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**PH5068-LET.01**

Megha Holdings Inc.
1558 Blohm Drive
Ottawa, Ontario
K1G 4R7

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).

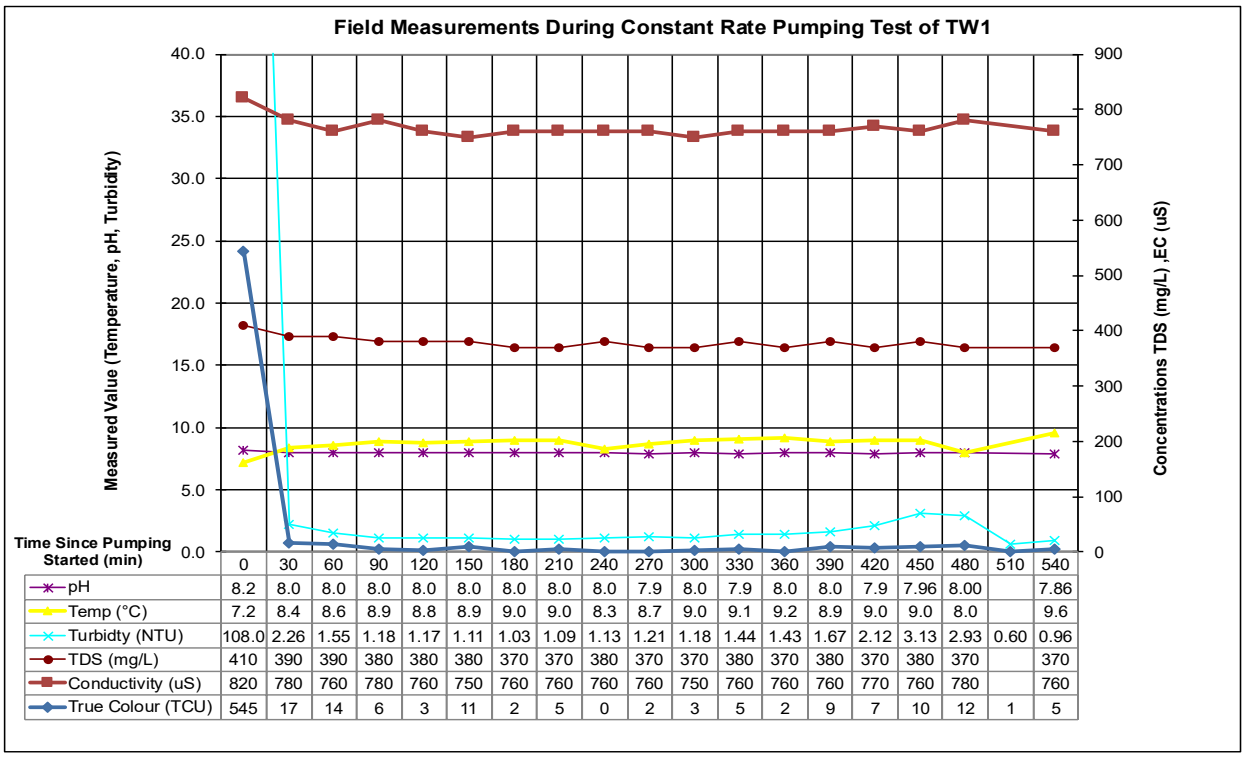
Based on the information summarized in Table 1, it is readily apparent that both water supply wells have intercepted an adequately strong water supply aquifer which has sufficient quantity to service the proposed Site Plan Control Application.

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

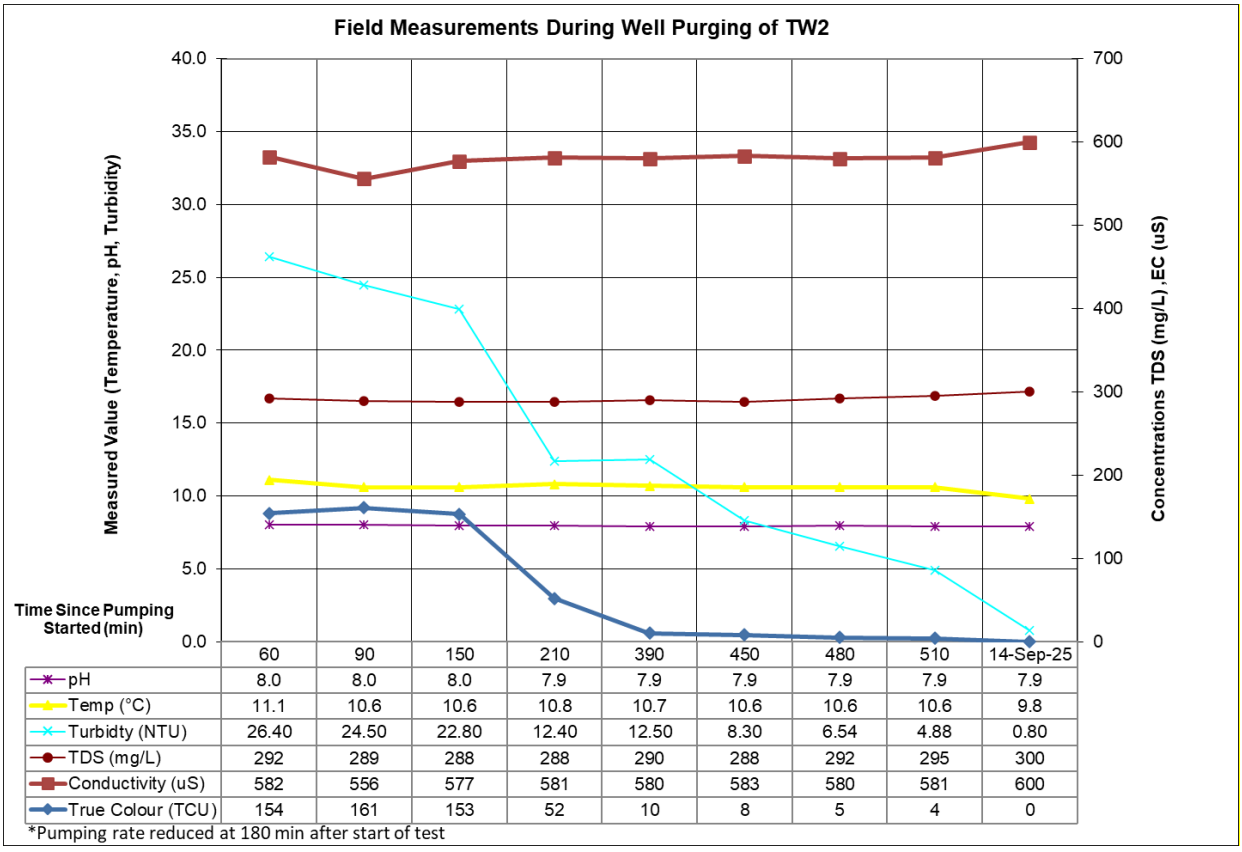
### *Field Data*

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 ($N\text{-}NH_3$) | mg/L | - | - | <0.020 | <0.020 | <0.020 | - |
| Nitrite ($N\text{-}NO_2$) | mg/L | 1 | MAC | <0.10 | <0.10 | <0.1 | - |
| Nitrate ($N\text{-}NO_3$) | 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.**

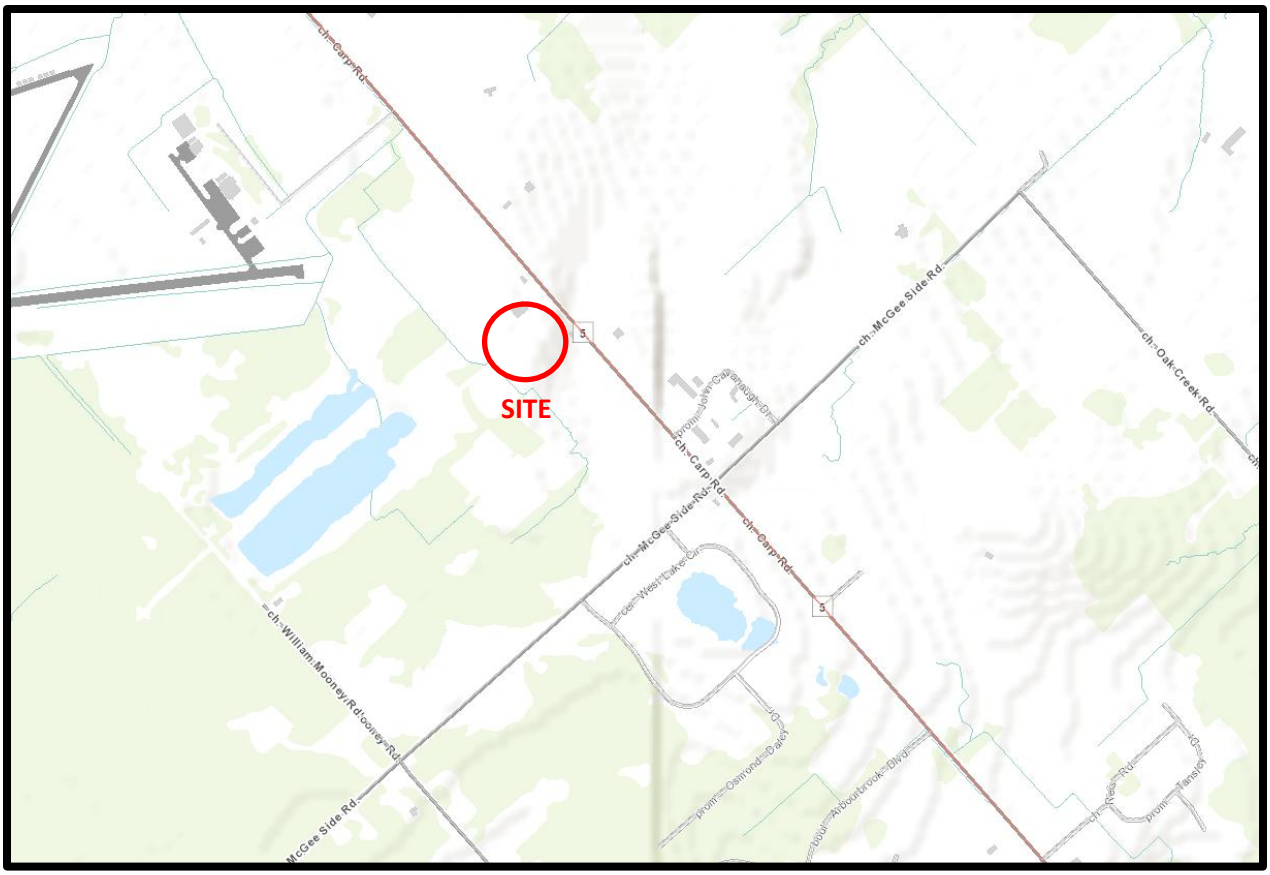
Alexander Schopf, EIT, PhD

Erik Ardley, P.Geo

PROFESSIONAL GEOSCIENTIST
EA
October 6, 2025
ERIK ARDLEY
PRACTISING MEMBER
3667
ONTARIO

**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

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 ____

TW2

## 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/L6 | 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 | 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/yd³) |
|---|---|---|---|
| 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 | To |
|---|---|---|---|---|
| 6 1/4" | Steel | .188" | +2' | 60' |
| 5 15/16" | Open Hole | | 60' | 160' |

## 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

## Construction Record - Screen

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

## Water Details

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

## 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

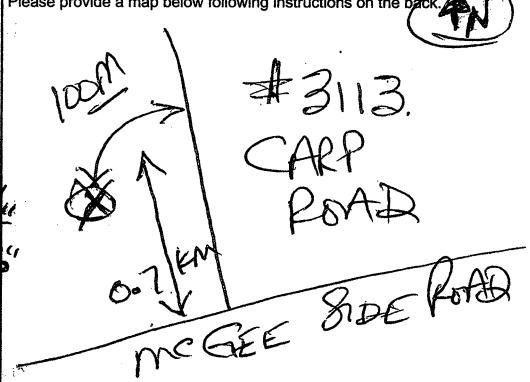
Well production (l/min/GPM): 20

Disinfected? ☒ Yes ☐ No

| Draw Down Time (min) | Water Level (m/ft) | Recovery Time (min) | 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 |
|---|---|
| 6650 Frankford 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 07 30 |

| Well owner's information package delivered | Date Package Delivered |
|---|---|
| ☒ Yes ☐ No | 2025 08 28 |

**Ministry Use Only**

Audit No. Z421762

Received

TW1

**Ontario** Ministry of the Environment, Conservation and Parks

Well Tag Tag#:A318705 (low)
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 Sublot 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 | To |
|---|---|---|---|---|---|
| Brown & Blue | Clay | | | 0' | 62' |
| 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) |

## 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) | Water Level (m/ft) | Recovery Time (min) | 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 | |

## 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 ____

## 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 ____

## Construction Record - Casing

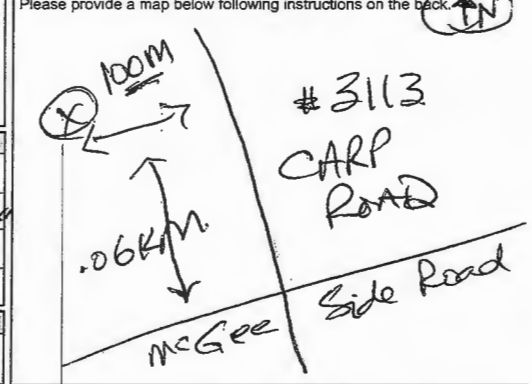
| Inside Diameter (cm/in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) From | To |
|---|---|---|---|---|
| 6 1/4" | Steel | .188" | +2' | 73' |
| 6" | Open hole | | 73' | 180' |

## Construction Record - Screen

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

## Map of Well Location

Please provide a map below following instructions on the back.




## Water Details

| Water found at Depth (m/ft) | Kind of Water | |
|---|---|---|
| 164 | ☐ Fresh ☒ Untested ☐ Gas ☐ Other, specify ____ | |
| Water found at Depth (m/ft) | ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify ____ | |
| Water found at Depth (m/ft) | ☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify ____ | |

## Hole Diameter

| Depth (m/ft) From | To | Diameter (cm/in) |
|---|---|---|
| 0' | 73' | 9 3/4" |
| 73' | 180' | 6" |

## Well Contractor and Well Technician Information

| Business Name of Well Contractor | Well Contractor's Licence No. |
|---|---|
| Air Rock Drilling Co Ltd | C7681 |

| Business Address (Street Number/Name) | Municipality |
|---|---|
| 6659 Frankford Road | Richmond |

| Province | Postal Code | Business E-mail Address |
|---|---|---|
| Ont | K0A 2Z0 | |

| Bus. Telephone No. (inc. area code) | Name of Well Technician (Last Name, First Name) |
|---|---|
| 613 838 2170 | Harina, Jeremy |

| Well Technician's Licence No. | Signature of Technician and/or Contractor | Date Submitted |
|---|---|---|
| T3652 | | 2023/03/31 |

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

| Well owner's information package delivered | Date Package Delivered | Ministry Use Only |
|---|---|---|
| ☒ Yes ☐ No | 2023/03/10 | Audit No. Z394501 |
| | Date Work Completed 2023/03/08 | Received |

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Ministry's Copy

pl 254

UTM 18 Z 421400 E
5 R 5018440 N
Elev. 5 R 0390

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

The Ontario Water Resources Commission Act

# WATER WELL RECORD

Basin 25

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 Edgewood

Date May 28/62

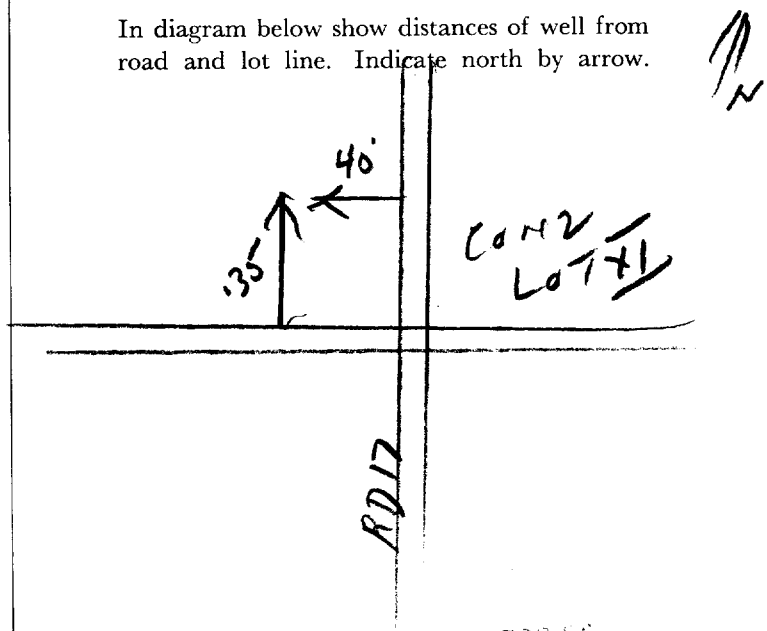
(Signature of Licensed Drilling or Boring Contractor) Ben E Sparks

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.




CSS.58

17 255

UTM 18 Z 421120 E

5 R 5018700 N

Elev. 4 R 10382

Basin 2 5 12

GROUND WATER BRANCH
DEC 15 1960
ONTARIO WATER RESOURCES COMMISSION

C 31 28

The Ontario Water Resources Commission Act, 1957

# WATER WELL RECORD

County or District: Carleton

Township, ~~Village, Town or City~~: Huntley

Con. 3 Lot 12

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

[redacted] Address: 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 hrs

Water clear or cloudy at end of test: clear

Recommended pumping rate: 3 G.P.M.

with pumping ~~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:

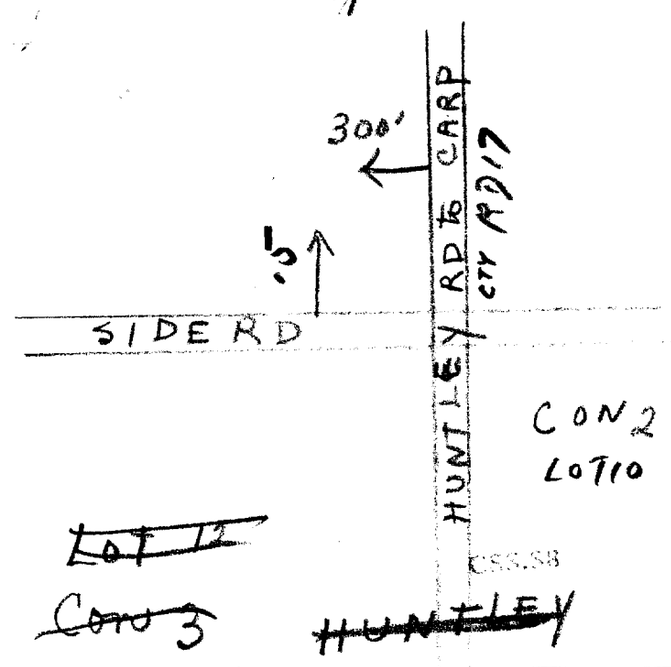
Date: Sept 5/60

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

31F/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 | 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 | II | III | IV |
|---|---|---|---|---|---|---|---|---|---|
| 1512197 18 | 421095 | 5018774 | 4 | 382 | 4 | 26 | JUL 08, 1977 | 299 | |

## LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | GENERAL DESCRIPTION | DEPTH – FEET FROM | 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 | 00036 1 1 2879 | 00186 2879 | 00322 2879 | 00422 0577 | 00472 2811 1 12 | 01888 1 5

32

## 41 WATER RECORD

| WATER FOUND AT – FEET | KIND OF WATER |
|---|---|
| 0080 | 1 ☐ FRESH 2 ☐ SALTY 3 ☒ SULPHUR 4 ☐ MINERAL |
| 0 187 | 1 ☐ FRESH 2 ☐ SALTY 3 ☒ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |

## 51 CASING & OPEN HOLE RECORD

| INSIDE DIAM. INCHES | MATERIAL | WALL THICKNESS INCHES | DEPTH – FEET FROM | 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 |

## 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 (1 ☒ PUMPING 2 ☐ RECOVERY) 15 MINUTES | 30 MINUTES | 45 MINUTES | 60 MINUTES |
|---|---|---|---|---|---|
| 010 FEET | 050 FEET | 050 FEET | 050 FEET | 050 FEET | 050 FEET |

IF FLOWING, GIVE RATE: GPM.

PUMP INTAKE SET AT: FEET

WATER AT END OF TEST: ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP

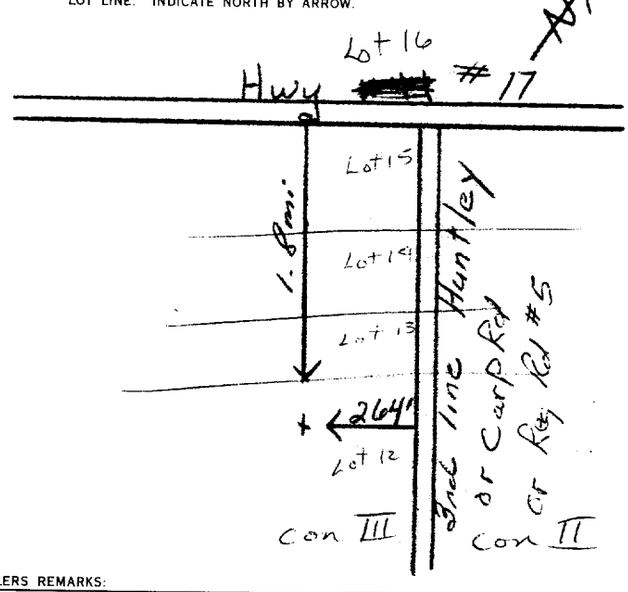
RECOMMENDED PUMP SETTING: 070 FEET

RECOMMENDED PUMPING RATE: 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 | 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED |
| WATER USE 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 | 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: [signature] SUBMISSION DATE: DAY 8 MO. 12 YR. 72

## OFFICE USE ONLY

| DATA SOURCE | CONTRACTOR | DATE RECEIVED |
|---|---|---|
| 1 | 1558 | 120173 |

DATE OF INSPECTION: May 20, 1976 INSPECTOR: [signature]

REMARKS: Now owed by Federal Ministry of Transport

P

WI

OWRC COPY

The Ontario Water Resources Commission Act

originally #46

# WATER WELL RECORD

31 F/8a

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 | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE | CON., BLOCK, TRACT, SURVEY, ETC. | LOT |
|---|---|---|---|
| Carleton | Huntley | 3 | 011 |

OWNER (SURNAME FIRST) [redacted] ADDRESS Carp Ont. DATE COMPLETED DAY 18 MO. ~~Oct~~ YR. 72

| HOLE CONDITION | RC. | ELEVATION | RC. | BASIN CODE | II | III | IV |
|---|---|---|---|---|---|---|---|
| 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 0029122812 0080217287

32

## 41 WATER RECORD

| WATER FOUND AT – FEET | KIND OF WATER |
|---|---|
| 0071. | 1 ☐ FRESH 2 ☒ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |

## 51 CASING & OPEN HOLE RECORD

| INSIDE DIAM. INCHES | MATERIAL | WALL THICKNESS INCHES | DEPTH – FEET FROM | DEPTH – FEET TO |
|---|---|---|---|---|
| 06 ~~04~~ | 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 | 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 1 ☒ PUMPING 2 ☐ RECOVERY | | | |
|---|---|---|---|---|---|
| | | 15 MINUTES | 30 MINUTES | 45 MINUTES | 60 MINUTES |
| 010 FEET | 016 FEET | 015 FEET | 016 FEET | FEET | FEET |

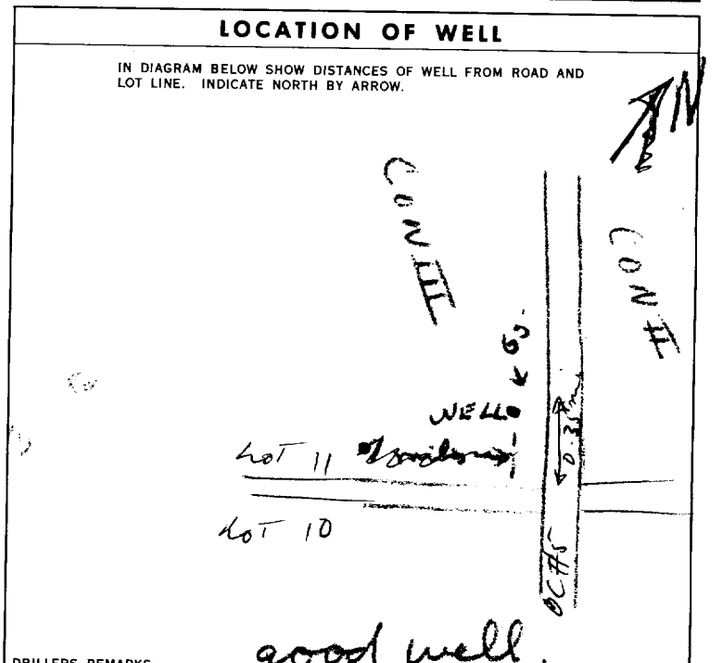
| IF FLOWING, GIVE RATE | PUMP INTAKE SET AT | WATER AT END OF TEST |
|---|---|---|
| GPM. | FEET | 1 ☒ CLEAR 2 ☐ CLOUDY |

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

0033 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 | WATER USE | METHOD OF DRILLING |
|---|---|---|
| 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED | 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED | 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING |
| 01 | | |

## CONTRACTOR

| NAME OF WELL CONTRACTOR | LICENCE NUMBER |
|---|---|
| Melville McLaughlin | 3503 |
| ADDRESS: Ashton Ont. | |
| NAME OF DRILLER OR BORER: Mel McLaughlin | 3503. |
| SIGNATURE OF CONTRACTOR: Melville McLaughlin | SUBMISSION DATE 23 MO. Oct 72 YR. |

## OFFICE USE ONLY

| DATA SOURCE | CONTRACTOR | DATE RECEIVED |
|---|---|---|
| 1 | 3503 | 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 15005 CON. CGN 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

UTM ZONE | NORTHING 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 00083305 01128821

32

## 41 WATER RECORD

| WATER FOUND AT - FEET | KIND OF WATER |
|---|---|
| 0125 | 1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERAL |
| | 1 ☐ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 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 3 ☐ CONCRETE 4 ☐ OPEN HOLE | .188 | 0 | 0022 |
| | 1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE | | | |
| | 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.) |
|---|---|---|
| | | |
| | | |
| | | |

## PUMPING TEST

71

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

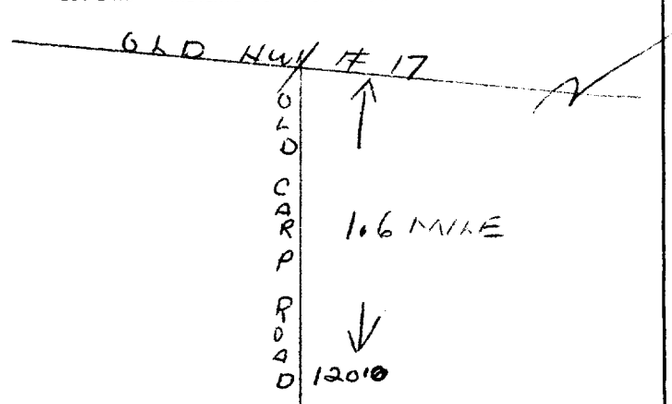
| STATIC LEVEL | WATER LEVEL END OF PUMPING | WATER LEVELS DURING (1 ☐ PUMPING 2 ☒ RECOVERY) 15 MINUTES | 30 MINUTES | 45 MINUTES | 60 MINUTES |
|---|---|---|---|---|---|
| 026 FEET | 120 FEET | FEET | 030 FEET | 028 FEET | 026 FEET |

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

**WATER USE** 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** 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: McLean Water Supply Ltd. — LICENCE NUMBER: 3504
ADDRESS: 1532 Raven Ave., Ottawa, Ont.
NAME OF DRILLER OR BORER: A. Scharf — LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: A. R. Scharf — SUBMISSION DATE: DAY 25 MO 6 YR 82

## OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3504 | DATE RECEIVED 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 | USM |

☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

## Log of Overburden and Bedrock Materials (see instructions)

| General Colour | Most common material | Other Materials | General Description | Depth From | Metres 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 | Metres To | 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

| Inside diam centimetres | Material | Wall thickness centimetres | Depth From | Metres To |
|---|---|---|---|---|
| **Casing** | | | | |
| 102 (6 1/8") | ☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized | 188 | 0 | 7.9 |
| 90 (5 1/2") | ☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized | 188 | 7.9 | 8.9 |
| | ☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized | | | |
| **Screen** | | | | |
| Outside diam | ☒ Steel (STAINLESS) ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized | Slot No. | | |
| 90 (5 1/2") | | 50 | 7.9 | 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: 1 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 |

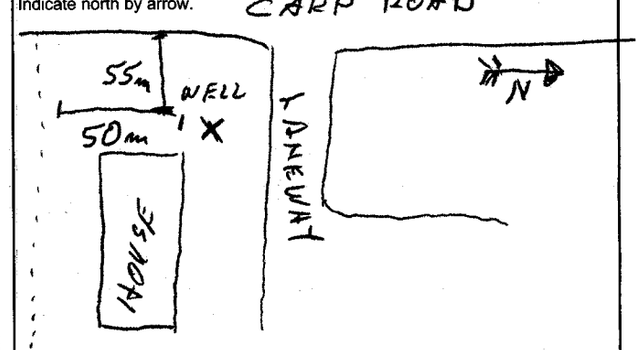
### Plugging and Sealing Record

☐ 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. |

### Location of Well

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




### Method of Construction

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

### Water Use

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

### Final Status of Well

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

Audit No. Z 28740

Date Well Completed: 2005 / 11 / 10

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

Date Delivered: 2005 / 11 / 15

### Well Contractor/Technician Information

Name of Well Contractor: Plumbing Village

Well Contractor's Licence No.: 6574

Business Address (street name, number, city etc.): Box 329 CARP ONT

K0A 1L0

Name of Well Technician (last name, first name): SIMON SILUSE

Well Technician's Licence No.: 310

Signature of Technician/Contractor: X

Date Submitted: 2005 / 11 / 15

### Ministry Use Only

| | |
|---|---|
| Data Source | Contractor: 6574 |
| Date Received: NOV 24 2005 | Date of Inspection |
| 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*



## 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

| RR#/Street Number/Name | City/Town/Village | Site/Compartment/Block/Tract etc. | Lot | Concession |
|---|---|---|---|---|
| 3116 CARP Rd. OTTAWA CARLETON WEST | CARLETON | | 12 | 2 |
| 3116 CARP Rd. | OTTAWA/CARP | | | |

| GPS Reading | NAD | Zone | Easting | Northing | Unit Make/Model | Mode of Operation: |
|---|---|---|---|---|---|---|
| | 83 | 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 | Metres To |
|---|---|---|---|---|---|
| | | | 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 | Metres To | 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 | Metres To |
|---|---|---|---|---|
| **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 | |

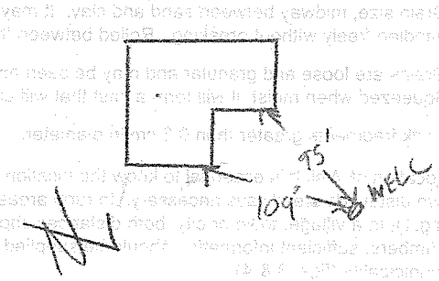
### Plugging and Sealing Record

☐ Annular space ☐ Abandonment

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

### Location of Well

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




### Method of Construction

☐ Cable Tool ☐ Rotary (air) ☐ Diamond ☐ Digging
☐ Rotary (conventional) ☐ Air percussion ☐ Jetting ☐ Other WELL CASING EXTENDED
☐ 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: A OUR PUMP SERVICE | Well Contractor's Licence No.: 6907 |
| Business Address (street name, number, city etc.): 2019 RICHARDSON SIDE Rd OTTAWA | |
| Name of Well Technician (last name, first name): WEDD BARRY | Well Technician's Licence No.: T-2489 |
| Signature of Technician/Contractor: X [signature] | Date Submitted: YYYY MM DD 2007 05 24 |

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

### Ministry Use Only

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

7193278

Ontario — Ministry of the Environment

Measurements recorded in: [X] 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]

## 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 | To |
|---|---|---|---|---|---|
| Dark Brown | Sand | | moist | 0 | 0.76 |
| Dark 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 |

## 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) | Water Level (m/ft) | Recovery Time (min) | 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 | |

## Method of Construction

[ ] Cable Tool [ ] Diamond
[ ] Rotary (Conventional) [ ] Jetting
[ ] Rotary (Reverse) [ ] Driving
[ ] Boring [ ] Digging
[ ] Air percussion
[X] Other, *specify* HSA/Diamond

## Well Use

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

## Status of Well

[ ] Water Supply
[ ] Replacement Well
[ ] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[X] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[ ] Abandoned, other, *specify*
[ ] Other, *specify*

## Construction Record - Casing

| Inside Diameter (cm/in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) From | 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 | To |
|---|---|---|---|---|
| 5.8 | PVC | 10 | 4.2 | 10.3 |

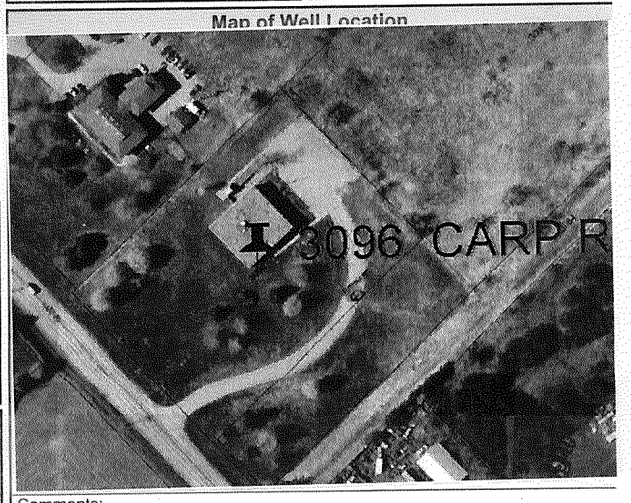
## Water Details

| Water found at Depth (m/ft) | Kind of Water | |
|---|---|---|
| 9.2 | [ ] Fresh [ ] Untested | [ ] Gas [ ] Other, *specify* |
| | [ ] Fresh [ ] Untested | [ ] Gas [ ] Other, *specify* |
| | [ ] Fresh [ ] Untested | [ ] Gas [ ] Other, *specify* |

## Hole Diameter

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

## 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.: 1844

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)*: 8192464619

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 [X] No

Date Package Delivered: YYYY MM DD

Date Work Completed: 20121024

**Ministry Use Only**

Audit No. Z153945

Received DEC 11 2012

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**Ministry's Copy**

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) | 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 | 421095 | 5018561 | | |

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

| General Colour | Most Common Material | Other Materials | General Description | Depth (m/ft) From | To |
|---|---|---|---|---|---|
| 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 | To |
|---|---|---|---|---|
| 6¼ | STEEL | .188 | 0 | 34 |
| 6 | OPEN HOLE | | 34 | 258 |

## Construction Record - Screen

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

## 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

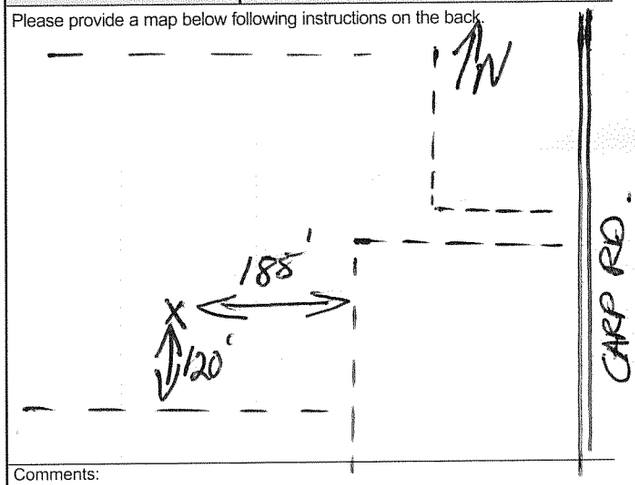
Well production (l/min / GPM): 4.5

Disinfected? ☒ Yes ☐ No

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

## Water Details

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

## Hole Diameter

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

## 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)*: 613 623 5648

Name of Well Technician (Last Name, First Name): SAUNDERS TROY

Well Technician's Licence No.: 7517

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 | K0A1L0 |

| 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 | 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 | 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 | 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* ____

## 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: / 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

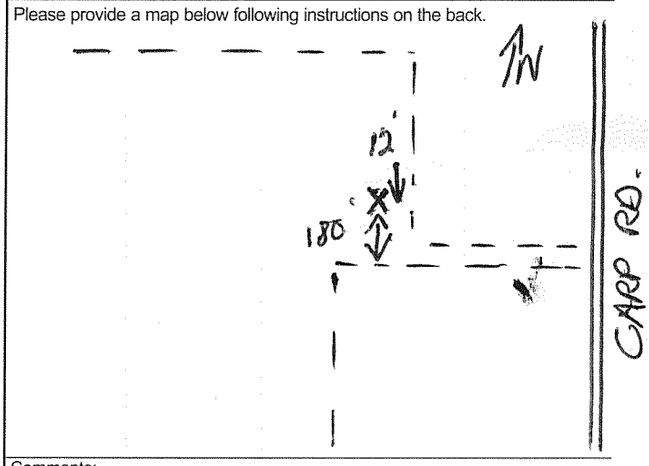
Well production (l/min / GPM): 7

Disinfected? ☒ Yes ☐ No

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

## Water Details

| Water found at Depth (m/ft) | Kind of Water | |
|---|---|---|
| 147 | ☐ Fresh ☒ Untested ☐ Gas ☐ Other, *specify* ____ | |
| ____ | ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify* ____ | |
| ____ | ☐ Fresh ☐ Untested ☐ Gas ☐ Other, *specify* ____ | |

## Hole Diameter

| Depth (m/ft) From | To | Diameter (cm/in) |
|---|---|---|
| 41 | 159 | 6 |

## 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 | K0A1G0 | |

| 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 | Date Work Completed |
|---|---|---|
| ☒ Yes ☐ No | 20130607 | 20130607 |

**Ministry Use Only**

Audit No. Z158245

JUL 31 2013

Received

Ontario — Ministry of the Environment and Climate Change

Measurements recorded in: ☐ Metric ☒ Imperial

Tag#:A260961 (Print Below)

A260961

# 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 |
|---|---|---|---|
| | 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 83 | 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 | 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 | 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 | 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

## 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

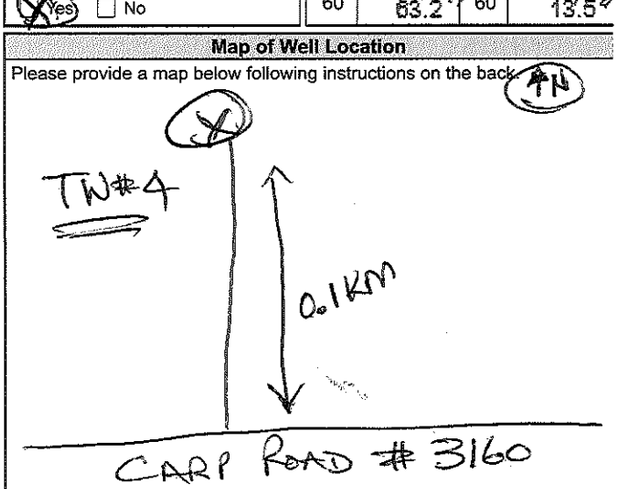
Well production (l/min / GPM): 3

Disinfected? ☒ Yes ☐ No

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




## Water Details

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

## Hole Diameter

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

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

## 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 |

| Well owner's information package delivered | Date Package Delivered |
|---|---|
| ☒ Yes ☐ No | 2019 04 08 |

Date Work Completed: 2019 03 06

**Ministry Use Only**

Audit No. Z302437

JUN 12 2019

Received

0506E (2014/11) Ministry's Copy

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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<br>Easting: 421226.50<br>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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146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

**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.


This certificate of analysis corrects and replaces any previous version. The analysis results refer only to what was provided for testing.
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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 | N/A : Not applicable | * : Analysis conducted by external subcontracting |
| QC : Reference material (QC) | 1 : Results in annex | ^ : 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** | | | **Criteria** | | | |
| | **RL** | **Unit** | **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** | | | **Criteria** | | | | | | | |
| | **RL** | **Unit** | **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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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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# STANDARD CHAIN-OF-CUSTOD

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y3 - Phone: 613-727-5692, Fax: 6

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~~ |
| | | | | | | | | | | | | | | | | | | | | |
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| | 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

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

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146 Colonnade Rd, Unit 8, Ottawa, ON K2E 7Y1 (613) 727-5692

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



This certificate of analysis corrects and replaces any previous version. The analysis results refer only to what was provided for testing.
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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** | | | **Criteria** | | | |
| | **RL** | **Unit** | **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<br>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.



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# STANDARD CHAIN-OF-CUSTODY

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100387023

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

...der #: _____

| CLIENT INFORMATION | | INVOICE INFORMATION | |
|---|---|---|---|
| Company: | Paterson Group | Company: | |
| Contact: | Alex Schopf | Contact: | |
| Address: | 9 Auriga Drive | Address: | |
| Telephone: | 613-218-3444 Cell: | Telephone: | PO #: 64085 |
| Email: | #1: eardley@patersongroup.ca, mlaflamme@patersongroup.ca; | | |
| Email: | #2: aschopf@patersongroup.ca; | | |
| Project: | PH5068 Quote #: | | |

...: 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

Field Filtered -->

| 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 (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 | [signature] | September 19, 2025 | |
| Relinquished By: | Alex Schopf | [signature] | September 19, 2025 | 9 |
| Received By: | S. Situ | [signature] | Sept 19/25 @ 15:15 | |

COMMENTS: Total/Trace Metals

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

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AFSTDCOC.5

Copies: White - Laboratory, Yellow - Sample

**patersongroup** Consulting Engineers

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

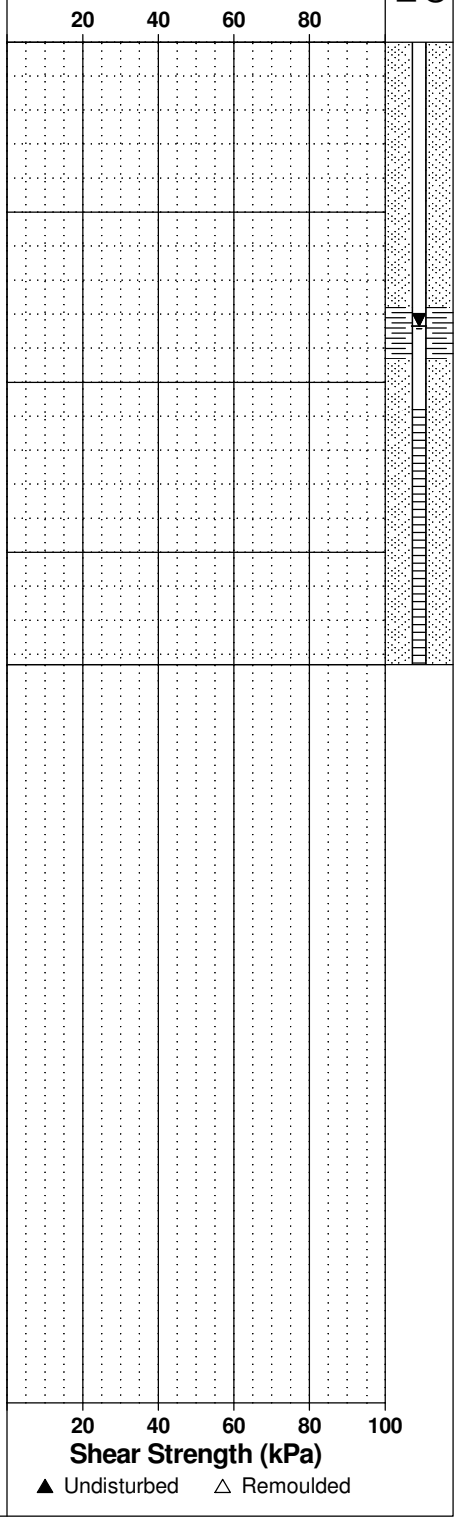
**FILE NO.** PG6308

**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 %



**patersongroup** Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

# SOIL PROFILE AND TEST DATA

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

**DATUM** Geodetic

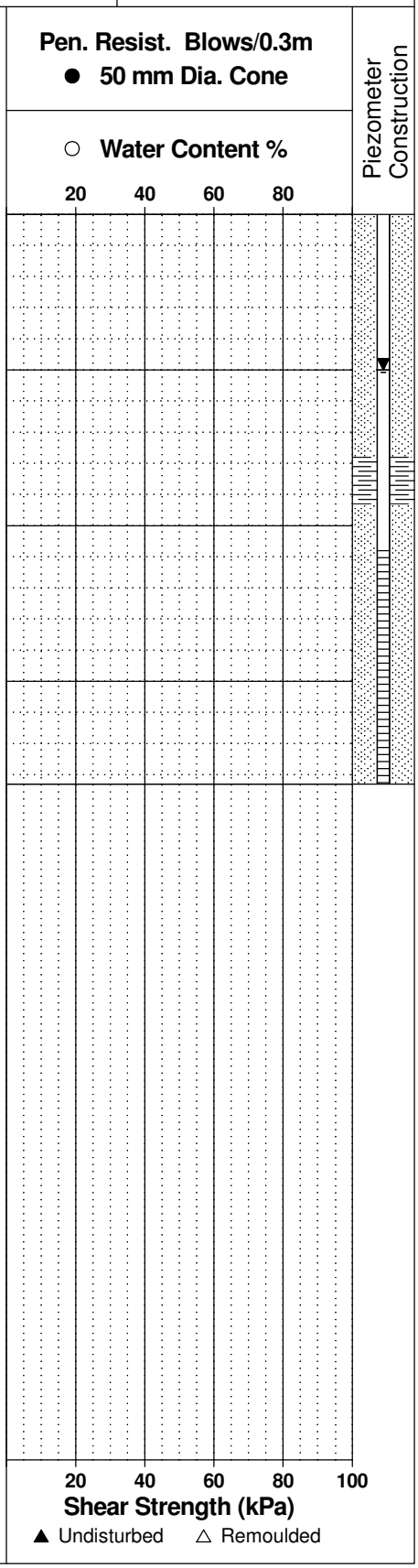
**REMARKS**

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

**FILE NO.** PG6308

**HOLE NO.** BH 2-22

| SOIL DESCRIPTION | STRATA PLOT | SAMPLE TYPE | SAMPLE NUMBER | SAMPLE % RECOVERY | SAMPLE N VALUE or RQD | DEPTH (m) | ELEV. (m) |
|---|---|---|---|---|---|---|---|
| **GROUND SURFACE** | | | | | | | |
| **TOPSOIL** 0.28 | | | | | | 0 | 116.97 |
| Loose, reddish brown to brown **SILTY SAND to SANDY SILT** | | AU | 1 | | | | |
| - trace clay from 0.8 to 1.45m depth 1.45 | | SS | 2 | 92 | 3 | 1 | 115.97 |
| Compact, brown **SILTY SAND to SANDY SILT** | | SS | 3 | 83 | 24 | 2 | 114.97 |
| | | SS | 4 | 75 | 26 | | |
| Very loose, brown **SILTY SAND to SANDY SILT** with interbedded layers of brown silty clay 3.66 | | SS | 5 | 92 | 2 | 3 | 113.97 |
| 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 23, 2022

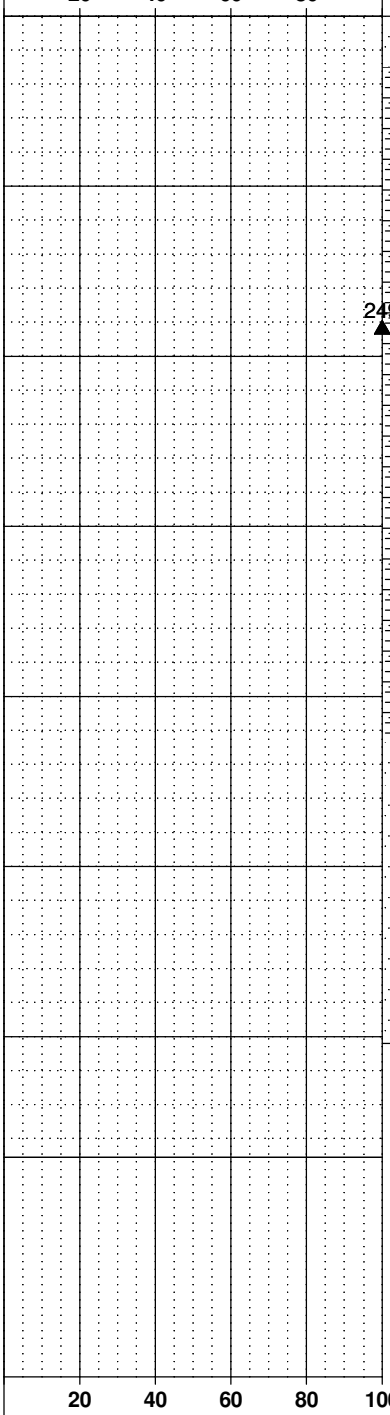
**FILE NO.** PG6308

**HOLE NO.** BH 3-22

| SOIL DESCRIPTION | STRATA PLOT | SAMPLE TYPE | NUMBER | % RECOVERY | 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** 2.59 | | SS | 3 | 83 | 10 | 2 | 114.78 |
| Interbedded layers of loose, brown **SILTY SAND to SANDY SILT** and stiff, brown **SILTY CLAY** 4.50 | | SS | 4 | 75 | 6 | 3 | 113.78 |
| | | SS | 5 | 75 | 6 | 4 | 112.78 |
| Compact, brown **SILTY SAND to SANDY SILT,** trace clay 5.26 | | SS | 6 | 83 | 13 | 5 | 111.78 |
| Loose to compact, brown **SILTY SAND** | | SS | 7 | 67 | 1 | 6 | 110.78 |
| - running sand at 5.3m depth 6.71 | | SS | 8 | 67 | 12 | | |
| End of Borehole | | | | | | | |
| (GWL @ 1.22m - July 8, 2022) | | | | | | | |

**Pen. Resist. Blows/0.3m**
● 50 mm Dia. Cone

○ Water Content %




Monitoring Well Construction

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# SOIL PROFILE AND TEST DATA

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

**DATUM** Geodetic

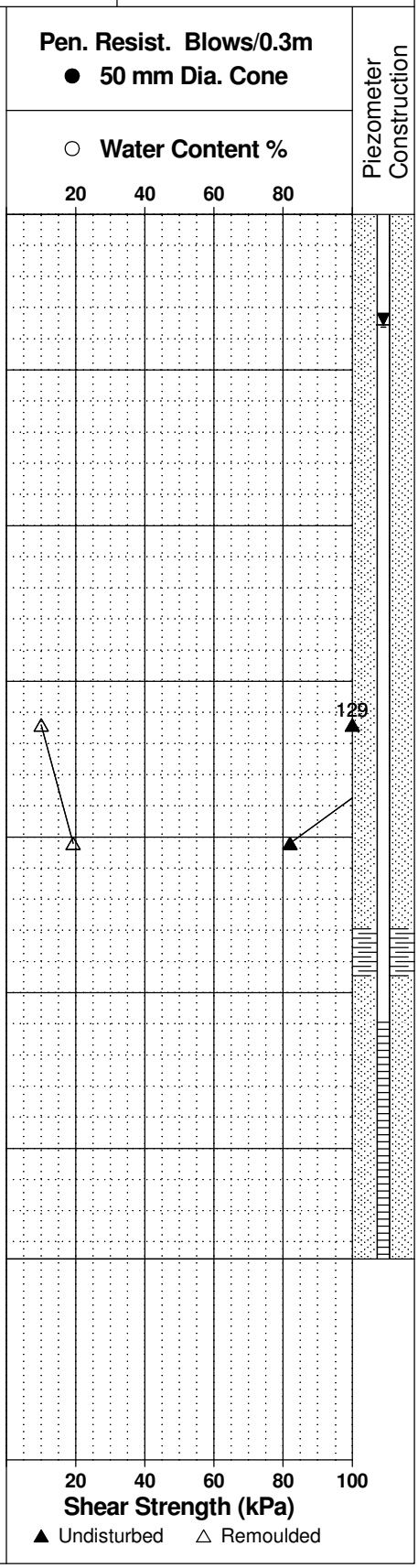
**REMARKS**

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

**FILE NO.** PG6308

**HOLE NO.** BH 4-22

| SOIL DESCRIPTION | STRATA PLOT | SAMPLE TYPE | NUMBER | % RECOVERY | 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 | 5 | 111.44 |
| - some running sand by 4.6m depth | | SS | 6 | 42 | 1 | 6 | 110.44 |
| 6.71 | | SS | 7 | 50 | 1 | | |
| 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 % (20 40 60 80) | 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 | | | | | | | | | |

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

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# SOIL PROFILE AND TEST DATA

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

**DATUM** Geodetic

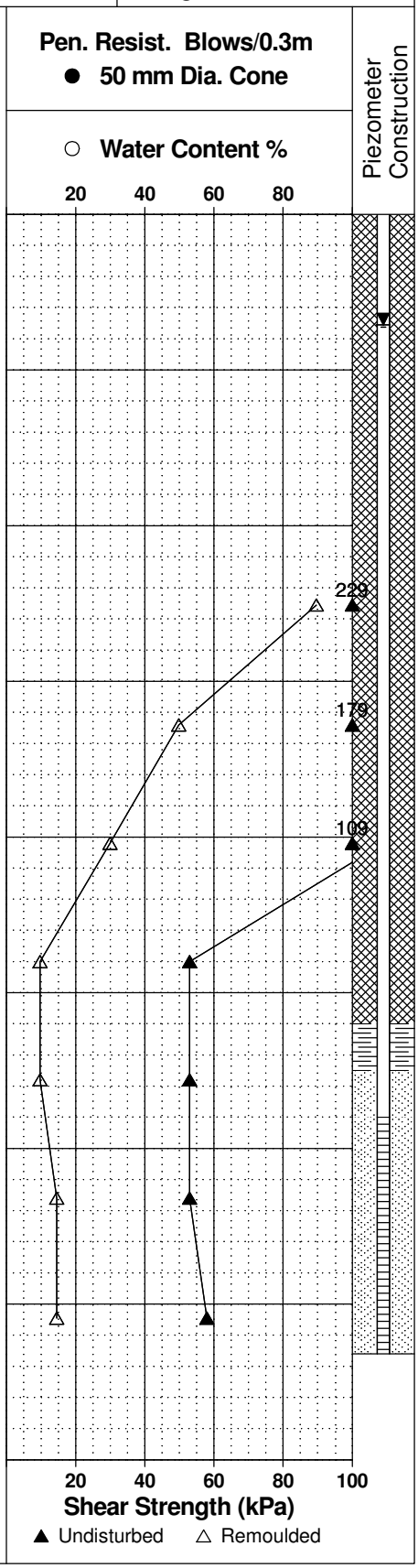
**REMARKS**

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

**FILE NO.** PG6308

**HOLE NO.** BH 5-22

| SOIL DESCRIPTION | STRATA PLOT | SAMPLE TYPE | NUMBER | % RECOVERY | 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 | 109.37 |
| 7.32 | | | | | | | |
| 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

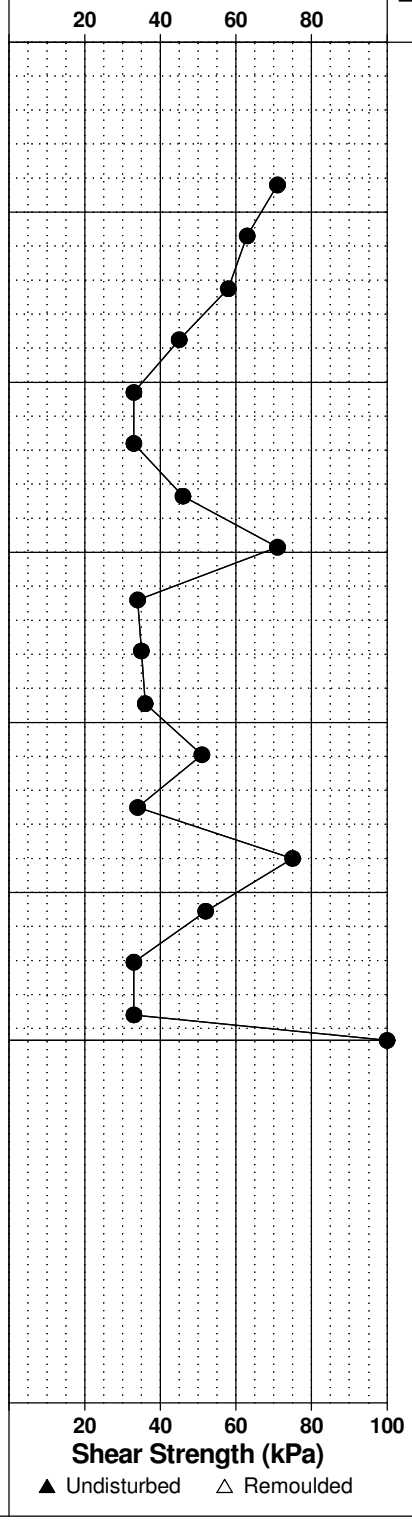
**REMARKS**

**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** | | | | | | | | | |
| 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**

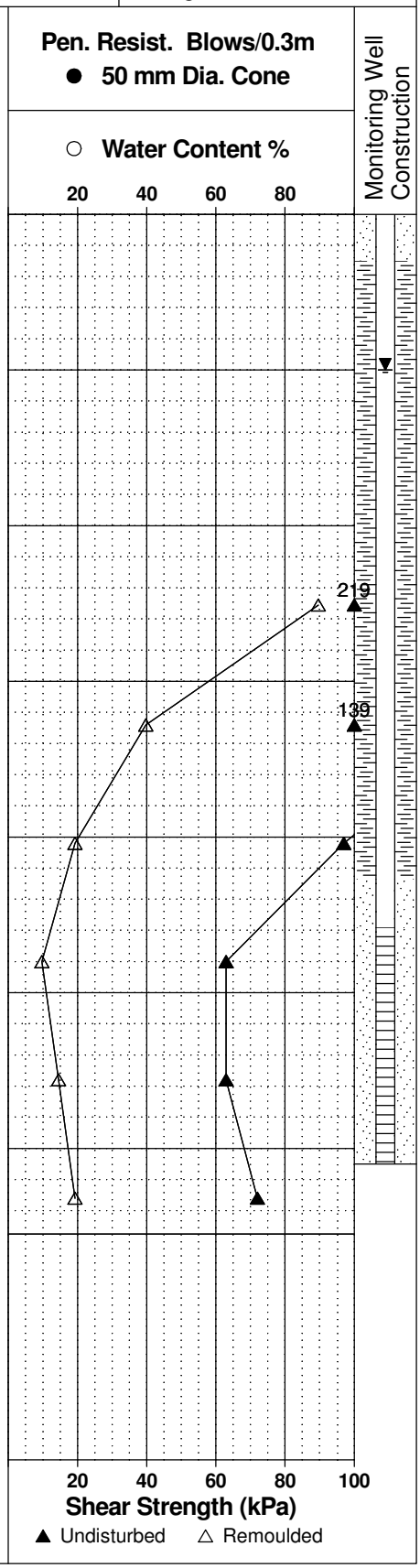
**BORINGS BY** Track-Mount Power Auger **DATE** June 28, 2022

**FILE NO.** PG6308

**HOLE NO.** BH 6-22

| SOIL DESCRIPTION | STRATA PLOT | SAMPLE TYPE | NUMBER | % RECOVERY | 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

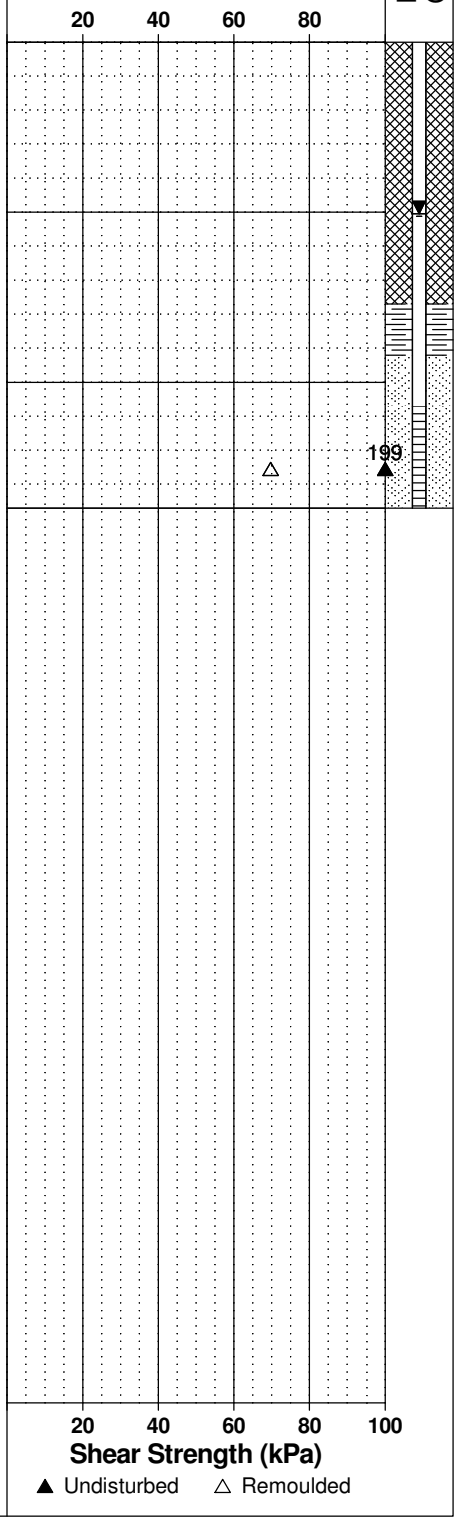
**FILE NO.** PG6308

**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 | 114.34 |
| 2.74 | | | | | | | |
| End of Borehole | | | | | | | |
| (GWL @ 1.01m - July 8, 2022) | | | | | | | |

**Pen. Resist. Blows/0.3m**
● 50 mm Dia. Cone

○ Water Content %




Piezometer Construction

# 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<br>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 x 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

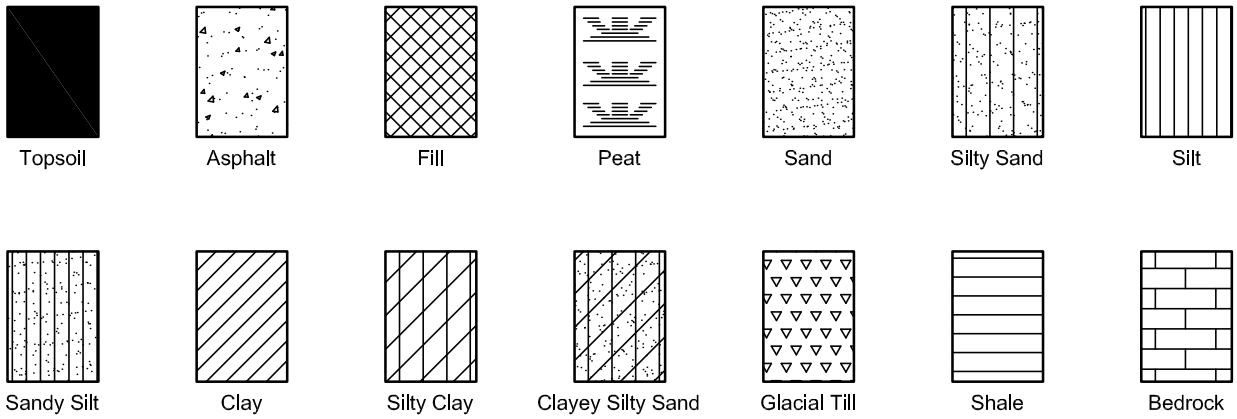
| | | |
|---|---|---|
| $p'_o$ | - | Present effective overburden pressure at sample depth |
| $p'_c$ | - | Preconsolidation pressure of (maximum past pressure on) sample |
| Ccr | - | Recompression index (in effect at pressures below $p'_c$) |
| Cc | - | Compression index (in effect at pressures above $p'_c$) |
| 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. |

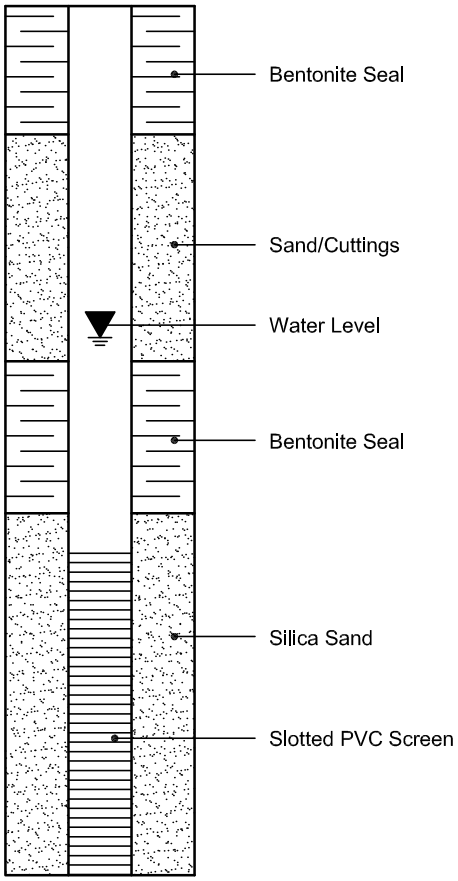
# SYMBOLS AND TERMS (continued)

## STRATA PLOT

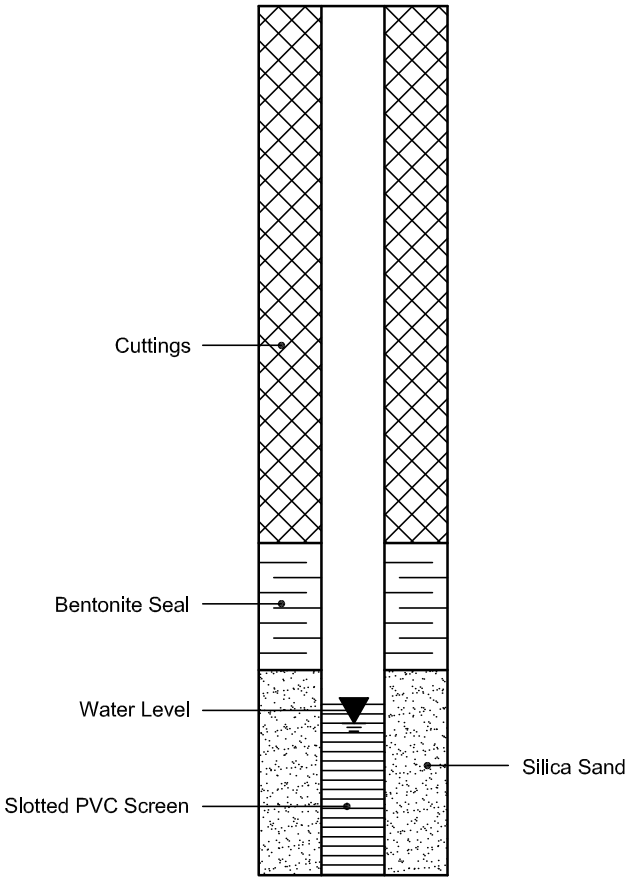


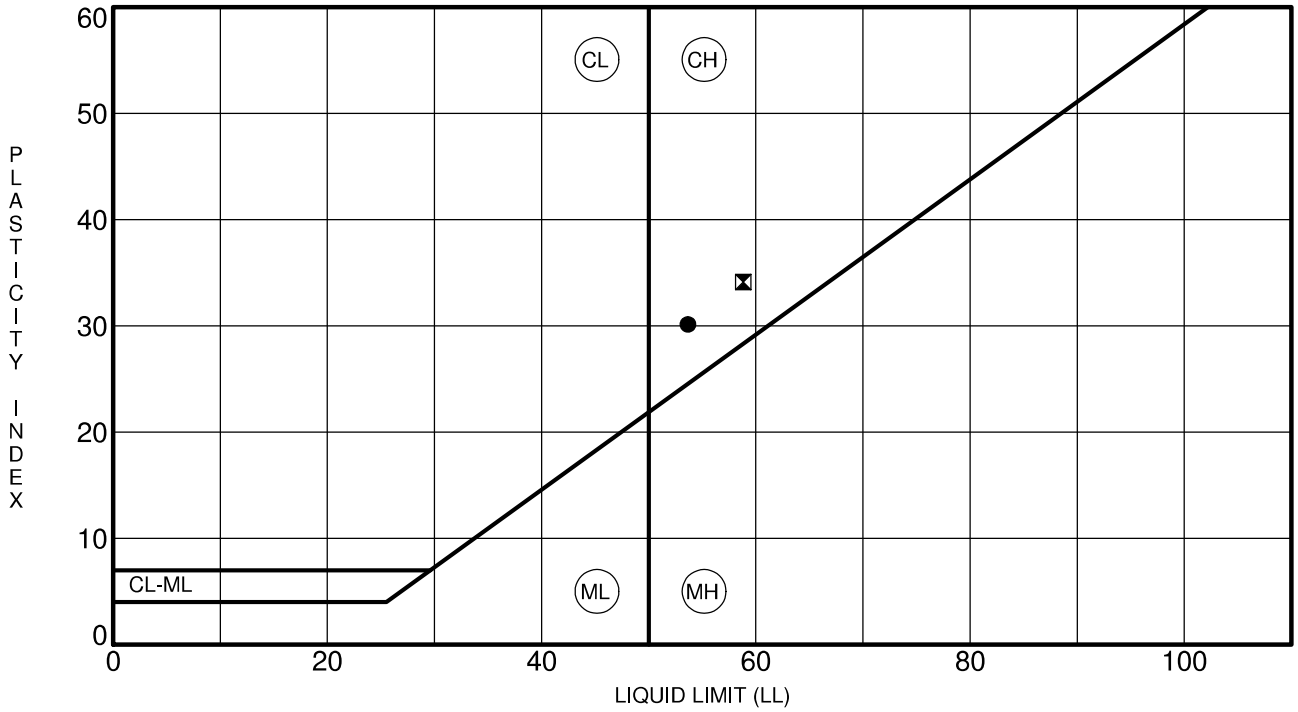

## MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION




PIEZOMETER CONSTRUCTION



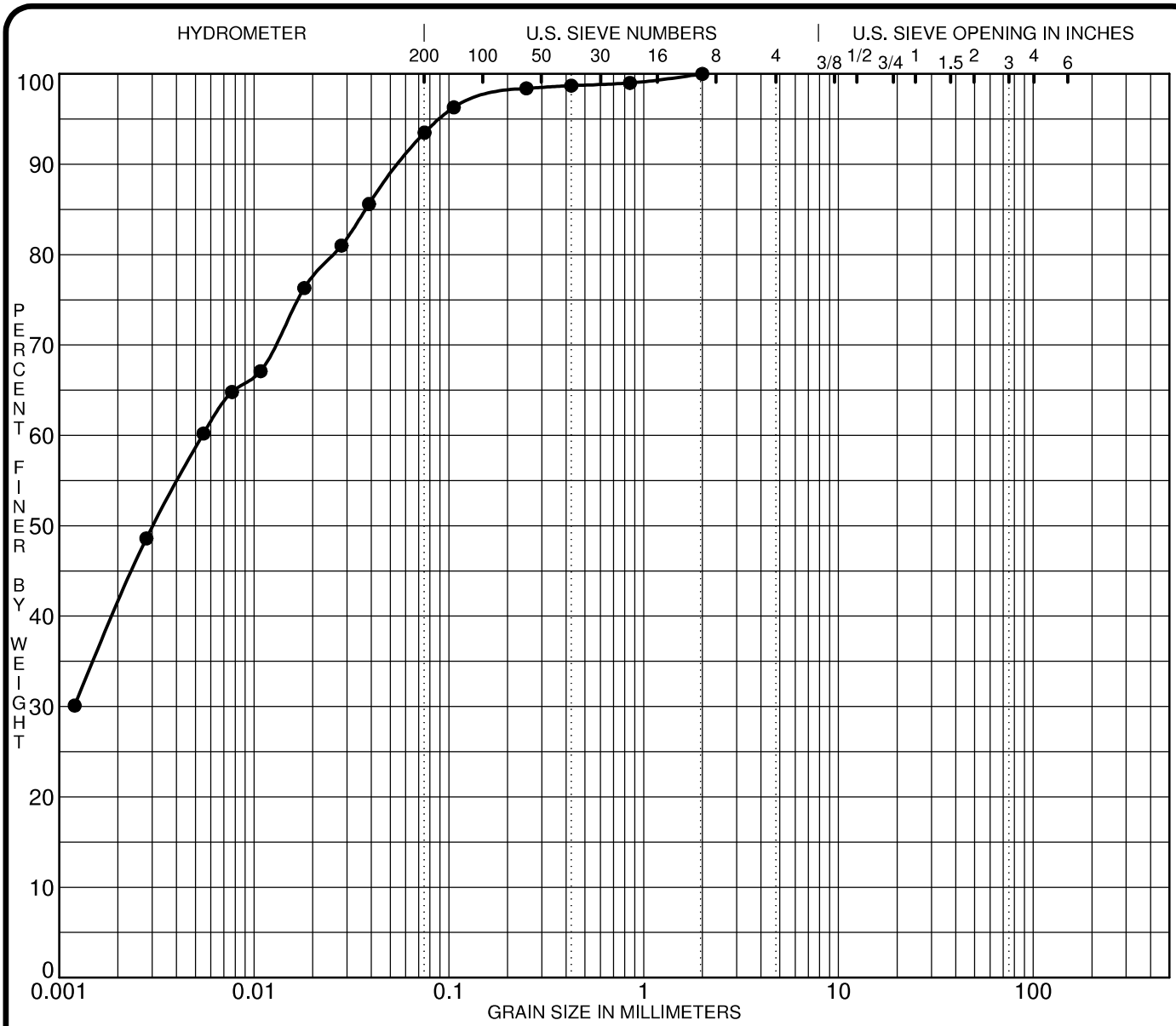



| | Specimen Identification | | LL | PL | PI | Fines | Classification |
|---|---|---|---|---|---|---|---|
| ● | **BH 3-22** | **SS2** | **54** | **24** | **30** | | **CH - Inorganic clays of high plasticity** |
| ⧗ | **BH 5-22** | **SS2** | **59** | **25** | **34** | | **CH - Inorganic clays of high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

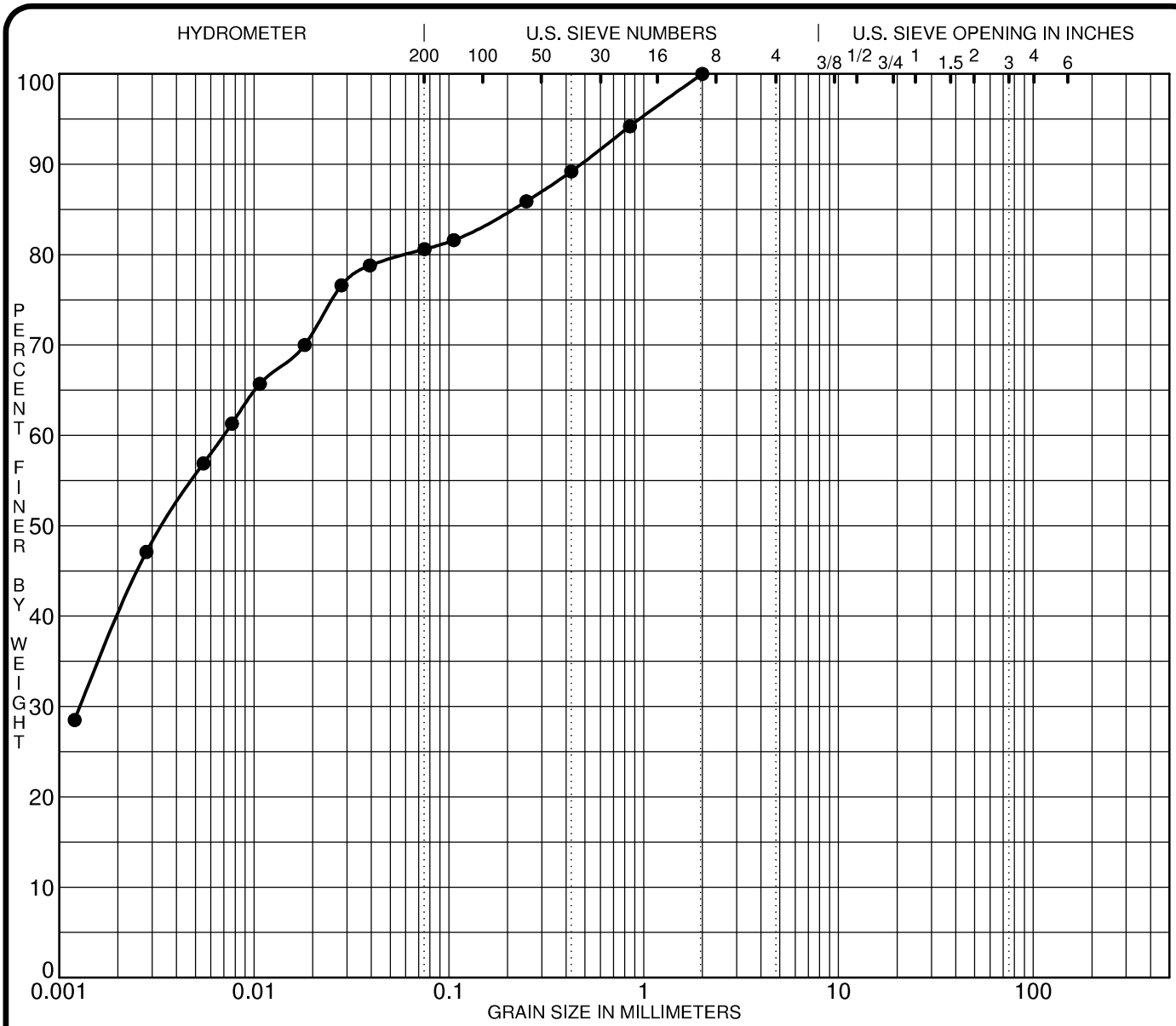
FILE NO. **PG6308**

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**

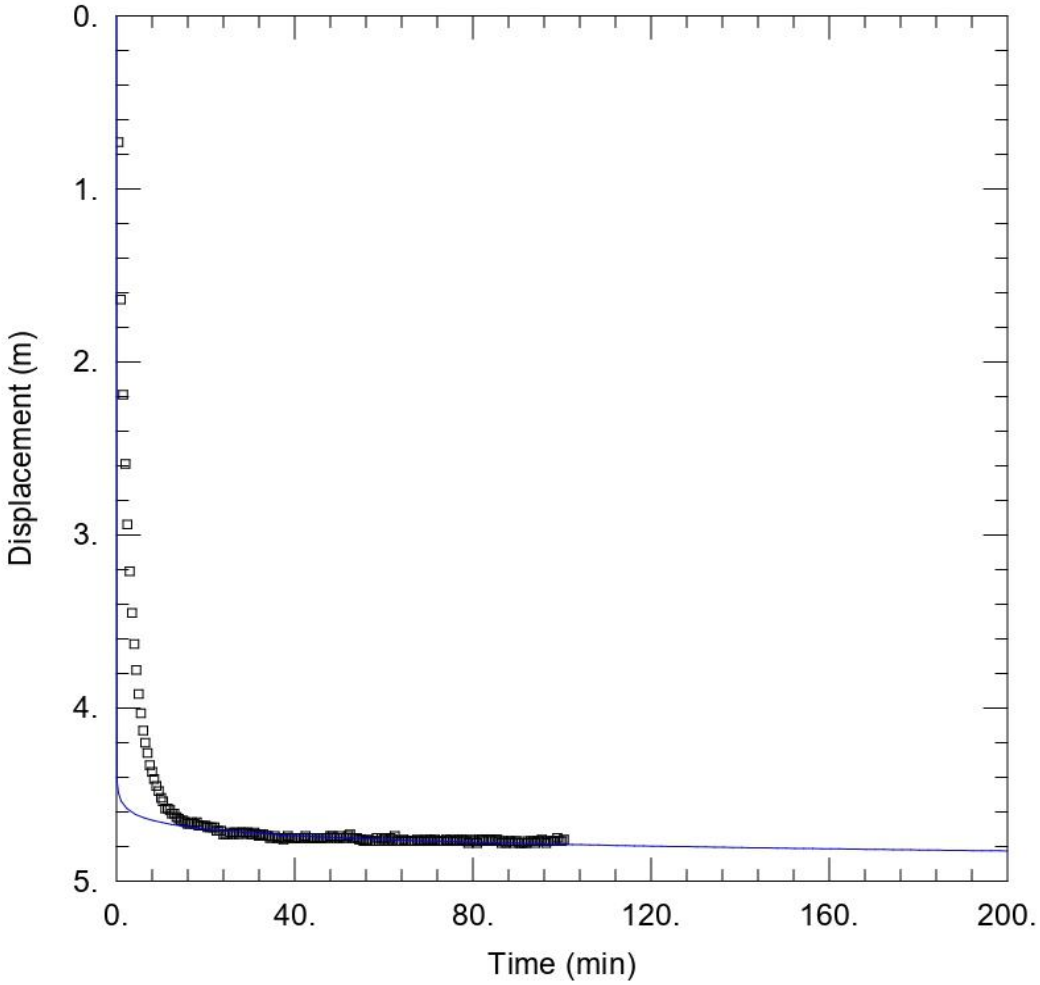
PATERSON GROUP

9 AURIGA SRIVE, OTTAWA ON K2E7T9

# GRAIN SIZE DISTRIBUTION

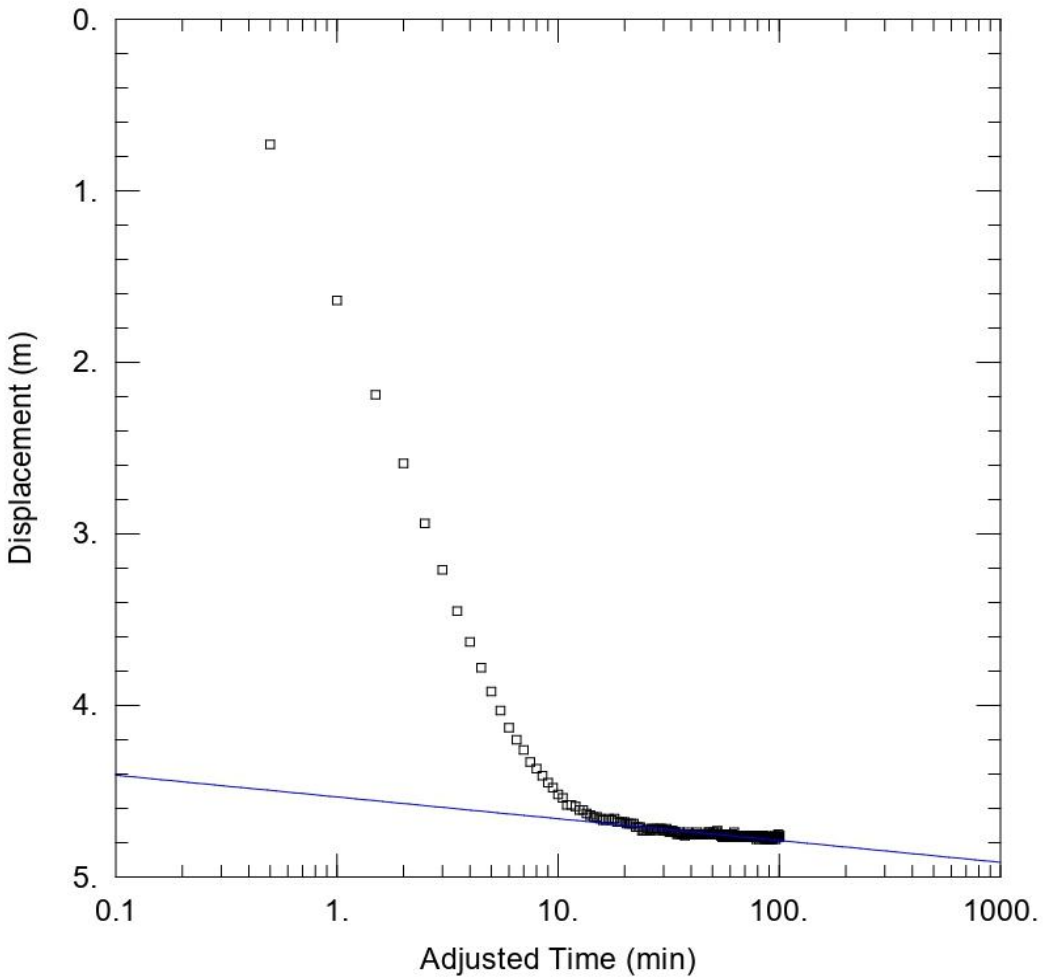
**Pumping Test Analysis Report**

| | | | |
|---|---|---|---|
| File No. | PH5068 | Well ID: | TW1 |
| Date: | March 21, 2023 | Solution Method: | **Theis** |
| Client: | Megha Holdings Inc | Transmissivity (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 | Transmissivity (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 |




PATERSON GROUP

# 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** |

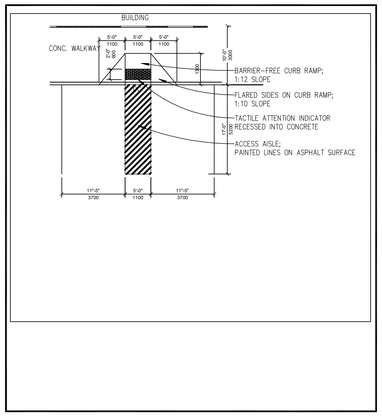
| Table 6 - Monthly Water Balance for Soil With 75 mm Water Holding Capacity at the Ottawa International Airport | | | | |
|---|---|---|---|---|
| **Month** | **Temperature (°C)** | **Total Precipitation (mm)** | **Actual Evapotranspiration (mm)** | **Water Surplus (mm)** |
| January | -10.6 | 62 | 0 | 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%** |

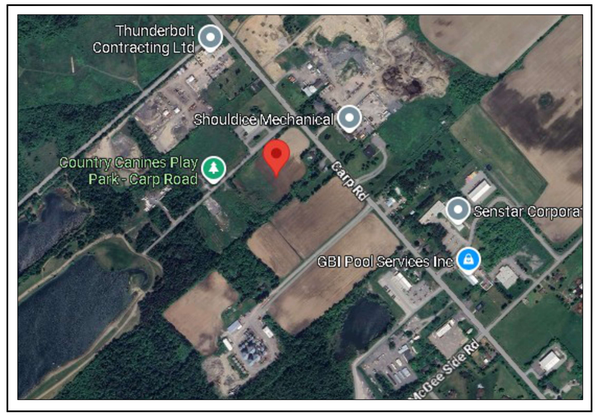



2 A012 BF PARKING PLAN
1 : 100

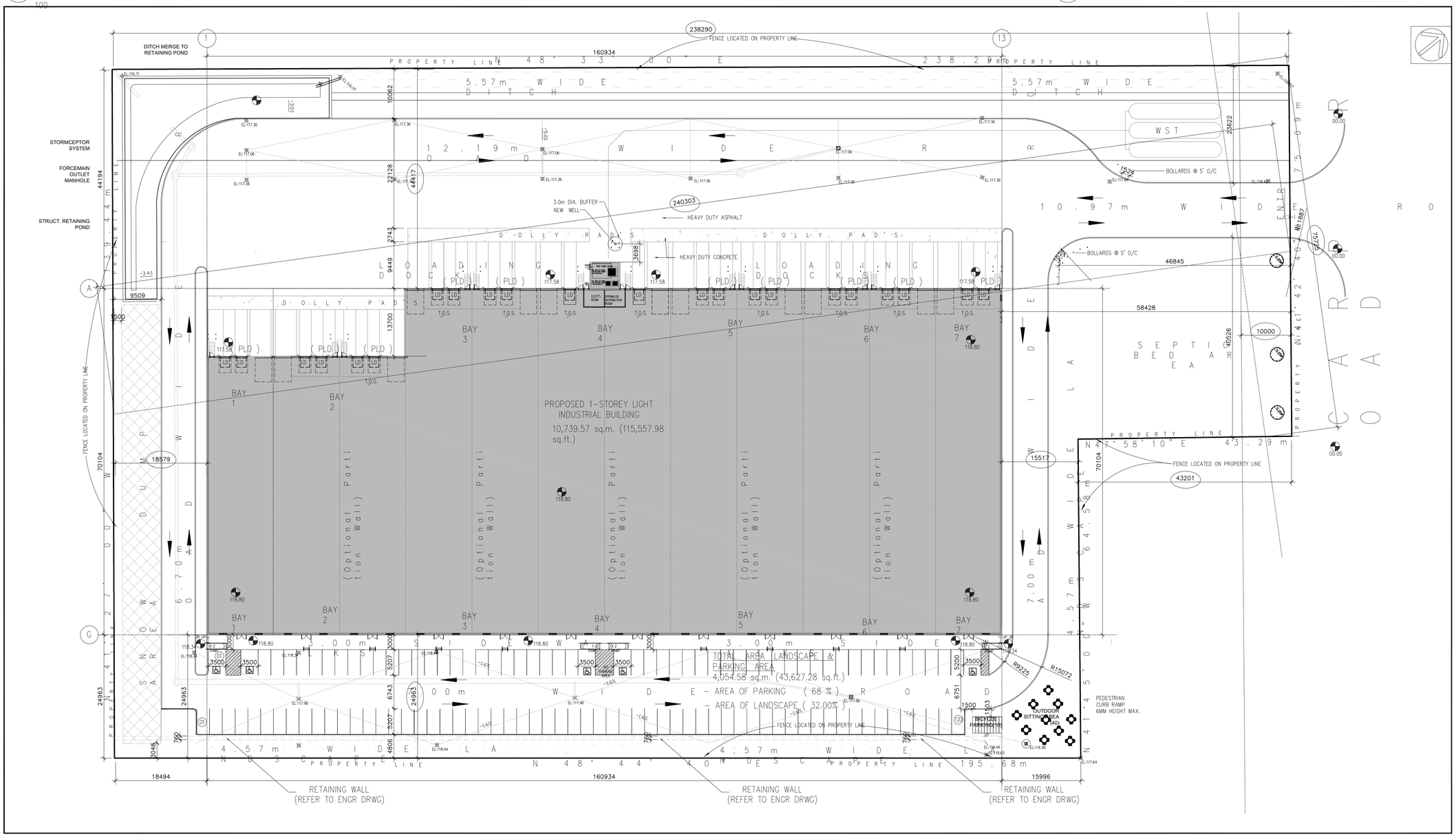
ALL BARRIER-FREE PARKING SPACES SHALL BE PROVIDED
1. VERTICAL SIGNAGE:
   a) MIN. 300mm WIDE x 600mm HIGH
   b) MOUNTED AT A HEIGHT OF 1.5m – 2.0m FROM T GROUND
   c) OF CONTRASTING COLOUR WITH THE BACKGROUND ENVIRONMENT
2. PAVEMENT MARKING THAT ARE:
   a) MIN. 1525mm x 1525mm
   b) SLIP RESISTANT
   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 | Reduced Concrete Walkway; 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. |




3 A002 LOCATION PLAN
N.T.S.




1 A012 SITE PLAN
Scale: 1/400m


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

RP ANCHETA ARCHITECT
24 MONCRIEFF DRIVE, TORONTO ONTARIO, M3H 2R2
TEL No. +1(647)342-0202
Email: ARCHITECTRP@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<br>Author |
| Project Leader | Checked<br>Checker |

Client

Project
**PROPOSED 1 STOREY WAREHOUSE**

1 Drawing Title
**SITE PLAN**
**LOCATION PLAN**

Scale

Project No.
24/06

Drawing No.
**A-012**


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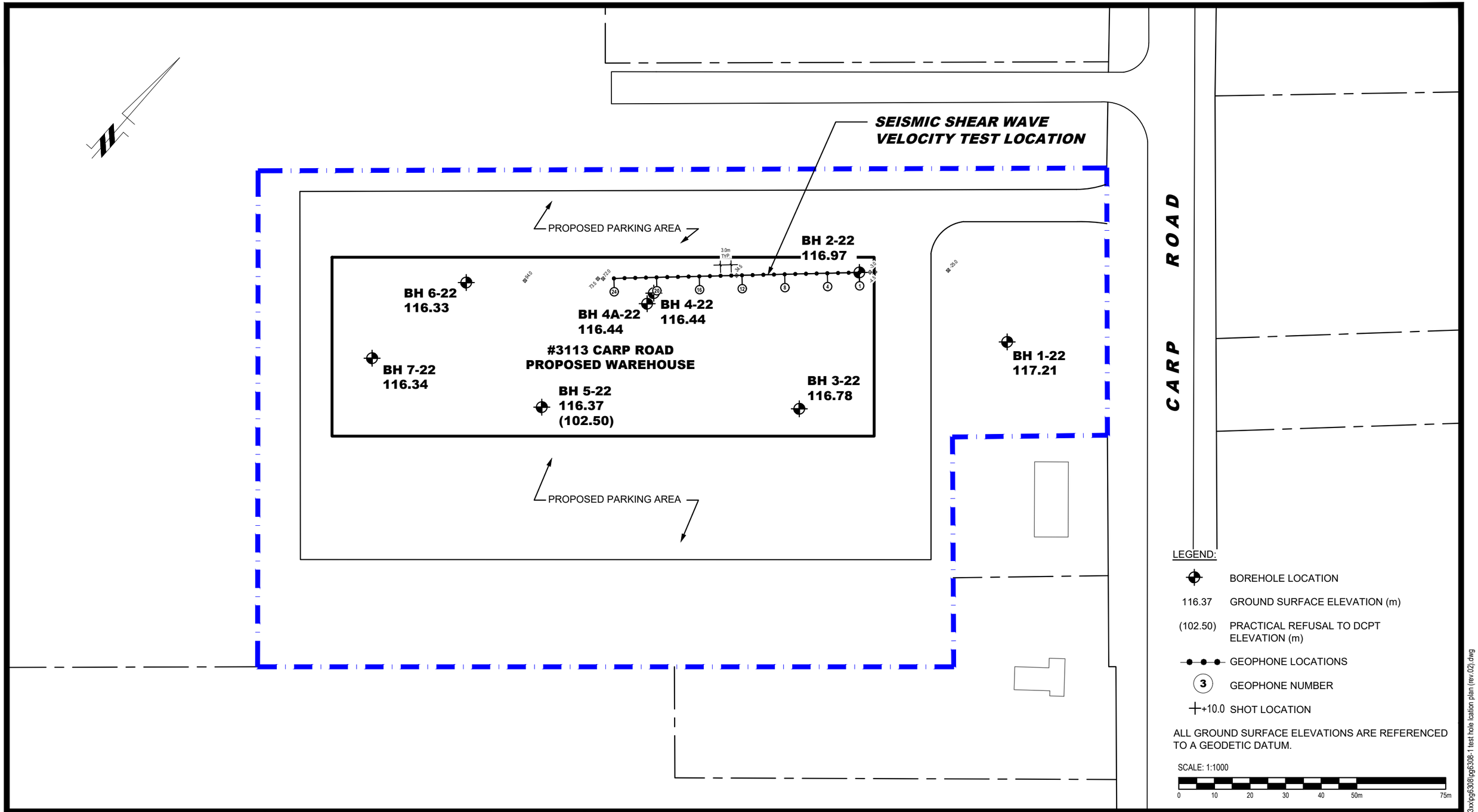
2023-05-02 9:16:36 AM

Using or invalid reference




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 |

p:\autocad drawings\geotechnical\pg63xx\pg6308\pg6308-1 test hole location plan (rev.02).dwg

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.: |

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