICE USE ONLY	DATA SOURCE 58	CONTRACTOR 59-62	DATE RECEIVED 63-68 5 20 75
	DATE OF INSPECTION	INSPECTOR	
	REMARKS:		



Ontario

WATER WELL RECORD

316/5a

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 | 1514840 | MUNICIPAL 15002 | CON. RE | 05

COUNTY OR DISTRICT Ottawa	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Gloucester	CON. BLOCK, TRACT, SURVEY, ETC. 23	LOT 023
OWNER (SURNAME FIRST) Hume	ADDRESS PO Box 254 R.R. #6	DATE COMPLETED DAY 11 MO 07 YR 75	

21 | ZONE **18** | EASTING **454143** | NORTHING **5016952** | ELEVATION **4** | BASIN CODE **26**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Top Soil		Top Soil	0	3
Grey	Limestone		Med	3	135

31 | 0003602 | 0135215

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13 0105	1 <input checked="" type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
15-18	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
20-23	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
25-28	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		
30-33	1 <input type="checkbox"/> FRESH	3 <input type="checkbox"/> SULPHUR		
	2 <input type="checkbox"/> SALTY	4 <input type="checkbox"/> MINERAL		

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL		0	20
	2 <input type="checkbox"/> GALVANIZED	1.88		0020
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
17-18	1 <input checked="" type="checkbox"/> STEEL		20	0135
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			
24-25	1 <input type="checkbox"/> STEEL			
	2 <input type="checkbox"/> GALVANIZED			
	3 <input type="checkbox"/> CONCRETE			
	4 <input type="checkbox"/> OPEN HOLE			

SCREEN

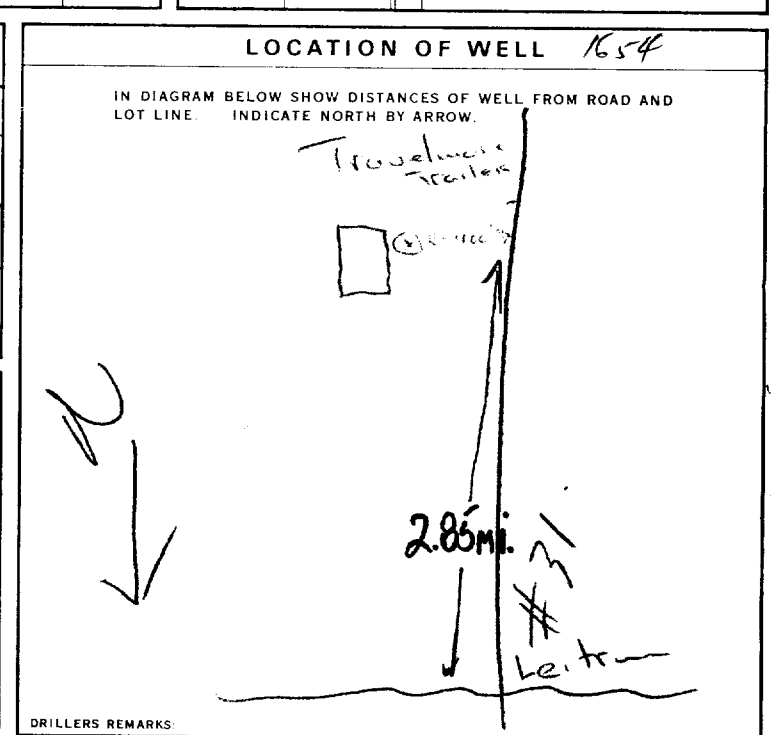
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN
		FEET

PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	

PUMPING TEST

PUMPING TEST METHOD 1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	PUMPING RATE 0009 GPM	DURATION OF PUMPING 01 15-16 10 17-18 HOURS
STATIC LEVEL 19-21 020 FEET	WATER LEVEL END OF PUMPING 22-24 090 FEET	WATER LEVELS DURING 15 MINUTES 26-28 090 FEET
		30 MINUTES 29-31 090 FEET
		45 MINUTES 32-34 090 FEET
		60 MINUTES 35-37 090 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT 38-41 90 GPM	WATER AT END OF TEST 42 1 <input type="checkbox"/> CLEAR 2 <input checked="" type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE 1 <input type="checkbox"/> SHALLOW 2 <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 43-45 090 FEET	RECOMMENDED PUMP RATE 46-49 0006 GPM
50-53 000.1 GPM./FT. SPECIFIC CAPACITY		



FINAL STATUS OF WELL

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY
 2 OBSERVATION WELL 6 ABANDONED POOR QUALITY
 3 TEST HOLE 7 UNFINISHED
 4 RECHARGE WELL

WATER USE

1 DOMESTIC 5 COMMERCIAL
 2 STOCK 6 MUNICIPAL
 3 IRRIGATION 7 PUBLIC SUPPLY
 4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING
 9 NOT USED

METHOD OF DRILLING

1 CABLE TOOL 6 BORING
 2 ROTARY (CONVENTIONAL) 7 DIAMOND
 3 ROTARY (REVERSE) 8 JETTING
 4 ROTARY (AIR) 9 DRIVING
 5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: **Hewthorne Drilling Ltd** LICENCE NUMBER: **2557**
 ADDRESS: **PO Box 9218 St. E. Ottawa**
 NAME OF DRILLER OR BORER: **A. Emond** LICENCE NUMBER: **2557**
 SIGNATURE OF CONTRACTOR: **[Signature]** SUBMISSION DATE: DAY **15** MO **7** YR **75**

OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **2557** DATE RECEIVED: **08 08 75**
 DATE OF INSPECTION: _____ INSPECTOR: **[Signature]**
 REMARKS: _____
 P
 WI



Ontario

P.P.M.

3165a

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

(11) 1516052

MUNICIPALITY: 15002 CON. RF OS

COUNTY OR DISTRICT Carleton	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Gloucester	CON. BLOCK, TRACT, SURVEY, ETC. 5 RF II	LOT NO. 022
OWNER (SURNAME FIRST) Melco Investors Corp.	ADDRESS 934 Sealer Cres. Ottawa, Ont. K2B 5H7	DATE COMPLETED DAY 13 MONTH 07 YEAR 77	

(21) ZONE EASTING NORTHING ELEVATION BASIN CODE
 U 18 M 10 454099 5017399 7 0330 9 2.6

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
brown	sand	clay & boulders	fill	0	7
black	muck		soft	7	9
grey	hardpan	boulders	packed	9	26
grey	limestone		medium	26	43
grey	sandstone		hard	43	178

(31) 00076280513 000980385 00262141379 004321578 017821873

(32)

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0175	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input checked="" type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

(51) CASING & OPEN HOLE RECORD

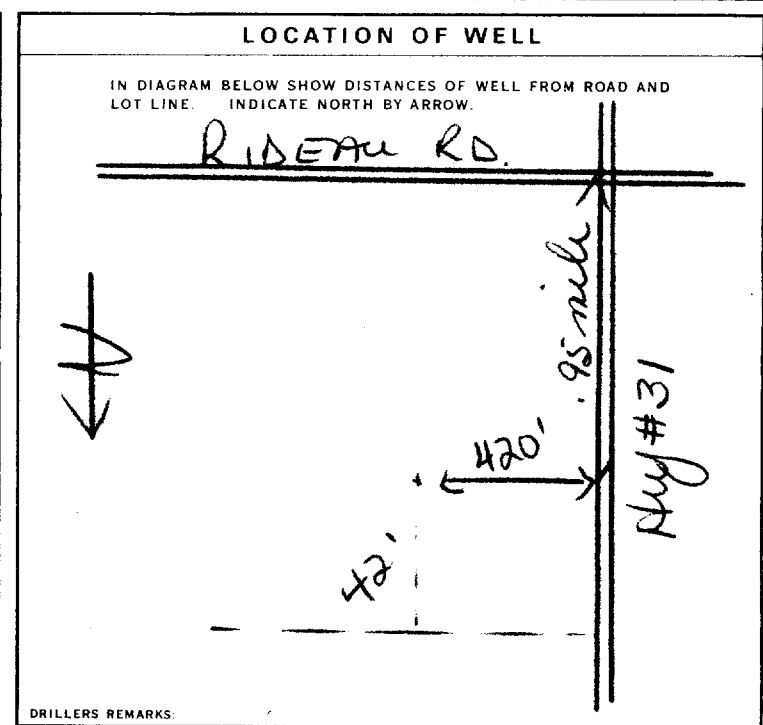
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6 1/2	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE	188	0	0028
06	1 <input checked="" type="checkbox"/> OPEN HOLE		28	278
06	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE			0178
	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

(61) PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	14-17
18-21	22-25
26-29	30-33

(71) PUMPING TEST

PUMPING TEST METHOD 1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	PUMPING RATE 0015 GPM	DURATION OF PUMPING 01 15-16 HOURS 00 17-18 MINS
STATIC LEVEL 030 FEET	WATER LEVEL END OF PUMPING 065 FEET	WATER LEVELS DURING PUMPING 15 MINUTES: 065 FEET 30 MINUTES: 065 FEET 45 MINUTES: 065 FEET 60 MINUTES: 065 FEET
RECOMMENDED PUMP TYPE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 075 FEET	RECOMMENDED PUMPING RATE 0005 GPM



FINAL STATUS OF WELL: 1 WATER SUPPLY

WATER USE: 1 DOMESTIC

METHOD OF DRILLING: 5 AIR PERCUSSION

CONTRACTOR: Capital Water Supply Ltd. Licence Number: 1558

Address: Box 490 Pittsville, Ontario

Signature: [Signature]

Submission Date: DAY 15 MO 7 YR 77

OFFICE USE ONLY

DATA SOURCE: 1 1558 DATE RECEIVED: 080877

DATE OF INSPECTION: [Blank] INSPECTOR: [Blank]

REMARKS: [Blank]

P
WI

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT BOX WHERE APPLICABLE

11 1517076 MUNICIPAL 15002 CON RF 04
COUNTY OR DISTRICT: **Winchester** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **Winchester** CON., BLOCK, TRACT, SURVEY ETC: **RFIV** LOT: **023**
Con. 4 RF DATE COMPLETED: 48-53
DAY: **24** MO: **07** YR: **79**
Hwy 31 Ottawa, Ontario
RC: **016599** ELEVATION: **4 0360** BASIN CODE: **4 26**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	Clay	Sand pebbles	Brown sandy clay with pebbles	0'	6.5'
Grey	Sandstone	Grey and whitish	Grey sandstone	6.5'	92'
Grey	Limestone	XXXXXXXX	Med. grey limestone	92'	106'
Grey	Sandstone	Grey and whitish	Grey sandstone	106'	185'
Brown	Clay	Sand stones	Mud seam	185'	187'
Grey	Sandstone	Grey and whitish	Grey sandstone	187'	245'

31 00076052812 0092218 0106215 9185218 01876051803 0245218
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0167'	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
0198'	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
0216'	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
0238'	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
01	<input checked="" type="checkbox"/> STEEL	.188	0'	150'
17-18	<input type="checkbox"/> STEEL			
24-25	<input type="checkbox"/> STEEL			

Cement and grouting in place

SCREEN

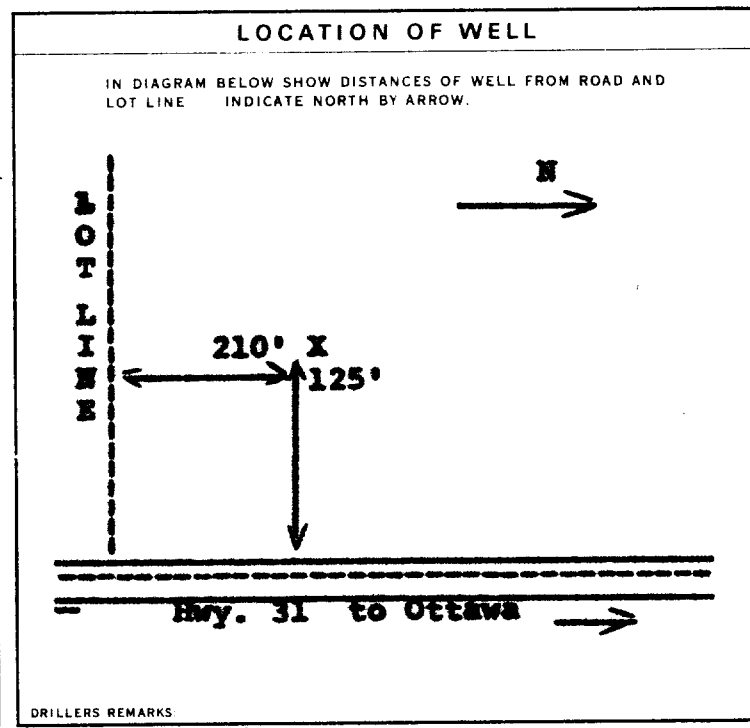
SIZE (S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
10-13	14-17
18-21	22-25
26-29	30-33

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
<input checked="" type="checkbox"/> PUMP <input type="checkbox"/> BAILER	0010 GPM	12 HOURS 00 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
043	049	049, 049, 049
43.40'	49.23'	49.57', 49.42', 49.35', 49.23'
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	080' GPM	<input checked="" type="checkbox"/> CLEAR <input type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	080'	0010 GPM



FINAL STATUS OF WELL 1

WATER USE 05

METHOD OF DRILLING 2

CONTRACTOR

NAME OF WELL CONTRACTOR: **Olympic Drilling Co. Ltd.** LICENCE NUMBER: **4006**

ADDRESS: **Box 9180 Terminal "1" Ottawa, Ont.**

NAME OF DRILLER OR BORER: **Roy W. Renwick** LICENCE NUMBER: **4006**

SIGNATURE OF CONTRACTOR: *R. W. Renwick (Sec)* SUBMISSION DATE: DAY **14** MO **8** YR **79**

OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **4006** DATE RECEIVED: **17 08 79**

DATE OF INSPECTION: _____ INSPECTOR: *Km*

REMARKS: _____

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11
1 2

1530653

Municipality 15002 Con. RF 04
10 14 15 22 23 24

County or District: Attawa-Carleton Township/Borough/City/Town/Village: Gloucester Con block tract survey, etc. Lot: 2 23
Address: 4837 Albion Rd Date completed: 23 05 99
Basin Code: ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	sand	stone		0	42
Black	shale			42	51
Grey	Limestone			51	123
Grey	Limestone w	sandstone layers		123	168
White	sandstone	sandstone		168	200
Green	Granite	granite		200	210

31
32

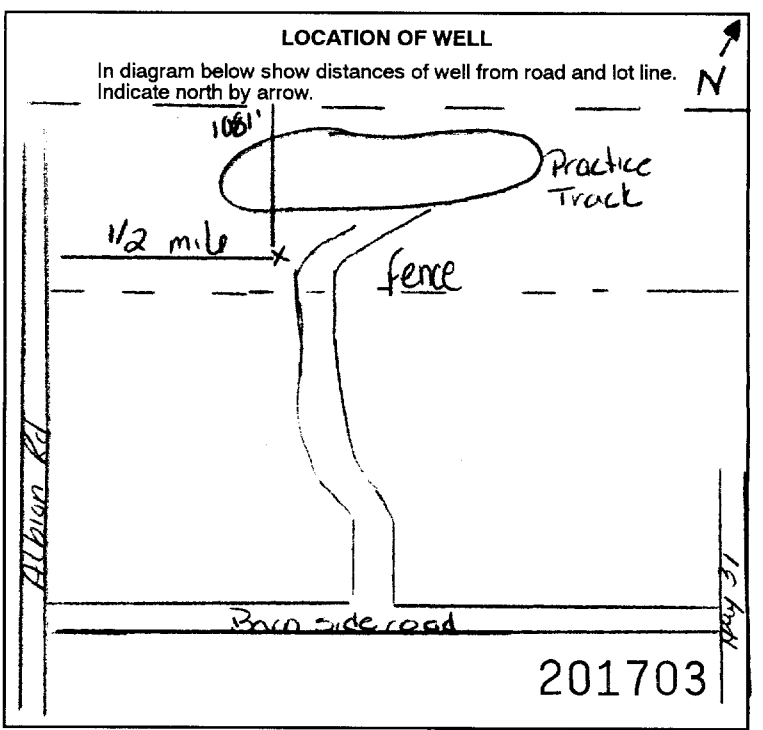
41 WATER RECORD			
Water found at - feet	Kind of water		
73	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	14
123	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	19
147	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	24
<u>untested</u>	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	29
	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty	<input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas	34

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
8	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Open hole <input type="checkbox"/> Plastic		0	42
6	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic	.188	+2	42
6	<input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic		42	210

SCREEN	Sizes of opening (Slot No.)	Diameter	Length
		inches	feet
	Material and type	Depth at top of screen	
		feet	

61 PLUGGING & SEALING RECORD			
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
42	0	Benseal 10 bags	
18-21	22-25		
26-29	30-33		

71 PUMPING TEST		Pumping rate	Duration of pumping
<input type="checkbox"/> Pump <input type="checkbox"/> Bailor		GPM	Hours Mins
Static level	Water level end of pumping	Water levels during	
feet	feet	15 minutes	30 minutes
		45 minutes	60 minutes
feet	feet	feet	feet
If flowing give rate	Pump intake set at	Water at end of test	
GPM	feet	<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy	
Recommended pump type	Recommended pump setting	Recommended pump rate	
<input type="checkbox"/> Shallow <input type="checkbox"/> Deep	feet	GPM	



FINAL STATUS OF WELL

Water supply
 Observation well
 Test hole
 Recharge well

Abandoned, insufficient supply
 Abandoned, poor quality
 Abandoned (Other)
 Dewatering

Unfinished
 Replacement well

WATER USE

Domestic
 Stock
 Irrigation
 Industrial

Commercial
 Municipal
 Public supply
 Cooling & air conditioning

Not used
 Other monitoring

METHOD OF CONSTRUCTION

Cable tool
 Rotary (conventional)
 Rotary (reverse)
 Rotary (air)

Air percussion
 Boring
 Diamond
 Jetting

Driving
 Digging
 Other

Name of Well Contractor: Olympic Drilling Co Ltd Well Contractor's Licence No.: 4006
Address: 2320 Screeners Dr Hekaffe
Name of Well Technician: Wayne Fenwick Well Technician's Licence No.: To-327
Signature of Technician/Contractor: [Signature] Submission date: 03 06 99

MINISTRY USE ONLY

Data source: 4006 Contractor: 4006 Date received: AUG 09 1999
Date of inspection: _____ Inspector: _____
Remarks: CSS.ES0

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11
1 2

1530654

Municipality 15002 Con. RF 04
10 14 15 22 23 24

County or District: Ottawa-Carleton
Township/Borough/City/Town/Village: Gloucester
Con block tract survey, etc.: 2 Lot: 23
Address: 4837 Albion Rd
Date completed: 23 05 99
Basin Code: ii

General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	sand + stone		MW# 1 D	0	54
Brown	sand + stone		MW# 1 S	0	20

41 WATER RECORD		51 CASING & OPEN HOLE RECORD				61 PLUGGING & SEALING RECORD		
Water found at - feet	Kind of water	Inside diam inches	Material	Wall thickness inches	Depth - feet	Sizes of opening (Slot No.)	Diameter inches	Length feet
10-13	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 14 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 6 <input type="checkbox"/> Gas	NW1D	1 <input type="checkbox"/> Steel 12 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		0 54			
15-18	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 19 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 6 <input type="checkbox"/> Gas	NW1S	1 <input type="checkbox"/> Steel 19 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		0 20			
20-23	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 24 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 6 <input type="checkbox"/> Gas							
25-28	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 29 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 6 <input type="checkbox"/> Gas							
30-33	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 34 2 <input type="checkbox"/> Salty 6 <input type="checkbox"/> Minerals 4 6 <input type="checkbox"/> Gas							

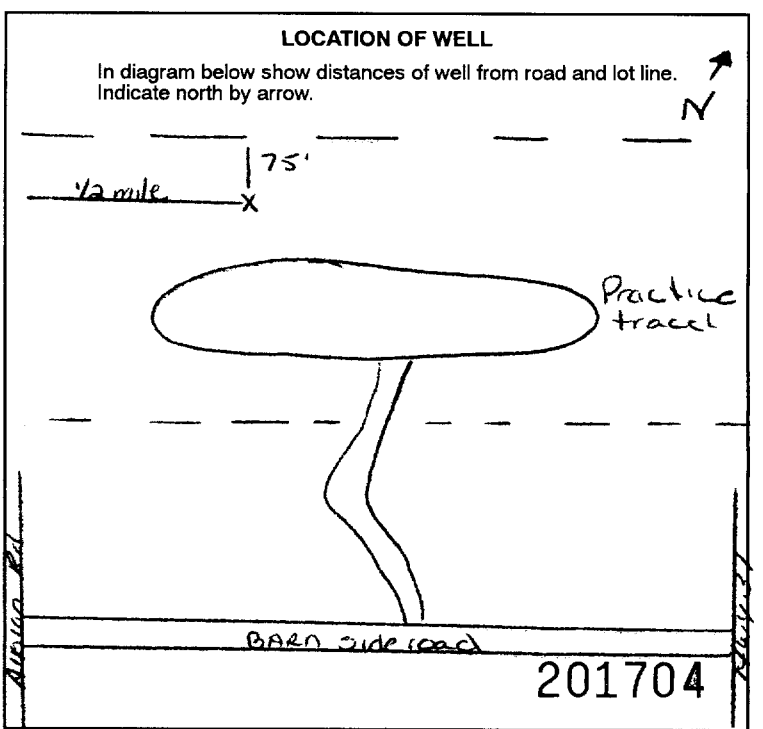
71 PUMPING TEST

Pumping test method: Pump Bailor
Pumping rate: GPM
Duration of pumping: Hours Mins

Static level: feet
Water level end of pumping: feet
Water levels during: 15 minutes, 30 minutes, 45 minutes, 60 minutes

If flowing give rate: GPM
Pump intake set at: feet
Water at end of test: Clear Cloudy

Recommended pump type: Shallow Deep
Recommended pump setting: feet
Recommended pump rate: GPM



54 FINAL STATUS OF WELL

1 Water supply 5 Abandoned, insufficient supply 9 Unfinished
2 Observation well 6 Abandoned, poor quality 10 Replacement well
3 Test hole 7 Abandoned (Other)
4 Recharge well 8 Dewatering

55-56 WATER USE

1 Domestic 5 Commercial 9 Not used
2 Stock 6 Municipal 10 Other
3 Irrigation 7 Public supply
4 Industrial 8 Cooling & air conditioning

57 METHOD OF CONSTRUCTION

1 Cable tool 5 Air percussion 9 Driving
2 Rotary (conventional) 6 Boring 10 Dipping
3 Rotary (reverse) 7 Diamond 11 Other
4 Rotary (air) 8 Jetting

Name of Well Contractor: Olympic Drilling Co. Ltd
Well Contractor's Licence No.: 4006
Address: 2320 Screens Dr Metcalfe
Name of Well Technician: Wayne Benwick
Well Technician's Licence No.: 70-327
Signature of Technician/Contractor: [Signature]
Submission date: 23 05 99

MINISTRY USE ONLY

Data source: 4006
Date received: AUG 09 1999
Date of inspection: _____
Inspector: _____
Remarks: CSS.ES0

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11

1530655

Municipality 15002 Con. RF 04

County or District: Ottawa Carleton Township/Borough/City/Town/Village: Gloucester Con block tract survey, etc. Lot: 2 23

Address: 4837 Albion Rd Date completed: 23 05 99

Basin Code: ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	sand + stone		MW# 3	0	58
			Benseal plug	0	10'
			active material		
			Benseal plug	27'	30'
			filler stone		
					53'

31

32

41 WATER RECORD

Water found at - feet	Kind of water					
10-13	1 <input type="checkbox"/> Fresh	2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur	4 <input type="checkbox"/> Minerals	5 <input type="checkbox"/> Gas	6 <input type="checkbox"/>
15-18	1 <input type="checkbox"/> Fresh	2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur	4 <input type="checkbox"/> Minerals	5 <input type="checkbox"/> Gas	6 <input type="checkbox"/>
20-23	1 <input type="checkbox"/> Fresh	2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur	4 <input type="checkbox"/> Minerals	5 <input type="checkbox"/> Gas	6 <input type="checkbox"/>
25-28	1 <input type="checkbox"/> Fresh	2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur	4 <input type="checkbox"/> Minerals	5 <input type="checkbox"/> Gas	6 <input type="checkbox"/>
30-33	1 <input type="checkbox"/> Fresh	2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur	4 <input type="checkbox"/> Minerals	5 <input type="checkbox"/> Gas	6 <input type="checkbox"/>

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		0	58
17-18	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			20-23
24-25	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN

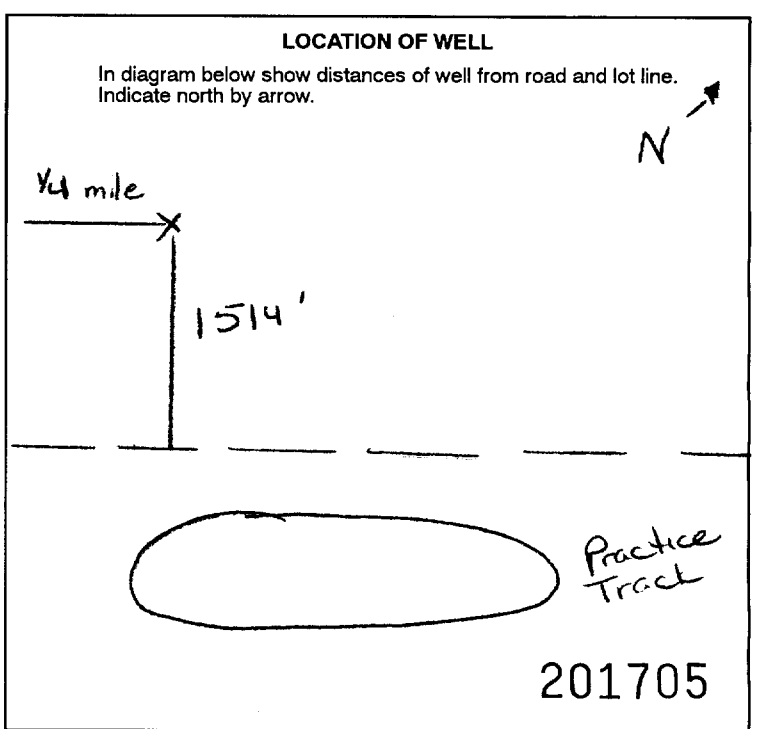
Sizes of opening (Slot No.)	Diameter inches	Length feet
Material and type		Depth at top of screen feet

61 PLUGGING & SEALING RECORD

Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
10-13	14-17	
16-21	22-25	
26-29	30-33	

71 PUMPING TEST

Pumping test method	Pumping rate GPM	Duration of pumping Hours	Mins
1 <input type="checkbox"/> Pump 2 <input type="checkbox"/> Bailor			
Static level	Water level during	1 <input type="checkbox"/> Pumping	2 <input type="checkbox"/> Recovery
19-21 feet	22-24 feet	15 minutes 26-28 feet	30 minutes 29-31 feet
		45 minutes 32-34 feet	60 minutes 35-37 feet
If flowing give rate GPM	Pump intake set at feet	Water at end of test	
		<input type="checkbox"/> Clear <input type="checkbox"/> Cloudy	
Recommended pump type	Recommended pump setting feet	Recommended pump rate GPM	
<input type="checkbox"/> Shallow <input type="checkbox"/> Deep			



FINAL STATUS OF WELL

1 <input type="checkbox"/> Water supply	5 <input type="checkbox"/> Abandoned, insufficient supply	9 <input type="checkbox"/> Unfinished
2 <input type="checkbox"/> Observation well	6 <input type="checkbox"/> Abandoned, poor quality	10 <input type="checkbox"/> Replacement well
3 <input type="checkbox"/> Test hole	7 <input type="checkbox"/> Abandoned (Other)	
4 <input type="checkbox"/> Recharge well	8 <input type="checkbox"/> Dewatering	

WATER USE

1 <input type="checkbox"/> Domestic	5 <input type="checkbox"/> Commercial	9 <input type="checkbox"/> Not used
2 <input type="checkbox"/> Stock	6 <input type="checkbox"/> Municipal	10 <input type="checkbox"/> Other
3 <input type="checkbox"/> Irrigation	7 <input type="checkbox"/> Public supply	
4 <input type="checkbox"/> Industrial	8 <input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION

1 <input type="checkbox"/> Cable tool	5 <input type="checkbox"/> Air percussion	9 <input type="checkbox"/> Driving
2 <input type="checkbox"/> Rotary (conventional)	6 <input type="checkbox"/> Boring	10 <input type="checkbox"/> Digging
3 <input type="checkbox"/> Rotary (reverse)	7 <input type="checkbox"/> Diamond	11 <input type="checkbox"/> Other
4 <input type="checkbox"/> Rotary (air)	8 <input type="checkbox"/> Jetting	

Name of Well Contractor: Olympic Drilling Co. Ltd Well Contractor's Licence No.: 4006

Address: 2320 Scrivens Dr. Metcalfe

Name of Well Technician: Wayne Renwick Well Technician's Licence No.: 10-327

Signature of Technician/Contractor: WR Submission date: 23 06 99

MINISTRY USE ONLY

Data source: 4006 Contractor: 4006 Date received: AUG 09 1999

Date of inspection: _____ Inspector: _____

Remarks: CSS.ES0

Print only in spaces provided.
Mark correct box with a checkmark, where applicable.

11

1534131

Municipality
15002

Con. RF 04

County or District Gloucester	Township/Borough/City/Town/Village Gloucester	Con block tract survey, etc. 4	Lot 22
Address of Well Location Greely, Ont		Date completed 10 10 03 day month year	

21

Zone Easting Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
	Sand	gravel		0	21
grey	limestone			21	40
	sandstone			40	62

31

32

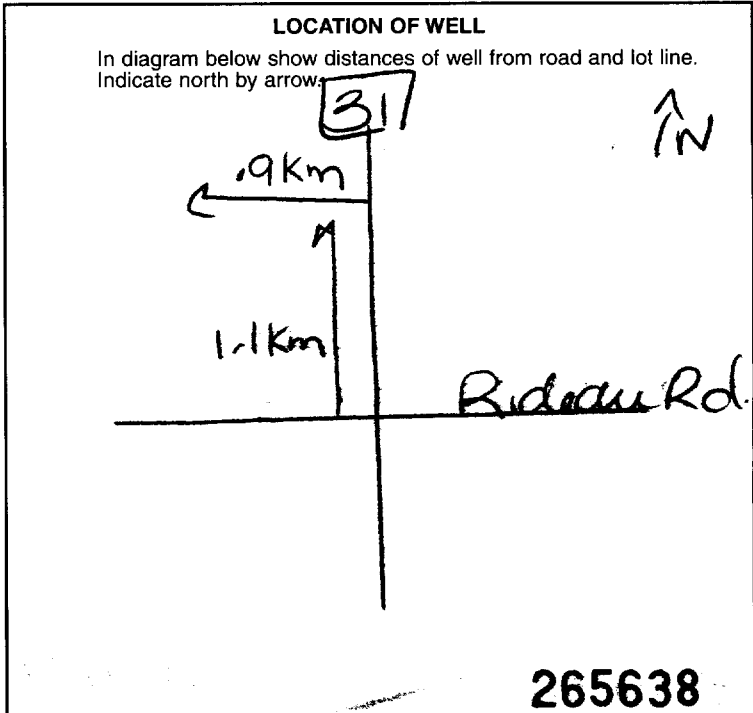
41 WATER RECORD	
Water found at - feet	Kind of water
48	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas
55	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas
20-23	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas
25-28	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas
30-33	1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6.7	1 <input checked="" type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	.188	0	29
6	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		27	62
	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

SCREEN	Sizes of opening (Slot No.)	Diameter inches	Length feet
	Material and type	Depth at top of screen feet	

61 PLUGGING & SEALING RECORD		
Annular space		Abandonment
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)
From	To	
27	0	bentonite
18-21	22-25	
26-29	30-33	80

71 PUMPING TEST	Pumping test method	Pumping rate	Duration of pumping
	1 <input checked="" type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer	18 GPM	1 Hours 17-18 Mins
	Static level	Water level end of pumping	Water levels during
	16.50 feet	16.50 feet	15 minutes 16.50 feet 30 minutes 16.50 feet 45 minutes 16.50 feet 60 minutes 16.50 feet
If flowing give rate	Pump intake set at	Water at end of test	
	50 GPM	<input type="checkbox"/> Clear <input checked="" type="checkbox"/> Cloudy	
Recommended pump type	Recommended pump setting	Recommended pump rate	
<input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	50 feet	18 GPM	



FINAL STATUS OF WELL		
1 <input checked="" type="checkbox"/> Water supply	5 <input type="checkbox"/> Abandoned, insufficient supply	9 <input type="checkbox"/> Unfinished
2 <input type="checkbox"/> Observation well	6 <input type="checkbox"/> Abandoned, poor quality	10 <input type="checkbox"/> Replacement well
3 <input checked="" type="checkbox"/> Test hole	7 <input type="checkbox"/> Abandoned (Other)	
4 <input type="checkbox"/> Recharge well	8 <input type="checkbox"/> Dewatering	

WATER USE		
1 <input type="checkbox"/> Domestic	5 <input type="checkbox"/> Commercial	9 <input checked="" type="checkbox"/> Not use
2 <input type="checkbox"/> Stock	6 <input type="checkbox"/> Municipal	10 <input type="checkbox"/> Other
3 <input type="checkbox"/> Irrigation	7 <input type="checkbox"/> Public supply	
4 <input type="checkbox"/> Industrial	8 <input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION		
1 <input type="checkbox"/> Cable tool	5 <input checked="" type="checkbox"/> Air percussion	9 <input type="checkbox"/> Driving
2 <input type="checkbox"/> Rotary (conventional)	6 <input type="checkbox"/> Boring	10 <input type="checkbox"/> Digging
3 <input type="checkbox"/> Rotary (reverse)	7 <input type="checkbox"/> Diamond	11 <input type="checkbox"/> Other
4 <input type="checkbox"/> Rotary (air)	8 <input type="checkbox"/> Jetting	

Name of Well Contractor Air Rock Drilling Ltd	Well Contractor's Licence No. 1119
Address RR#1 Richmond, Ont	
Name of Well Technician Shannon Purcell	Well Technician's Licence No. Ta122
Signature of Technician/Contractor Kenny	Submission date 30 10 03

MINISTRY USE ONLY	Data source 1119	Date received OCT 23 2003
	Date of inspection	Inspector
	Remarks CSS, ESS	



Print only in spaces provided. Mark correct box with a checkmark, where applicable.

11

1534133

Municipality 15002

Con. R.F. 04

County or District	Township/Borough/City/Town/Village Gloucester	Con block tract survey, etc. 4	Lot 22
Address of Well Location Ottawa, Ont		Date completed 26 09 03	

21

Zone Easting Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
grey sand				0	57
brown + grey sandstone				57	101

31

32

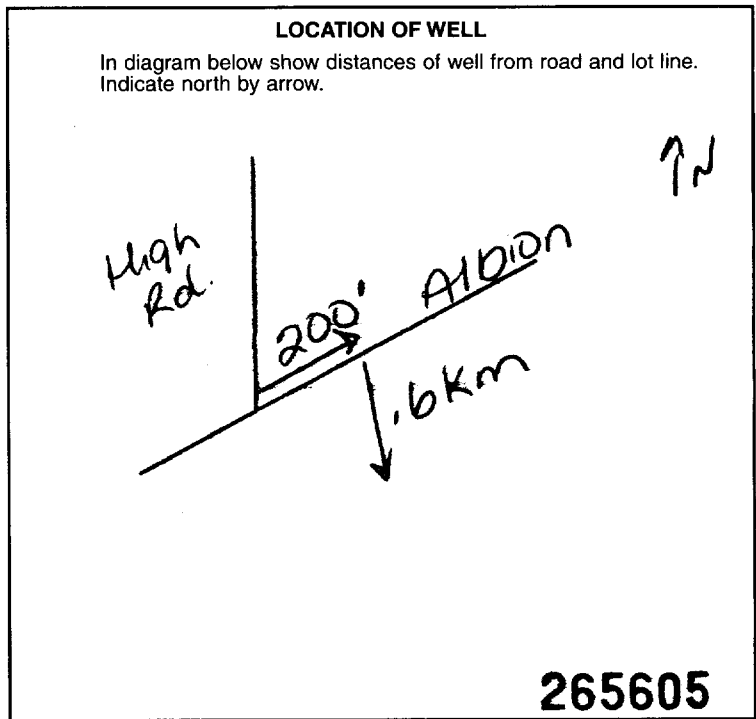
41 WATER RECORD			
Water found at - feet	Kind of water		
79	1 <input type="checkbox"/> Fresh	3 <input type="checkbox"/> Sulphur	14 <input type="checkbox"/> Minerals
	2 <input checked="" type="checkbox"/> NOT	4 <input type="checkbox"/> Gas	
83	1 <input type="checkbox"/> Fresh	3 <input type="checkbox"/> Sulphur	19 <input type="checkbox"/> Minerals
	2 <input checked="" type="checkbox"/> SALTY	4 <input type="checkbox"/> Gas	

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	1 <input checked="" type="checkbox"/> Steel	0.188	0	69
6	1 <input type="checkbox"/> Steel		67	101

SCREEN	Sizes of opening (Slot No.)	Diameter inches	Length feet

61 PLUGGING & SEALING RECORD			
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
67	0	bentonite	

71 PUMPING TEST			
Pumping test method	Pumping rate	Duration of pumping	
1 <input checked="" type="checkbox"/> Pump	6 GPM	1	17-18
Static level	Water level end of pumping	Water levels during	1 <input type="checkbox"/> Pumping
44 feet	90 feet	15 minutes 44 feet	2 <input checked="" type="checkbox"/> Recovery
		30 minutes 49 feet	
		45 minutes 44 feet	
		60 minutes 44 feet	



54 FINAL STATUS OF WELL		
1 <input type="checkbox"/> Water supply	5 <input type="checkbox"/> Abandoned, insufficient supply	9 <input type="checkbox"/> Unfinished
2 <input type="checkbox"/> Observation well	6 <input type="checkbox"/> Abandoned, poor quality	10 <input type="checkbox"/> Replacement well
3 <input checked="" type="checkbox"/> Test hole	7 <input type="checkbox"/> Abandoned (Other)	
4 <input type="checkbox"/> Recharge well	8 <input type="checkbox"/> Dewatering	

55-56 WATER USE		
1 <input type="checkbox"/> Domestic	5 <input type="checkbox"/> Commercial	9 <input checked="" type="checkbox"/> Not use
2 <input type="checkbox"/> Stock	6 <input type="checkbox"/> Municipal	10 <input type="checkbox"/> Other
3 <input type="checkbox"/> Irrigation	7 <input type="checkbox"/> Public supply	
4 <input type="checkbox"/> Industrial	8 <input type="checkbox"/> Cooling & air conditioning	

57 METHOD OF CONSTRUCTION		
1 <input type="checkbox"/> Cable tool	5 <input checked="" type="checkbox"/> Air percussion	9 <input type="checkbox"/> Driving
2 <input type="checkbox"/> Rotary (conventional)	6 <input type="checkbox"/> Boring	10 <input type="checkbox"/> Digging
3 <input type="checkbox"/> Rotary (reverse)	7 <input type="checkbox"/> Diamond	11 <input type="checkbox"/> Other
4 <input type="checkbox"/> Rotary (air)	8 <input type="checkbox"/> Jetting	

Name of Well Contractor A. Rods Drilling Ltd 1119	Well Contractor's Licence No.
Address RR#1 Richmond, Ont	
Name of Well Technician Shannon Powell	Well Technician's Licence No. T2122
Signature of Technician/Contractor Kenny	Submission date 2010 03

MINISTRY USE ONLY	Data source 1119	Contractor 59-62	Date received OCT 23 2003	63-68	80
	Date of inspection	Inspector			
	Remarks CSS.ES3				

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference. All Sections must be completed in full to avoid delays in processing. Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203. All metre measurements shall be reported to 1/10th of a metre. Please print clearly in blue or black ink only.

Well Owner's Information and Location of Well Information. Includes fields for First Name (Aecon Ltd), Last Name (Quarry), Mailing Address (4949 Bank Street), County (Ottawa-Carleton), Township (Gloucester), Province (Ontario), Postal Code (K1X 1G7), Telephone Number, Address of Well Location, RR#, GPS Reading, and Unit Make/Model (Garmin).

Log of Overburden and Bedrock Materials (see instructions). Table with columns: General Colour, Most common material, Other Materials, General Description, Depth From, Metres To. Includes entries for Grey Limestone, Grey Sandstone, White Sandstone, etc.

Hole Diameter, Construction Record, Test of Well Yield, Water Record, and Plugging and Sealing Record. Includes details on casing material (Steel), wall thickness (0.48), and test results.

Method of Construction, Water Use, Final Status of Well, and Well Contractor/Technician Information. Includes contractor name (Roy's LBR Ltd) and technician name (Jeff Skitch).

Location of Well diagram and Ministry Use Only section. Diagram shows well location relative to Bank Street and Rideau Road. Ministry Use Only section includes Data Source (4609), Date Received (JUL 08 2004), and Well Record Number (1534751).

A 010015

Instructions for Completing Form

- For use in the **Province of Ontario** only. This document is a permanent **legal** document. Please retain for future reference.
- All Sections **must** be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only											
Well Owner's Information and Location of Well Information		MUN	15002	CON	RI				05	LOT	23
First Name	Last Name	Mailing Address (Street Number/Name, RR, Lot, Concession)									
Aecon Ltd	Quarry	4949 Bank Street									
County/District/Municipality		Township/City/Town/Village		Province	Postal Code		Telephone Number (include area code)				
Ottawa-Carleton		Gloucester		Ontario	K1X 1G7						
Address of Well Location (County/District/Municipality)				Township	Lot	Concession					
Ottawa-Carleton				Gloucester	23	5					
RR#/Street Number/Name				City/Town/Village		Site/Compartment/Block/Tract etc.					
4949 Bank Street				Ottawa							
GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation: <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged <input type="checkbox"/> Differentiated, specify					
	813	18	454395	5012092	Strex	UTM					

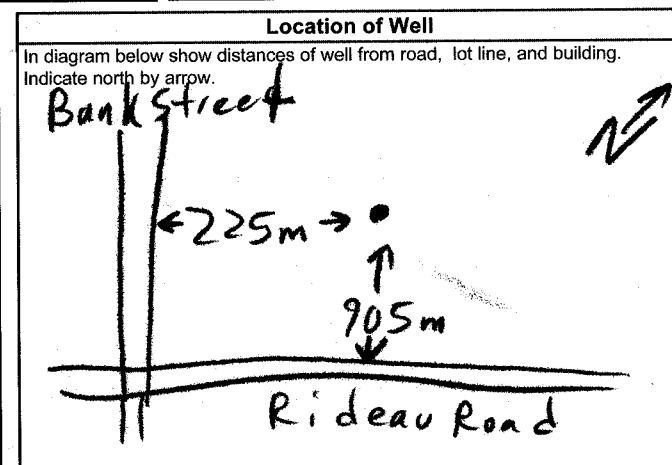
Log of Overburden and Bedrock Materials (see instructions)			General Description	Depth From	Metres To
Grey	Limestone		Layered	0	18.0
Grey	Sandstone		Layered	18.0	18.8
Grey	Limestone		Layered	18.8	21.3

Hole Diameter			Construction Record				Test of Well Yield					
Depth From	Metres To	Diameter Centimetres	Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	Pumping test method	Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
0	21.3	15.2	15.2	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	0.48	0	3.0	Pump intake set at - (metres)	1		1	
Water Record			Screen				Test of Well Yield (crossed out)					
Water found at	Kind of Water		Outside diam	Slot No.								
	Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/>											
After test of well yield, water was			No Casing or Screen									
<input type="checkbox"/> Clear and sediment free <input type="checkbox"/> Other, specify			<input checked="" type="checkbox"/> Open hole									
Chlorinated	<input type="checkbox"/> Yes <input type="checkbox"/> No											

Plugging and Sealing Record			<input type="checkbox"/> Annular space	<input type="checkbox"/> Abandonment
Depth set at	Metres	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)	

Method of Construction			
<input type="checkbox"/> Cable Tool	<input checked="" type="checkbox"/> Rotary (air)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Air percussion	<input type="checkbox"/> Jetting	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Boring	<input type="checkbox"/> Driving	
Water Use			
<input type="checkbox"/> Domestic	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Supply	<input type="checkbox"/> Other
<input type="checkbox"/> Stock	<input type="checkbox"/> Commercial	<input checked="" type="checkbox"/> Not used	
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Municipal	<input type="checkbox"/> Cooling & air conditioning	
Final Status of Well			
<input type="checkbox"/> Water Supply	<input type="checkbox"/> Recharge well	<input type="checkbox"/> Unfinished	<input type="checkbox"/> Abandoned, (Other)
<input checked="" type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Dewatering	
<input type="checkbox"/> Test Hole	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well	

Well Contractor/Technician Information	
Name of Well Contractor	Well Contractor's Licence No.
Roy's LBR Ltd	4609
Business Address (street name, number, city etc.)	
Cornwall	
Name of Well Technician (last name, first name)	Well Technician's Licence No.
Jeff Skitch	T-1762
Signature of Well Contractor	Date Submitted
X [Signature]	



Audit No.	Date Well Completed
Z 10072	2004 5 26
Was the well owner's information package delivered?	Date Delivered
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Ministry Use Only	
Data Source	Contractor
	4609
Date Received	Date of Inspection
JUL 08 2004	
Remarks	Well Record Number
	1534752

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
- All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are available on the back of this form.
- Questions regarding completing this application can be directed to the Water Well Management Coordinator at 416-235-6203.
- All metre measurements shall be reported to 1/10th of a metre.
- Please print clearly in blue or black ink only.

Well Owner's Information and Location of Well Information

Ministry Use Only																			
MUN								CON		LOT									

RR#/Street Number/Name: **4667-Albion Rd.** City/Town/Village: **OTTAWA** Site/Compartment/Block/Tract etc.: **22 4**

GPS Reading: NAD **83** Zone **18** Easting **452245** Northing **5016408** Unit Make/Model: **MAGELLAN** Mode of Operation: Undifferentiated Averaged **22**

Mode of Operation: Undifferentiated Averaged **22**

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth Metres	
				From	To
Brown	Top Soh		Soft	0	0.60
Brown	Sand.		Soft	0.60	21.21
Grey	GRAVEL		Soft	21.21	24.84
Grey	SHALE		Porous	24.84	25.75

Hole Diameter

Depth	Metres	Diameter
From	To	Centimetres
0	6.06	25.40

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth Metres	
			From	To
15.55	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	0.48	0	24.84
Screen				
Outside diam	<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	Slot No.		
No Casing or Screen				
15.55	<input checked="" type="checkbox"/> Open hole		24.84	25.75

Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
Submersible Pump intake set at - (metres) 15.15	Static Level	7.34	Time	7.57
Pumping rate - (litres/min) 54.00	1	7.52	1	7.34
Duration of pumping 1 hrs + 00 min	2	7.57	2	
Final water level and of pumping 7.57 metres	3	7.57	3	
Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	4	7.57	4	
Recommended pump depth 15.15 metres	5	7.57	5	
Recommended pump rate. (litres/min) 45.50	10	7.57	10	
If flowing give rate - (litres/min)	15	7.57	15	
	20	7.57	20	
	25	7.57	25	
	30	7.57	30	
	40	7.57	40	
	50	7.57	50	
	60	7.57	60	

Water Record

Water found at **24.84** metres

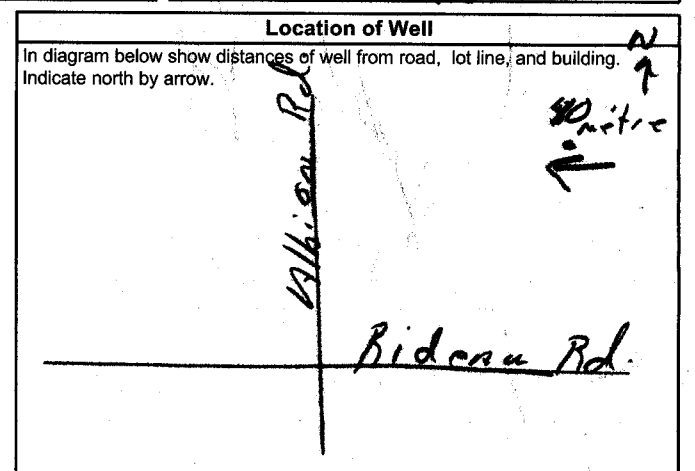
Kind of Water: Fresh Sulphur Gas Salty Minerals

After test of well yield, water was Clear and sediment free

Chlorinated Yes No

Plugging and Sealing Record

Depth set at - Metres	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0 to 6.06	Cement Grout	160Kg



Method of Construction

Cable Tool Rotary (air) Diamond Digging

Rotary (conventional) Air percussion Jetting Other

Rotary (reverse) Boring Driving

Water Use

Domestic Industrial Public Supply Other

Stock Commercial Not used

Irrigation Municipal Cooling & air conditioning

Final Status of Well

Water Supply Recharge well Unfinished Abandoned, (Other)

Observation well Abandoned, insufficient supply Dewatering

Test Hole Abandoned, poor quality Replacement well

Audit No. **2 32795** Date Well Completed **2005 10 05**

Was the well owner's information package delivered? Yes No Date Delivered **2005 10 05**

Well Contractor/Technician Information

Name of Well Contractor: **DXB-WATER-well-Drilling** Well Contractor's Licence No. **6006**

Business Address (street name, number, city etc.): **CP. 98- St-Albert - ON**

Name of Well Technician (last name, first name): **Deshoyers Louis** Well Technician's Licence No. **1-625**

Signature of Technician/Contractor: *[Signature]* Date Submitted **2005 10 05**

Ministry Use Only

Data Source: Contractor **6006**

Date Received **NOV 04 2005** Date of Inspection **2005 10 05**

Remarks: _____ Well Record Number: _____



Address of Well Location (Street Number/Name) **#6391 Blossom TRAIL** Township **Osgoode** Lot **P/L6** Concession **3**
 County/District/Municipality **Ottawa-Carleton** City/Town/Village **Greenly** Province **Ontario** Postal Code _____
 UTM Coordinates Zone Easting Northing Municipal Plan and Sublot Number Other
 NAD 83 **184535645016637** **PLAN 4M-1295** **S/L23**

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
	Sand & Boulders			0	12'
	Grey limestone			12'	207'

Annular Space

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
22' 12'	Neat Cement Slurry	4.68
12' 0'	Bentonite Slurry	8.4

Method of Construction

Cable Tool Diamond Public Commercial Not used
 Rotary (Conventional) Jetting Domestic Municipal Dewatering
 Rotary (Reverse) Driving Livestock Test Hole Monitoring
 Boring Digging Irrigation Cooling & Air Conditioning
 Air percussion Industrial Other, specify _____
 Other, specify _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
6" Steel		.188	22'	22'	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
6" openhole			22'	207'	

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		Status of Well
			From	To	

Water Details

Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____
201'	

Hole Diameter

Depth (m/ft)	Diameter (cm/in)
0' 207'	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor **AIR ROCK DRILLING CO LTD** Well Contractor's Licence No. **1119**
 Business Address (Street Number/Name) **RR#1** Municipality **RICHMOND**
 Province **ONT** Postal Code **K0A2Z0** Business E-mail Address _____
 Bus. Telephone No. (inc. area code) **613 838 2170** Name of Well Technician (Last Name, First Name) **HOGAN DAN**
 Well Technician's Licence No. **T3058** Signature of Technician and/or Contractor *[Signature]* Date Submitted **20090525**

Results of Well Yield Testing

After test of well yield, water was:
 Clear and sand free
 Other, specify **NOT TESTED**

If pumping discontinued, give reason: **X**

Pump intake set at (m/ft) **180'**

Pumping rate (l/min / GPM) **20**

Duration of pumping **1 hrs + 0 min**

Final water level end of pumping (m/ft) **77' 7"**

If flowing, give rate (l/min / GPM) **X**

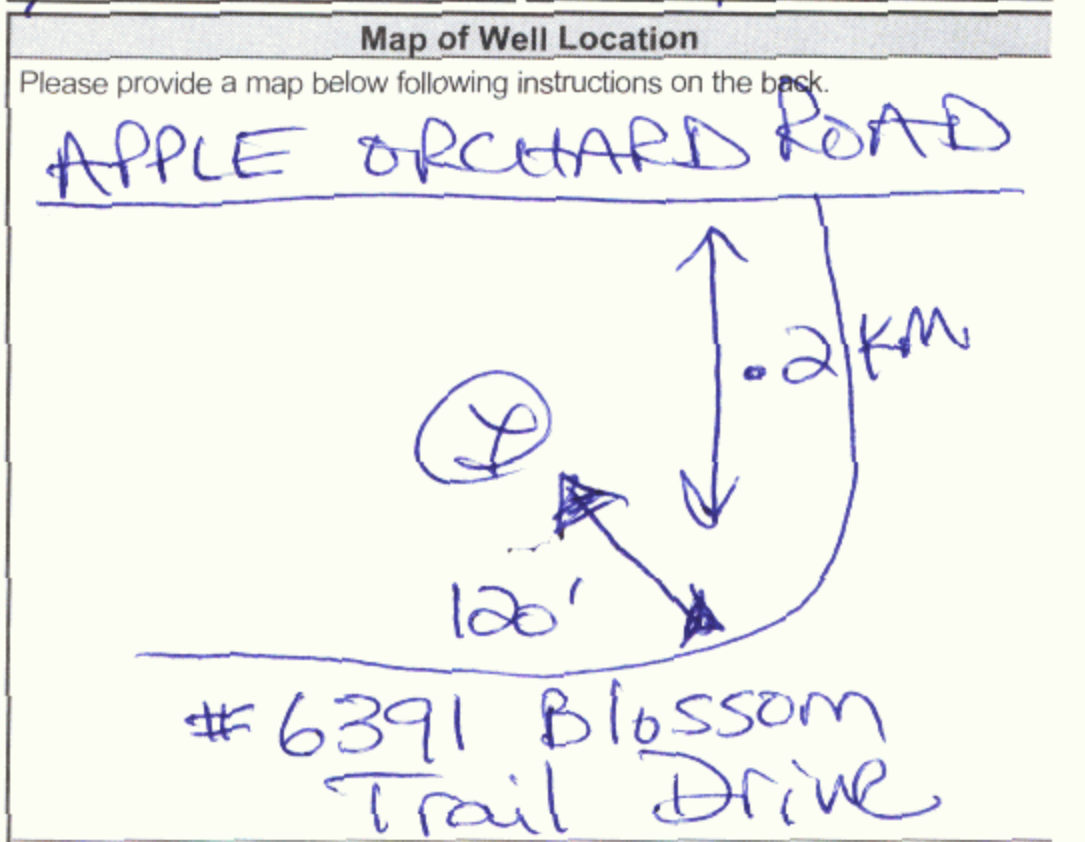
Recommended pump depth (m/ft) **(120') 140'**

Recommended pump rate (l/min / GPM) **20**

Well production (l/min / GPM) **30**

Disinfected? Yes No

Time (min)	Draw Down (m/ft)		Recovery (m/ft)	
	Water Level	Static Level	Water Level	Time
	25' 7"		77' 7"	
1	34' 5"		55'	
2	40' 2"		45' 6"	
3	45' 1"		40'	
4	48' 4"		37'	
5	51' 3"		33' 4"	
10	60' 8"		28' 2"	
15	66'		25' 7"	
20	68' 5"			
25	70' 9"			
30	73' 4"			
40	75' 8"			
50	76' 3"			
60	77' 7"			



Comments: _____

Well owner's information package delivered Yes No

Date Package Delivered **20090416**

Date Work Completed **20090415**

Ministry Use Only

Audit No. **Z 94625**

JUN 03 2009

Received _____

Master Well Owner's and Land Owner's Information

First Name: [Redacted] Last Name: Lederc Associates E-mail Address: [Redacted]
 Mailing Address (Street Number/Name, RR): 1-2884 Chamberland Street Municipality: Rockland Province: ON Postal Code: K1Y1K1 Telephone No. (inc. area code): 6134467777

Location and Construction of the Master Well in the Cluster

Address of Well Location (Street Number/Name, RR): 4880 Bank Street Township: [Redacted] Lot: [Redacted] Concession: [Redacted]
 County/District/Municipality: [Redacted] City/Town/Village: Ottawa Province: Ontario Postal Code: [Redacted]
 UTM Coordinates: NAD 83 Zone 18 Easting 454195 Northing 5016848 GPS Unit Make: Garmin Model: Etrex Mode of Operation: Undifferentiated Averaged Differentiated, specify _____

Overburden and Bedrock Materials (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres)	
				From	To
	Asphalt			0.0	0.20
Brownish grey	Sandy loam	gravel fill	dry	0.20	0.69
black	Sand	gravel/silt	dry/moist	0.69	1.48
dark grey	Silt	sand	moist	1.48	1.80
grey	Limestone			1.80	5.79

Hole Details

Depth (Metres)		Diameter (Centimetres)
From	To	
0.00	5.79	20

Water Use

Public Industrial Not used Other, specify _____
 Domestic Commercial Dewatering
 Livestock Municipal Monitoring
 Irrigation Test Hole Cooling & Air Conditioning

Method of Construction

Cable Tool Air Percussion Digging
 Rotary (Conventional) Diamond Boring
 Rotary (Reverse) Jetting Other, specify HSA
 Rotary (Air) Driving

Status of Well

Test Hole Abandoned, Insufficient Supply
 Replacement Well Abandoned, Poor Water Quality
 Dewatering Well Other, specify _____
 Alteration (Construction) Abandoned, other, specify _____

No Casing and Screen Used **Static Water Level Test**

Open Hole Yes No [Redacted] Metres

Screen

Galvanized Steel Fibreglass Concrete Plastic
 Outside Diameter (Centimetres): 5.8 Slot No.: 10

Water Details

Water found at Depth [Redacted] Metres Gas Fresh Salty Sulphur Minerals
 Water found at Depth [Redacted] Metres Gas Fresh Salty Sulphur Minerals
 Water found at Depth [Redacted] Metres Gas Fresh Salty Sulphur Minerals

Disinfected Yes No If no, provide reason: _____ Date Master Well Completed (yyyy/mm/dd)

Monitoring Well 2011/07/22

Cluster Information (Please also fill out the additional Cluster Well Information for Well Construction for each parcel of land and cluster.)

Total Wells in Cluster: 3 Please indicate Number of Cluster Well Information Log Sheets Submitted: _____
 Total Wells on this Property: unknown

Location of Well Cluster

Detailed Map must be provided as an attachment no larger than legal size (8.5" x 14"). Sketches are not allowed.
 Check box to confirm detailed map is provided as per Section 11.1 (3)

Consent to release additional information concerning the cluster to the Director upon request

[Redacted Signature] Date (yyyy/mm/dd): 2012/01/06
 Master Well Owner's/Land Owner's consent to use Cluster Form
 Signature: [Redacted Signature] Date (yyyy/mm/dd): 2012/01/11

Ministry Use Only

Audit No.: M 08719 Well Contractor No.: _____
 Date Received (yyyy/mm/dd): JAN 26 2012 Date of Inspection (yyyy/mm/dd): _____
 Remarks: _____

Construction Details

Inside Diameter (Centimetres)	Material (steel, plastic, fibreglass, concrete, galvanized)	Wall Thickness	Depth (Metres)	
			From	To
<u>5.1</u>	<u>PVC</u>	<u>SCHED 40</u>	<u>2.98</u>	<u>5.79</u>

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Used (Cubic Metres)
<u>1.01</u>	<u>1.30</u>	<u>Bentonite</u>	<u>20 Kg</u>

Well Contractor and Well Technician Information

Business Name of Well Contractor: George Downing Estate Drilling Ltd Well Contractor's Licence No.: 11844
 Business Address (Street No./Name, number, RR): 410 rue principale Municipality: Brenville-sur-la-Rouge
 Province: Qc Postal Code: J0V1B0 Business E-mail Address: downing@hawk.igs.net
 Bus. Telephone No. (inc. area code): 81192426469 Name of Well Technician (Last Name, First Name): Downing, Bruce
 Well Technician's Licence No.: 21173 Signature of Technician: [Redacted Signature] Date Submitted (yyyy/mm/dd): 2012/01/06

Property Owner's Information

Last Name: Leclerc Association
 Mailing Address (Street No./Name, RR): 1-2884 Chamberland Street
 Municipality: Rockland
 Province: ON
 Postal Code: K1Y1K1M16
 Telephone No. (inc. area code): 6134467777

Consent

Property Owner's Consent to use cluster form
 Signature: [Redacted] Date: [Redacted]

Consent to release additional information to the Director upon request
 Signature of Technician/Contractor: [Signature] Date (yyyy/mm/dd): 2012/01/06

Cluster Well Information

Address of Well Location (Street Number/Name, RR): 4880 Bank Street
 City/Town/Village: Ottawa
 Province: Ontario
 Lot: 10
 Concession: [Blank]
 Township: [Blank]
 County/District/Municipality: [Blank]
 GPS Unit Make: Garmin
 Model: Etrex
 Unit Mode of Operation: Undifferentiated Averaged

Well # on Sketch	UTM Coordinates		Full Depth of Hole (metres)	Hole Diameter (cm)	Method of Construction	Casing Material	Casing Length (metres)	Screen Interval (metres)		Annular Space Sealant Used	Static Water Level (metres)	Abandonment Sealant Used	Comments	Date of Completion (yyyy/mm/dd)
	Zone	Easting						Northing	From					
mw 4	18	45411855	5.60	20	HSA	PVC	2.72	2.72	5.60	Bentonite				2011/07/2
mw 1	18	45411645	5.60	20	HSA	PVC	2.74	2.74	5.60	Bentonite				2011/07/2

Well Contractor and Well Technician Information

Business Name of Well Contractor: George Downing Estate Drilling Ltd
 Business Address (Street Number/Name, RR): 410 rue principale
 Municipality: Breunville-sur-la-Rouge
 Province: Qc
 Postal Code: J0V1B08192426469
 Business Telephone No. (inc. area code): [Redacted]
 Well Contractor's Licence No.: 1844
 Business E-mail Address: downing@hawk.iq.s.net
 Name of Well Technician (First Name, Last Name): Bruce Downing
 Well Technician's Licence No.: 2173
 Date Submitted (yyyy/mm/dd): 2012/01/06
 Signature of Technician: [Signature]

Date 1st Well in Cluster Constructed (yyyy/mm/dd): 2011/07/21
 Date Last Well in Cluster Constructed (yyyy/mm/dd): 2011/07/21


Ministry Use Only

Date Received (yyyy/mm/dd): JAN 25 2012
 Date Inspected (yyyy/mm/dd): [Redacted]
 Audit No.: c13690
 Remarks: M0879

PROJECT
 PHASE II ENVIRONMENTAL SITE ASSESSMENT
 4880 BANK STREET
 OTTAWA, ONTARIO

DRAWING TITLE
 SITE PLAN

"COPYRIGHT 2011"

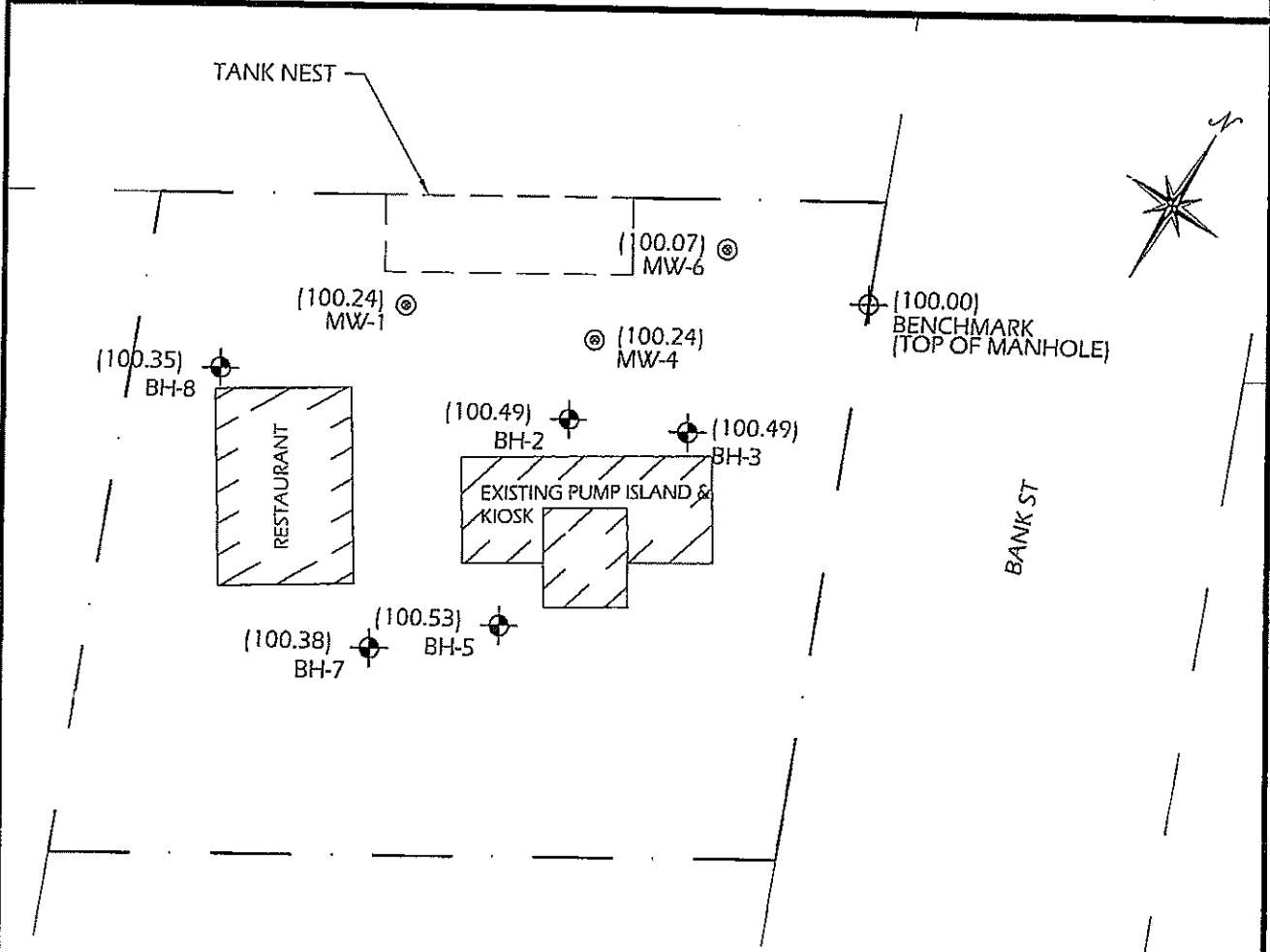


LEVAC ROBICHAUD LECLERC ASSOCIATES LTD.
 Project Managers and Consulting Engineers

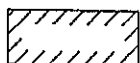

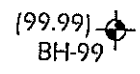
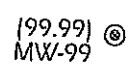
1-2884 CHAMBERLAND ST. • ROCKLAND, ONTARIO • K4K 1M6
 T:(613) 446-7777 • 1 (877) 632-5664 • F:(613) 446-1427

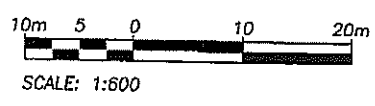
CLIENT
 LOK VANIAK

DATE JULY 28, 2011	FILE 110678	DWG No. FIGURE 2
-----------------------	----------------	---------------------



LEGEND:

-  BUILDING
-  PROPERTY LINE
-  BORE HOLE
(GROUND SURFACE ELEVATION)
-  MONITORING WELL
(GROUND SURFACE ELEVATION)



C-1844 m08719 C13690

JAN 26 2012



Tag #: A 225648

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name, Last Name / Organization (RIDEAU CADLETON DRIVEWAY), E-mail Address, Mailing Address (4837 ALBION ROAD), Municipality (GLOUCESTER), Province (ONT), Postal Code (K1X1A3), Telephone No. (613 822 2211)

Well Location

Address of Well Location (4837 ALBION ROAD), Township (OTTAWA), Lot (23), Concession (IV), County/District/Municipality (GLOUCESTER), City/Town/Village (OTTAWA), Province (Ontario), Postal Code (K1X1A3), UTM Coordinates Zone (NAD 83), Easting (18452780), Northing (5015910)

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with columns: General Colour, Most Common Material (SAUDY LOAM, FINE SAND, SANDSTONE), Other Materials, General Description, Depth (m/ft) From/To (0-3, 3-36, 36-51)

WELL CONSTRUCTION DATA FROM ORIGINAL WELL RECORD, UNTAGGED JUNE 15, 1962. DRILLER LICENSE #196 MCLEAN WATER SUPPLY.

Annular Space AUG 30 2017, Results of Well Yield Testing. Includes table for Draw Down and Recovery with columns for Time (min), Water Level (m/ft).

Method of Construction (Cable Tool, Rotary, etc.) and Well Use (Public, Commercial, Domestic, etc.)

Construction Record - Casing. Includes table for Inside Diameter (6 5/8"), Open Hole OR Material (STEEL), Wall Thickness (3/16"), Depth (0-37).

Construction Record - Screen. Includes Outside Diameter, Material (NONE), Slot No., Depth.

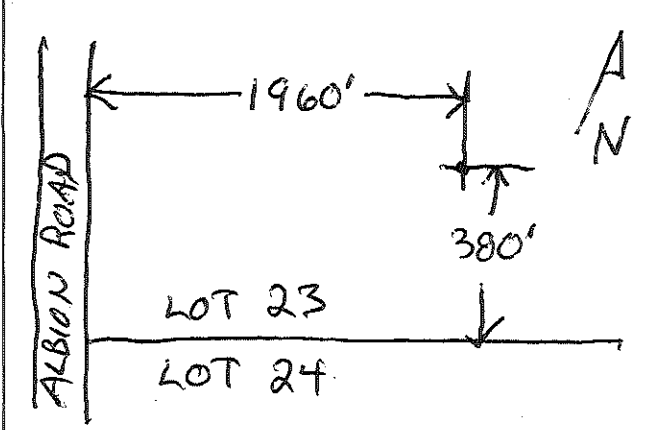
Water Details and Hole Diameter. Includes Water found at Depth (47 m/ft), Kind of Water (Fresh), Hole Diameter (Depth, Diameter).

Well Contractor and Well Technician Information. Business Name (THE PUMP HOUSE INC), Business Address (848 CLYDE AVE), Well Contractor's Licence No. (6378), Well Technician (MACINTYRE DJ).

Well owner's information package delivered (Yes), Date Package Delivered (2017 08 30), Date Work Completed (2017 08 30), Well Technician's Licence No. (3853), Date Submitted (2017 08 30).

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Ministry Use Only. Audit No. (2256899), Received (SEP 22 2017).

Measurements recorded in: Metric Imperial

Page 1 of 1

Well Owner's Information

First Name: LEITRINA SOUTH Last Name / Organization: HOUNNES E-mail Address: 90 OTTAWA GREENBELT CONSTRUCTION Well Constructed by Well Owner:

Mailing Address (Street Number/Name): 100 CITIGATE DRIVE Municipality: OTTAWA Province: ON Postal Code: K2J 6H6 Telephone No. (inc. area code): 613 231 1111

Well Location

Address of Well Location (Street Number/Name): 4808-4858 BANK ST. Township: GLUCESTER Lot: 22 Concession: 4 (RF)

County/District/Municipality: OTTAWA City/Town/Village: OTTAWA Province: Ontario Postal Code:

UTM Coordinates: Zone: 18N Easting: 602000 Northing: 4800000 Municipal Plan and Sublot Number: Other:

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From To
<u>WELL DIA.</u>	<u>STATIC WATER LEVEL</u>	<u>(G/S/EASTING)</u>	<u>(G/S/WESTING)</u>	<u>(DEPTH)</u>
<u>1329A</u>	<u>32mm OAD</u>	<u>18452902</u>	<u>5016829</u>	<u>0.0 - 2.20</u>
<u>1329B</u>	<u>38mm OAD</u>	<u>18452902</u>	<u>5016829</u>	<u>0.0 - 5.20</u>

Annular Space

Depth Set at (m/ft) From To	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
<u>Sealant He plug and Tet Plug</u>	<u>dentrite grout</u>	<u>0.03</u>

Results of Well Yield Testing

After test of well yield, water was:
 Clear and sand free
 Other, specify _____

If pumping discontinued, give reason:

Pump intake set at (m/ft): _____

Pumping rate (l/min / GPM): _____

Duration of pumping: _____ hrs + _____ min

Final water level end of pumping (m/ft): _____

If flowing give rate (l/min / GPM): _____

Recommended pump depth (m/ft): _____

Recommended pump rate (l/min / GPM): _____

Well production (l/min / GPM): _____

Disinfected? Yes No

Time (min)	Draw Down		Recovery	
	Water Level (m/ft)	Time (min)	Water Level (m/ft)	Time (min)
Static Level				
1		1		
2		2		
3		3		
4		4		
5		5		
10		10		
15		15		
20		20		
25		25		
30		30		
40		40		
50		50		
60		60		

Method of Construction

Cable Tool Diamond Public Commercial Not used
 Rotary (Conventional) Jetting Domestic Municipal Dewatering
 Rotary (Reverse) Driving Livestock Test Hole Monitoring
 Boring Digging Irrigation Cooling & Air Conditioning
 Air percussion Industrial
 Other, specify _____ Other, specify _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
<u>PVC</u>					<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input checked="" type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input checked="" type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input checked="" type="checkbox"/> Abandoned, other, specify <u>Constructed 2019</u> <input type="checkbox"/> Other, specify _____

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		Status of Well
			From	To	
					<input checked="" type="checkbox"/> Abandoned, other, specify <u>Constructed 2019</u> <input type="checkbox"/> Other, specify _____

Water Details

Water found at Depth (m/ft)	Kind of Water:	Depth (m/ft) From To	Diameter (cm/in)
	<input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	<u>Sealant</u>	
	<input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____		
	<input type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____		

Well Contractor and Well Technician Information

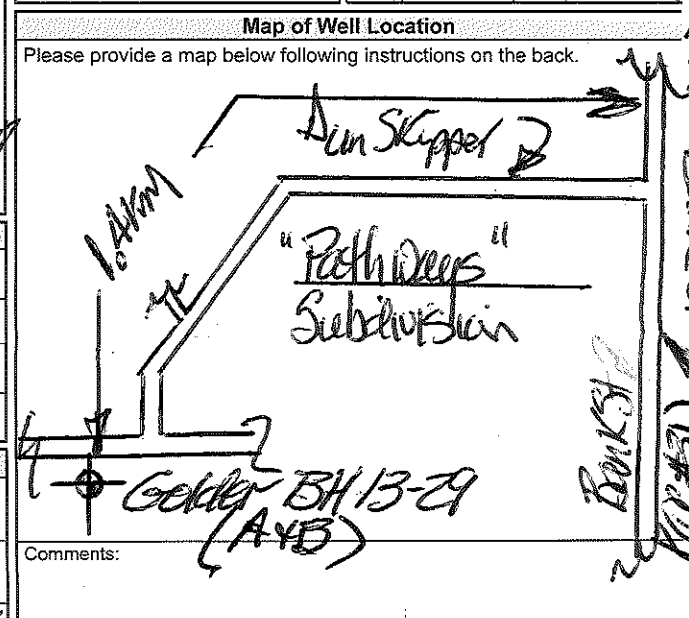
Business Name of Well Contractor: STATION DRILLING INC Well Contractor's Licence No.: 4875

Business Address (Street Number/Name): 157 FIVE ARCHES DR, BOX 219 Municipality: FARRENTA

Province: ON Postal Code: K0A2X0 Business E-mail Address: stationdrilling@bell.net

Bus. Telephone No. (inc. area code): 613 664 5672 Name of Well Technician (Last Name, First Name): STATION, PETER

Well Technician's Licence No.: 00066 Signature of Technician and/or Contractor: [Signature] Date Submitted: 20190913



Comments: Golden BH 13-29 (A+B)

Well owner's information package delivered: Yes No

Date Package Delivered: 20190913 Date Work Completed: 20190913

Ministry Use Only

Audit No.: Z252131

Received: SEP 10 2019

Measurements recorded in: Metric Imperial

Tag#: A247971

Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
	Hindu Temple of Ottawa-Carleton	hindutemp@ottawacarleton.ca	
Mailing Address (Street Number/Name)	Municipality	Province	Postal Code
4835 Bank St	Ottawa	ON	K1Y 1G6
Telephone No. (inc. area code)			

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
4835 Bank St			
County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa	Ottawa	Ontario	K1Y 1G6
UTM Coordinates Zone	Eastings	Northings	Municipal Plan and Sublot Number
NAD 83	19453959501	7560	
Other			

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
gray	fill	fill, sand	Very Dense	0'	19'10"

Annular Space			
Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	8'8"	Bentonite	3.8 ft³
8'8"	19'10"	Silica Sand	3.8 ft³

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input checked="" type="checkbox"/> Monitoring
<input checked="" type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify		<input type="checkbox"/> Other, specify		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input checked="" type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
2.067	PVC	0.154	0'	9'10"	

Construction Record - Screen					
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Other, specify
			From	To	
2.375	PVC	3	9'10"	19'10"	

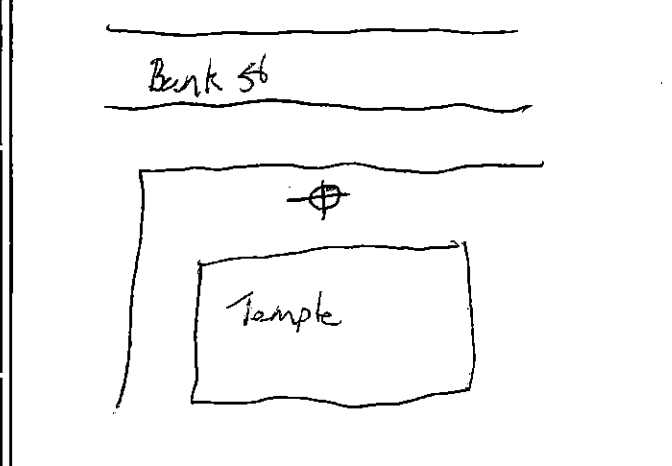
Water Details		Hole Diameter		
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
11' (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify		0'	19'10"	8"
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested			
(m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify				
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested			
(m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify				

Well Contractor and Well Technician Information			
Business Name of Well Contractor	Well Contractor's Licence No.		
CC Environmental Drilling	7 5 4 13		
Business Address (Street Number/Name)	Municipality		
48-2127 Edinburgh Place	Ottawa		
Province	Postal Code	Business E-mail Address	
ON	K1Y 1G6	mwebb@ccgroup.ca	
Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)		
613 737 5229	Seymour Vincent		
Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted	
3380	[Signature]	2019 09 24	

Results of Well Yield Testing				
After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level			
	1		1	
	Pump intake set at (m/ft)	2	2	
	Pumping rate (l/min / GPM)	3	3	
	Duration of pumping hrs + min	4	4	
	5	5		
Final water level end of pumping (m/ft)	10	10		
If flowing give rate (l/min / GPM)	15	15		
	20	20		
Recommended pump depth (m/ft)	25	25		
Recommended pump rate (l/min / GPM)	30	30		
Well production (l/min / GPM)	40	40		
	50	50		
Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No	60	60		

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well owner's information package delivered <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Package Delivered	Ministry Use Only Audit No. 2286383 OCT 22 2019 Received
	Date Work Completed	
	2019 09 24	



Tag#: A247970

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name, Last Name / Organization, E-mail Address, Mailing Address, Municipality, Province, Postal Code, Telephone No.

Well Location

Address of Well Location, Township, Lot, Concession, County/District/Municipality, City/Town/Village, Province, Postal Code, UTM Coordinates, Zone, Easting, Northing, Municipal Plan and Sublot Number, Other

Overburden and Bedrock Materials/Abandonment Sealing Record

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To

Annular Space

Table with columns: Depth Set at (m/ft) From, To, Type of Sealant Used, Volume Placed, Results of Well Yield Testing

Method of Construction, Well Use

Construction Record - Casing, Status of Well

Construction Record - Screen

Water Details, Hole Diameter

Well Contractor and Well Technician Information

Business Name of Well Contractor, Well Contractor's Licence No., Business Address, Municipality, Province, Postal Code, Business E-mail Address, Bus. Telephone No., Name of Well Technician, Well Technician's Licence No., Signature of Technician and/or Contractor, Date Submitted, Date Package Delivered, Date Work Completed, Ministry Use Only

Map of Well Location, Comments, Ministry Use Only

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name	Last Name / Organization <i>Hindu Temple of Ottawa</i>	E-mail Address <i>hindutemple@gmail.com</i>	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) <i>4835 Bank St</i>	Municipality <i>Ottawa</i>	Province <i>ON</i>	Postal Code <i>K1Y1G6</i>
			Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name) <i>4835 Bank St</i>	Township	Lot	Concession
County/District/Municipality	City/Town/Village <i>Ottawa</i>	Province Ontario	Postal Code <i>K1Y1G6</i>
UTM Coordinates NAD 83 <i>18453946 5017598</i>	Zone	Easting	Northing
Municipal Plan and Sublot Number		Other	

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
<i>Grey</i>	<i>Till</i>	<i>sand, F. 11</i>	<i>Very Dense</i>	<i>0'</i>	<i>13'3"</i>

Annular Space			
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
<i>0'</i>	<i>7'</i>	<i>Benkrite</i>	<i>2.5 ft³</i>
<i>7'</i>	<i>13'3"</i>	<i>Silica Sand</i>	<i>3A³</i>

Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input checked="" type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input checked="" type="checkbox"/> Monitoring
<input type="checkbox"/> Air percussion	<input type="checkbox"/> Other, specify	<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & Air Conditioning
<input type="checkbox"/> Other, specify		<input type="checkbox"/> Other, specify	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input checked="" type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
<i>2.067</i>	<i>PVC</i>	<i>0.54</i>	<i>0'</i>	<i>8'3"</i>	

Construction Record - Screen					
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)		<input type="checkbox"/> Other, specify
			From	To	
<i>2.375</i>	<i>PVC</i>	<i>3</i>	<i>8'3"</i>	<i>13'3"</i>	

Results of Well Yield Testing				
After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) Pumping rate (l/min / GPM) Duration of pumping hrs + min Final water level end of pumping (m/ft) If flowing give rate (l/min / GPM) Recommended pump depth (m/ft) Recommended pump rate (l/min / GPM) Well production (l/min / GPM) Disinfected? <input type="checkbox"/> Yes <input type="checkbox"/> No	Static Level			
	1		1	
	2		2	
	3		3	
	4		4	
	5		5	
10		10		
15		15		
20		20		
25		25		
30		30		
40		40		
50		50		
60		60		

Map of Well Location

Please provide a map below following instructions on the back.

Bank St

Comments:

Water Details		Hole Diameter		
Water found at Depth <i>10'</i> (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From	To	Diameter (cm/in)
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	<i>0"</i>	<i>13'3"</i>	<i>8"</i>
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested			

Well Contractor and Well Technician Information

Business Name of Well Contractor <i>CC Geotechnical and Environmental Drilling</i>	Well Contractor's Licence No. <i>75413</i>
Business Address (Street Number/Name) <i>49-267 Edinburgh Pl</i>	Municipality <i>Ottawa</i>
Province <i>ON</i>	Postal Code <i>K1B5M1</i>
Business E-mail Address <i>M. Webb @ CC group.ca</i>	Name of Well Technician (Last Name, First Name) <i>Sedman, Vincent</i>
Bus. Telephone No. (inc. area code) <i>613 737 5227</i>	Signature of Technician and/or Contractor <i>[Signature]</i>
Well Technician's Licence No. <i>3380</i>	Date Submitted <i>7/28/11</i>

Well owner's information package delivered <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Package Delivered Y Y Y Y M M D D <i>20110924</i>	Date Work Completed <i>20110924</i>	Ministry Use Only Audit No. 2286384 Received <i>7/27/11</i>
---	--	--	--



Measurements recorded in: Metric Imperial

Page _____ of _____

Well Owner's Information

First Name: Erin, Last Name / Organization: Oconnor Regional Group, E-mail Address: eoconnor@regionalgroup.com, Well Constructed by Well Owner:

Well Location

Address of Well Location: 4840 Bank Street, Township: Ottawa, City/Town/Village: Ottawa, Province: Ontario, Postal Code: K1X 1G6

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To. Contains two entries for well decommissioning.

Annular Space table with columns: Depth Set at (m/ft) From, To; Type of Sealant Used; Volume Placed (m³/ft³).

Results of Well Yield Testing table with columns: Draw Down (Time, Water Level), Recovery (Time, Water Level). Includes pumping rate and duration.

Method of Construction and Well Use table with checkboxes for Cable Tool, Rotary, Boring, etc.

Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth, Status of Well.

Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth, Status of Well.

Water Details and Hole Diameter table with columns: Water found at Depth, Kind of Water, Hole Diameter (Depth, Diameter).

Well Contractor and Well Technician Information table with fields for Business Name, License No., Address, etc.

Map of Well Location section with a hand-drawn diagram showing 'Dunskipper St' and 'Bank St' with a well location marked at 425 FT.

Well owner's information package delivered table with fields for Date Package Delivered, Date Work Completed, Yes/No checkboxes.

Ministry Use Only table with fields for Audit No. (2307113), Received date (JAN 10 2020).



SEE BELOW.

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name: LEITRAM SOUTH HOLDINGS INC. Last Name / Organization: 90 TOMLINSON GROUP E-mail Address: [blank] Well Constructed by Well Owner

Mailing Address (Street Number/Name): 180 CITIGATE Municipality: OTTAWA Province: ON Postal Code: K2H 6A7 Telephone No. (inc. area code): 613 692 3222

Well Location

Address of Well Location (Street Number/Name): N/A. Township: GLOUCESTER (E) Lot: 21 Concession: A

County/District/Municipality: OTTAWA. City/Town/Village: OTTAWA. Province: Ontario Postal Code: [blank]

UTM Coordinates Zone, Easting, Northing: NAD 83 SEE TABLE BELOW. Municipal Plan and Sublot Number: [blank] Other: [blank]

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To. Rows include well logs for 131B, 131A, 131b.

Annular Space table with columns: Depth Set at (m/ft) From, To; Type of Sealant Used (Material and Type); Volume Placed (m³/ft³). Includes handwritten notes like 'Hole plug / Red Plug'.

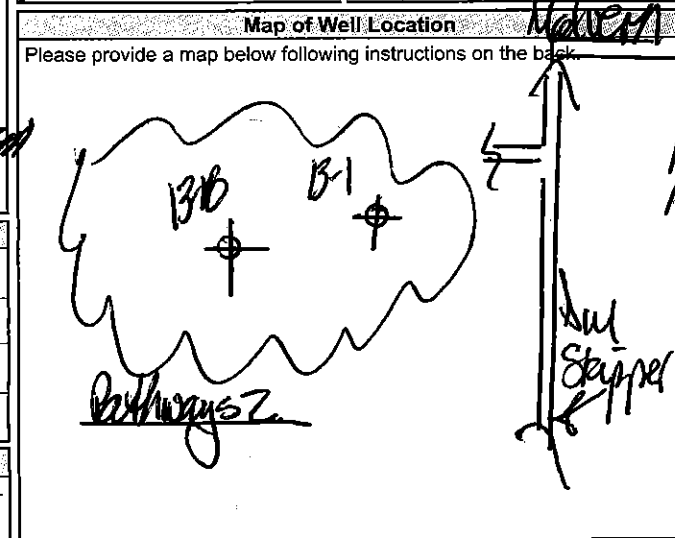
Results of Well Yield Testing table with columns: Draw Down (Time, Water Level), Recovery (Time, Water Level). Includes a large handwritten 'X' over the table.

Method of Construction and Well Use table with checkboxes for Cable Tool, Rotary, Boring, etc., and Public, Commercial, etc. uses.

Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (m/ft) From, To; Status of Well (Water Supply, etc.).

Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth (m/ft) From, To; Status of Well.

Water Details and Hole Diameter table with columns for water depth, kind of water, and hole diameter.



Well Contractor and Well Technician Information table with fields for Business Name (STANION DRILLING INC), Business Address, Province, Postal Code, Business E-mail Address, Name of Well Technician, etc.

Ministry Use Only table with fields for Audit No. (322883), Date Package Delivered, Date Work Completed, and Received date (APR 08 2020).

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A219864

Type *

Construction Abandonment

Measurement recorded in: *

Metric Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization Aecon Construction and Materials Limited	Email Address

Current Address

Unit Number	Street Number * 4949	Street Name * Bank Street	City/Town/Village Gloucester
Country Canada	Province Ontario	Postal Code K1X 1G7	Telephone Number

2. Well Location

Address of Well Location

Unit Number	Street Number * 4949	Street Name * Bank Street	Township Gloucester
Lot	Concession	County/District/Municipality Carleton	
City/Town Gloucester	Province Ontario	Postal Code K1X 1G7	
UTM Coordinates NAD 83	Zone * 18	Easting * 454374	Northing * 5016659
			Municipal Plan and Sublot Number Test UTM in Map

Other
BH2-23

3. Overburden and Bedrock Material *

Well Depth * 50	(ft)				
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Grey	Gravel	Sand		0	5
Grey	Limestone			5	50

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	49	Hole Plug	4.54
49	50	Sand	0.07

5. Method of Construction *

- Cable Tool Rotary (Conventional) Rotary (Reverse) Boring Air percussion Diamond
 Jetting Driving Digging Rotary (Air) Augering Direct Push
 Other (specify) _____

6. Well Use *

- Public Industrial Cooling & Air Conditioning
 Domestic Commercial Not Used
 Livestock Municipal Monitoring
 Irrigation Test Hole Dewatering
 Other (specify) _____

7. Status of Well *

- Water Supply Replacement Well Test Hole
 Recharge Well Dewatering Well Observation and/or Monitoring Hole
 Alteration (Construction) Abandoned, Insufficient Supply Abandoned, Poor Water Quality
 Abandoned, other (specify) _____
 Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
2	Plastic	0.25	0	40

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	40	50

10. Water Details

Water found at Depth **2** (ft) Gas Kind of water Fresh Untested Other

Water found at Depth **40** Gas Kind of water Fresh Untested Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	5	8
5	50	4

12. Results of Well Yield Testing

Pumping Discontinued

Explain _____

If flowing give rate

Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

Clear and sand free Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
-------------------------	--------------------	-------------------------------	---------------------------------------	---

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)
-----------------------------	-----------------------------	-----------------------

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. Make map area bigger



14. Information

Well owner's information package delivered <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) * 2023/03/29
--	-------------------------------------	--

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor * Aardvark Drilling Inc.	Well Contractor's License Number * 7675
--	--

Business Address

Unit Number C	Street Number 25	Street Name * Lewis Road
City/Town/Village * Guelph	Province ON	Postal Code * N1H 1E9

Business Telephone Number 519-826-9340	Business Email Address info@aardvarkdrillinginc.com
---	--

Last Name of Well Technician * Tabbert	First Name of Well Technician * Devin	Well Technician's License Number * 4557
---	--	--

16. Declaration *

I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name England	First Name Matthew	Email Address mengland@aardvarkdrillinginc.com
----------------------	-----------------------	---

Signature Matt England	Digitally signed by Matt England Date: 2023.04.12 09:20:13 -04'00'	Date Submitted (yyyy/mm/dd) 2023/04/12
---------------------------	---	---

17. Ministry Use Only

Audit Number UJW8 VM4D

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A219865

Type *

Construction Abandonment

Measurement recorded in: *

Metric Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization Aecon Construction and Materials Limited	Email Address

Current Address

Unit Number	Street Number * 4949	Street Name * Bank Street	City/Town/Village Gloucester
Country Canada	Province Ontario	Postal Code K1X 1G7	Telephone Number

2. Well Location

Address of Well Location

Unit Number	Street Number * 4949	Street Name * Bank Street	Township Gloucester
Lot	Concession	County/District/Municipality Carleton	
City/Town Gloucester	Province Ontario	Postal Code K1X 1G8	
UTM Coordinates NAD 83	Zone * 18	Easting * 454398	Northing * 5016664
			Municipal Plan and Sublot Number Test UTM in Map

Other
MW5-23

3. Overburden and Bedrock Material *

Well Depth * 45	(ft)				
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Grey	Gravel	Sand		0	2
Grey	Limestone			2	45

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	34	Hole Plug	2.77
34	45	Sand	0.73

5. Method of Construction *

- Cable Tool Rotary (Conventional) Rotary (Reverse) Boring Air percussion Diamond
 Jetting Driving Digging Rotary (Air) Augering Direct Push
 Other (specify) _____

6. Well Use *

- Public Industrial Cooling & Air Conditioning
 Domestic Commercial Not Used
 Livestock Municipal Monitoring
 Irrigation Test Hole Dewatering
 Other (specify) _____

7. Status of Well *

- Water Supply Replacement Well Test Hole
 Recharge Well Dewatering Well Observation and/or Monitoring Hole
 Alteration (Construction) Abandoned, Insufficient Supply Abandoned, Poor Water Quality
 Abandoned, other (specify) _____
 Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
2	Plastic	0.25	0	35

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	35	45

10. Water Details

Water found at Depth **1.5** (ft) Gas Kind of water Fresh Untested Other

Water found at Depth **33** Gas Kind of water Fresh Untested Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	2	8
2	45	4

12. Results of Well Yield Testing

Pumping Discontinued

Explain _____

If flowing give rate

Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

Clear and sand free Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
-------------------------	--------------------	-------------------------------	---------------------------------------	---

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)
-----------------------------	-----------------------------	-----------------------

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. Make map area bigger



14. Information

Well owner's information package delivered <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) * 2023/03/28
--	-------------------------------------	--

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor * Aardvark Drilling Inc.	Well Contractor's License Number * 7675
--	--

Business Address

Unit Number C	Street Number 25	Street Name * Lewis Road
City/Town/Village * Guelph	Province ON	Postal Code * N1H 1E9

Business Telephone Number 519-826-9340	Business Email Address info@aardvarkdrillinginc.com
---	--

Last Name of Well Technician * Tabbert	First Name of Well Technician * Devin	Well Technician's License Number * 4557
---	--	--

16. Declaration *

I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name England	First Name Matthew	Email Address mengland@aardvarkdrillinginc.com
----------------------	-----------------------	---

Signature Matt England	Digitally signed by Matt England Date: 2023.04.12 09:17:58 -04'00'	Date Submitted (yyyy/mm/dd) 2023/04/12
---------------------------	---	---

17. Ministry Use Only

Audit Number O85E RJ9U

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A219866

Type *

Construction Abandonment

Measurement recorded in: *

Metric Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization Aecon Construction and Materials Limited	Email Address

Current Address

Unit Number	Street Number * 4949	Street Name * Bank Street	City/Town/Village Gloucester
Country Canada	Province Ontario	Postal Code K1X 1G7	Telephone Number

2. Well Location

Address of Well Location

Unit Number	Street Number * 4949	Street Name * Bank Street	Township Gloucester
Lot	Concession	County/District/Municipality Carleton	
City/Town Gloucester	Province Ontario	Postal Code K1X 1G8	
UTM Coordinates NAD 83	Zone * 18	Easting * 454374	Northing * 5016605
			Municipal Plan and Sublot Number Test UTM in Map

Other
MW1-23

3. Overburden and Bedrock Material *

Well Depth * 66	(ft)				
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Gravel	Sand		0	8
Grey	Limestone			8	66

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	53	Hole Plug	5.59
53	55	Pellet Plug	0.13
55	66	Sand	0.73

5. Method of Construction *

- Cable Tool Rotary (Conventional) Rotary (Reverse) Boring Air percussion Diamond
 Jetting Driving Digging Rotary (Air) Augering Direct Push
 Other (specify) _____

6. Well Use *

- Public Industrial Cooling & Air Conditioning
 Domestic Commercial Not Used
 Livestock Municipal Monitoring
 Irrigation Test Hole Dewatering
 Other (specify) _____

7. Status of Well *

- Water Supply Replacement Well Test Hole
 Recharge Well Dewatering Well Observation and/or Monitoring Hole
 Alteration (Construction) Abandoned, Insufficient Supply Abandoned, Poor Water Quality
 Abandoned, other (specify) _____
 Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
2	Plastic	0.25	0	56

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
2	Plastic	10	56	66

10. Water Details

Water found at Depth 5	(ft)	<input type="checkbox"/> Gas	Kind of water	<input type="checkbox"/> Fresh	<input type="checkbox"/> Untested	<input type="checkbox"/> Other
Water found at Depth 57		<input type="checkbox"/> Gas	Kind of water	<input type="checkbox"/> Fresh	<input type="checkbox"/> Untested	<input type="checkbox"/> Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	8	8
8	66	4

12. Results of Well Yield Testing

Pumping Discontinued

Explain _____

If flowing give rate

Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

Clear and sand free Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)		

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. Make map area bigger



14. Information

Well owner's information package delivered <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) * 2023/03/28
Comments		

15. Well Contractor and Well Technician Information

Business Name of Well Contractor * Aardvark Drilling Inc.		Well Contractor's License Number * 7675	
Business Address			
Unit Number C	Street Number 25	Street Name * Lewis Road	
City/Town/Village * Guelph		Province ON	Postal Code * N1H 1E9
Business Telephone Number 519-826-9340	Business Email Address info@aardvarkdrillinginc.com		
Last Name of Well Technician * Tabbert	First Name of Well Technician * Devin	Well Technician's License Number * 4557	

16. Declaration *

I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name England	First Name Matthew	Email Address mengland@aardvarkdrillinginc.com
Signature Matt England		Date Submitted (yyyy/mm/dd) 2023/04/12
Digitally signed by Matt England Date: 2023.04.12 09:19:07 -04'00'		

17. Ministry Use Only

Audit Number
YTCY BLDC