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PH5068-LET.01

Megha Holdings Inc.
1558 Blohm Drive
Ottawa, Ontario
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Attention: Nikhil Sarna

Subject: **Hydrogeological Assessment and Terrain Analysis**
3113 Carp Road
Ottawa (Carp), Ontario

INTRODUCTION

Further to your request, Paterson has conducted a Hydrogeological Assessment and Terrain Analysis in support of a Site Plan Control Application for the proposed commercial building to be located at 3113 Carp Road in Ottawa (Carp), Ontario.

The purpose of this work has been to determine the suitability of the water supply aquifer underlying the site to support the Site Plan Application for a proposed commercial development.

The subject site consists of a 3.06 ha lot which is currently vacant and has been historically used as an agricultural area. The ground surface generally slopes towards the southeast while the general overburden groundwater flow direction is inferred to be northeast towards the Carp River.

The subject site is bordered to the north by institutional land use and agricultural properties, to the east by Carp Road followed by residential and commercial properties, to the south by residential properties and agricultural lands, and to the west by vacant lands. The subject site itself and the surrounding properties are zoned RC9 or variations of RC9 for Carp Road Corridor (Highway Commercial Restricted) with various limitations (GeoOttawa).

Previous applications

A Hydrogeological Assessment and Terrain Analysis (HATA) completed by Paterson was submitted to the City as part of an earlier Site Plan application for the subject site. The previous HATA was titled Hydrogeological Assessment and Terrain Analysis - 3113 Carp Road, Ottawa (Carp), Ontario with report number PH4654-LET.01-REV.02 dated August 19, 2024, and hereafter referred to as the previous HATA. The previous HATA should be read in conjunction with this HATA.

Hydrogeological Pre-Consultations

A hydrogeological pre-consultation was completed with a City of Ottawa Hydrogeologist on July 25, 2025.

As part of the Site Plan application, the drinking water well that is to support the current application needed to be moved approximately 20 m away from the well which was assessed as part of the previous HATA (Test Well 1 - TW1). As the previous HATA was recently completed for this site, a scoped Hydrogeological Assessment was proposed. It was agreed upon that the newly installed well (Test Well 2 - TW2) would be considered representative if it could be demonstrated that it encountered similar groundwater quality as TW1. If TW2 was geochemically similar to TW1, then the groundwater quantity assessment completed as part of the previous HATA could be used to support this application.

Description of Subject Site

The subject site is an approximately 3.06 ha lot and is currently vacant. Historically it has been used for agricultural activities. The Site Plan Application is for a proposed new commercial building and associated infrastructure. Please refer to Figure 1 - Key Plan and Studio G-68 & RP Ancheta Architect Drawing A-012 Rev.0.8 dated August 9, 2025 attached for the proposed site location and site layout.

A new sewage system to service the commercial building has been proposed. A septic flow calculation was completed as part of the Ottawa Sewage System Office (OSSO) Sewage System Installation Permit (SSIP) and resulted in a total daily water demand calculation of 5,400 L/day. An approved OSSO SSIP has been included with this submission.

A drilled potable supply well was installed on March 8, 2023, hereafter referred to as Test Well 1 (TW1) and extends to a maximum depth of 54.9 m below existing ground surface (bgs). Due to a change in the proposed site plan, a new drilled potable supply well was installed on August 26, 2025, hereby referred to as Test Well 2 (TW2) and extends to 48.76 m bgs.

The suitability of the aquifer to supply the subject site was assessed using the methodology provided in City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG).

MISSISSIPPI-RIDEAU SOURCE PROTECTION PLAN

The Mississippi-Rideau Source Protection Plan (MRSPP) provides guidance as to which policies apply to a given property, municipality or specific activity and if there are specific designations that apply to the area. The subject site and surrounding areas have been designated as a Significant Groundwater Recharge Area (SGRA), and Highly Vulnerable Aquifer (HVA) within the MRSPP and are identified as two of four groundwater related vulnerable areas identified within the Clean Water Act (2006). The four vulnerable areas consist of SGRA, HVA, Intake Protection Zone (IPZ) and Wellhead Protection Area (WHPA).

Based upon the designation of an SGRA, and HVA, the MRSPP provides a list of activities that are prohibited, managed or encouraged to change dependent upon the vulnerable area type. Therefore, there is no prohibition of land uses on the subject site based upon its proposed usage. Therefore, there are no related requirements for an HVA, or SGRA at this location.

FIELDWORK PROGRAM

TW1

As a means to demonstrate the adequacy of the aquifer underlying the subject lands, with respect to water quality and quantity, the drilled well (TW1) on the subject site was tested as part of the previous HATA. TW1 has a Water Well Record (WWR) Well ID of A318705. TW1 has a 152.4 mm diameter steel casing that extends to 22.4 m bgs with a 0.59 m stick up. The well itself extends to a depth of 54.9 m bgs. Based on available geological mapping, the drift thickness at TW1 varies from 3 to 10 m. Refer to Studio G-68 & RP Ancheta Architect Drawing A-012 Rev.0.8 dated August 9, 2025, attached, for the approximate locations of TW1.

As a means to evaluate the water supply aquifer intercepted by the well, TW1 was subjected to an 8-hour constant rate pumping test. The pumping test was conducted on March 21, 2023 under the full-time supervision of Paterson personnel. Prior to the pumping test, a datalogger was installed to monitor background groundwater levels and the well was disinfected by Air Rock Drilling Co. Ltd. (Air Rock) personnel.

A submersible pump was provided by Air Rock for the 8-hour pumping test. A licensed water well technician completed the necessary plumbing related activities. A discharge hose assembly with a gate valve was connected to the rented pump. The discharge line was placed at a sufficient distance to ensure that the discharge water was being directed away from the well as well as any septic systems in the area. Upon completion of the test, the pump was removed, and the well was disinfected by Air Rock.

The pumping test was carried out at a pumping rate of 45 L/min for a duration of 8 hours, after which the pumping rate was reduced to approximately 24 L/min for approximately an hour in an attempt to lower turbidity levels. During the pumping test, the pumping rate was periodically measured using the timed volume correlation method. The pump rate was maintained within 5% of the selected pump rate. The static water level was recorded manually and an electronic datalogger (VanEssen TD-Diver) was installed in the test well prior to the start of the pumping test. The selected rate of 45 L/min provides approximately 4 times the maximum total daily design volume for the septic system during the 8-hour pumping test. The rate was determined to be representative of a flow rate which would be in excess of what the development would require.

The datalogger recorded water levels at 30 second intervals. In addition, manual water level readings were taken at periodic intervals during the test.

Recovery data was collected from the well following the completion of the pumping. The well was noted to have achieved 95% recovery approximately 5 minutes after the completion of pumping.

Groundwater samples were collected 4 hours and 9 hours after the start of pumping. Prior to collection of the groundwater samples, the free chlorine residual was verified as non-detectable. The water samples were submitted for comprehensive testing of bacteriological, chemical, and physical water quality parameters consistent with the standard “Subdivision Supply” suite of parameters plus trace metals, Volatile Organic Compounds (VOCs), and Petroleum hydrocarbons (PHCs).

All samples were collected unfiltered and unchlorinated and were placed directly into clean bottles supplied by the analytical laboratory. Samples were placed immediately into a cooler with ice and were transported directly to Environmental Testing Canada Inc. (Eurofins) laboratory in Ottawa. All samples were received by the laboratory within 24 hours of collection.

A series of field tests of the pumped water were carried out at the well head during the 8-hour pumping test. The parameters tested at the well head included: pH, total dissolved solids, conductivity, turbidity, true colour, and temperature.

Once TW1 is no longer be in use, it will need to be decommissioned in accordance with O.Reg 903.

TW2

An additional water supply well (TW2) was installed approximately 20 m south of the location of TW1 due to a change in site plan that took place after TW1 was installed and tested. TW2 has a Water Well ID number of A437749 and was installed on August 26, 2025. TW2 has a 152.4 mm diameter steel casing that extends to 18.3 m bgs with a 0.5 m stick up. The well itself extends to a depth of 48.8 m bgs.

An O.Reg 903 1-hour pumping test was completed on August 28, 2025 at a rate of 76 L/min. The pumping test was extended to 3 hours to confirm water quality and quantity, as per the hydrogeological pre-consultation requirements. After 3 hours, the field testing results indicated that elevated apparent colour and turbidity was still present in the groundwater. The discharge rate was decreased to 38 L/min for a further 4 hours, after which samples were obtained and submitted for laboratory analysis. The water samples were submitted for comprehensive testing of bacteriological, chemical, and physical water quality parameters consistent with the standard “Subdivision Supply” suite of parameters plus trace metals, Volatile Organic Compounds (VOCs), and Petroleum hydrocarbons (PHCs).

The submersible pump was provided by Air Rock. A licensed water well technician completed the necessary plumbing related activities. The discharge line was placed at a sufficient distance to ensure that the discharge water was being directed away from the well as well as any septic systems in the area. Upon completion of the test, the pump was removed, and the well was disinfected by Air Rock.

An elevated aluminum concentration was encountered in the laboratory results at levels exceeding the operational guideline of 0.1 mg/L. Elevated aluminum levels are often associated with newly drilled wells. Air Rock returned to site on September 19, 2025 to purge the well at a rate of 23 L/min for 6 hours. Paterson returned to site after the well was purged for 6 hours, completed field testing, and obtained additional samples that were submitted to an analytical laboratory for trace metals analysis. The sample results from September 19, 2025 showed an aluminum concentration that did not exceed the operational guideline, and can be found attached.

Aquifer Analysis

Due to the proximity of TW1 to TW2, and the similarity in the geochemistry encountered in both wells, it can be inferred that both TW1 and TW2 access the same aquifer.

Water Quantity

Pumping test data was analyzed using AQTESOLV Pro Version 4 aquifer analysis software package by HydroSOLVE Inc. Drawdown data was measured using an electronic water level tape and an electronic datalogger unit.

Table 1: SUMMARY OF WATER SUPPLY AQUIFER CHARACTERISTICS OF TW1

AQUIFER PARAMETER	RESULT OF ANALYSIS
Transmissivity (m^2/day)	94.2
Pumping Rate (L/min)	45
Pre-test Static Water Level (m btoc)	1.8
Drawdown (m)	Max – 4.8, End – 4.7
Available Drawdown (m)	53.1
% Drawdown During Pump Test (%)	9
Specific Capacity (L/min/m drawdown)	9.5

The drawdown data in TW1 was analyzed using the Theis and Cooper-Jacob methods of analysis. Aquifer transmissivity is estimated to be 94.21 m^2/day. Refer to the Theis and Cooper-Jacob methods of analysis data sheets attached to this report.

As demonstrated by the measured values, the water level in the well was increasing consistently (however slightly) as the pumping test was performed. As the water level increased slightly during the constant pumping portion of the test, it is expected that continued pumping of the well cleared out fissures in the bedrock allowing for an increase in the aquifers ability to flow.

The pumping test results show that TW1 has a high yield to support the water demands that may be required. Overall maximum drawdown at a constant pumping rate for a period of 8 hours was approximately 4.8 m at approximately 80 minutes into the pumping test (9% of the available drawdown). The final drawdown at the end of the 8-hour pumping test was 4.7 m (9% of the available drawdown). 95% recovery was achieved approximately 5 minutes after the end of pumping.

The total volume of water pumped during the 8-hour pumping event was approximately 21,600 L. This is approximately 4 times the maximum total daily design sanitary sewage flow (TDDSSF) volume of water (5,400 L/day) required to support the Site Plan Control Application.

According to the WWR for TW2, TW2 was purged at a rate of 74 L/min and experienced a total drawdown of 1.1 m. After 3 hours of discharging at 74 L/min, a total drawdown of 1.1 m was observed by Paterson personnel. After the 3-hour mark, the discharge rate was decreased to 38 L/min for an additional 4 hours. The total quantity discharged during the well purge of TW2 on August 28, 2025 was 22,440 L.

The suitability of the aquifer to supply the proposed Site Plan Application for the proposed commercial development was assessed using the methodology provided in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG).

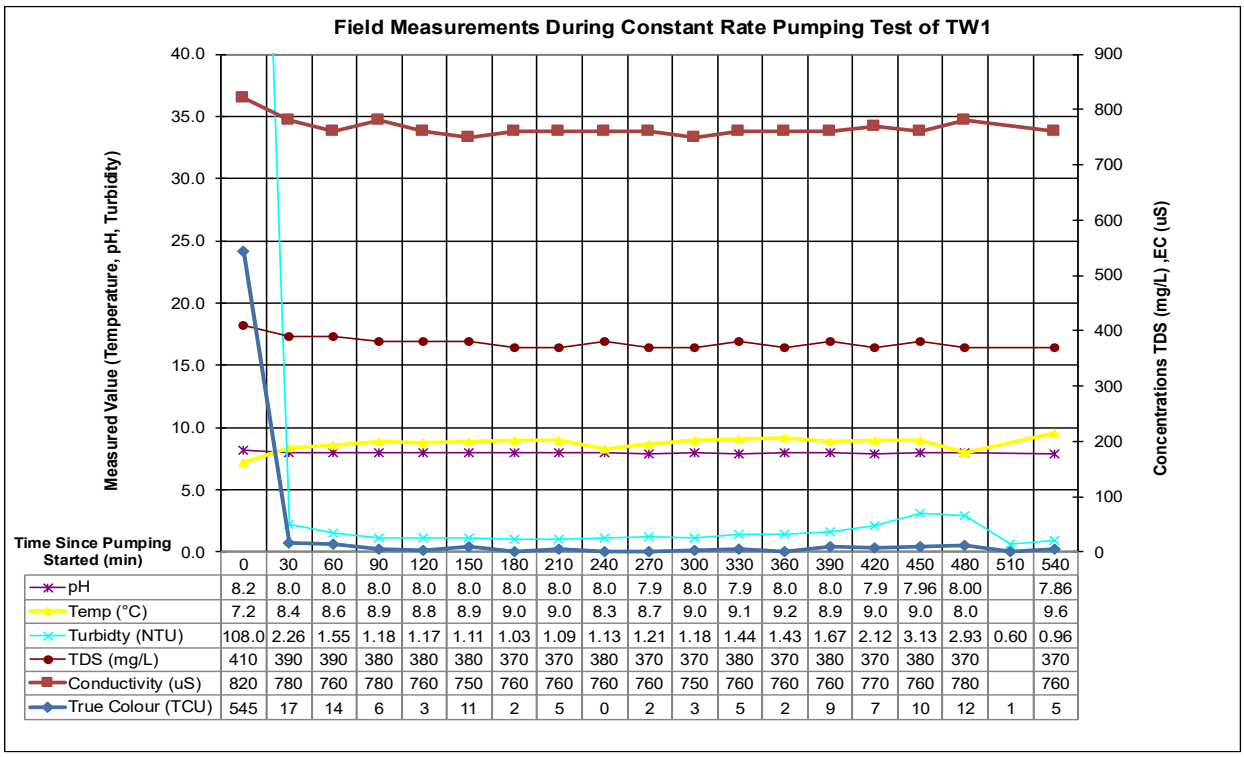
Based on the information summarized in Table 1, it is readily apparent that both water supply wells have intercepted an adequately strong water supply aquifer which has sufficient quantity to service the proposed Site Plan Control Application.

Given the analyses presented and summarized above, it is our opinion that there is an adequate supply of water to support the proposed Site Plan Control Application. Available water well records (WWR) of the neighboring properties on the MECP Well Record mapping website indicated that the surrounding wells were screened in limestone. Surrounding WWR's are attached to this report.

Water Quality

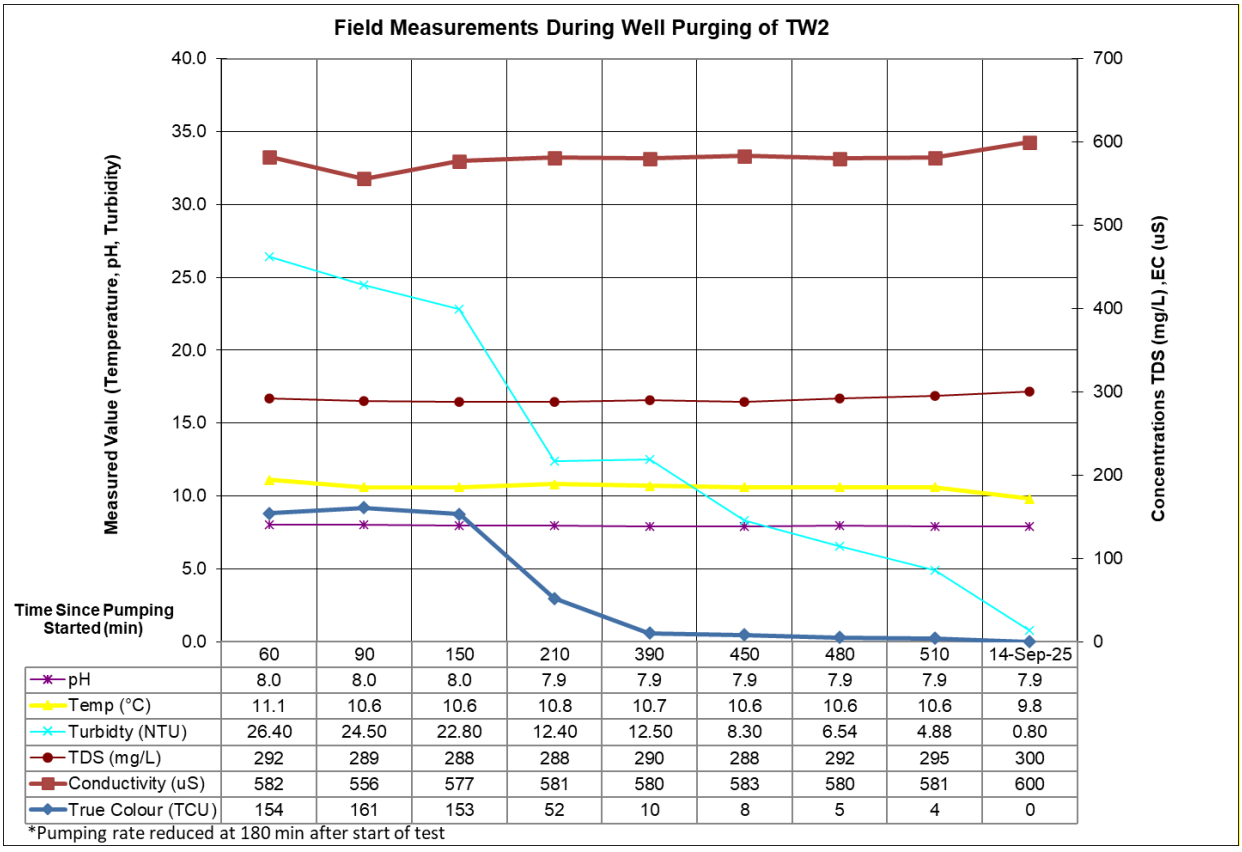
Field Data

Turbidity, electrical conductivity, total dissolved solids (TDS), pH, true colour and temperature were measured at the wellhead during the pumping test. The measurements and time intervals for each of these parameters are summarized on the graphical representation below. In addition, a HACH Pocket Colorimeter II chlorine reader was used to measure the free chlorine residual level. No chlorine residual was detected in the discharged water prior to the collection of the water samples.



Time Since Pumping Started (min)	0	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540
pH	8.2	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	7.9	8.0	8.0	7.9	7.96	8.00		7.86
Temp (°C)	7.2	8.4	8.6	8.9	8.8	8.9	9.0	9.0	8.3	8.7	9.0	9.1	9.2	8.9	9.0	9.0	8.0		9.6
Turbidty (NTU)	108.0	2.26	1.55	1.18	1.17	1.11	1.03	1.09	1.13	1.21	1.18	1.44	1.43	1.67	2.12	3.13	2.93	0.60	0.96
TDS (mg/L)	410	390	390	380	380	380	370	370	380	370	370	380	370	380	370	380	370		370
Conductivity (uS)	820	780	760	780	760	750	760	760	760	760	750	760	760	760	770	760	780		760
True Colour (TCU)	545	17	14	6	3	11	2	5	0	2	3	5	2	9	7	10	12	1	5

Figure 1: Field Measurements During Constant Rate Pumping Test of TW1



Time Since Pumping Started (min)	60	90	150	210	390	450	480	510	14-Sep-25
pH	8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.9	7.9
Temp (°C)	11.1	10.6	10.6	10.8	10.7	10.6	10.6	10.6	9.8
Turbidty (NTU)	26.40	24.50	22.80	12.40	12.50	8.30	6.54	4.88	0.80
TDS (mg/L)	292	289	288	288	290	288	292	295	300
Conductivity (uS)	582	556	577	581	580	583	580	581	600
True Colour (TCU)	154	161	153	52	10	8	5	4	0

*Pumping rate reduced at 180 min after start of test

Figure 2: Field Measurements During Well Purging of TW2

Laboratory Data

The Subdivision Package suite of parameters and trace metals laboratory water quality obtained from the pumping test of TW1 and TW2 are provided in Table 2a and 2b below and the laboratory analyses reports can be found attached. VOC and PHC laboratory analytical testing were completed and measured to be non-detect in the sample results. All laboratory test results can be found attached to this report.

TABLE 2a: GROUNDWATER MICROBIOLOGY & GENERAL GEOCHEMISTRY

PARAMETER	UNITS	ODWS		TW1		TW2	
		LIMIT	TYPE	GW1 (4 hr) 2023-03-21	GW2 (9 hr) 2023-03-21	TW2-GW1 2025-08-28	TW2-GW3 2025-09-19
MICROBIOLOGICAL							
Escherichia Coli (E.Coli)	ct/100mL	0	MAC	0	0	0	-
Total Coliforms	ct/100mL	0	MAC	0	0	0	-
GENERAL CHEMICAL - HEALTH RELATED							
Fluoride (F)	mg/L	1.5	MAC	0.11	0.10	0.12	-
Ammonia (N-NH_3)	mg/L	-	-	<0.020	<0.020	<0.020	-
Nitrite (N-NO_2)	mg/L	1	MAC	<0.10	<0.10	<0.1	-
Nitrate (N-NO_3)	mg/L	10	MAC	0.41	0.48	0.81	-
Total Kjeldahl Nitrogen	mg/L	-	-	0.286	<0.100	0.156	-
Turbidity (Field)	NTU	1.0 (5.0)	MAC/AO	1.13	0.96	4.88	0.8
Turbidity (Laboratory)	NTU	1.0 (5.0)	MAC/AO	1.0	2.9	3.7	-
GENERAL CHEMICAL - AESTHETIC RELATED							
Alkalinity (as CaCO3)	mg/L	30-500	OG	207	198	193	-
Chloride (Cl)	mg/L	250	AO	78	79	80.1	-
Colour (Field -Apparent)	TCU	5	AO	0	5	24	0
Colour (Lab - Apparent)	TCU	5	AO	3	8	155	-
Colour (Field - True)	TCU	5	AO	-	-	0	0
Colour (Lab - True)	TCU	5	AO	-	-	<2	-
Conductivity	uS/cm	-	-	735	744	713	-
Dissolved Organic Carbon	mg/L	5	AO	1.00	1.00	1.3	-
Hardness (as CaCO3)	mg/L	100	OG	304	306	309	-
Ion Balance	unitless	-	-	0.94	0.97	1.04	-
pH	unitless	6.5-8.5	AO	8.07	8.04	7.94	-
Phenols	mg/L	-	-	<0.001	<0.001	<0.001	-
Sulphate (SO_4)	mg/L	500	AO	61	61	58	-
Sulphide (S_2^-)	mg/L	0.05	AO	<0.01	<0.01	<0.02	-
Tannin & Lignin	mg/L	-	-	<0.5	<0.5	<0.1	-
Total Dissolved Solids	mg/L	500	AO	478	484	463	-

1. ODWS identifies the following types of parameters:
   MAC = Maximum Allowable Concentration
   AO = Aesthetic Objective
   OG = Operational Guideline
2. Shaded Concentration Indicates an Exceedance of the ODWS Objective

TABLE 2b: GROUNDWATER GEOCHEMISTRY - METALS							
PARAMETER	UNITS	ODWS		TW1			
		LIMIT	TYPE	GW1 (4 hr) 2023-03-21	GW2 (9 hr) 2023-03-21	TW2-GW1 2025-08-28	TW2-GW3 2025-09-19
METALS							
Aluminum (Al)	mg/L	0.1	OG	<0.01	<0.01	0.19	0.02
Antimony (Sb)	mg/L	0.006	IMAC	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (As)	mg/L	0.01	IMAC	<0.001	<0.001	<0.001	<0.001
Barium (Ba)	mg/L	1.0	MAC	0.25	0.25	0.26	0.26
Beryllium (Be)	mg/L	-	-	<0.0005	<0.0005	<0.0005	<0.0005
Boron (B)	mg/L	5.0	IMAC	0.03	0.02	0.03	0.03
Cadmium (Cd)	mg/L	0.005	MAC	<0.0001	<0.0001	<0.0001	<0.0001
Calcium (Ca)	mg/L	-	-	87	88	89	-
Chromium (Cr)	mg/L	0.05	MAC	<0.001	<0.001	<0.001	<0.001
Cobalt (Co)	mg/L	-	-	0.0003	0.0003	0.0003	0.0002
Copper (Cu)	mg/L	1.0	AO	<0.001	<0.001	0.002	<0.001
Iron (Fe)	mg/L	0.3	AO	0.08	0.30	0.44	0.05
Lead (Pb)	mg/L	0.01	MAC	<0.001	<0.001	<0.001	<0.001
Magnesium (Mg)	mg/L	-	-	21	21	21	-
Manganese (Mn)	mg/L	0.05	AO	0.04	0.04	0.02	-
Molybdenum (Mo)	mg/L	-	-	<0.005	<0.005	<0.005	<0.005
Nickle (Ni)	mg/L	-	-	<0.005	<0.005	<0.005	<0.005
Potassium (K)	mg/L	-	-	5	5	4	-
Selenium (Se)	mg/L	0.05	MAC	<0.001	<0.001	<0.001	<0.001
Silver (Ag)	mg/L	-	-	<0.0001	<0.0001	<0.0001	<0.0001
Sodium (Na)	mg/L	200	AO	23	23	32	-
Strontium (Sr)	mg/L	-	-	0.678	0.667	0.769	0.983
Thallium (Tl)	mg/L	-	-	<0.0001	<0.0001	<0.0001	<0.0001
Uranium (U)	mg/L	0.02	MAC	0.005	0.005	0.005	0.004
Vanadium (V)	mg/L	-	-	<0.001	<0.001	<0.001	<0.001
Zinc (Zn)	mg/L	5.0	AO	<0.01	<0.01	<0.01	<0.01

1. ODWS identifies the following types of parameters:
   MAC = Maximum Acceptable Concentration
   IMAC = Interim Maximum Acceptable Concentration
   AO = Aesthetic Objective
   OG = Operational Guideline
2. Shaded Concentration Indicates an Exceedance of the ODWS Objective

The bacteriological test results from the pumping test of TW1 (Certificate of Analysis – Report No. 1995000) indicated that the test samples at the 4- and 9-hour interval were non-detect (0 ct/100 mL) for E.Coli and Total Coliforms. The bacteriological test results (Certificate of Analysis – Report No. 9072775) from the well purge of TW2 indicated that the test samples were non-detect (0 ct/100 mL) for E.Coli and Total Coliforms.

The water quality of the subject water supply well meets all the Ontario Drinking Water Standards maximum acceptable concentrations (MAC). Furthermore, the water meets all of the Aesthetic Objectives (AO) and Operational Guidelines (OG) with the exception of the following.

- ❑ Hardness (as $CaCO_3$)

Exceedances of the above parameter are not uncommon for the water supply in the subject aquifer or after the construction of a new well. Each of these groundwater parameters are discussed in detail below.

Hardness as $CaCO_3$

Hardness, expressed as calcium carbonate, is an operational guideline and does not appear in the ODWS. Rather, it appears in the Technical Support Documents for Ontario Drinking Water Standards, Objectives and Guidelines as a parameter with an operational guideline at 100 mg/L. At the measured concentrations of 304, 306 and 309 mg/L, the water is considered to be very hard, however, it is below the reasonable treatable limit of 500 mg/L specified in Table 3 of the MOECC guidance document Procedure D-5-5 (1996).

The hardness concentration can be treated using conventional water softening technologies, if desired by the owner. Should conventional water softening technologies be used for treatment, the elevated sodium levels may increase even further and individuals on a sodium-restricted diet should be warned that there is an increase in sodium levels due to the water softening process. Alternatively, a separate tap which bypasses the conventional water softening technologies may be installed.

Sodium

Sodium (Na), an aesthetic parameter, was detected in the laboratory test samples at a concentration of 23 and 32 mg/L, which does not exceed the ODWS aesthetic objective of 200 mg/L. Although sodium is not toxic and no maximum acceptable concentration has been set, concentrations above 20 mg/L require that the Medical Officer of Health be notified of the water quality results, so that this information may be passed on to local physicians for use in treatment of those requiring a sodium-restricted diet.

Representative Well

Based on the similarity in water quantity and water quality results from the well purging and associated well sampling of TW2, TW2 is inferred to have encountered the same aquifer as TW1. Therefore, the aquifer analysis (quantity) performed on TW1 is considered valid to support the current Site Plan application.

Terrain Analysis

Surficial Geology

A series of boreholes were put down on the subject site to delineate the subsurface soil conditions as part of the Geotechnical Investigation (Paterson Report PG6308-1 dated October 3, 2022). Between June 23 and 28, 2022 seven (7) boreholes were completed on the property for the design of the proposed commercial building and its associated infrastructure. The boreholes were advanced to a maximum depth of 7.3 m below ground surface (bgs). One borehole was subjected to a Dynamic Cone Penetration Test (DCPT) which extended to a depth of 13.9 m bgs. Six (6) boreholes were completed within the proposed footprint of the commercial building, and one (1) borehole was completed in the proposed septic bed area. The locations of the boreholes on the property are delineated on the Test Hole Location Plan, drawing PG6308-1, attached.

The borehole locations were recorded and the subsurface conditions, including the soil morphology and depth to the groundwater table (if encountered), were carefully observed and recorded. The soils encountered were classified texturally in the field, and later reviewed in the laboratory.

Generally, the subsurface profile at the test hole locations were observed to consist of topsoil overlying a silty sand to sandy silt layer. BH1-22 through BH5-22 encountered intermixed layers of silty clay and silty sand to sandy silt below the silty sand to sandy silt layer. BH5-22, BH6-22 and BH7-22 (western side of the site) encountered a stiff to hard clay below the silty sand to sandy silt layer. Refusal to DCPT was encountered in BH5-22 at a depth of 13.9 m bgs. Two PVC monitoring wells and 5 flexible piezometers were installed as part of the Geotechnical Investigation. Groundwater levels were measured and varied between 0.7 and 1.7 m bgs.

It should be noted that groundwater levels can fluctuate both seasonally and in conjunction with precipitation events. Therefore, the groundwater levels could vary at the time of construction.

Reference should be made to the borehole logs appended to this report for the details of the soil profiles encountered at each test hole location. The client should be aware that any information pertaining to soils are furnished as a matter of general information only and borehole descriptions are not to be interpreted as descriptive of conditions at locations other than those described by the boreholes themselves.

Two samples taken from the native material in the proposed commercial building footprint were submitted for sieve and Atterberg Limit analyses. The samples were collected during the geotechnical program at a depth of 1.4 m bgs and are labeled BH3-22–SS2 and BH5-22–SS2. Analytical results from the sieve and Atterberg Limit analysis can be found attached.

Hydrogeological Sensitivity of the Site

The subject site is currently vacant and has been historically used for agricultural purposes. A commercial building with associated infrastructure and private servicing is proposed for the site. The subject site fronts onto Carp Road and is bordered by developed residential and commercial properties as well as agricultural or vacant lands. The adjacent properties are serviced by private wells and septic systems.

The overburden at the test hole locations generally consists of a topsoil overlying silty sand to sandy silt which was either interbedded with a silty clay or overlying a silty clay deposit. Refusal to DCPT was encountered in BH5-21 at a depth of 13.9 m bgs. The WWR from TW1 indicated that a limestone bedrock was encountered at 20.4 m bgs while the WWR from TW2 indicated that a limestone bedrock was encountered at 16.46 m bgs. According to available geological mapping, the drift thickness within the site varies from 3 to 10 m bgs.

According to the geotechnical field investigation, and corroborated by the onsite WWR and overburden mapping, the overburden thickness is noted to be greater than 2 m. As the proposed site does not have bedrock within 2 m of the ground surface, the site is not considered hydrogeologically sensitive. Separation distances are not required to be increased between the septic components and the onsite well.

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 allowed to infiltrate the top of the bedrock to dissolutionally enlarge previously existing joints and bedding planes. Based on available mapping by the Ontario Geological Survey, there is no inferred, potential or known karstification in the subject area.

Conceptual Lot Development Plan

It is proposed to construct a single-story commercial building on the subject site. The location of the proposed building can be found on the attached Studio G-68 & RP Ancheta Architect Drawing A-012 Rev.0.8 dated August 9, 2025.

Theoretical Sewage System Volumes

An approved Sewage System Installation Permit (SSIP) will be provided by the Ottawa Sewage System Office (OSSO) and submitted as part of the application package. The design will be reviewed by the OSSO and will be constructed in accordance with the required regulations. The OSSO requires inspections during construction in order to ensure compliance.

The Sewage System Design is for a sewage system with a total daily design sanitary sewage flow (TDDSSF) of 5,400 L/day.

The Sewage System Design which was submitted to the OSSO included an NSF 245 denitrification system (Eljen DN450) capable of reducing the nitrate concentration of the effluent by 57 %. Refer to the NSF 245 report for the Eljen DN450 system attached for additional details.

Predictive Nitrate Impact Assessment

In order to demonstrate that private services would adequately support the proposed commercial development, a predictive nitrate impact assessment for the subject site was completed. The values shown in the Predictive Nitrate Impact Assessment attached to this report are summarized below.

- ❑ Site area — 3.05 ha
- ❑ Impervious area (%) — 73 %
- ❑ Daily sewage flow — 5.4 m^3/d
- ❑ Concentration of nitrate in effluent with treatment — 17.2 mg/L
  (Value based on nitrate reduction system (Eljen DN450) with 57% nitrate reduction)
- ❑ Surplus Water — 379 mm/yr
  (The surplus water value was estimated based on Environment Canada Climate Office values with a soil type comprised of a fine sandy loam (Urban lawns / Shallow Rooted Crops) and anthropogenic sources.)
- ❑ Combined infiltration factor based on: — 0.70
  - Topography infiltration factor — 0.20
  - Soil texture infiltration factor — 0.40
  - Cover infiltration factor — 0.10

The topography infiltration factor of 0.20 is based upon a generally rolling land with an average slope of 2.8 to 3.8 m/km. The soil texture infiltration factor was based upon an “open sandy loam” with a value of 0.4 which is a reasonable generalization based upon the site investigations and available geological mapping. The “cover infiltration factor” was calculated at 0.10 based upon a cultivated land type cover.

An existing approved tertiary treatment system capable of reducing the nitrate loading in the effluent is from the Eljen Corporation brand and is called the Eljen Corporation GSF Denitrification System DN450. This Eljen system has passed the NSF/ANSI Standard 245 (American / International Testing standard) with a nitrate reduction value of 57% for influent Total Nitrogen. Using a 57% nitrate reduction technology, with an effluent nitrate concentration of 17.2 mg/L, the predicted nitrate concentration for a TDDSSF of 5,400 L/day would be **8.21 mg/L**.

Based on the results of the predicted nitrate impact assessment, it is our opinion that the property can adequately support the proposed commercial building without having an adverse impact on the underlying bedrock aquifer, provided that an Eljen Corporation GSF Denitrification System DN450 is used in the septic system.

Site Specific Water Balance

The site-specific water balance assessment (SSWB) was completed in accordance with City of Ottawa Memo "Carp Road Corridor – Nitrate Impact Assessment Recommendations" dated September 27, 2016, section 7.a to determine the change in recharge and potential impact to the regional hydrogeological system. At the time of the field investigations the study area mainly consisted of mainly agricultural land and minimal impervious areas. The pre and post-development terrain compositions are illustrated on Drawings PH5068-3 - Pre-Development Terrain Composition Plan and PH5068-4 - Post-Development Terrain Composition Plan appended to this report.

Calculations

Thornthwaite and Mather Water Balance Calculation

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 subject site generally consisted of topsoil overlying silty sand which is underlain by a silty clay deposit. Given the similar soil profiles across the entire subject site, the above noted calculations were carried out for the soil moisture holding capacity of a 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 (attached).

Table 3, 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 is presented in Tables 5-8, attached.

Table 3 - Site Specific Water Surplus Information

Land Use Unit	Water Holding Capacity (mm)	Actual Evapotranspiration (mm/year)	Surplus Water (mm/year)
Impervious Surfaces	5	457	449
Urban Lawn (fine sandy loam)	75	523	379

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.

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 land, rolling land and hilly land. Flat land 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 4.

Table 4 - MOE (2003) Infiltration Factors	
Description of Area/Development Site	**Value of Infiltration Factor**
Topography	
Flat land (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 subject site is fairly uniform and is classified as rolling land (generally 2 to 4 m/km throughout that portion), largely covered by agricultural farmland and cultivated lands. Therefore, a pre-development topography infiltration factor of 0.2 was given for the subject site. 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. However, the topography of the post-development site will still consist of rolling land and was therefore assigned a post-development topography infiltration factor of 0.2. A topography infiltration factor of 0 was assigned to the impervious surfaces due to its negligible infiltration capacity.

As previously discussed, soils within the subject site generally consisted of topsoil overlying a sandy loam layer. Therefore, a pre-development soil infiltration factor of 0.4 was given for the materials analyzed on this property. Under post-development conditions, the majority of the site will consist of landscaped areas and impervious surfaces with soil infiltration factors of 0.4 for urban lawn (open sandy loam) and 0 for impervious surfaces.

At the time of the field investigations, the subject site generally consisted of cultivated farmland. A pre-development vegetation infiltration factor of 0.1 was assigned to the subject site. Post-development, areas of cultivated farmland are expected to be removed to accommodate buildings, landscaped areas and roadways. As such, a post-development vegetation infiltration factor of 0.1 was assigned to the developed areas. Impervious surfaces were given a vegetation infiltration factor of 0 due to their 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 7 and Table 8 (attached).

Pre- and Post-Construction Water Balance

The pre-development water budget analysis conducted for the study area determined that an estimated 8,103,058 L/year of surplus water currently infiltrates the surface soils. The remaining estimated 3,472,739 L/year of surplus leaves the site as runoff, draining towards localized surface water features near the subject site or to nearby existing municipal storm sewer systems.

The post-development water budget analysis determined that an estimated 2,156,889 L/year of surplus water will infiltrate the surface soils and approximately 10,987,818 L/year will leave the site as runoff. These values equate to an approximate decrease in infiltration of 73 % and an increase in runoff of 216 %.

The main variable that changed from pre-development conditions to post-development conditions was the addition of approximately 22,413 m^2 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 (open sandy loam) material. These landscaped areas have similar infiltration potential to the native silty sand soils (open sandy loam).

It is important to note that the post-development water budget analysis for the subject site does not consider any potential infiltration of the anthropogenic sources (100% runoff was taken as a conservative approach). In reality, some portion (15 to 30%) of surface water that lands on impervious surfaces either evaporates, 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 pre-development and post-development water budget analyses are presented in Table 7 and 8 included in this report.

CONCLUSIONS

Based on the information contained within the body of this report the following conclusions can be drawn:

1. The water supply aquifer intercepted by TW2 is considered to be adequate to support the water quantity demands for the proposed development.

2. The preferred water supply intercepted by TW2 contains a water supply that is potable and contains only elevated concentrations of hardness. The noted parameters can be treated with current readily available water conditioning equipment.

3. A residential grade water softener is recommended to facilitate the reduction of the hardness concentration, if desired by the owner. If a water softener is used for the proposed development, the owner should be made aware that additional sodium will be added to the water to reduce hardness.

4. The sodium concentration was measured to be above the 20 mg/L reporting limit and, as such, the Medical Officer of Health for the City of Ottawa should be informed to assist area physicians in the treatment of local residents on sodium reduced diets.

5. The site is not considered hydrogeologically sensitive.

6. All wells need to be maintained in accordance with O.Reg 903. If TW1 or any other well is no longer in use, it needs to be decommissioned in accordance with O.Reg 903.

7. The site is not located in an area of potential or inferred karst.

8. The predicted nitrate concentrations at the property boundary are calculated to be below the required 10 mg/L threshold when a standard denitrification system (NSF 245 certified) with minimum nitrate reduction of 57%, such as the Eljen Corporation GSF Denitrification System DN450, is used.

9. A Sewage System Permit needs to be issued as part of the Site Plan Application and a Building Permit needs to be issued prior to the commencement of construction on the proposed development.

10. Based on the results of the water balance assessment, the proposed site development is projected to decrease the annual infiltration by approximately 73 % and increase runoff by approximately 216 % compared to existing conditions.

11. The results of the Hydrogeological Assessment and Terrain Analysis have provided satisfactory evidence that the subject site can support the proposed commercial development with respect to water quality, quantity and sewage system flow volumes.

We trust that the current submission satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

Alexander Schopf, EIT, PhD

Erik Ardley, P.Geo

Attachments:

- ❑ Key Plan
- ❑ MECP Water Well Records
- ❑ Eurofins Certificate of Analysis
- ❑ Paterson Borehole Logs
- ❑ Sieve and Atterberg Limit Test Results
- ❑ AQTESOLV - Pumping Test Analysis Reports
- ❑ Nitrate Impact Assessment Calculations
- ❑ NSF 245 Standard for Eljen Corporation GSF Denitrification System DN450
- ❑ Tables 5 & 6 - Water Balance Data Tables
- ❑ Table 7 & 8 – Pre and Post Development Water Balance Tables
- ❑ Studio G-68 & RP Ancheta Architect Drawing A-012 Rev.0.8 dated August 9, 2025
- ❑ Paterson Drawing PG6308-1 - Test Hole Location Plan
- ❑ Paterson Drawing PH5068-3 – Pre-development Terrain Composition Plan
- ❑ Paterson Drawing PH5068-4 – Post-development Terrain Composition Plan

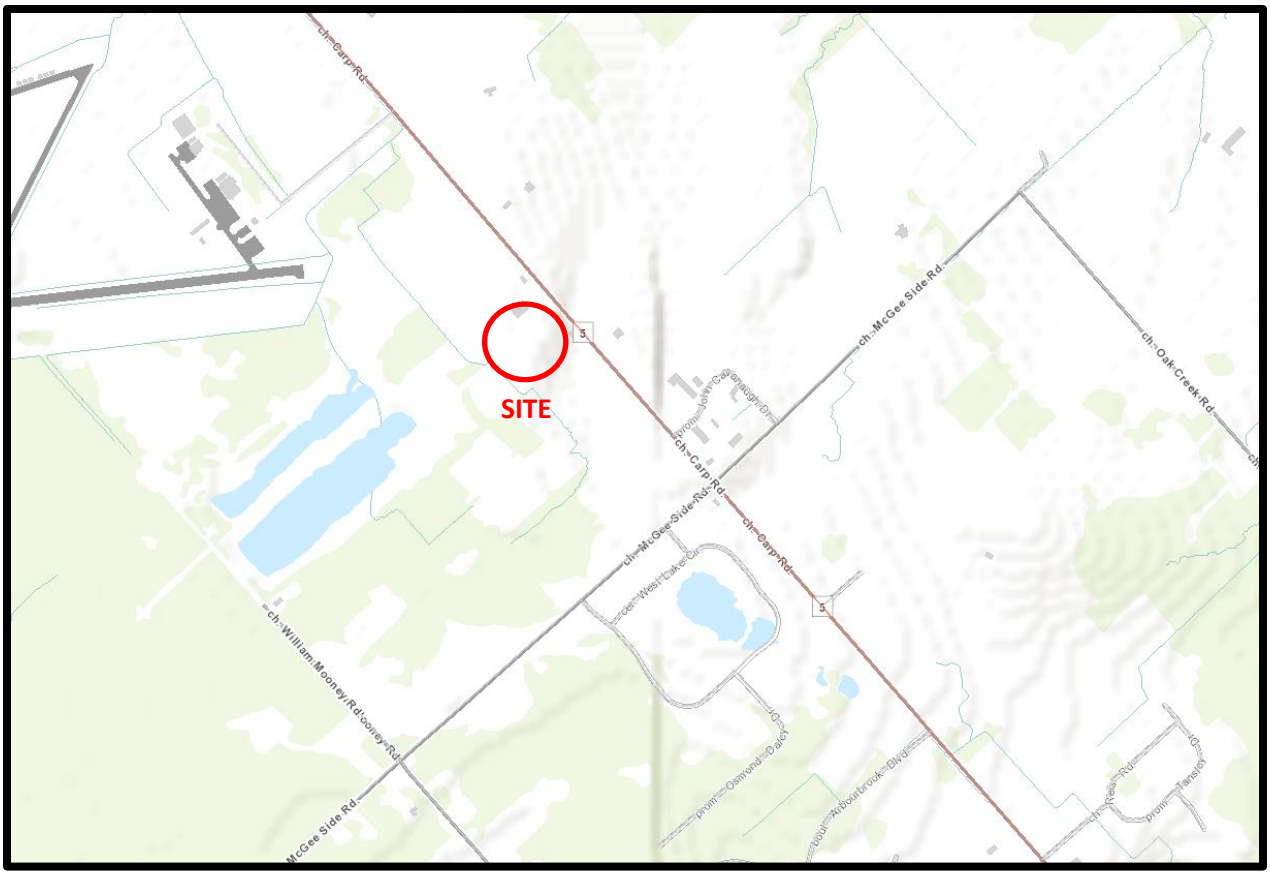


FIGURE 1

KEY PLAN

PATERSON GROUP

TW2

Ontario Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☒ Imperial

Tag#: A437749 (Print Below)

A437749

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	Megha Holdings Inc		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
1558 Blohm Drive	Ottawa	ON	K1G 4R7	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
3113 Carp Road	Huntley	P/L 6	3.

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	421219	5018757		5R11999 PT LT 12

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
	Clay	+ Gravel	+ Boulders	0'	54'
Grey	Limestone			54'	138'
Grey	Limestone			138'	154'
Grey	Limestone			154'	160'

Do Not Set Pump Past 130 FEET

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/Imp gal)
60'	50'	Neat cement	10.92
50'	0'	Bentonite slurry	12.60

Method of Construction

☐ Cable Tool ☐ Diamond ☐ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☒ Air percussion ☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used ☒ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ 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) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2'	60'
5 15/16"	Open Hole		60'	160'

Construction Record - Screen

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

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh	Untested	Other, specify
138'	☐	☐	X	
154'	☐	☐	X	
	☐	☐	☐	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	60'	9 3/4"
60'	160'	5 15/16"

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): 130

Pumping rate (l/min/GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 11.6"

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

Recommended pump depth (m/ft): 100'

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

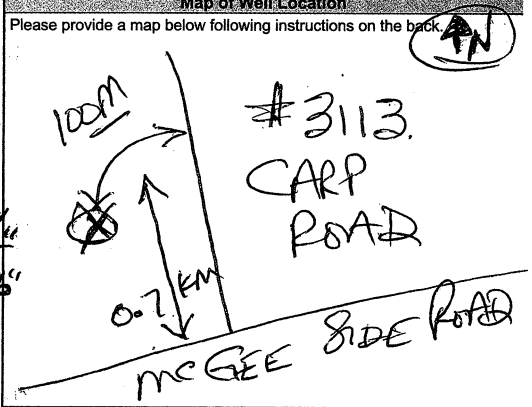
Well production (l/min/GPM): 20

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	7'9"		11.6"
1	9.6	1	9.4
2	10.8	2	8.5
3	10.9	3	8
4	11	4	7.9
5	11.1	5	7.9
10	11.2	10	7.9
15	11.3	15	7.9
20	11.3	20	7.9
25	11.4	25	7.9
30	11.4	30	7.9
40	11.5	40	7.9
50	11.5	50	7.9
60	11.6"	60	7.9"

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 1HP - 20 GPM Set @ 100FT

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	7681

Business Address (Street Number/Name)	Municipality
6858 Franktown Road	Richmond

Province	Postal Code	Business E-mail Address
ON	K0A 2Z0	air-rock@sympatico.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138382170	Gauthier, Chris

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date
T5044		2025/08/30

Well owner's information package delivered: ☒ Yes ☐ No

Date Package Delivered: 2025/08/28

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Received

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TW1

Ontario — Ministry of the Environment, Conservation and Parks

Well Tag (low) Tag#:A318705 — A318705

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name/Organization	E-mail Address	☐ Well Constructed by Well Owner
	Canadian Rental Development Services Inc.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
#206-555 Legget Drive	Kanata	Ont	K2K 2X3	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
3113 CARP ROAD	Huntley	12	3

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Subdivision Number	Other
NAD 83	18	421214	5018772	Plan 5R-11999	Part 6

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
Brown & Blue	Clay			0'	62'
Grey	Gravel & Boulders			62'	67'
Grey & Black	Limestone		(Fractured)	67'	180'
*	# 2835251 ONTARIO INC.				
*	PO# CRDS - 100427				

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
73'	63'	Neat Cement Slurry	12.48 (8)
63'	0'	Bentonite Slurry	21.00 (5)

Method of Construction

☐ Cable Tool ☐ Diamond ☐ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☒ Air percussion ☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used ☒ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ 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) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2'	73'
6"	Open hole		73'	180'

Construction Record - Screen

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

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth From (m/ft)	Depth To (m/ft)	Diameter (cm/in)
164 (m/ft) ☐ Gas	☐ Fresh ☒ Untested ☐ Other, specify	0'	73'	9 3/4"
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify	73'	180'	6"
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, specify			

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): 170'

Pumping rate (l/min / GPM): 18

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 39' 7"

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

Recommended pump depth (m/ft): 140'

Recommended pump rate (l/min/GPM): 10

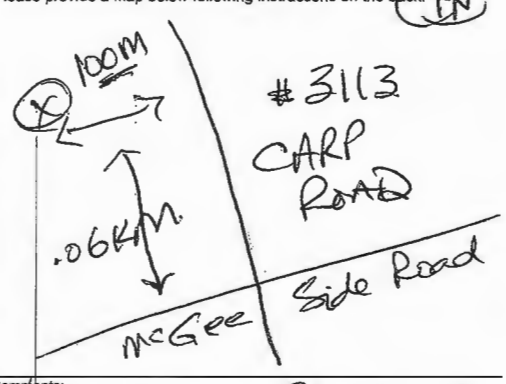
Well production (l/min/GPM): 18

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	6'0"		39'7"
1	14.7	1	25.2
2	19.6	2	17.2
3	23.2	3	12.2
4	25.9	4	9'0
5	28.1	5	7.3
10	33.8	10	6.4
15	36.2	15	6'0"
20	37.3	20	
25	38.1	25	
30	38.5	30	
40	39.1	40	
50	39.4	50	
60	39'7"	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 1/2HP 10GPM SET @ 140 FT

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
AIR ROCK DRILLING Co LTD	7681

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
6659 Frankdown Road	Richmond	Ont	K0A 2Z0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
613 838 2170	HARNA, Jeremy	T3632		2023/03/31

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2023/03/10	2023/03/08

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Received

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fl 254

UTM 18 Z 421400 E

5 R 5018440 N

Elev. 5 R 0390

Basin 25

The Ontario Water Resources Commission Act

WATER WELL RECORD

GROUND WATER BRANCH
15 No 3125
JUN 1 1962
ONTARIO WATER RESOURCES COMMISSION

County or District Carleton Township, ~~Village, Town or City~~ Huntley

Con. 3 Lot 11 Date completed 5 (day) May (month) 62 (year)

[redacted]ddress RR 2 Carp

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 25'

Type of screen —

Length of screen —

Depth to top of screen —

Diameter of finished hole 4"

Pumping Test

Static level 16'

Test-pumping rate 6 G.P.M.

Pumping level 35'

Duration of test pumping 1 hr.

Water clear or cloudy at end of test clear

Recommended pumping rate 5 G.P.M.

with pump setting of 60 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft	To ft	Water Record: Depth(s) at which water(s) found	Water Record: Kind of water (fresh, salty, sulphur)
clay	0	6		
limestone	6	127	125	fresh

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

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

Drilling or Boring Firm Ben E Sparks

Address

Licence Number 700

Name of Driller or Borer Ben E Sparks

Address 413 Edgeworth

Date May 28/62

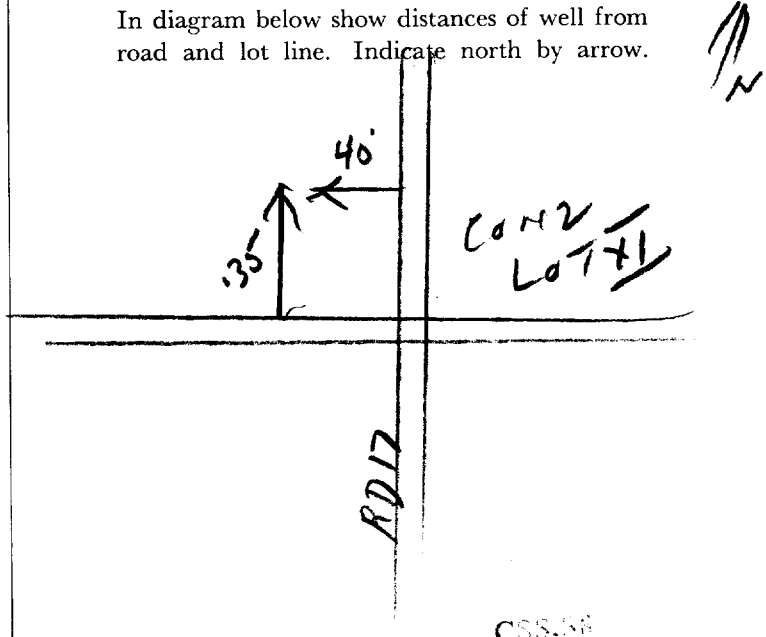
(Signature of Licensed Drilling or Boring Contractor) Ben E Sparks

Form 7 15M Sets 60-5930

OWRC COPY

Location of Well

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



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17 255

UTM 18 Z 421120 E

5 R 5018700 N

Elev. 4 R 0382

Basin 2512

GROUND WATER BRANCH
DEC 15 1960
ONTARIO WATER RESOURCES COMMISSION

C 3128

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

County or District Carleton Township, ~~Village, Town or City~~ Huntley

[redacted] completed 5 (day) Sept (month) 1960 (year)

[redacted]ress 3rd line Huntley

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 36'

Type of screen none

Length of screen —

Depth to top of screen —

Diameter of finished hole 4"

Pumping Test

Static level 12'

Test-pumping rate 3 G.P.M.

Pumping level 14'

Duration of test pumping ½ hr

Water clear or cloudy at end of test clear

Recommended pumping rate 3 G.P.M.

with pump~~ing level of~~ SET 84'

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)
clay loam	0'	36'	94'-96	84'	fresh
grey limestone	36'	96'			

For what purpose(s) is the water to be used? for watering flowers + grass in cemetry

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

Drilling Firm W M E Sparks

Address 413 Edgeworth Ave Ottawa 3

Licence Number 485

Name of Driller W M E Sparks

Address

Date Sept 5/60

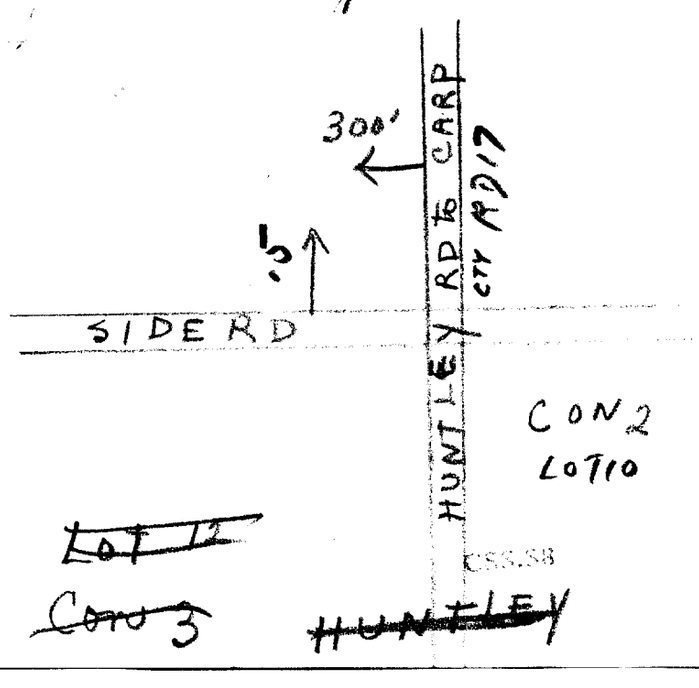
W M E Sparks
(Signature of Licensed Drilling Contractor)

Per Anna J Sparks

Form 5
15M-58-4149

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 F/8a

Water management in Ontario

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

11 : 1512197 | MUNICIP. 15005 | CON. CON 03

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	N., BLOCK, TRACT, SURVEY, ETC.	LOT
Carleton	Huntley	3	012

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Clark R. S. MIN OF TRANSPORT.	Smith Falls	DAY 06 MO. 12 YR. 72

ZONE	EASTING	NORTHING	RC.	ELEVATION	RC.	BASIN CODE
18	421095	5018774	4	382	4	26

1512197 JUL 08, 1977 299

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FROM	DEPTH TO
brown	gravel	sand fill	packed	0	3
brown	sand		packed	3	18
Grey & black	sand		packed	18	32
grey	clay		loose	32	42
grey	sand	gravel & stone		42	47
black&grey	limestone			47	188

31 0003611128791 0018628791 0032228791 0042205771 0047228111 0188815

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
0080	1 ☐ FRESH 3 ☒ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
0187	1 ☐ FRESH 3 ☒ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR; 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FROM	DEPTH TO
6	1 ☒ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE	274	0	0048
06	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☒ OPEN HOLE		48	188
06	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☒ OPEN HOLE			0188
	1 ☐ STEEL; 2 ☐ GALVANIZED; 3 ☐ CONCRETE; 4 ☐ OPEN HOLE			

SCREEN

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

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☒ BAILER	0015 GPM.	02 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
010 FEET	050 FEET	050 FEET	050 FEET	050 FEET	050 FEET

1 ☒ PUMPING 2 ☐ RECOVERY

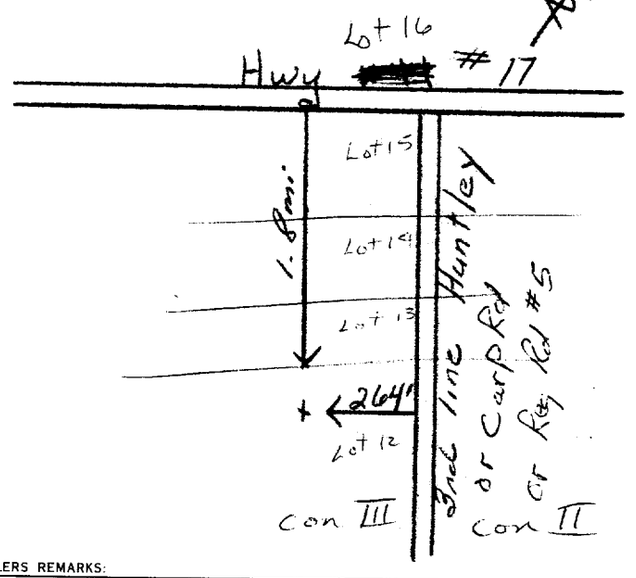
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM.	FEET	☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	070 FEET	0005 GPM.

——.—— GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 2118

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



DRILLERS REMARKS:

FINAL STATUS OF WELL 54	1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL	5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED, POOR QUALITY; 7 ☐ UNFINISHED
WATER USE 55-56 04	1 ☐ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☒ INDUSTRIAL; ☐ OTHER	5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED
METHOD OF DRILLING 57	1 ☒ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☐ ROTARY (AIR); 5 ☐ AIR PERCUSSION	6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: ~~Capital Water Supply Ltd.~~ | LICENCE NUMBER: 1558

ADDRESS: Box 490, Stittsville, Ontario.

NAME OF DRILLER OR BORER: Eugene Maurice. | LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: Walter Kaminsky | SUBMISSION DATE: DAY 8 MO. 12 YR. 72

OWRC COPY

OFFICE USE ONLY

DATA SOURCE 58	CONTRACTOR 59-62	DATE RECEIVED 63-68
1	1558	120173

DATE OF INSPECTION: May 20, 1976 | INSPECTOR: LE Rentrey

REMARKS: Now owned by Federal Ministry of Transport

P

WI

originally #46

31 F/8a

The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

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

11 — 1514608 ~~1512444~~

MUNICIP. 15005T CON. CON 03

COUNTY OR DISTRICT: Carleton

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Huntley

CON. BLOCK, TRACT, SURVEY, ETC.: 3.

LOT: 011

OWNER (SURNAME FIRST) [redacted]

ADDRESS: Carp Ont.

DATE COMPLETED: DAY 18 MO. ~~Oct~~ YR. 72

HING | RC. | ELEVATION | RC. | BASIN CODE

018488 4 389 4 26 MAR 17, 1975 248

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH – FEET FROM	DEPTH – FEET TO
grey.	sand.	stones.	loose	0.	29.
grey.	shale.	sand.	packed	29	80.

31 0a291228112 0a802v7228

32

41 WATER RECORD

WATER FOUND AT – FEET	KIND OF WATER
071.	1 ☐ ~~FRESH~~ 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH – FEET FROM	DEPTH – FEET TO
06 ~~6X~~	1 ☐ ~~STEEL~~ 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0032.
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☒ OPEN HOLE		32	0080.
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT – FEET FROM	DEPTH SET AT – FEET TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
0000	0032.	~~drill mud~~.

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☒ BAILER	0020. GPM.	00 HOURS 30 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
010. FEET	016. FEET	1 ☒ PUMPING 2 ☐ RECOVERY	015 FEET	016. FEET	FEET	FEET

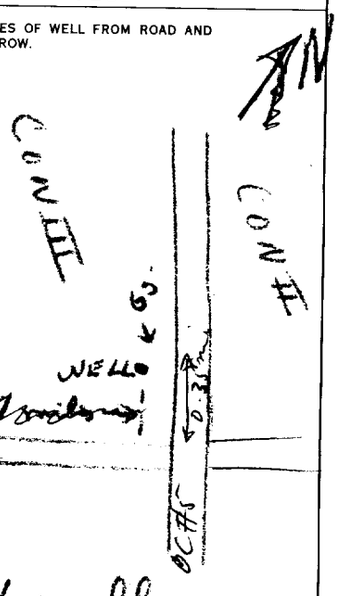
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM.	FEET	1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☐ DEEP	FEET	GPM.

0038 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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



DRILLERS REMARKS: good well.

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 01

1 ☐ ~~DOMESTIC~~ 5 ☐ COMMERCIAL
2 ☐ STOCK 6 ☐ MUNICIPAL
3 ☐ IRRIGATION 7 ☐ PUBLIC SUPPLY
4 ☐ INDUSTRIAL 8 ☐ COOLING OR AIR CONDITIONING
☐ OTHER 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: Melville McLaughlin — LICENCE NUMBER: 3503
ADDRESS: Ashton Ont.
NAME OF DRILLER OR BORER: Mel McLaughlin — LICENCE NUMBER: 3503.
SIGNATURE OF CONTRACTOR: Melville McLaughlin — SUBMISSION DATE: MO. Oct YR. 72

OFFICE USE ONLY

DATA SOURCE: 1 — CONTRACTOR: 3503 — DATE RECEIVED: 110173
DATE OF INSPECTION — INSPECTOR: K
REMARKS: P R WI

OWRC COPY

31F8a

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 1517897 MUNICIP 1500 5 CON. CON 01

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON.	BLOCK, TRACT, SURVEY, ETC.	LOT
[redacted]	Huntley	1		011 14

[redacted] R. 3, Carp, Ont.

DATE COMPLETED: DAY 24 MO 06 YR 82

WELL LOCATION: 018399 | RC 4 | ELEVATION 0380 | 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	DEPTH - FEET TO
Blue	Clay			0	8
Black	Red Granite			8	128

31 9008305 0112882 1

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0125	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	DEPTH - FEET TO
06	1 ☒ STEEL 2 ☐ GALVANIZED 1 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0022
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 6 ☐ OPEN HOLE			

SCREEN

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

MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	DEPTH SET AT - FEET TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	0020 GPM	00 HOURS 30 MINS

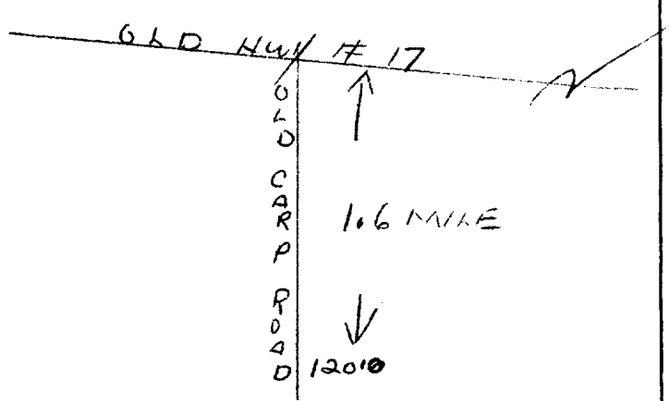
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 1 ☐ PUMPING 2 ☒ RECOVERY	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
020 FEET	120 FEET			030 FEET	028 FEET	026 FEET

IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
GPM	FEET	1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☐ SHALLOW ☒ DEEP	110 FEET	0010 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 54: 1 ☒ WATER SUPPLY; 2 ☐ OBSERVATION WELL; 3 ☐ TEST HOLE; 4 ☐ RECHARGE WELL; 5 ☐ ABANDONED, INSUFFICIENT SUPPLY; 6 ☐ ABANDONED POOR QUALITY; 7 ☐ UNFINISHED

WATER USE 55-56: 01 — 1 ☒ DOMESTIC; 2 ☐ STOCK; 3 ☐ IRRIGATION; 4 ☐ INDUSTRIAL; ☐ OTHER; 5 ☐ COMMERCIAL; 6 ☐ MUNICIPAL; 7 ☐ PUBLIC SUPPLY; 8 ☐ COOLING OR AIR CONDITIONING; 9 ☐ NOT USED

METHOD OF DRILLING 57: 4 — 1 ☐ CABLE TOOL; 2 ☐ ROTARY (CONVENTIONAL); 3 ☐ ROTARY (REVERSE); 4 ☒ ROTARY (AIR); 5 ☐ AIR PERCUSSION; 6 ☐ BORING; 7 ☐ DIAMOND; 8 ☐ JETTING; 9 ☐ DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR	LICENCE NUMBER
McLean Water Supply Ltd.	3504

ADDRESS: 1532 Raven Ave., Ottawa, Ont.

NAME OF DRILLER OR BORER	LICENCE NUMBER
A. Scharf	

SIGNATURE OF CONTRACTOR: A. Scharf — SUBMISSION DATE: DAY 25 MO 6 YR 82

OFFICE USE ONLY

DATA SOURCE 58	CONTRACTOR 59-62	DATE RECEIVED 63-68
1	3504	10 09 82

DATE OF INSPECTION | INSPECTOR

REMARKS: SSS.BS

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506—4—77 FORM 7

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) A 035191

Well Record

Regulation 903 Ontario Water Resources Act

page ___ of ___

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

MUN | CON | LOT

Well Owner's Information and Location of Well Information

First Name	Last Name	Mailing Address (Street Number/Name, RR, Lot, Concession)
TREMBLING	ASPEN LTD	3228 WOODIE DRIVE

County/District/Municipality	Township/City/Town/Village	Province	Postal Code	Telephone Number (include area code)
OTTAWA / CARLETON	NEPEAN	Ontario	K2H 7V1	613-839-0006

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
OTTAWA / CARLETON	HUNTLEY	12	2

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
3186 CARP ROAD	OTTAWA	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation	
	83	18	421096	5018982	MAGELLAN	GPS	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To
BROWN	SAND		MED	0	5
GREY	CLAY			5	8
GREY	GRAVEL			8	8.8
GREY	LIMESTONE			8.8	8.9

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)
0	6	30
6	8.5	15.8

Water Record

Water found at Metres / Kind of Water

8 m	☒ Fresh	☐ Sulphur	
☐ Gas	☐ Salty	☐ Minerals	
☐ Other:			
___ m	☐ Fresh	☐ Sulphur	
☐ Gas	☐ Salty	☐ Minerals	
☐ Other:			
___ m	☐ Fresh	☐ Sulphur	
☐ Gas	☐ Salty	☐ Minerals	
☐ Other:			

After test of well yield, water was
☒ Clear and sediment free
☐ Other, specify

Chlorinated ☒ Yes ☐ No

Construction Record

Casing

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
10.2 (6 5/8")	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	188	0	7.9
9.0 (5 1/2")	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	188	7.9	8.9
	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			

Screen

Outside diam	Material	Slot No.	Depth From	Depth To (Metres)
9.0 (5 1/2")	☒ Steel (STAINLESS) ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	50	8.9	8.5

No Casing or Screen

☐ Open hole

Test of Well Yield

Pumping test method: SUB. PUMP

Pump intake set at - (metres): 8

Pumping rate - (litres/min): 100

Duration of pumping: ___ hrs + ___ min

Final water level end of pumping: 6.37 metres

Recommended pump type: ☒ Shallow ☐ Deep

Recommended pump depth: 7 metres

Recommended pump rate: 50 (litres/min)

If flowing give rate - (litres/min):

If pumping discontinued, give reason:

	Draw Down Time min	Draw Down Water Level Metres	Recovery Time min	Recovery Water Level Metres
Static Level		6.28		6.37
1		6.37	1	6.30
2		6.37	2	6.28
3		6.37	3	6.28
4		6.37	4	6.28
5		6.37	5	6.28
10		6.37	10	6.28
15		6.37	15	6.28
20		6.37	20	6.28
25		6.37	25	6.28
30		6.37	30	6.28
40		6.37	40	6.28
50		6.37	50	6.28
60		6.37	60	6.28

Plugging and Sealing Record

☐ Annular space ☐ Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
0	8	BENTONITE	6 BAGS 30 KG.

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	

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
Plumbing Villa	6574

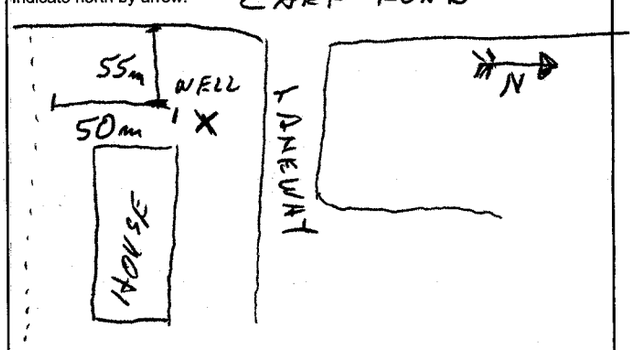
Business Address (street name, number, city etc.)		
Box 329	CARP ONT	K0A 1L0

Name of Well Technician (last name, first name)	Well Technician's Licence No.
SIMON SILLS	310

Signature of Technician/Contractor	Date Submitted (YYYY MM DD)
X	2005 11 15

Location of Well

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



Audit No.	Date Well Completed (YYYY MM DD)
Z 28740	2005 11 10

Was the well owner's information package delivered?	Date Delivered (YYYY MM DD)
☒ Yes ☐ No	2005 11 15

Ministry Use Only

Data Source	Contractor
	6574
Date Received (YYYY MM DD) NOV 24 2005	Date of Inspection (YYYY MM DD)
Remarks	Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

Cette formule est disponible en français

Ontario Ministry of the Environment

Well Tag Number (Place sticker and print number below) A017504

A017504

Well Record

Regulation 903 Ontario Water Resources Act

page 1 of 1

Instructions for Completing Form

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- **All metre measurements shall be reported to 1/10th of a metre.**
- Please print clearly in blue or black ink only.

Ministry Use Only

MUN | CON | LOT

Well Owner's Information and Location of Well Information

[redacted]

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.	Lot	Concession
316 CARP Rd. OTTAWA CARLETON WEST	CARLETON		12	2
316 CARP Rd.	OTTAWA/CARP			

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation:
	8 3	18T	0421372	5018928		☐ Undifferentiated ☐ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
			THIS DOCUMENT IS TO INFORM THAT THE WELL CASING HAS BEEN EXTENDED ABOVE THE GROUND SURFACE. THIS IS AN ATTACHMENT TO THE ORIGINAL WELL RECORD WHICH MAY OR MAY NOT EXIST.		

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)

Water Record

Water found at ___ Metres / Kind of Water

- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
- ___ m ☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:

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

Chlorinated ☐ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
Casing				
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
	☑ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized			
Screen				
Outside diam	☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	Slot No.		
No Casing or Screen				
	☐ Open hole			

Test of Well Yield

Pumping test method	Draw Down Time (min)	Draw Down Water Level (Metres)	Recovery Time (min)	Recovery Water Level (Metres)
Pump intake set at - (metres)	Static Level			
Pumping rate - (litres/min)	1		1	
Duration of pumping ___hrs +___ min	2		2	
Final water level end of pumping ___metres	3		3	
Recommended pump type. ☐ Shallow ☐ Deep	4		4	
Recommended pump depth. ___metres	5		5	
Recommended pump rate. (litres/min)	10		10	
	15		15	
If flowing give rate - (litres/min)	20		20	
	25		25	
If pumping discontinued, give reason.	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record ☐ Annular space ☐ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)

Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other
☐ Rotary (reverse) ☐ Boring ☐ Driving

WELL CASING EXTENSION

Water Use

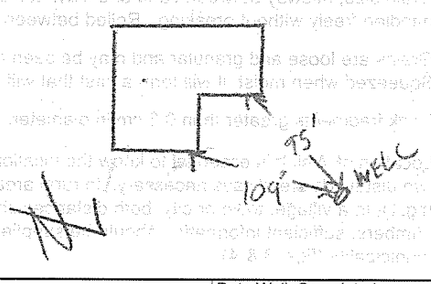
☐ Domestic ☐ Industrial ☐ Public Supply ☐ Other
☐ Stock ☐ Commercial ☐ Not used
☐ Irrigation ☐ Municipal ☐ Cooling & air conditioning

Final Status of Well

☐ Water Supply ☐ Recharge well ☐ Unfinished ☐ Abandoned, (Other)
☐ Observation well ☐ Abandoned, insufficient supply ☐ Dewatering
☐ Test Hole ☐ Abandoned, poor quality ☐ Replacement well

Location of Well

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



Audit No. Z 50987

Date Well Completed YYYY MM DD: 2007 05 24

Was the well owner's information package delivered? ☐ Yes ☐ No

Date Delivered YYYY MM DD

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
AQUA PUMP SERVICE	6907
Business Address (street name, number, city etc.)	
2019 RICHARDSON SIDE Rd OTTAWA	
Name of Well Technician (last name, first name)	**Well Technician's Licence No.**
WEDD BARRY	T-2489
Signature of Technician/Contractor	**Date Submitted** YYYY MM DD
X Barry Wedd	2007 05 24

Ministry Use Only

Data Source	Contractor
Date Received YYYY MM DD: SEP 24 2007	Date of Inspection YYYY MM DD
Remarks	Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐

Cette formule est disponible en français

7193278

Ontario Ministry of the Environment

Measurements recorded in: ☒ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A 130166

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

[redacted]

WESA

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
3096 CARP ROAD			

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa	~~OTTAWA~~ CARP	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	421540	5018740		

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
Dark Brown	Sand		moist	0	0.76
Drk Brown	Sand & Gravel	silt & potential till	moist	0.76	2.29
Light Grey	Sand & Gravel	silt & clay	dry	2.29	6.55
Light Grey	Limestone	Bioturbated, fossilpoor	Fine to medium grained	6.55	10.44

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0.3	3.7	Bentonite Gravel Seal	0.067

Method of Construction

☐ Cable Tool ☐ Diamond ☐ Rotary (Conventional) ☐ Jetting ☐ Rotary (Reverse) ☐ Driving ☐ Boring ☐ Digging ☐ Air percussion ☒ Other, specify HSA/Diamond

Well Use

☐ Public ☐ Commercial ☐ Not used ☐ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☑ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ 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) From	Depth (m/ft) To
5.1	PVC	SCHED 40	0	4.2

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
5.8	PVC	10	4.2	10.3

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh / Untested	Other, specify
9.2	☐	☐ / ☐	
	☐	☐ / ☐	
	☐	☐ / ☐	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	6.55	20
6.55	10.44	10.16

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)

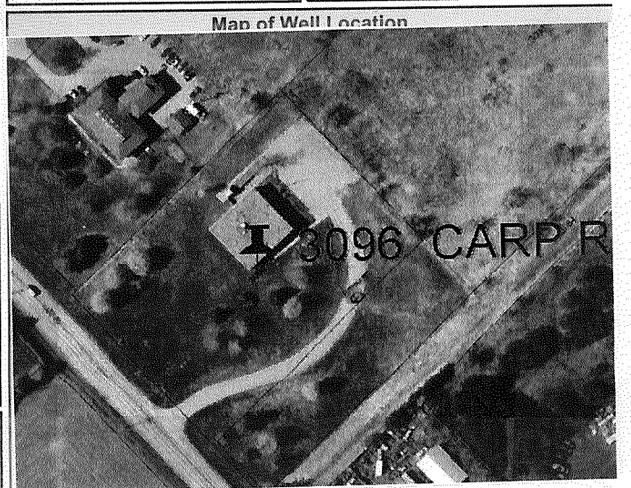
Recommended pump rate (l/min / GPM)

Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
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



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor: George Downing Estate Drilling LTD — Well Contractor's Licence No.: 1814

Business Address (Street Number/Name): 410 Rue Principale — Municipality: Grenville-sur-la-Rouge

Province: QC — Postal Code: J0V1B0 — Business E-mail Address: downing@hawk.igs.net

Bus. Telephone No. (inc. area code): 8192426469 — Name of Well Technician (Last Name, First Name): Stephen Downing

Well Technician's Licence No.: 3326 — Signature of Technician and/or Contractor — Date Submitted: 2012/11/21

Well owner's information package delivered: ☐ Yes ☒ No

Date Package Delivered: Y Y Y Y M M D D

Date Work Completed: 2012/10/24

Ministry Use Only

Audit No. Z153945

Received DEC 11 2012

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Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A138239

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Address of Well Location (Street Number/Name) 3119 CARP RD	Township FORMERLY HUNTLEY	Lot 12	Concession 3	
County/District/Municipality OTTAWA CARELTON	City/Town/Village CARP	Province Ontario	Postal Code K0A 1L0	
UTM Coordinates NAD 8 3 — Zone 18 — Easting 421095 — Northing 5018561	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	Depth (m/ft) To
RED	SAND			0	7½
GREY	LIMESTONE		FRACTURED	7½	9
GREY	LIMESTONE			9	258

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	24	BENTONITE SLURRY	.256
24	34	CEMENT GROUT	.150

Method of Construction

☐ Cable Tool ☐ Diamond
☒ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) MUD ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, *specify* ____

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☒ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ 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) From	Depth (m/ft) To
6¼	STEEL	.188	0 +2'	34
6	OPEN HOLE		34	258

Construction Record - Screen

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

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*

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	
160-180	☐	☐ Fresh ☒ Untested	☐ Other, *specify* HYDROFRAC
230-258	☐	☐ Fresh ☐ Untested	☐ Other, *specify* HYDROFRAC
	☐	☐ Fresh ☐ Untested	☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
34	258	6"

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify* CLEARING

If pumping discontinued, give reason: ____

Pump intake set at (m/ft): 230

Pumping rate (l/min / GPM): 4.5

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 71.45

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

Recommended pump depth (m/ft): 248

Recommended pump rate (l/min / GPM): 4.5

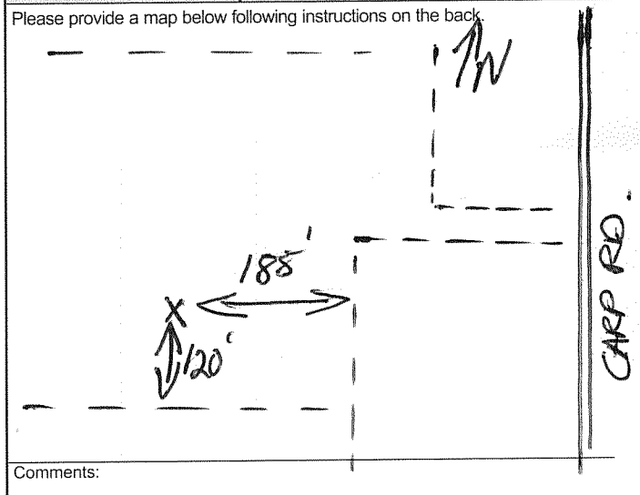
Well production (l/min / GPM): 4.5

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	10.58		
1	14.30	1	67.34
2	17.80	2	64.40
3	21.79	3	61.87
4	24.36	4	58.98
5	27.04	5	56.10
10	36.48	10	48.30
15	42.34	15	41.61
20	47.24	20	35.84
25	51.61	25	31.17
30	55.39	30	26.84
40	61.62	40	20.53
50	66.42	50	16.58
60	71.45	60	13.65

Map of Well Location

Please provide a map below following instructions on the back.



Comments: ____

Well Contractor and Well Technician Information

Business Name of Well Contractor: SAUNDERS WELL DRILLING	Well Contractor's Licence No.: 4879
Business Address (Street Number/Name): RR#1	Municipality: BRAESIDE
Province: ONT	Postal Code: K0A 1G0
Business E-mail Address:	
Bus. Telephone No. (inc. area code): 6136235548	Name of Well Technician (Last Name, First Name): SAUNDERS TROY
Well Technician's Licence No.: 1517	Signature of Technician and/or Contractor: Troy Saunders
Date Submitted: 2013 08 13	

Well owner's information package delivered: ☒ Yes ☐ No

Date Package Delivered: 2013 06 13

Date Work Completed: 2013 06 13

Ministry Use Only

Audit No. z158244

Received JUL 31 2013

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Measurements recorded in: ☐ Metric ☒ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A 138241

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
3119 CARP RD	FORMERLY HUNTLEY	12	3

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA CARLETON	CARP	Ontario	K0A 1L0

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	421108	5018864		

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
RED	SAND			0	6½
GREY	CLAY			6½	25½
GREY/RED	SAND	GRAVEL + STONES		25½	36
GREY	LIMESTONE			36	159

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	31	BENTONITE SLURRY	.256
31	41	CEMENT GROUT	.150

Method of Construction

☐ Cable Tool ☐ Diamond
☒ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) MUD ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, *specify* _____

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☒ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ 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) From	Depth (m/ft) To
6¼	STEEL	.188	0+2	41
6	OPEN HOLE		41	159

Construction Record - Screen

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

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*

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth From	Depth To	Diameter (cm/in)
147 ☐ Gas	☐ Fresh ☒ Untested ☐ Other, *specify*	41	159	6
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*			
(m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*			

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify* CLEARING

If pumping discontinued, give reason: —

Pump intake set at (m/ft): 155

Pumping rate (l/min / GPM): 6

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 57.18

If flowing give rate (l/min / GPM): —

Recommended pump depth (m/ft): 150

Recommended pump rate (l/min / GPM): 5

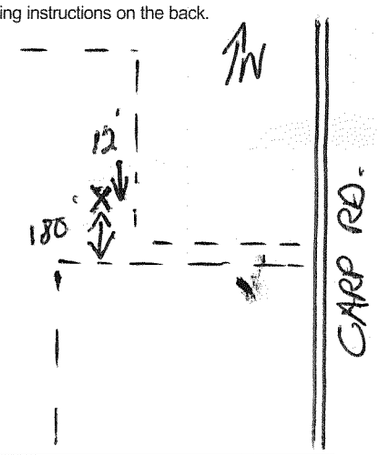
Well production (l/min / GPM): 7

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		5.0		
1	8.45		1	50.39
2	10.81		2	46.62
3	12.96		3	43.69
4	15.77		4	41.02
5	17.69		5	38.30
10	25.03		10	26.78
15	31.85		15	18.13
20	36.87		20	11.94
25	41.13		25	8.15
30	44.86		30	6.43
40	50.18		40	5.18
50	54.19		50	5.0
60	57.18		60	5.0

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
SAUNDERS WELL DRILLING	4879

Business Address (Street Number/Name)	Municipality
RR#1	BRAESIDE

Province	Postal Code	Business E-mail Address
ONT	K0A 1G0	

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6136235648	SAUNDERS TROY

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
1517	Troy Saunders	20130707

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
☒ Yes ☐ No	20130607	Audit No. Z158245
	Date Work Completed: 20130607	JUL 31 2013 Received

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Tag#:A260961 (Print Below)

A260961

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: ☐ Metric ☒ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Alan Gale Agengies Limited		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
1870 Sixth Line Road RR1	Dunrobin	ON	K0A 1T0	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
3160 Carp Road	West Carleton	P/L 11&12	2

County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa-Carleton	Carp	Ontario	

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	18	421446	5018944	RP-5R-7272	Parts 1 & 3

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
	Sand	& Stones		0'	15'
	Sand	& Gravel		15'	27'
Grey	Limestone			27'	187'
Grey	Sandstone	w/ Grey Limestone	Mix	187'	200'

TEST WELL #4 OF #4

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
42'	32'	Neat cement	10.92 [redacted]
32'	0'	Bentonite slurry	16.8

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☒ Air percussion
☐ Other, specify HYDROFRACKED

Well Use

☐ Public ☐ Commercial ☐ Not used
☒ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ 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) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2'	42'
6 1/8"	Open Hole		42'	200'

Construction Record - Screen

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

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
193	☐	☐ Fresh ☒ Untested	
	☐	☐ Fresh ☐ Untested	
	☐	☐ Fresh ☐ Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	42'	9 3/4"
42'	200'	6 1/8"

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): 190

Pumping rate (l/min / GPM): 3

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 63'2"

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

Recommended pump depth (m/ft): 190'

Recommended pump rate (l/min / GPM): 3

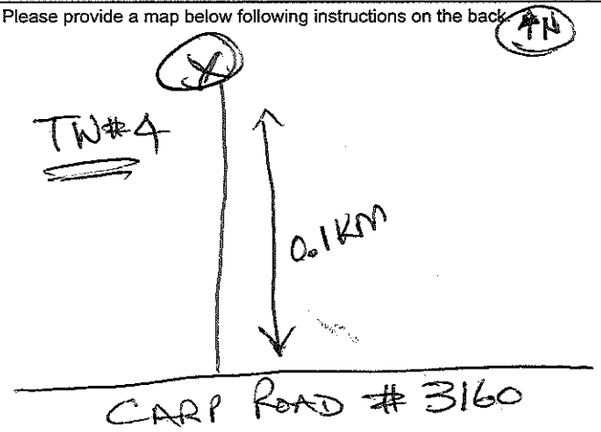
Well production (l/min / GPM): 3

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	13'5"		63'2"
1	20.3	1	52.3
2	23	2	50.6
3	25.2	3	48.4
4	27.1	4	46.3
5	28.5	5	44.4
10	36.6	10	35.7
15	42.7	15	30.6
20	40.4	20	25.1
25	49.8	25	21.3
30	54.5	30	17.5
40	57.8	40	13.5
50	60.7	50	13.5
60	63'2"	60	13'5"

Map of Well Location

Please provide a map below following instructions on the back. (4)



Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Air Rock Drilling Co. Ltd.	1119

Business Address (Street Number/Name)	Municipality
6659 Franktown Road, RR#1	Richmond

Province	Postal Code	Business E-mail Address
ON	K0A 2Z0	air-rock@sympatico.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138382170	Purcell, Shannon

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
[redacted] T4033		2019 04 30

Comments:
1/2 HP - 5 GPM SET @ 190 FEET

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☒ Yes ☐ No	2019 06 12	2019 03 06

Ministry Use Only

Audit No. Z302437

JUN 12 2019

Received

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Ontario (https://www.ontario.ca/page/government-ontario)

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue (https://data.ontario.ca/dataset/well-records) .

Go Back to Map

Well ID

Well ID Number: 1513273
Well Audit Number:
Well Tag Number:
This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	
Township	HUNTLEY TOWNSHIP
Lot	012
Concession	CON 03

County/District/Municipality	OTTAWA-CARLETON
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 18 Easting: 421226.50 Northing: 5018949.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
YLLW	SAND			0 ft	20 ft
	HPAN			20 ft	32 ft
GREY	LMSN			32	260

				ft	ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed	

Method of Construction & Well Use

Method of Construction	Well Use	
Rotary (Air)		
	Domestic	

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To	
6 inch	STEEL		35 ft	

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 1836

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	8 GPM
Duration of Pumping	1 h:0 m
Final water level	100 ft
If flowing give rate	

Recommended pump depth	150 ft
Recommended pump rate	5 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	15 ft		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	

20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind
256 ft	Sulphur

Hole Diameter

Depth From	Depth To	Diameter

Audit Number:

Date Well Completed: April 18, 1973

Date Well Record Received by MOE: June 22, 1973

Related

How to use a Ministry of the Environment map (https://www.ontario.ca/page/how-use-ministry-environment-map#wells)

Technical documentation: Metadata record (https://data.ontario.ca/dataset/well-records/resource/3031344e-e3f2-48d5-888c-c1deadfd2f77)

Updated: October 18, 2021
Published: March 20, 2014

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OFFICIAL CERTIFICATE OF ANALYSIS : 4484448

WORK REQUEST : 100389538

Report Date : 2025-10-03

Paterson Group
9 Auriga Dr
Nepean, Ontario
K2E 7T9
Attention : Alex Schopf

Reception Date : 2025-08-29
Project : PH5068
Sampler : NA
PO Number : 63929
Temperature : 11 °C

Analysis	Quantity	External Method
Alkalinity (Water, Automated)	1	Modified from SM 2320 B
Ammonia, Total (Water, Colorimetry)	1	Modified from EPA 350.1
Chloride (Water, IC)	1	Modified from SM 4110 B and C
Colour, Apparent (Water, Spectrophotometry)	1	Modified from SM 2120 C
Colour, True (Water, Spectrophotometry)	1	Modified from SM 2120 C
Conductivity (Water, Automated)	1	Modified from SM 2510 B
DOC (Water, IR)	1	Modified from SM 5310 B
Escherichia coli (DC Plate)	1	Modified from MECP E3407
Fluoride (Water, Auto/ISE)	1	Modified from SM 4500-F A and 4500-F C
Hardness (Water, Calculation Only)	1	SM 2340 B
Ion Balance (Water, Calculation)	1	Modified from SM1030 E
Metals Scan (Water, ICP/MS)	1	Modified from EPA 200.8
Metals Scan (Water, ICP/OES)	1	Modified from SM 3120 B
Nitrate (Water, IC)	1	Modified from SM 4110 B and C
Nitrite (Water, IC)	1	Modified from SM 4110 B and C
pH (25°C) (Water, Automated)	1	Modified from SM 4500-H+ B
PHCs F1 (Water, GC-FID)	1	Modified from ON MECP E3421
PHCs F2-F4 (Water, GC-FID)	1	Modified from ON MECP E3421
Phenols (Water, Colorimetry)	1	Modified from EPA 420.2
Sulphate (Water, IC)	1	Modified from SM 4110 B and C
Sulphide (Water, Colorimetry)	1	Modified from SM 4500-S2 D
Tannin and Lignin (Water, Spec)	1	Modified from SM 5550 B
TDS (Estimated)	1	Modified from SM 2510 A
Total Coliforms (DC Plate)	1	Modified from MECP E3407
Total Kjeldahl Nitrogen (Water, Colorimetry)	1	Modified from EPA 351.2
Turbidity (Water, Turbidimeter)	1	Modified from SM 2130 B
VOCs (Water, GC/MS)	1	Modified from EPA 8260

Criteria :
A : Ontario Regulation 169/03 (Non-Regulated Drinking Water)

Sample status upon receipt :
9072775
Compliant

Certificate Comments :
Revision 1: This is an amendment and supersedes certificate 4449755. The full list of VOCs has been added.

9072775
Color (true & apparent) were analyzed on September 4, 2025. S2-, tannin and lignin, DOC, conductivity, pH, alkalinity, F, metals, N-NH3 and TKN were analyzed September 2, 2025. VOCs and F1-F4 analysed on 2025-09-03. S2- MRL was increased due to matrix interference.

Notes :
- All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated.

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- Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/
- Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Legend :

RL : Reporting limit
QC : Reference material (QC)
N/A : Not applicable
1 : Results in annex
* : Analysis conducted by external subcontracting
^ : Analysis not accredited

OFFICIAL CERTIFICATE OF ANALYSIS - EXCEEDENCE SUMMARY

Client : Paterson Group
Project : PH5068

Reception Date : 2025-08-29

Eurofins Sample No	Client Sample Identification	Analyte	Result	Units	Exceeded Criteria		
					A	B	C
Colour, Apparent (Water, Spectrophotometry)							
9072775	TW1 - GW1	Colour (Apparent)	155	TCU	5		
Hardness (Water, Calculation Only)							
9072775	TW1 - GW1	Hardness as CaCO3 (Calculation)	309	mg/L	80-100		
Metals Scan (Water, ICP/MS)							
9072775	TW1 - GW1	Aluminum	0.19	mg/L	0.1		
9072775	TW1 - GW1	Iron	0.44	mg/L	0.3		
Sulphide (Water, Colorimetry)							
9072775	TW1 - GW1	Sulphide (S2-)	<0.20	mg/L	0.05		

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

					Eurofins Sample No :	**9072775**				
					Matrix :	Groundwater				
					Sampling Date :	2025-08-28				
					Client Sample Identification :	TW1 - GW1				
Anions			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Chloride	0.5	mg/L	250			80.1				
Sulphate	1	mg/L	500			58				

			Eurofins Sample No :	**9072775**						
			Matrix :	Groundwater						
			Sampling Date :	2025-08-28						
			Client Sample Identification :	TW1 - GW1						
Calculations	**RL**	**Unit**								
Ion Balance (Calculation)^	0.1		1.04							

					Eurofins Sample No :	**9072775**				
					Matrix :	Groundwater				
					Sampling Date :	2025-08-28				
					Client Sample Identification :	TW1 - GW1				
General Chemistry			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Alkalinity (as CaCO3)	5	mg/L	500			193				
Colour (Apparent)	2	TCU	5			155				
Colour (True)	2	TCU				<2				
Conductivity @ 25°C	5	µS/cm				713				
Dissolved Organic Carbon	0.5	mg/L	5			1.3				
Fluoride	0.1	mg/L	1.5			0.12				
Hardness as CaCO3 (Calculation)	1	mg/L	80-100			309				
pH @ 25°C	1		6.5-8.5			7.94				
Phenols-4AAP	0.001	mg/L				<0.001				
Sulphide (S2-)	0.2	mg/L	0.05			<0.20				
Tannin and Lignin	0.1	mg/L				<0.1				
TDS (Estimated)^	5	mg/L	500			463				
Turbidity	0.1	NTU	5			3.7				

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

					Eurofins Sample No :	9072775				
					Matrix :	Groundwater				
					Sampling Date :	2025-08-28				
					Client Sample Identification :	TW1 - GW1				
Metals			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Metals Scan (Water, ICP/MS)										
Aluminum	0.01	mg/L	0.1			0.19				
Antimony	0.0005	mg/L	0.006			<0.0005				
Arsenic	0.001	mg/L	0.01			<0.001				
Barium	0.001	mg/L	1			0.261				
Beryllium	0.0005	mg/L				<0.0005				
Boron	0.01	mg/L	5			0.03				
Cadmium	0.0001	mg/L	0.005			<0.0001				
Chromium	0.001	mg/L	0.05			<0.001				
Cobalt	0.0002	mg/L				0.0003				
Copper	0.001	mg/L	1			0.002				
Iron	0.03	mg/L	0.3			0.44				
Lead	0.001	mg/L	0.01			<0.001				
Manganese	0.01	mg/L	0.05			0.02				
Mercury	0.0001	mg/L	0.001			<0.0001				
Molybdenum	0.005	mg/L				<0.005				
Nickel	0.005	mg/L				<0.005				
Selenium	0.001	mg/L	0.05			<0.001				
Silver	0.0001	mg/L				<0.0001				
Strontium	0.001	mg/L				0.769				
Thallium	0.0001	mg/L				<0.0001				
Uranium	0.001	mg/L	0.02			0.005				
Vanadium	0.001	mg/L				<0.001				
Zinc	0.01	mg/L	5			<0.01				
Metals Scan (Water, ICP/OES)										
Calcium	1	mg/L				89				
Magnesium	1	mg/L				21				
Potassium	1	mg/L				4				
Sodium	1	mg/L	200			32				

					Eurofins Sample No :	9072775				
					Matrix :	Groundwater				
					Sampling Date :	2025-08-28				
					Client Sample Identification :	TW1 - GW1				
Microbiology			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Escherichia coli (DC)	0	CFU/100mL	0			0				
Total Coliforms (DC)	0	CFU/100mL	0			0				

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

						Eurofins Sample No :	**9072775**			
						Matrix :	Groundwater			
						Sampling Date :	2025-08-28			
						Client Sample Identification :	TW1 - GW1			
Nutrients			**Criteria**							
	RL	**Unit**	**A**	**B**	**C**					
Ammonia (Total, as Nitrogen)	0.02	mg/L				<0.020				
Nitrate (as Nitrogen)	0.1	mg/L	10.0			0.81				
Nitrite (as Nitrogen)	0.1	mg/L	1.0			<0.1				
Total Kjeldahl Nitrogen	0.1	mg/L				0.156				

						Eurofins Sample No :	**9072775**			
						Matrix :	Groundwater			
						Sampling Date :	2025-08-28			
						Client Sample Identification :	TW1 - GW1			
Petroleum Hydrocarbons	**RL**	**Unit**								
F1 (C6 to C10)	20	ug/L	<20							
PHCs F2-F4 (Water, GC-FID)										
F2 (C10 to C16)	20	ug/L	<20							
F3 (C16 to C34)	50	ug/L	<50							
F4 (C34 to C50)	50	ug/L	<50							
5-alpha-Androstane (surrogate)	1	%	93							

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

					Eurofins Sample No :	**9072775**				
					Matrix :	Groundwater				
					Sampling Date :	2025-08-28				
					Client Sample Identification :	TW1 - GW1				
Volatile Organic Compounds	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
VOCs (Water, GC/MS)										
1,1,1,2-Tetrachloroethane	0.5	ug/L				<0.5				
1,1,1-Trichloroethane	0.4	ug/L				<0.4				
1,1,2,2-Tetrachloroethane	0.5	ug/L				<0.5				
1,1,2-Trichloroethane	0.4	ug/L				<0.4				
1,1-Dichloroethane	0.4	ug/L				<0.4				
1,1-Dichloroethene	0.5	ug/L	14			<0.5				
1,2,4-Trichlorobenzene	0.5	ug/L				<0.5				
1,2-Dibromoethane	0.2	ug/L				<0.2				
1,2-Dichlorobenzene	0.4	ug/L	200			<0.4				
1,2-Dichloroethane	0.2	ug/L	5			<0.2				
1,2-dichloroethene, cis + trans^	0.5	ug/L				<0.5				
1,2-Dichloropropane	0.5	ug/L				<0.5				
1,3,5-Trimethylbenzene	0.3	ug/L				<0.3				
1,3-Dichlorobenzene	0.4	ug/L				<0.4				
1,3-Dichloropropene, cis + trans	0.5	ug/L				<0.5				
1,4-Dichlorobenzene	0.4	ug/L	5			<0.4				
Acetone	5	ug/L				<5				
Benzene	0.5	ug/L	1			<0.5				
Bromodichloromethane	0.3	ug/L				<0.3				
Bromoform	0.4	ug/L				<0.4				
Bromomethane	0.5	ug/L				<0.5				
Carbon tetrachloride	0.2	ug/L	2			<0.2				
Chloroethane	0.5	ug/L				<0.5				
Chloroform	0.5	ug/L				<0.5				
Chloromethane	0.2	ug/L				<0.2				
cis-1,2-Dichloroethene	0.4	ug/L				<0.4				
cis-1,3-Dichloropropene	0.5	ug/L				<0.5				
Dibromochloromethane	0.3	ug/L				<0.3				
Dichlorodifluoromethane	0.5	ug/L				<0.5				
Dichloromethane	4	ug/L	50			<4				
Diethyl ether	5	ug/L				<5				
Ethylbenzene	0.5	ug/L	140			<0.5				
Hexane	5	ug/L				<5				
m/p-Xylene	0.4	ug/L				<0.4				
Methyl butyl ketone (MBK)	5	ug/L				<5				
Methyl ethyl ketone (MEK)	2	ug/L				<2				
Methyl isobutyl ketone (MIBK)	5	ug/L				<5				
Methyl tert-butyl ether (MTBE)	2	ug/L				<2				
Monochlorobenzene	0.5	ug/L	80			<0.5				
o-Xylene	0.4	ug/L				<0.4				
Styrene	0.5	ug/L				<0.5				
Tetrachloroethylene (PCE)	0.3	ug/L	10			<0.3				
Toluene	0.4	ug/L	60			<0.4				
trans-1,2-dichloroethene	0.4	ug/L				<0.4				
trans-1,3-dichloropropene	0.5	ug/L				<0.5				

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

					Eurofins Sample No :	**9072775**				
					Matrix :	Groundwater				
					Sampling Date :	2025-08-28				
					Client Sample Identification :	TW1 - GW1				
Volatile Organic Compounds	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
Trichloroethylene (TCE)	0.3	ug/L	5			<0.3				
Trichlorofluoromethane	0.5	ug/L				<0.5				
Vinyl chloride	0.2	ug/L	1			<0.2				
Xylene (Total)	0.5	ug/L	90			<0.5				
1,2-dichloroethane-d4 (surrogate)	0	%				105				
4-bromofluorobenzene (surrogate)	0	%				118				
Toluene-d8 (surrogate)	0	%				111				

Approved by :
Patrick Jacques, B.Sc, C.Chem,
Environmental Chemist, Ottawa

Approved by :
Jason Kennedy,
Project Manager

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Alkalinity (Water, Automated)									
Method : Alkalinity (water, titration to pH 4.5, automated). Internal method: OTT-I-AT-WI45398.									
Alkalinity (as CaCO3)	mg/L	5	<5	97	95-105			3	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Ammonia, Total (Water, Colorimetry)									
Method : Ammonia (Water, Colorimetry). Internal method: OTT-I-NUT-WI46201.									
Ammonia (Total, as Nitrogen)	mg/L	0.02	<0.020	98	80-120	106	80-120	-	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Chloride (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Chloride	mg/L	0.5	<0.5	104	80-120	114	80-120	1	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Colour, Apparent (Water, Spectrophotometry)									
Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.									
Colour (Apparent)	TCU	2	<2	96	78-116			0	0-40
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Colour, True (Water, Spectrophotometry)									
Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.									
Colour (True)	TCU	2	<2	96	78-116			-	0-40
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Conductivity (Water, Automated)									
Method : Conductivity (Water, Autotitrator). Internal Method: OTT-I-AT-WI45398.									
Conductivity @ 25°C	uS/cm	5	<5	99	98-102			1	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
DOC (Water, IR)									
Method : Organic carbon (water, IR, combustion). Internal method: OTT-I-DEM-WI46148.									
Dissolved Organic Carbon	mg/L	0.5	<0.5	100	88-112	97	80-120	-	0-15
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Escherichia coli (DC Plate)									
Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296.									
Escherichia coli (DC)	CFU/100mL	0	0					-	0-30
Associated Samples : 9072775								Prep Date: 2025-08-29 Analysis Date: 2025-08-30	
Fluoride (Water, Auto/ISE)									
Method : Fluoride by autotitrator, ion selective electrode. Internal method: OTT-I-AT-WI45398.									
Fluoride	mg/L	0.1	<0.10	94	90-110			-	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Metals Scan (Water, ICP/MS)									
Method : Metals (Water, ICP/MS). Internal method: AMMTFQE1.									
Aluminum	mg/L	0.01	<0.01	100	80-120	109	70-130	0	0-20
Antimony	mg/L	0.0005	<0.0005	89	80-120	99	70-130	-	0-20
Arsenic	mg/L	0.001	<0.001	100	80-120	97	70-130	-	0-20
Barium	mg/L	0.001	<0.001	90	80-120	82	70-130	0	0-20
Beryllium	mg/L	0.0005	<0.0005	110	80-120	112	70-130	-	0-20
Boron	mg/L	0.01	<0.01	100	80-120	111	70-130	-	0-20
Cadmium	mg/L	0.0001	<0.0001	100	80-120	92	70-130	-	0-20
Chromium	mg/L	0.001	<0.001	110	80-120	97	70-130	-	0-20
Cobalt	mg/L	0.0002	<0.0002	104	80-120	91	70-130	-	0-20
Copper	mg/L	0.001	<0.001	110	80-120	88	70-130	-	0-20
Iron	mg/L	0.03	<0.03	100	80-120	93	70-130	0	0-20
Lead	mg/L	0.001	<0.001	100	80-120	88	70-130	-	0-20
Manganese	mg/L	0.01	<0.01	100	80-120	94	70-130	0	0-20
Mercury	mg/L	0.0001	<0.0001	115	80-120	110	70-130	-	0-20
Molybdenum	mg/L	0.005	<0.005	90	80-120	92	70-130	-	0-20
Nickel	mg/L	0.005	<0.005	110	80-120	91	70-130	-	0-20
Selenium	mg/L	0.001	<0.001	101	80-120	93	70-130	-	0-20
Silver	mg/L	0.0001	<0.0001	99	80-120	86	70-130	-	0-20
Strontium	mg/L	0.001	<0.001	90	80-120	88	70-130	2	0-20
Thallium	mg/L	0.0001	<0.0001	103	80-120	89	70-130	-	0-20
Uranium	mg/L	0.001	<0.001	100	80-120	90	70-130	-	0-20
Vanadium	mg/L	0.001	<0.001	100	80-120	99	70-130	-	0-20
Zinc	mg/L	0.01	<0.01	110	80-120	90	70-130	-	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-09-30	
Metals Scan (Water, ICP/OES)									
Method : Metals (Water, ICP/OES). Internal method: OTT-I-MET-WI48491.									
Calcium	mg/L	1	<1	99	86-115	100	70-130	0	0-20
Magnesium	mg/L	1	<1	95	91-109	106	70-130	0	0-20
Potassium	mg/L	1	<1	101	87-113	110	70-130	-	0-20
Sodium	mg/L	1	<1	102	85-115	112	70-130	0	0-20
Associated Samples : 9072775								Prep Date: 2025-09-02 Analysis Date: 2025-09-30	
Nitrate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrate (as Nitrogen)	mg/L	0.1	<0.1	105	80-120	114	80-120	0	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Nitrite (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrite (as Nitrogen)	mg/L	0.1	<0.1	105	80-120	111	80-120	-	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
pH (25°C) (Water, Automated)									
Method : pH (Water, Automated Meter). Internal method: OTT-I-AT-WI45398.									
pH @ 25°C		1	7.54	100	97-103			0	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
PHCs F1 (Water, GC-FID)									
Method : Petroleum Hydrocarbons (Water, GC-FID). Internal method: OTT-O-PHC-WI45386.									
F1 (C6 to C10)	ug/L	20	<20	98	70-130	111	70-130	-	0-30
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
PHCs F2-F4 (Water, GC-FID)									
Method : Petroleum Hydrocarbons (Water, GC-FID). Internal method: OTT-O-PHC-WI45386.									
F2 (C10 to C16)	ug/L	20	<20	68	60-140				
F3 (C16 to C34)	ug/L	50	<50	68	60-140				
F4 (C34 to C50)	ug/L	50	<50	68	60-140				
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Phenols (Water, Colorimetry)									
Method : Phenols (Water, Colorimetry). Internal method: OTT-I-4AAP-WI46150.									
Phenols-4AAP	mg/L	0.001	<0.001	100	75-125	106	70-130	-	0-20
Associated Samples : 9072775								Prep Date: 2025-09-02 Analysis Date: 2025-09-02	
Sulphate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Sulphate	mg/L	1	<1	103	90-110	113	80-120	0	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Sulphide (Water, Colorimetry)									
Method : Sulphide, S2- (Water, Colorimetry). Internal method: OTT-I-SPEC-WI45931.									
Sulphide (S2-)	mg/L	0.01	<0.01	84	80-120				
Associated Samples : 9072775								Prep Date: 2025-10-02 Analysis Date: 2025-10-02	
Tannin and Lignin (Water, Spec)									
Method : Tannin and Lignin (Water, Spec), Internal method: OTT-I-SPEC-WI57693.									
Tannin and Lignin	mg/L	0.1	<0.1	108	80-120				
Associated Samples : 9072775								Prep Date: 2025-10-02 Analysis Date: 2025-10-02	
Total Coliforms (DC Plate)									
Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296.									
Total Coliforms (DC)	CFU/100mL	0	0					-	0-30
Associated Samples : 9072775								Prep Date: 2025-08-29 Analysis Date: 2025-08-30	
Total Kjeldahl Nitrogen (Water, Colorimetry)									
Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.									
Total Kjeldahl Nitrogen	mg/L	0.1	<0.100	97	70-130	117	70-130	4	0-20
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	
Turbidity (Water, Turbidimeter)									
Method : Turbidity (Water, Turbidimeter). Internal method: OTT-I-TUR-WI46288.									
Turbidity	NTU	0.1	<0.1	104	80-120				
Associated Samples : 9072775								Prep Date: 2025-08-30 Analysis Date: 2025-08-30	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
VOCs (Water, GC/MS)									
Method : Volatile Organic Compounds (Water, GC/MS). Internal method: AMVOMSE8.									
1,1,1,2-Tetrachloroethane	ug/L	0.5	<0.5	119	70-130	122	70-130	-	0-30
1,1,1-Trichloroethane	ug/L	0.4	<0.4	123	70-130	109	70-130	-	0-30
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.5	130	70-130	130	70-130	-	0-30
1,1,2-Trichloroethane	ug/L	0.4	<0.4	115	70-130	118	70-130	-	0-30
1,1-Dichloroethane	ug/L	0.4	<0.4	105	70-130	121	70-130	-	0-30
1,1-Dichloroethene	ug/L	0.5	<0.5	89	70-130	118	70-130	-	0-30
1,2,4-Trichlorobenzene	ug/L	0.5	<0.5				-		-
1,2-Dibromoethane	ug/L	0.2	<0.2	94	70-130	89	70-130	-	0-30
1,2-Dichlorobenzene	ug/L	0.4	<0.4	85	70-130	96	70-130	-	0-30
1,2-Dichloroethane	ug/L	0.2	<0.2	89	70-130	89	70-130	-	0-30
1,2-dichloroethene, cis + trans^	ug/L	0.5	<0.5				-		-
1,2-Dichloropropane	ug/L	0.5	<0.5	116	70-130	91	70-130	-	0-30
1,3,5-Trimethylbenzene	ug/L	0.3	<0.3	121	70-130	112	70-130	-	0-30
1,3-Dichlorobenzene	ug/L	0.4	<0.4	82	70-130	121	70-130	-	0-30
1,3-Dichloropropene, cis + trans	ug/L	0.5	<0.5				-		-
1,4-Dichlorobenzene	ug/L	0.4	<0.4	115	70-130	96	70-130	-	0-30
Acetone	ug/L	5	<5	130	70-130	102	70-130	-	0-30
Benzene	ug/L	0.5	<0.5	120	70-130	119	70-130	-	0-30
Bromodichloromethane	ug/L	0.3	<0.3	118	70-130	94	70-130	-	0-30
Bromoform	ug/L	0.4	<0.4	105	70-130	121	70-130	-	0-30
Bromomethane	ug/L	0.5	<0.5	79	70-130	115	70-130	-	0-30
Carbon tetrachloride	ug/L	0.2	<0.2	91	70-130	112	70-130	-	0-30
Chloroethane	ug/L	0.5	<0.5	94	70-130	130	70-130	-	0-30
Chloroform	ug/L	0.5	<0.5	86	70-130	89	70-130	-	0-30
Chloromethane	ug/L	0.2	<0.2	123	70-130	120	70-130	-	0-30
cis-1,2-Dichloroethene	ug/L	0.4	<0.4	109	70-130	100	70-130	-	0-30
cis-1,3-Dichloropropene	ug/L	0.5	<0.5	117	70-130	100	70-130	-	0-30
Dibromochloromethane	ug/L	0.3	<0.3	121	70-130	122	70-130	-	0-30
Dichlorodifluoromethane	ug/L	0.5	<0.5	102	70-130	113	70-130	-	0-30
Dichloromethane	ug/L	4	<4	130	70-130	130	70-130	-	0-30
Diethyl ether	ug/L	5	<5	89	70-130	89	70-130	-	0-30
Ethylbenzene	ug/L	0.5	<0.5	91	70-130	91	70-130	-	0-30
Hexane	ug/L	5	<5	130	70-130	130	70-130	-	0-30
m/p-Xylene	ug/L	0.4	<0.4	99	70-130	100	70-130	-	0-30
Methyl butyl ketone (MBK)	ug/L	5	<5	122	70-130	121	70-130		
Methyl ethyl ketone (MEK)	ug/L	2	<2	76	70-130	91	70-130	-	0-30
Methyl isobutyl ketone (MIBK)	ug/L	5	<5	96	70-130	123	70-130	-	0-30
Methyl tert-butyl ether (MTBE)	ug/L	2	<2	121	70-130	112	70-130	-	0-30
Monochlorobenzene	ug/L	0.5	<0.5	112	70-130	130	70-130	-	0-30
o-Xylene	ug/L	0.4	<0.4	121	70-130	100	70-130	-	0-30
Styrene	ug/L	0.5	<0.5	98	70-130	89	70-130	-	0-30
Tetrachloroethylene (PCE)	ug/L	0.3	<0.3	130	70-130	70	70-130	-	0-30
Toluene	ug/L	0.4	<0.4	89	70-130	79	70-130	-	0-30
trans-1,2-dichloroethene	ug/L	0.4	<0.4	89	70-130	100	70-130	-	0-30
trans-1,3-dichloropropene	ug/L	0.5	<0.5	99	70-130	100	70-130	-	0-30
Trichloroethylene (TCE)	ug/L	0.3	<0.3	102	70-130	102	70-130	-	0-30
Trichlorofluoromethane	ug/L	0.5	<0.5	113	70-130	119	70-130	-	0-30

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH5068

Reception Date: 2025-08-29

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
VOCs (Water, GC/MS)									
Method : Volatile Organic Compounds (Water, GC/MS). Internal method: AMVOMSE8.									
Vinyl chloride	ug/L	0.2	<0.2	121	70-130	123	70-130	-	0-30
Xylene (Total)	ug/L	0.5	<0.5				-		-
Associated Samples : 9072775								Prep Date: 2025-10-01 Analysis Date: 2025-10-01	

Where RPD % is reported as "-" the calculation is not available because one or both of the duplicates is within 5 times the RL.

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100389538

Printed On : 2025-09-30 13:03:04

CLIENT INFORMATION		INVOICE INFO	
Company:	Paterson Group	Company:	
Contact:	Alex Schopf	Contact:	
Address:	9 Auriga Drive	Address:	
Telephone:	613-218-3444 Cell:	Telephone:	PO #: 63929
Email:	#1: eardley@patersongroup.ca, mlaflamme@patersongroup.ca;		
Email:	#2: aschopf@patersongroup.ca;		
Project:	PH5068 Quote #:		

S ☑ NO ☐)

TURN-AROUND TIME (Business Days)

☐ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☑ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability.
*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.
**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

☐ Sanitary Sewer, City: Ottawa
☐ Storm Sewer, City: Ottawa
☑ ODWSOG
☐ PWQO
☐ O. Reg 347/558
☐ Other: _____
☐ None

☐ O. Reg 153
Table # ___ Course / Fine, Surface / subsurface.
Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment
☐ Excess Soil, Table: _____ Type: _____

The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04 ☐ Yes ☐ No

The optimal temperature conditions during transport should be less than 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Sample Details — Sample Analysis Required

Field Filtered →

O.Reg.153 parameters

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	See attached paper	Subdivision Supply Bact 2 (Ex/TO only)	TSS	pH	Total Metals	Hg	True Colour	Apparent colour		RNB (Lab Use Only)
TW1 - GW1	August 28, 2025	GW	9	✓		✓						✓			✓		✓	✓		9072775 ~~8975021~~

	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Alex Schopf	[signature]	August 28, 2025	
Relinquished By:	Erik Ardley	[signature]	August 29, 2025	
Received By:	S-S [signature]	[signature]	8/29/25 @ 10:00	11

COMMENTS: Apparent AND True Colour

CUSTODY SEAL: ☐ YES ☐ NO Ice packs submitted: ☐ Yes ☐ No

401 Magnetic Drive, Unit #1, North York, ON, M3J 3H9 - Telephone: 416-661-5287 • 380 Vansickle Road, Unit #630, St. Catharines, ON, L2S 0B5 - Telephone: 905-680-8887 • 608 Norris Court, Kingston, ON, K7P 2R9 - Telephone: 613-634-9307

Page ___ of ___ AFSTDCOC.5 Copies: White - Laboratory, Yellow - Sampler

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OFFICIAL CERTIFICATE OF ANALYSIS : 4473014

WORK REQUEST : 100387023

Report Date : 2025-09-23

Paterson Group
9 Auriga Dr
Nepean, Ontario
K2E 7T9
Attention : Alex Schopf

Reception Date :	2025-09-19
Project :	PH5068
Sampler :	NA
PO Number :	64085
Temperature :	9 °C

Analysis	Quantity	External Method
Metals Scan (Water, ICP/MS)	1	Modified from EPA 200.8

Criteria :
A : Ontario Regulation 169/03 (Groundwater, Non-Potable)

Sample status upon receipt :
9043227
Compliant

Certificate Comments :
Revision 1: This is an amendment and supersedes certificate 4471523. Result for iron has been added as per client's request.
9043227
Ag spike recovery not available due to matrix interference.

Notes :
- All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated.
- Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/
- Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Legend :

RL : Reporting limit	N/A : Not applicable	* : Analysis conducted by external subcontracting
QC : Reference material (QC)	1 : Results in annex	^ : Analysis not accredited

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH5068

Reception Date: 2025-09-19

					Eurofins Sample No :	**9043227**				
					Matrix :	Groundwater				
					Sampling Date :	2025-09-19				
					Client Sample Identification :	TW1-GW3				
Metals	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
Metals Scan (Water, ICP/MS)										
Aluminum	0.01	mg/L	0.1			0.02				
Antimony	0.0005	mg/L	0.006			<0.0005				
Arsenic	0.001	mg/L	0.01			<0.001				
Barium	0.001	mg/L	1			0.264				
Beryllium	0.0005	mg/L				<0.0005				
Boron	0.01	mg/L	5			0.03				
Cadmium	0.0001	mg/L	0.005			<0.0001				
Chromium	0.001	mg/L	0.05			<0.001				
Cobalt	0.0002	mg/L				0.0002				
Copper	0.001	mg/L	1			<0.001				
Iron	0.03	mg/L	0.3			0.05				
Lead	0.001	mg/L	0.01			<0.001				
Molybdenum	0.005	mg/L				<0.005				
Nickel	0.005	mg/L				<0.005				
Selenium	0.001	mg/L	0.05			<0.001				
Silver	0.0001	mg/L				<0.0001				
Strontium	0.001	mg/L				0.983				
Thallium	0.0001	mg/L				<0.0001				
Uranium	0.001	mg/L	0.02			0.004				
Vanadium	0.001	mg/L				<0.001				
Zinc	0.01	mg/L	5			<0.01				

Approved by :
Patrick Jacques, B.Sc, C.Chem,
Environmental Chemist, Ottawa

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH5068

Reception Date: 2025-09-19

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Metals Scan (Water, ICP/MS)									
Method : Metals (Water, ICP/MS). Internal method: AMMTFQE1.									
Aluminum	mg/L	0.01	<0.01	100	80-120	104	70-130	0	0-20
Antimony	mg/L	0.0005	<0.0005	81	80-120	85	70-130	-	0-20
Arsenic	mg/L	0.001	<0.001	101	80-120	102	70-130	-	0-20
Barium	mg/L	0.001	<0.001	100	80-120	97	70-130	0	0-20
Beryllium	mg/L	0.0005	<0.0005	110	80-120	110	70-130	-	0-20
Boron	mg/L	0.01	<0.01	100	80-120	111	70-130	-	0-20
Cadmium	mg/L	0.0001	<0.0001	104	80-120	103	70-130	-	0-20
Chromium	mg/L	0.001	<0.001	110	80-120	102	70-130	-	0-20
Cobalt	mg/L	0.0002	<0.0002	107	80-120	102	70-130	-	0-20
Copper	mg/L	0.001	<0.001	110	80-120	96	70-130	0	0-20
Iron	mg/L	0.03	<0.03	100	80-120	101	70-130	-	0-20
Lead	mg/L	0.001	<0.001	110	80-120	99	70-130	-	0-20
Molybdenum	mg/L	0.005	<0.005	100	80-120	97	70-130	-	0-20
Nickel	mg/L	0.005	<0.005	120	80-120	104	70-130	-	0-20
Selenium	mg/L	0.001	<0.001	104	80-120	103	70-130	-	0-20
Silver	mg/L	0.0001	<0.0001	82	80-120			-	0-20
Strontium	mg/L	0.001	<0.001	100	80-120	95	70-130	1	0-20
Thallium	mg/L	0.0001	<0.0001	105	80-120	99	70-130	-	0-20
Uranium	mg/L	0.001	<0.001	100	80-120	100	70-130	-	0-20
Vanadium	mg/L	0.001	<0.001	100	80-120	101	70-130	-	0-20
Zinc	mg/L	0.01	<0.01	110	80-120	103	70-130	-	0-20
Associated Samples : 9043227								Prep Date: 2025-09-21 Analysis Date: 2025-09-21	

Where RPD % is reported as "-" the calculation is not available because one or both of the duplicates is within 5 times the RL.

This certificate of analysis corrects and replaces any previous version. The analysis results refer only to what was provided for testing.
This certificate shall not be reproduced except in full, without the written approval of Eurofins Environment Testing Canada Inc.
Method references and/or additional QA/QC information available on request.

eurofins STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

Order #: _____

100387023

Printed On : 2025-09-19 16:27:09

CLIENT INFORMATION

Company:	Paterson Group
Contact:	Alex Schopf
Address:	9 Auriga Drive
Telephone:	613-218-3444
Cell:	
Email: #1:	eardley@patersongroup.ca, mlaflamme@patersongroup.ca;
Email: #2:	aschopf@patersongroup.ca;
Project:	PH5068
Quote #:	

INVOICE INFORMATION

Company:	
Contact:	
Address:	
Telephone:	
PO #:	64085

Report Guidelines on Certificate of Analysis: YES ☑ NO ☐

TURN-AROUND TIME (Business Days)

☑ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☐ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability.

*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.

**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

- ☐ Sanitary Sewer, City: Ottawa
- ☐ Storm Sewer, City: Ottawa
- ☑ ODWSOG
- ☐ PWQO
- ☐ O. Reg 347/558
- ☐ Other: _____
- ☐ None

☐ O. Reg 153

Table # ___, Course / Fine, Surface / subsurface.

Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment

☐ Excess Soil, Table: _____ Type: _____

The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04 ☐ Yes ☐ No

The optimal temperature conditions during transport should be less than 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Sample Details / Sample Analysis Required

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	Field Filtered -->	O.Reg.153 parameters: PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	See attached paper	Subdivision Supply Bacti 2 (Ec/TC only)	TSS	pH	Total Metals	Hg	True Colour	methane		RN# (Lab Use Only)
TW1-GW3	September 19, 2025	GW	1		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	~~9043117~~
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	9043227
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
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	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Alex Schopf		September 19, 2025	
Relinquished By:	Alex Schopf		September 19, 2025	9
Received By:	S. Sutton		Sept 19/25 @ 15:15	

COMMENTS: Total/Trace Metals

CUSTODY SEAL: ☐ YES ☐ NO Ice packs submitted: ☐ Yes ☐ No

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9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 23, 2022

FILE NO. PG6308

HOLE NO. BH 1-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	117.21
TOPSOIL 0.28							
Loose, brown **SILTY SAND** 0.69		AU	1				
Very stiff, brown **SILTY CLAY** 1.45		SS	2	75	5	1	116.21
Loose to compact, brown **SILTY SAND to SANDY SILT**		SS	3	67	7	2	115.21
- intermittent layers of silty clay by 2.2m depth		SS	4	83	17	3	114.21
		SS	5	75	13		
3.66							
End of Borehole							
(GWL @ 1.67m - July 8, 2022)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 23, 2022

FILE NO. PG6308

HOLE NO. BH 2-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	116.97
TOPSOIL 0.28							
Loose, reddish brown to brown **SILTY SAND to SANDY SILT**		AU	1				
- trace clay from 0.8 to 1.45m depth		SS	2	92	3	1	115.97
1.45							
Compact, brown **SILTY SAND to SANDY SILT**		SS	3	83	24	2	114.97
		SS	4	75	26		
2.97							
Very loose, brown **SILTY SAND to SANDY SILT** with interbedded layers of brown silty clay		SS	5	92	2	3	113.97
3.66							
End of Borehole							
(GWL @ 1.00m - July 8, 2022)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 23, 2022

FILE NO. PG6308

HOLE NO. BH 3-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	116.78
TOPSOIL 0.28							
Loose, reddish brown **SILTY SAND** 0.69		AU	1				
		SS	2	83	6	1	115.78
Hard to very stiff, brown **SILTY CLAY**						2	114.78
2.59		SS	3	83	10		
Interbedded layers of loose, brown **SILTY SAND to SANDY SILT** and stiff, brown **SILTY CLAY**		SS	4	75	6	3	113.78
		SS	5	75	6	4	112.78
4.50							
Compact, brown **SILTY SAND to SANDY SILT,** trace clay 5.26		SS	6	83	13	5	111.78
		SS	7	67	1		
Loose to compact, brown **SILTY SAND**						6	110.78
- running sand at 5.3m depth		SS	8	67	12		
6.71							
End of Borehole							
(GWL @ 1.22m - July 8, 2022)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

249

Monitoring Well Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

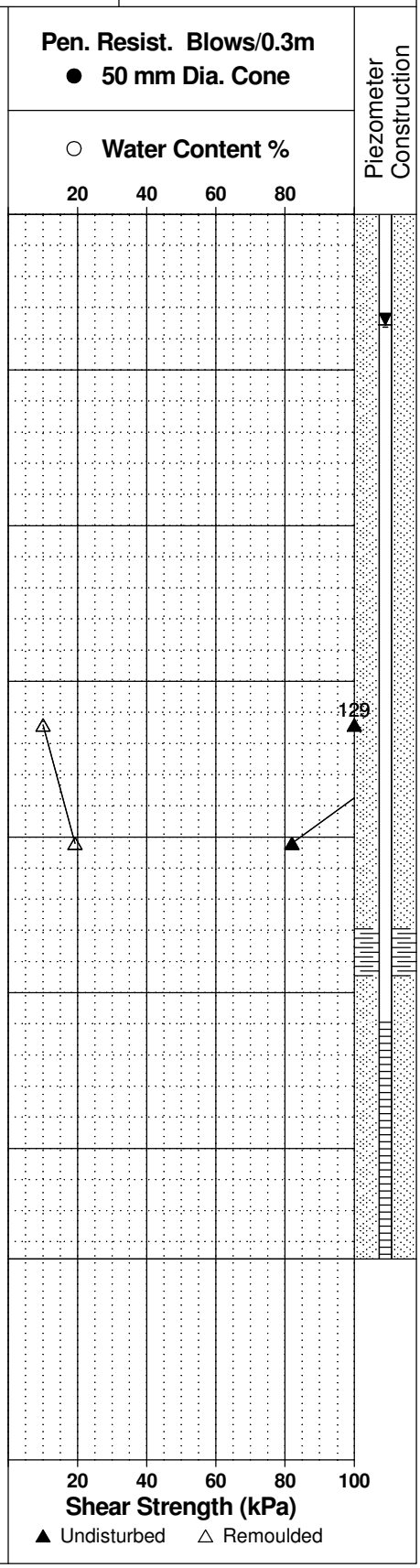
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 23, 2022

FILE NO. PG6308

HOLE NO. BH 4-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	116.44
TOPSOIL 0.28							
Loose, brown **SILTY SAND,** trace clay 0.69		AU	1				
		SS	2	83	7	1	115.44
		SS	3	83	8	2	114.44
Very stiff to stiff, brown **SILTY CLAY**		SS	4	92	2	3	113.44
4.42						4	112.44
Very loose, grey **SILTY SAND**		SS	5	58	2		
- some running sand by 4.6m depth		SS	6	42	1	5	111.44
		SS	7	50	1	6	110.44
6.71							
End of Borehole							
(GWL @ 0.71m - July 8, 2022)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 28, 2022

FILE NO. PG6308

HOLE NO. BH 4A-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	116.44		
						1	115.44		
OVERBURDEN						2	114.44		
						3	113.44		
						4	112.44		
4.57									
Very loose, grey **SILTY SAND**		SS	1	25	3	5	111.44		
- some running at 5.3m depth		SS	2	33	1				
6.10						6	110.44		
End of Borehole									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

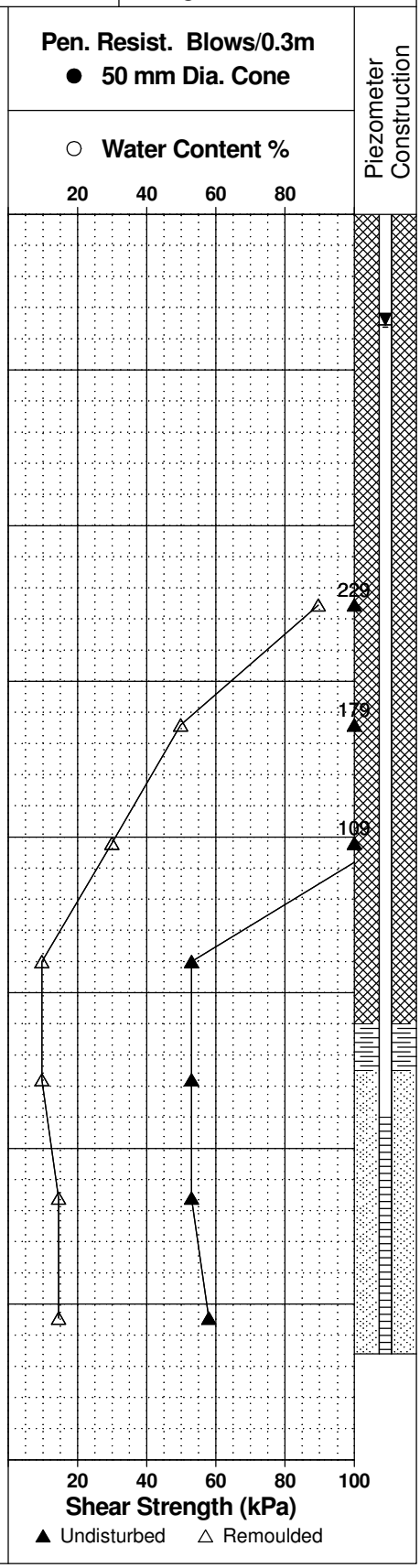
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 28, 2022

FILE NO. PG6308

HOLE NO. BH 5-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	116.37
TOPSOIL 0.20							
Loose, brown **SILTY SAND** 0.69		AU	1				
		SS	2	100	7	1	115.37
		SS	3	100	9	2	114.37
Hard to very stiff, brown **SILTY CLAY**						3	113.37
- stiff and grey by 4.4m depth						4	112.37
						5	111.37
						6	110.37
7.32						7	109.37
Dynamic Cone Penetration Test commenced at 7.32m depth. Cone pushed to 8.5m depth.						8	108.37



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

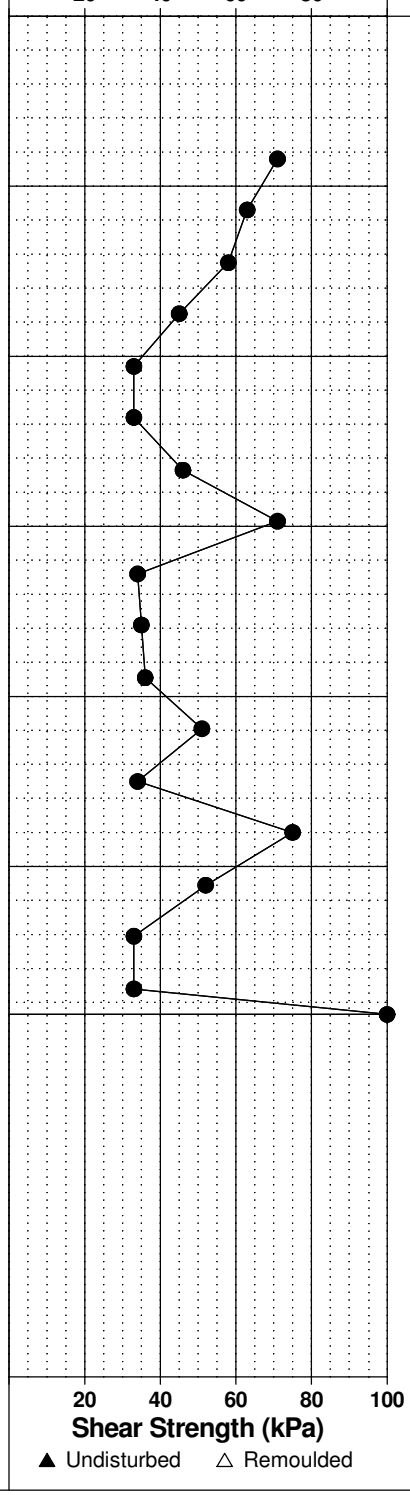
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 28, 2022

FILE NO. PG6308

HOLE NO. BH 5-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
Dynamic Cone Penetration Test commenced at 7.32m depth. Cone pushed to 8.5m depth.						8	108.37		
						9	107.37		
						10	106.37		
						11	105.37		
						12	104.37		
						13	103.37		
13.87									
End of Borehole Practical DCPT refusal at 13.87m depth. (GWL @ 0.71m - July 8, 2022)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

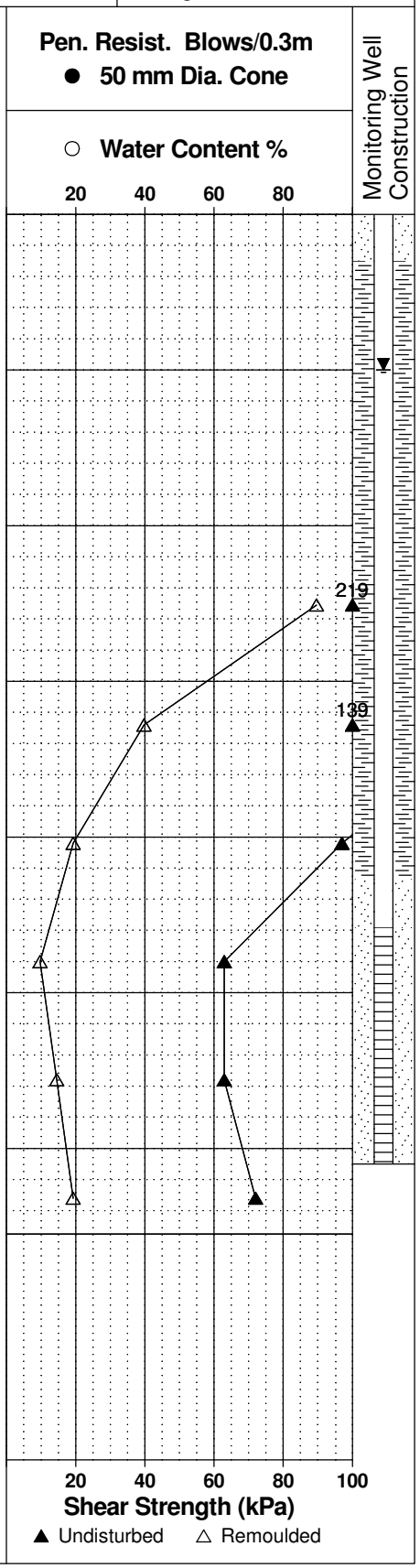
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 28, 2022

FILE NO. PG6308

HOLE NO. BH 6-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	116.33
TOPSOIL 0.25							
Loose, brown **SILTY SAND** 0.69		AU	1				
		SS	2	100	7	1	115.33
		SS	3	100	9	2	114.33
Hard to ver stiff, brown **SILTY CLAY**						3	113.33
- stiff by 3.8m depth						4	112.33
- grey by 4.4m depth						5	111.33
						6	110.33
6.55							
End of Borehole							
(GWL @ 1.00m - July 8, 2022)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Proposed Industrial Building - 3113 Carp Road
Ottawa, Ontario

DATUM Geodetic

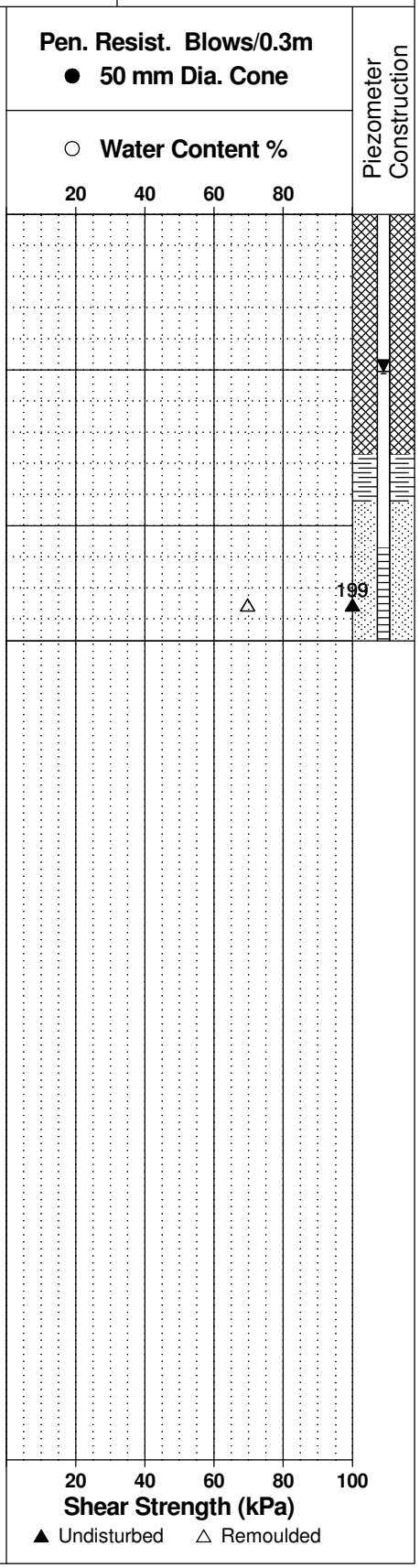
REMARKS

BORINGS BY Track-Mount Power Auger **DATE** June 28, 2022

FILE NO. PG6308

HOLE NO. BH 7-22

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	116.34
TOPSOIL 0.25							
Loose, brown **SILTY SAND** 0.69		AU	1				
		SS	2	100	6	1	115.34
Hard to very stiff, brown **SILTY CLAY**		SS	3	100	6		
2.74						2	114.34
End of Borehole							
(GWL @ 1.01m - July 8, 2022)							



SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the strength of cohesionless soils is the relative density, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm.

Relative Density	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory vane tests, penetrometer tests, unconfined compression tests, or occasionally by Standard Penetration Tests.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their "sensitivity". The sensitivity is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil.

Terminology used for describing soil strata based upon texture, or the proportion of individual particle sizes present is provided on the Textural Soil Classification Chart at the end of this information package.

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NXL size core. However, it can be used on smaller core sizes, such as BX, if the bulk of the fractures caused by drilling stresses (called "mechanical breaks") are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube
PS	-	Piston sample
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC%	-	Natural moisture content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic limit, % (water content above which soil behaves plastically)
PI	-	Plasticity index, % (difference between LL and PL)
Dxx	-	Grain size which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2 / (D10 \times D60)$
Cu	-	Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay (more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

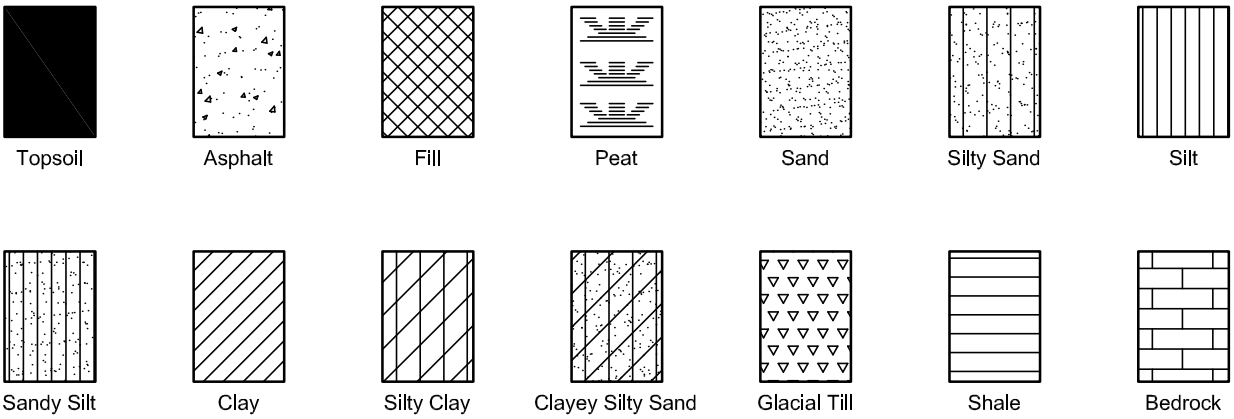
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

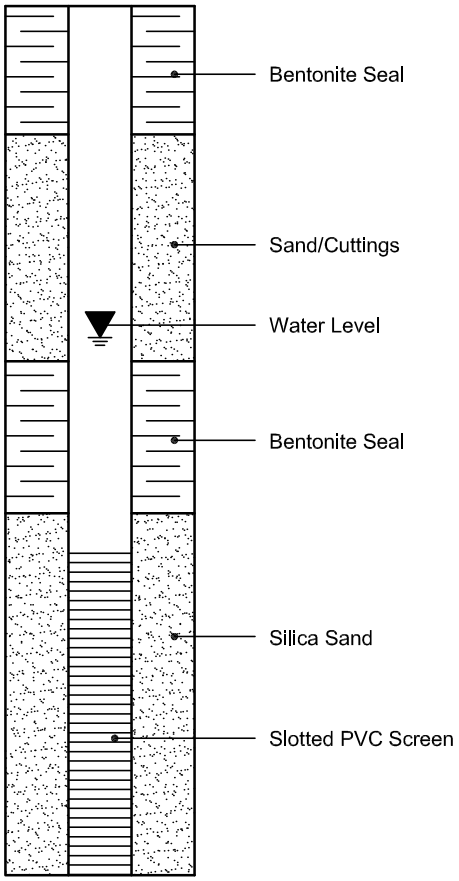
SYMBOLS AND TERMS (continued)

STRATA PLOT

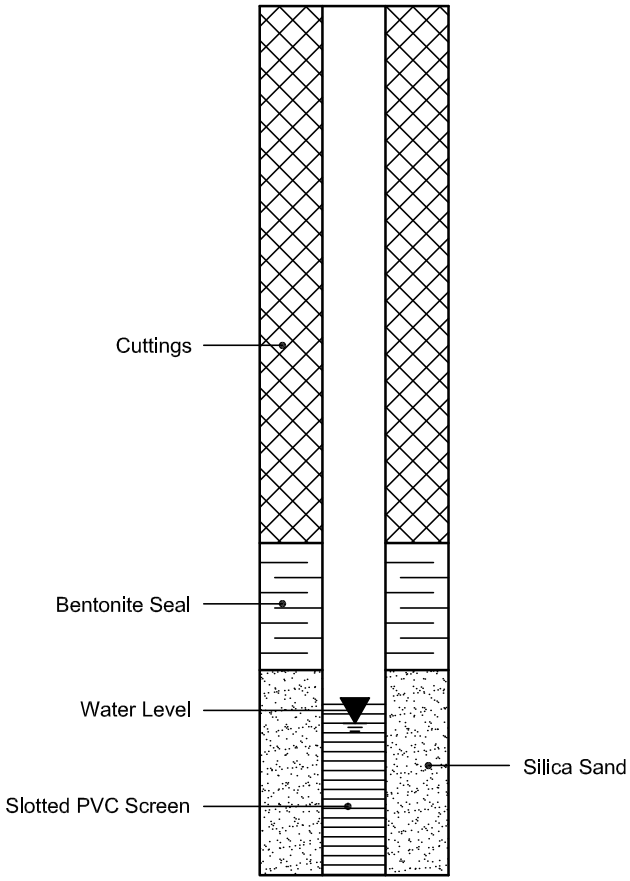


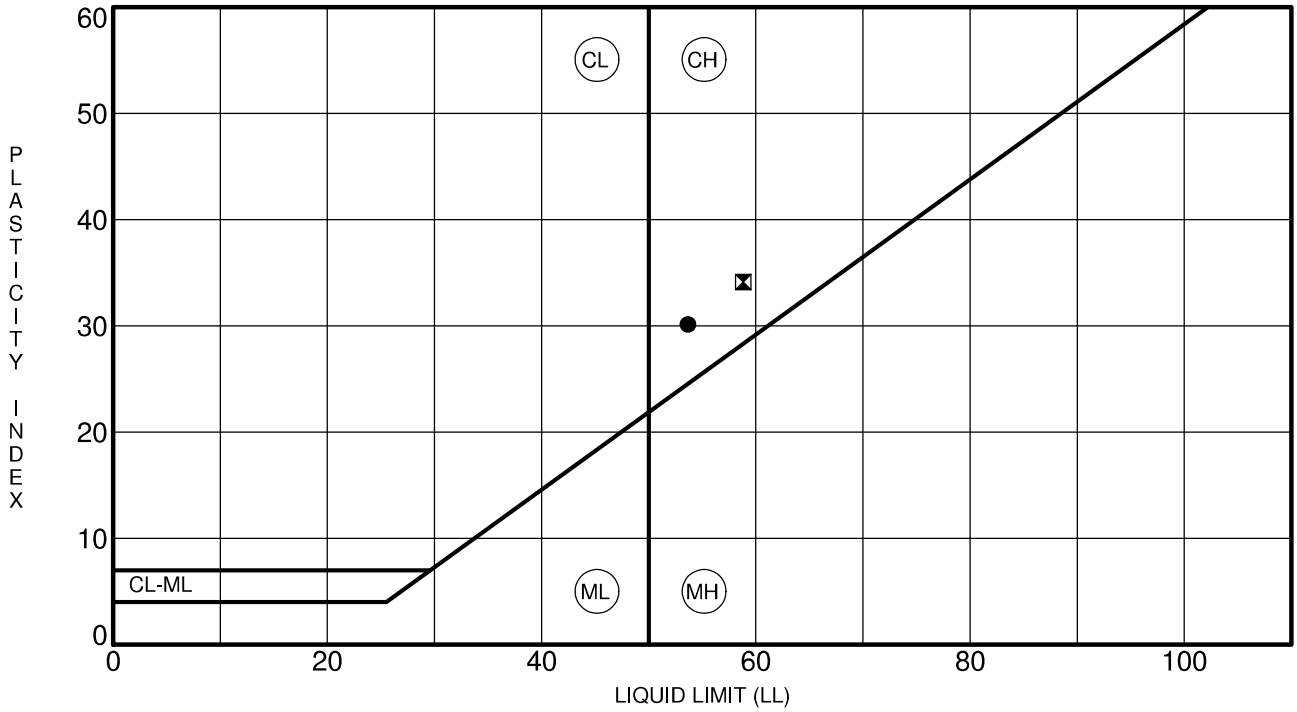
MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



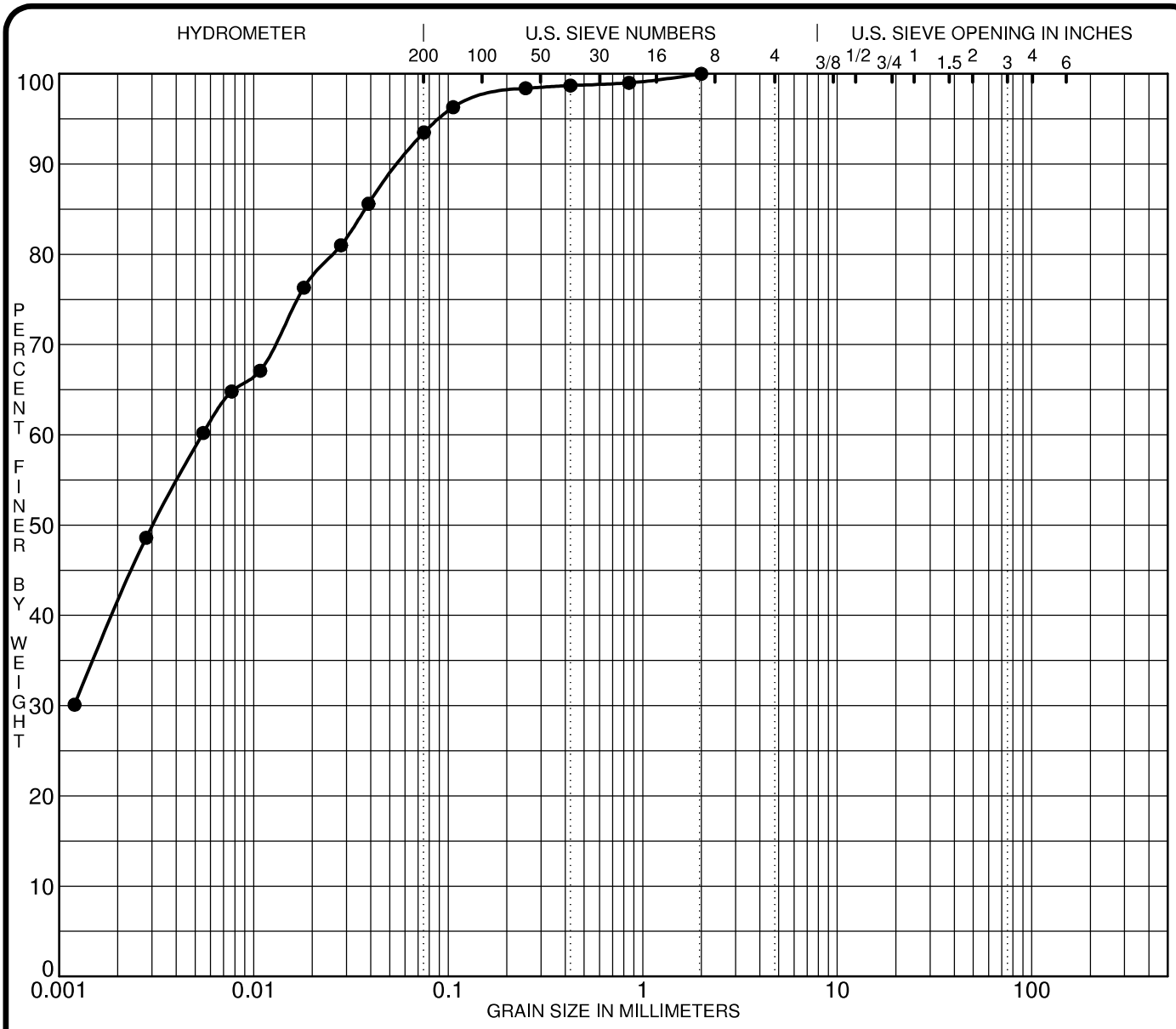


	Specimen Identification		LL	PL	PI	Fines	Classification
●	BH 3-22	SS2	54	24	30		CH - Inorganic clays of high plasticity
⊠	BH 5-22	SS2	59	25	34		CH - Inorganic clays of high plasticity

CLIENT	Canadian Rental Development Services	FILE NO.	PG6308
PROJECT	Geotechnical Investigation - Proposed Industrial Building - 3113 Carp Road	DATE	28 Jun 22

PATERSON GROUP
9 AURIGA SRIVE, OTTAWA ON K2E7T9

ATTERBERG LIMITS' RESULTS



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

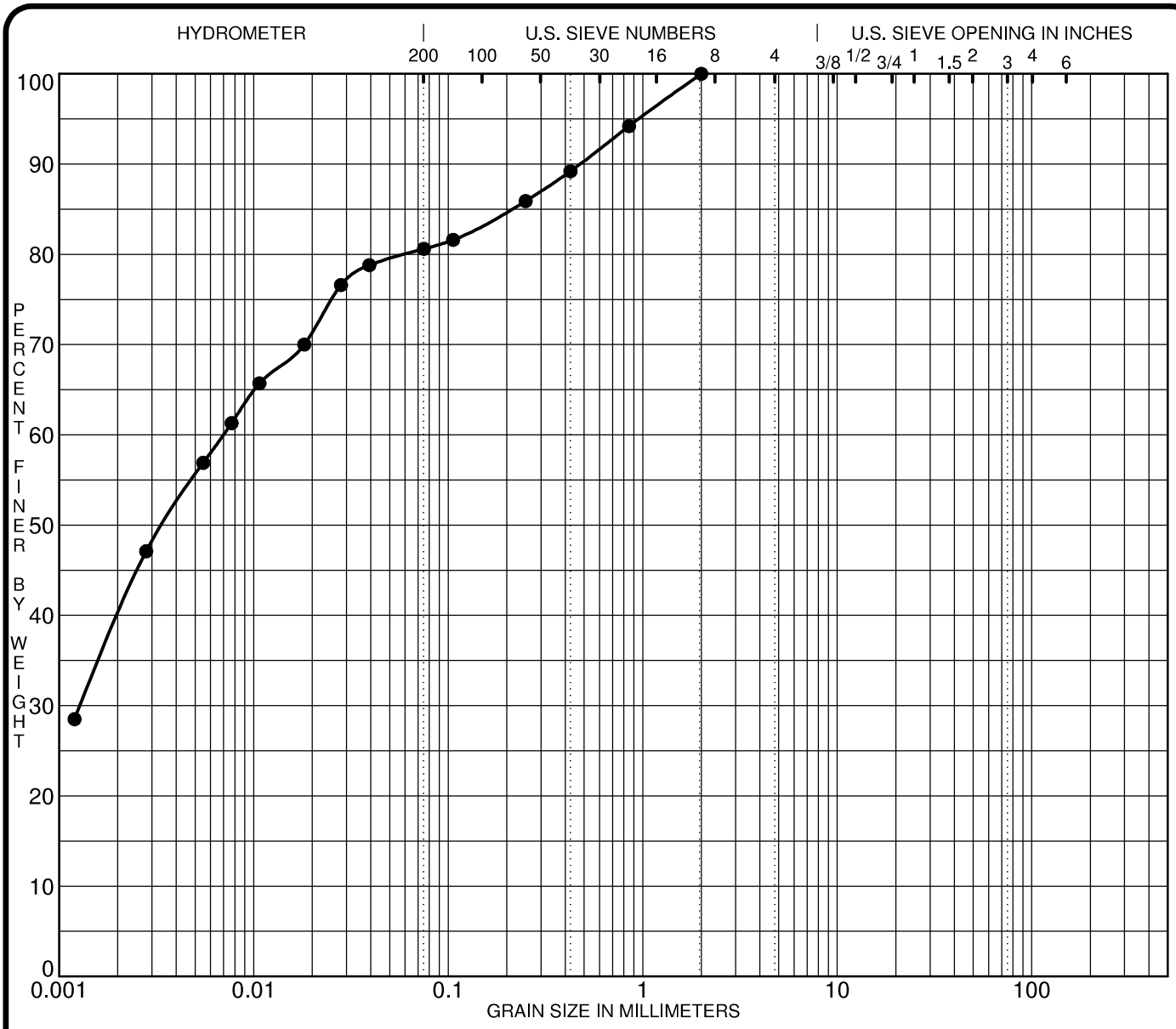
	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH 3-22 SS2**	**CH - Inorganic clays of high plasticity**		**54**	**24**	**30**		
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH 3-22 SS2**	**2.00**	**0.01**			**0.0**	**6.5**	**93.5**	
⊠									
▲									
★									

CLIENT **Canadian Rental Development Services**
PROJECT **Geotechnical Investigation - Proposed Industrial Building - 3113 Carp Road**
FILE NO. **PG6308**
DATE **23 Jun 22**

PATERSON GROUP
9 AURIGA SRIVE, OTTAWA ON K2E7T9

GRAIN SIZE DISTRIBUTION



SILT OR CLAY	SAND			GRAVEL		COBBLES
	fine	medium	coarse	fine	coarse	

	Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
●	**BH 5-22 SS2**	**CH - Inorganic clays of high plasticity**		**59**	**25**	**34**		
⊠								
▲								
★								

	Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH 5-22 SS2**	**2.00**	**0.01**	**0.001**		**0.0**	**19.4**	**80.6**	
⊠									
▲									
★									

CLIENT **Canadian Rental Development Services**

PROJECT **Geotechnical Investigation - Proposed Industrial Building - 3113 Carp Road**

FILE NO. **PG6308**

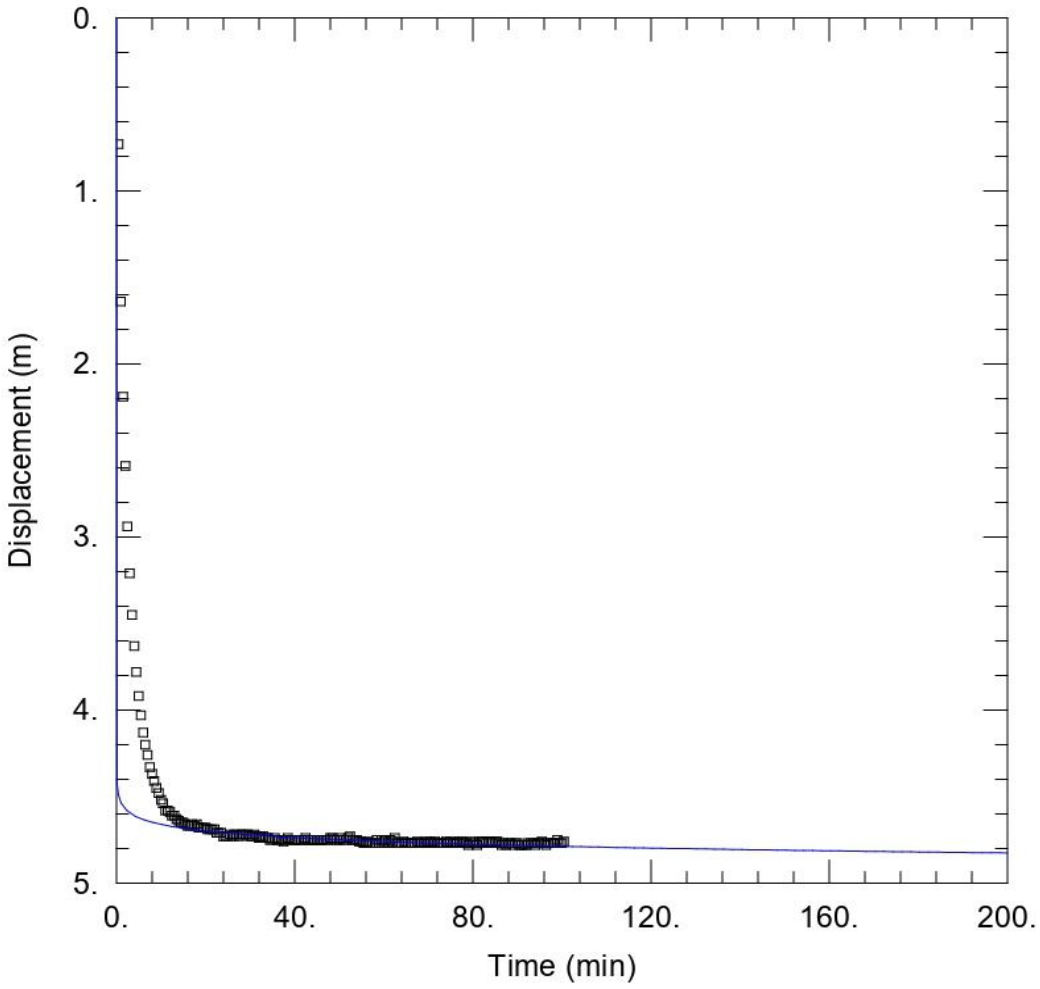
DATE **28 Jun 22**

PATERSON GROUP
9 AURIGA SRIVE, OTTAWA ON K2E7T9

GRAIN SIZE DISTRIBUTION

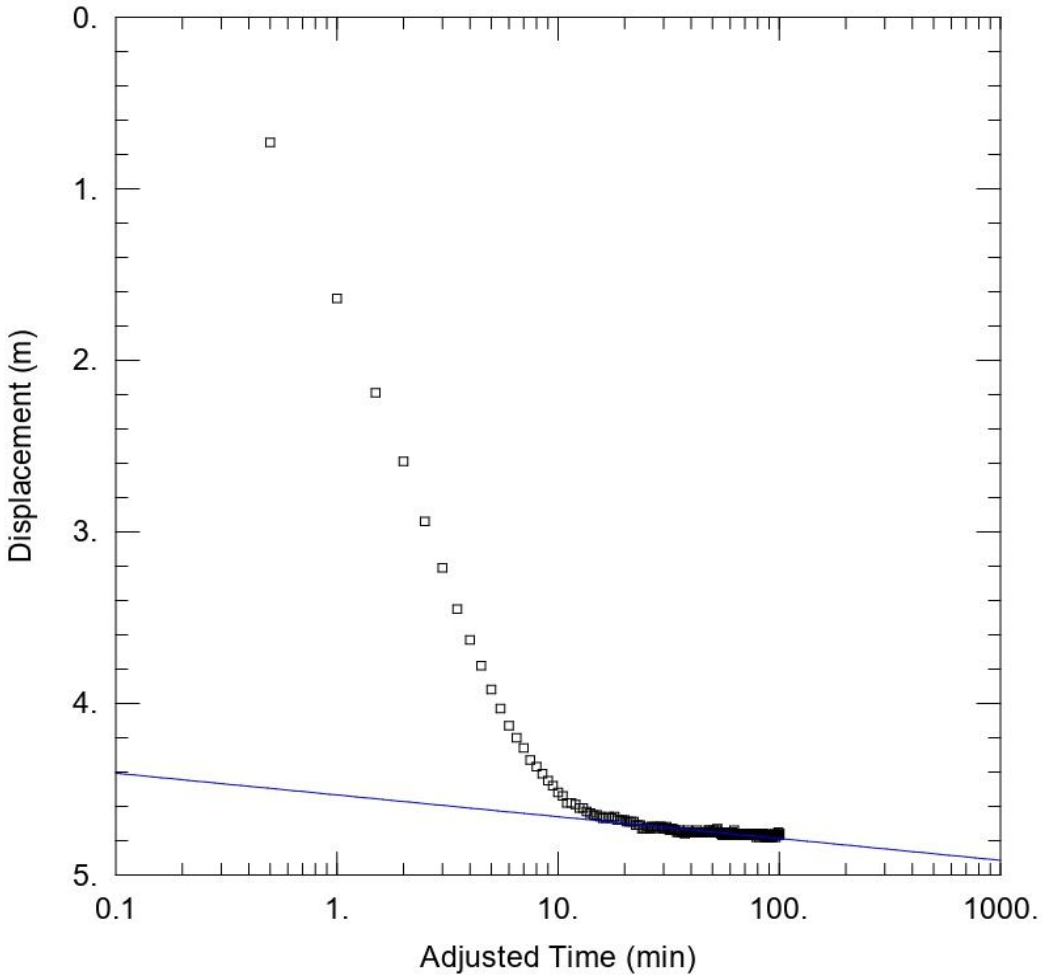
Pumping Test Analysis Report

File No.	PH5068	Well ID:	TW1
Date:	March 21, 2023	Solution Method:	**Theis**
Client:	Megha Holdings Inc	Transmissitivity (m2/day):	94.21
Site Address:	3113 Carp Road, Ottawa	Discharge Rate (L/min)	45.4
Project:	Site Plan Control Application	Analysis performed by:	ZB



Pumping Test Analysis Report

File No.	PH5068	Well ID:	TW1
Date:	March 21, 2023	Solution Method:	**Cooper-Jacob**
Client:	Megha Holdings Inc	Transmissitivity (m2/day):	94.21
Site Address:	3113 Carp Road, Ottawa	Discharge Rate (L/min)	45.4
Project:	Site Plan Control Application	Analysis performed by:	ZB



Pumping Test Analysis Report

File No.	PH5068
Date:	March 21, 2023
Client:	Megha Holdings Inc
Site Address:	3113 Carp Road, Ottawa
Project:	Site Plan Control Application

Summary Table:

Solution Method:	Well ID:	Transmissitivity (m2/day):
Theis	TW1	94.21
Cooper-Jacob	TW1	94.21
Average:		**94.21**

PATERSON GROUP

patersongroup

3113 Carp Road, Carp

PREDICTIVE NITRATE IMPACT ASSESSEMENT

Infiltration Factors		
Topography	0.20	
Soil	0.40	
Cover	0.10	
Total	**0.70**	
Site Characteristics		
Area of Site :	30543	m^2
Total of roof areas:	10740	m^2
Total area of paved driveway areas:	11673	m^2
Roof + paved driveway areas	22413	m^2
Impervious Area	22413	m^2
Percent Impervious Area =	73	%
Infiltration Area =	8130	m^2
Septic Effluent		
Concentration of Effluent (Cs) =	17.2	mg/L
Daily Sewage Flow (Qs) =	5.4	m^3
Infiltration Calculation		
Nitrate concentration in precipitation (C_i) =	0	mg/L
Surplus Water (Environment Canada)	379	mm/yr
Factored Water Surplus =	265	mm/yr
Infiltration % due to stormwater management measures	-	%
Infiltration rate from stormwater management measures =	0	mm/yr
Infiltration Flow Entering the System (Q_i) =	6	m^3/day
Mass Balance Model (MOEE, 1995)		
$C_T = (Q_bC_b+Q_eC_e+Q_iC_i)/(Q_b+Q_e+Q_i)$ = Cumulative Nitrate Concentration		
Q_b = flow entering the system across the upgradient area	0	m^3/day
C_b = background nitrate concentration	0	mg/L
Q_e = flow entering the system from the septic drainfield	5.4	m^3/day
C_e = concentration of nitrates in the septic effluent	17.2	mg/L
Q_i = flow entering the system from infiltration	6	m^3/day
C_i = Concentration of nitrates in the infiltrate	0	mg/L
C_T =	**8.21**	**mg/L**

Notes: Site characteristic values were measured as approximate values from the available site plans and GeoOttawa.

WASTEWATER TECHNOLOGY

NSF/ANSI Standard 245 - *Wastewater Treatment Systems – Nitrogen Reduction*

Final Report:

Eljen Corporation
GSF Denitrification System DN450
15/10/055/0030

NSF International
789 N. Dixboro Road
PO Box 130140
Ann Arbor, Michigan 48113-0140 USA

Submitted to Ontario Ministry of Environment
8.13.19

Evaluation Report:
Eljen Corporation
GSF Denitrification System DN450
Wastewater Treatment System

Under the provisions of NSF/ANSI Standard 245
Wastewater Treatment Systems – Nitrogen Reduction

June 2019

Submitted to Ontario Ministry of Environment
8.13.19

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EXECUTIVE SUMMARY

Testing of the Eljen Corporation GSF Denitrification System DN450 was conducted under the provisions of NSF/ANSI Standard 245 for Residential Wastewater Treatment Systems (April 2013 revision). NSF/ANSI Standard 245 was developed by the NSF Joint Committee on Wastewater Technology.

The performance evaluation was conducted at the Massachusetts Alternative Septic System Test Center (MASSTC), located in Bourne, Massachusetts, using wastewater diverted from the Otis Air National Guard Base municipal wastewater collection system, which serves the base residential development. The evaluation consisted of sixteen weeks of dosing at design flow, seven and one half weeks of stress testing and an additional two and one half weeks of dosing at design flow. Sampling started in the summer and continued through the fall and winter, covering a range of operating temperatures.

Over the course of the evaluation, the average influent Total Nitrogen was 35 mg/L, ranging between 26 mg/L and 57 mg/L. The DN450 produced an average effluent Total Nitrogen of 15 mg/L, which resulted in a 57% reduction in the influent Total Nitrogen. The DN450 produced an effluent that successfully met the performance requirements established by NSF/ANSI Standard 245.

The DN450 produced an effluent that successfully met the performance requirements established by NSF/ANSI Standard 40 for Class I effluent:

> The maximum 7-day arithmetic mean was 34 mg/L for $CBOD_5$ and 32 mg/L for total suspended solids, both below the allowed maximums of 40 and 45 mg/L respectively. The maximum 30-day arithmetic mean was 25 mg/L for $CBOD_5$ and 21 mg/L for total suspended solids, both below the allowed maximums of 25 mg/L and 30 mg/L respectively.

The effluent pH during the entire evaluation ranged between 6.0 and 6.8, within the required range of 6.0 to 9.0. The DN450 met the requirements for noise levels (less than 60 dbA at a distance of 20 feet), color, threshold odor, oily film and foam.

Submitted to Ontario Ministry of Environment
8.13.19

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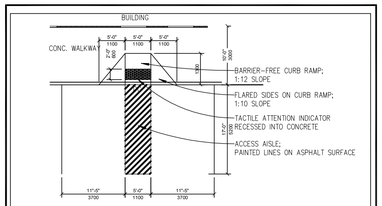
Table 5 - Monthly Water Balance for Material With 5 mm Water Holding Capacity at the Ottawa International Airport				
Month	**Temperature (°C)**	**Total Precipitation (mm)**	**Actual Evapotranspiration (mm)**	**Water Surplus (mm)**
January	-10.6	62	0	25
February	-9	56	1	27
March	-2.8	65	6	103
April	5.7	73	31	110
May	13.1	75	64	14
June	18.3	85	82	5
July	20.9	88	83	5
August	19.7	85	80	5
September	14.8	82	64	17
October	8.3	77	35	41
November	1.3	76	10	56
December	-6.8	79	1	41
Annual	**6**	**904**	**457**	**449**

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	56	1	26
March	-2.8	65	6	103
April	5.7	73	31	110
May	13.1	75	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	77	36	14
November	1.3	76	10	38
December	-6.8	79	1	37
Annual	**6**	**904**	**525**	**378**

Table 7 - Pre-Development Annual Water Budget Calculations - 3113 Carp Road											
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	0	449	0	0	0	0	1	0	0.00	449	0.00
Urban Lawn (Open Sandy Loam)	30,543	379	0.2	0.4	0.1	0.7	0.3	265.3	8,103,057.90	113.7	3,472,739.10
Total	**30,543**								**8,103,057.90**		**3,472,739.10**

Table 8 - Post-Development Annual Water Budget Calculations - 3113 Carp Road											
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	22,413	449	0	0	0	0	1	0	0.00	449	10,063,437.00
Urban Lawn (Open Sandy Loam)	8,130	379	0.2	0.4	0.1	0.7	0.3	265.3	2,156,889.00	113.7	924,381.00
Totals	**30,543**								**2,156,889.00**		**10,987,818.00**
Difference (L/year)									**-5,946,168.90**		**7,515,078.90**
Percentage Variation									**-73.38%**		**216.40%**

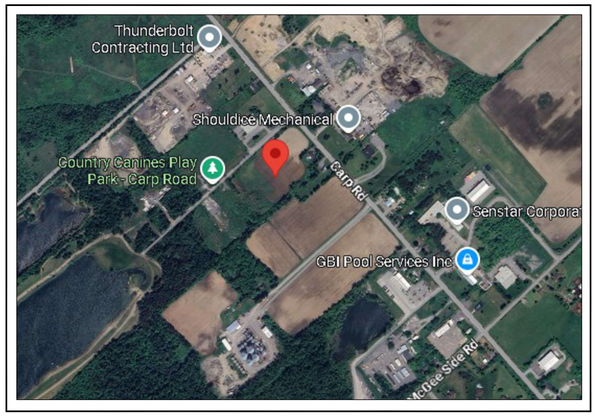


ALL BARRIER-FREE PARKING SPACES SHALL BE PROVIDED

1. VERTICAL SIGNAGE:
   a) MIN. 300mm WIDE x 600mm HIGH
   b) MOUNTED AT A HEIGHT OF 1.5m – 2.0m FROM T GROUND
   c) OF CONTRASTING COLOUR WITH THE BACKGROUNI ENVIRONMENT
2. PAVEMENT MARKING THAT ARE:
   a) MIN. 1525mm x 1525mm
   b) SLIP RESISTANT
   c) CLEARLY VISIBLE THROUGH THE USE OF HIGH TO CONTRAST TO THE SURFACE OF THE PARKING SP
   d) LOCATED NEAR THE BACK OF THE SPACE

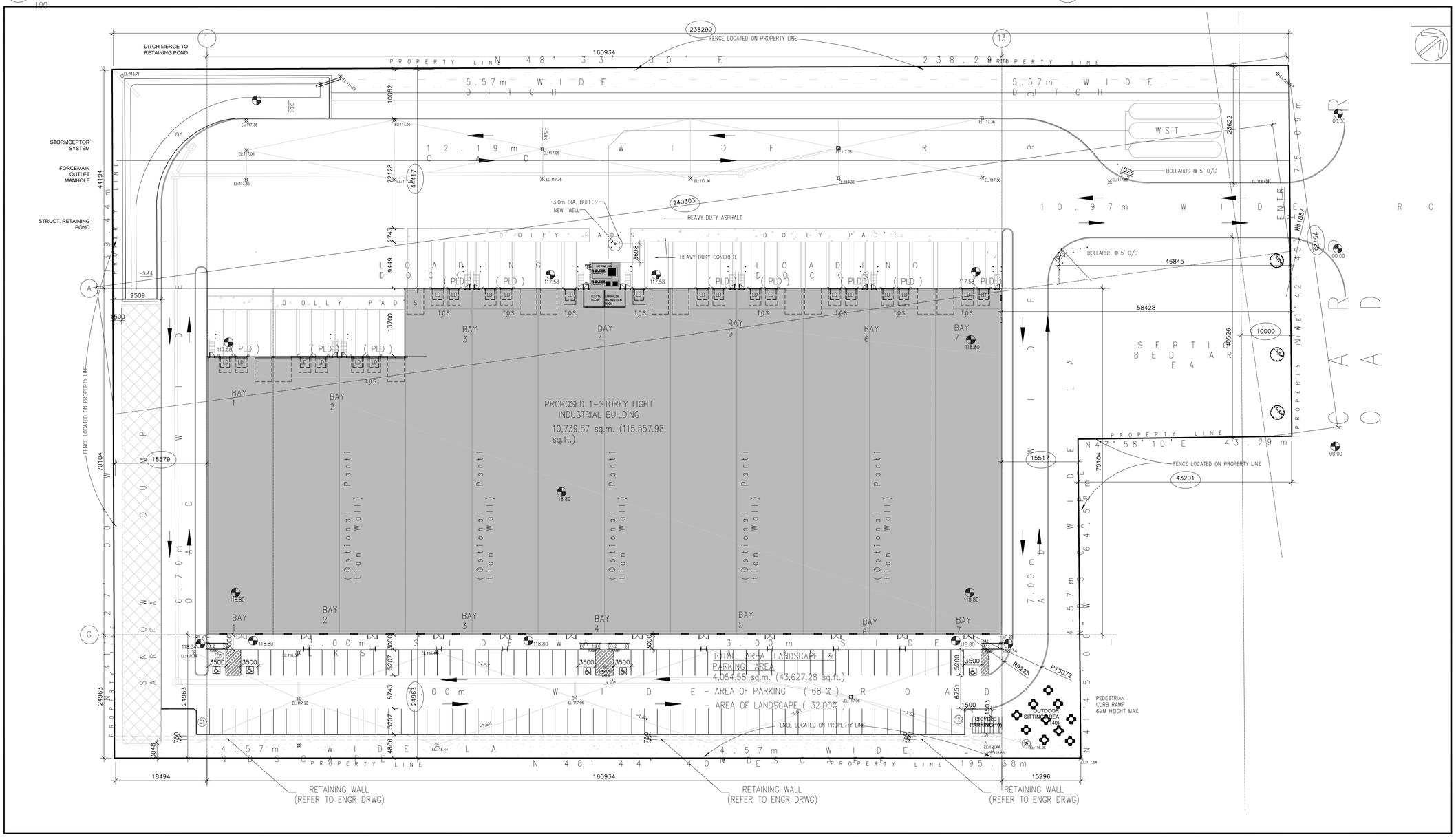
SITE PLAN NOTES

Note #	Note Text
(E)FH	Existing Fire
(E)GS	Existing Gravel Shoulder to
(E)UP	Existing Utility
BR	Bike Rack, for 5 bikes – See landscape
CC	Concrete Curb
CP	Concrete Pad Slab for padmount transformer; see Civil for
CRW	Concrete Retaining Wall
CS	Concrete Stair; Provide 50mm wide colour-contrasted, slip-resistant nosing strip at leading edge of tread for full width of
CSW	Concrete Sidewalk; 2m wide, as per City Standard Details; See
CW	Concrete Walkway
DC	Depressed Curb
FH	Fire Hydrant
GCD	Grooved Concrete Driveway
GSR	Galvanized Steel Guardrail
LZ	Loading Zone, Painted
PB	Painted Bollard
RA	Pedestrian Rest Area, 1800mm x 1800mm, for Barrier-Free path
RCW	Retaining Wall where width of walkway is less than 1800mm
TWSI	Tactile Walking Surface Indicator, recessed into walking surface. Minimum 600mm deep x full width of stair or walkway. Locate TWSI one tread-depth back from leading edge of nosing at top of stairs or 150mm from back edge of curb for walkways. Colour-contrasted to walking surface, slip-resistant and non-glare; truncated dome pattern as per AODA standard.



2 A012 BF PARKING PLAN
1 : 100

3 A002 LOCATION PLAN
N.T.S.



1 A012 SITE PLAN
Scale: 1/400m

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STUDIO G68
Cell: 613.501.3888
Email: gar.studio68@outlook.com
Ottawa On. Canada

RP ANCHETA ARCHITECT
24 MONCRIEFF DRIVE, TORONTO ONTARIO, M3N 2R2
TEL/fax 4164332202
EMAIL/ARCHITECTA@GMAIL.COM

DATE	ISSUED FOR	REV
2025-04-09	ISSUED FOR CLIENT REVIEW	1
2025-04-11	ISSUED FOR STRUCT.,MEP, LANDSCAPE & CIVIL	2
2025-05-01	ISSUED FOR CLIENTS, LANDSCAPE & CIVIL	3
2025-06-12	ISSUED FOR CLIENTS & COORDINATION	4
2025-06-24	ISSUED FOR CLIENTS & COORDINATION	5
2025-07-29	ISSUED FOR CLIENTS for SPC	6
2025-08-07	ISSUED FOR CLIENTS (Update SITE PLAN)	7
2025-08-09	ISSUED FOR CLIENTS (Updated SITE PLAN)	8

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GENERAL NOTES:
1. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT FOR HIS WRITTEN PERMISSION BEFORE PROCEEDING WITH THE WORK.
2. NOT FOR CONSTRUCTION UNLESS SIGNED BY THE ARCHITECT
3. NOT TO BE SCALED OR REPRODUCED WITHOUT WRITTEN PERMISSION

Consultants

3 Surveyor: TOPOGRAPHICAL PLAN OF
PART OF LOT 12
CONCESSION 3
GEOGRAPHIC TOWNSHIP OF HUNTLEY
CITY OF OTTAWA
Prepared by Annis, O'Sullivan, Vollebekk Ltd.
On-Site Work Completed on June 6, 2022

Planner: P-Squared Concepts
2200 Thurston Dr #203, Ottawa, ON K1G 6E1
planning@p2concepts.ca
613-695-0192

Civil: Fritz Gérald St Fleur
fritzgerald.stfleur@gmail.com
613-327-9862

2 Landscape:
CIVITAS GROUP Civitas Architecture Inc
14 Chamberlain Ave, Ottawa ON K1S1V9 (613) 742-7482

Seal(s)

Project Manager	Drawn Author
Project Leader	Checked Checker

Client

Project
PROPOSED 1 STOREY WAREHOUSE

1 Drawing Title
SITE PLAN LOCATION PLAN

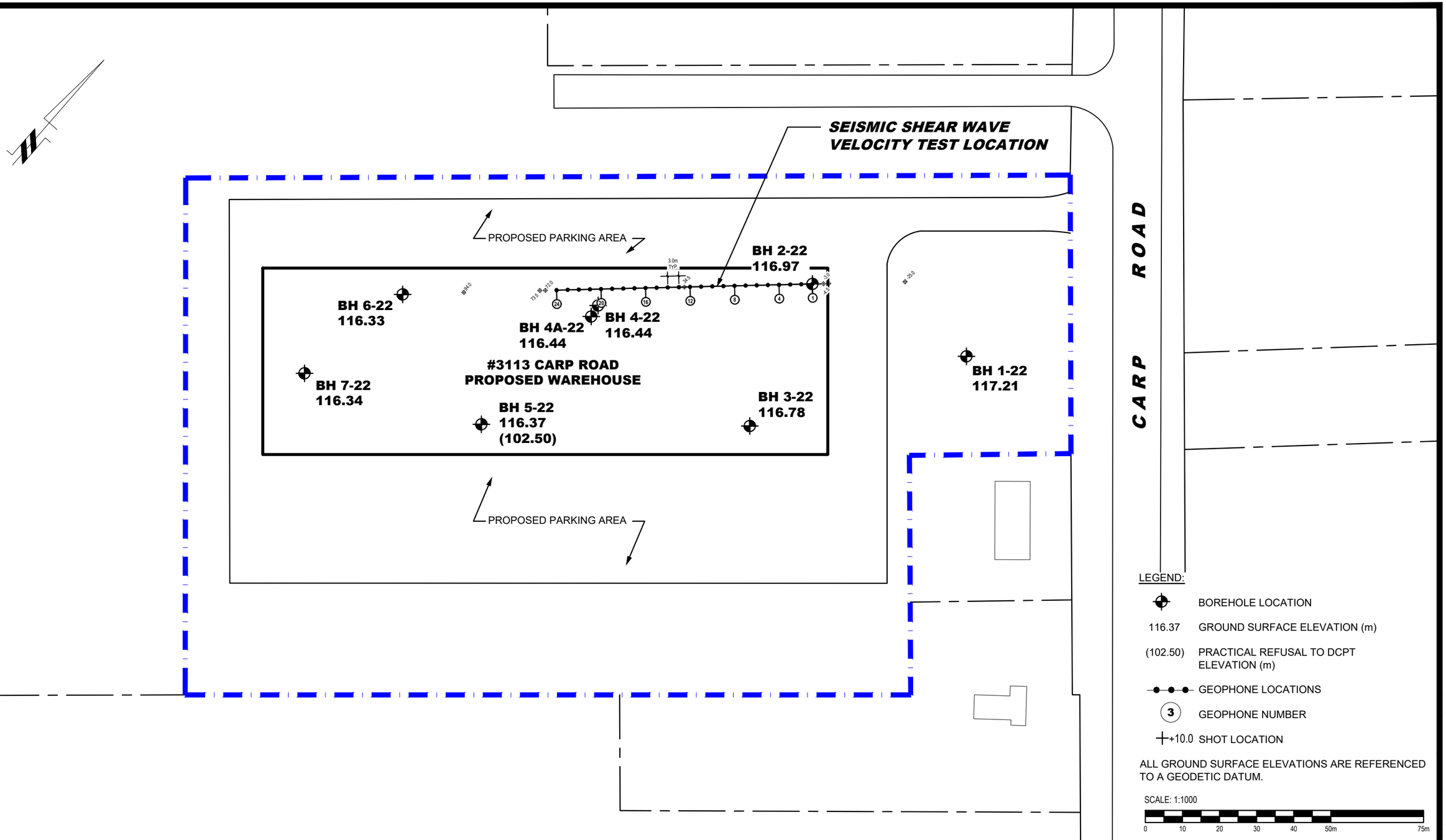
Scale

Project No.
24/06

Drawing No.
A-012

ISO A1 Title Block - v.2023 - Rev (Sept/23) - Copyright © 2023
Using or invalid reference

E D C B A



PATERSON GROUP
9 AURIGA DRIVE
OTTAWA, ON
K2E 7S9
TEL: (613) 226-7381

NO.	REVISIONS	DATE	INITIAL
2	ADDED BOREHOLE BH 4A-22 TO PLAN	13/03/2024	GA
1	ADDED SEISMIC SHEAR WAVE VELOCITY TEST LOCATION	03/08/2023	FC

CANADIAN RENTAL DEVELOPMENT SERVICES INC.

GEOTECHNICAL INVESTIGATION
PROPOSED INDUSTRIAL BUILDING
3113 CARP ROAD

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:1000	Date: 07/2022
Drawn by: NFRV	Report No.: PG6308-1
Checked by: MS	Dwg. No.: PG6308-1
Approved by: DJG	Revision No.: 2

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

NO.	REVISIONS	DATE	INITIAL

MEGHA HOLDINGS INC.

HYDROGEOLOGICAL ASSESSMENT AND TERRAIN ANALYSIS
PROPOSED COMMERCIAL DEVELOPMENT
3113 CARP ROAD

OTTAWA, ONTARIO

Title:

PRE-DEVELOPMENT TERRAIN COMPOSITION PLAN

Scale: 1:1500	Date: 09/2025
Drawn by: GK	Report No.: PH5068-LET.01
Checked by: AS	Dwg. No.: **PH5068-3**
Approved by: EA	Revision No.:

11x17

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

NO.	REVISIONS	DATE	INITIAL

MEGHA HOLDINGS INC.

HYDROGEOLOGICAL ASSESSMENT AND TERRAIN ANALYSIS
PROPOSED COMMERCIAL DEVELOPMENT
3113 CARP ROAD

OTTAWA, ONTARIO

Title:

POST-DEVELOPMENT TERRAIN COMPOSITION PLAN

Scale: 1:1500	Date: 09/2025
Drawn by: GK	Report No.: PH5068-LET.01
Checked by: AS	Dwg. No.: PH5068-4
Approved by: EA	Revision No.:

11x17

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