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Stratford Foxrun
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Attention: Jack Gulas

Subject: **Hydrogeological Assessment and Terrain Analysis**
Proposed Commercial Development
5923 Ottawa Street
Ottawa, 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 development to be located at 5923 Ottawa Street in Ottawa, 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 2.27 ha lot which is currently vacant. The southern portion of the site is covered by grass and shrubs while the northern portion is covered by mature trees. The ground surface across the site is generally level at an approximate geodetic elevation of 94 m above sea level (asl). The general overburden groundwater flow direction is inferred to be north towards the Jock River.

The subject site is bordered to the north by a railway followed by forested land, to the east by a commercial property, to the south by Ottawa Street followed by agricultural land and to the west by a commercial property. The subject site itself is zoned RG3. The surrounding properties to the north, east and south are also zoned RG3 with the land to the west zoned DR1 (GeoOttawa).

A hydrogeological pre-consultation was completed with a City of Ottawa Hydrogeologist on August 2, 2024.

Description of Subject Site

The subject site is an approximately 2.27 ha vacant lot and has historically remained undeveloped. The southern portion of the site is covered by grass and shrubs while the northern portion is covered by mature trees. The Site Plan Application is for a proposed commercial development. The proposed development will consist of two (2) slab-on-grade buildings consisting of a distillery with a restaurant within it and a brewery. Please refer to Figure 1 - Key Plan and Site Plan prepared by N45 Architecture Inc. attached to this report for the proposed site location and site layout.

Two new sewage systems to service the two (2) commercial buildings has been proposed. A septic flow calculation was completed and resulted in a total daily design sanitary sewage flow (TDDSSF) calculation of 9,966 L/day. Paterson has completed a new sewage system design for the proposed development. Please refer to Paterson Drawing PH4924-1(rev.4) - Sewage System Layout Plan attached to this report for specific details of the new sewage system. An approved Ottawa Sewage System Office (OSSO) Sewage System Installation Permit (SSIP) has been included with the Site Plan submission.

A drilled potable supply well was installed on February 10, 2025, hereafter referred to as Test Well 1 (TW1) and extends to a maximum depth of 73.2 m below existing ground surface (bgs). TW will be the service well for the entire site (both buildings). The property owner will need to ensure that protective measures are taken to protect the wellhead, such as the use of a barrier or bollards, when constructing the proposed commercial buildings.

The distillery / restaurant and the brewery will be serviced by the newly installed TW1. Distilling and brewing operations associated with the commercial development will be serviced by water brought in via tanker truck. As such, water usage is anticipated to be mainly associated with the general usage identified within the approved OSSO SSIP..

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 Wellhead Protection Area (WHPA) with a score of 8 within the MRSPP and are identified as one of four groundwater related vulnerable areas identified within the Clean Water Act (2006). The four vulnerable areas consist of Significant Groundwater

Recharge Area (SGRA), Highly Vulnerable Aquifer (HVA), Intake Protection Zone (IPZ) and Wellhead Protection Area (WHPA).

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

FIELDWORK PROGRAM

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. TW1 has a Water Well Record (WWR) Well ID of A379088. TW1 has a 152.4 mm diameter steel casing that extends to 57.9 m below ground surface (bgs) with a 0.59 m stick up. The well itself extends to a depth of 73.2 m bgs. Based on available geological mapping, the drift thickness at TW1 varies from 10 to 15 m. Refer to Paterson Drawing PH4924-1(rev.4) – Sewage System Layout Plan, attached, for the approximate location of TW1.

As a means to evaluate the water supply aquifer intercepted by the well, the well was subjected to an 8-hour constant rate pumping test. The pumping test was conducted on March 19, 2025, 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 78 L/min for a duration of 8 hours, after which the pumping rate was reduced to approximately 23 L/min for approximately 30 minutes 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 78 L/min provides approximately 3.8 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 2 minutes after the completion of pumping.

A groundwater sample was collected 4 hours after the start of pumping. Due to elevated turbidity levels near the end of the 8-hour mark during the pumping test of TW1, the pump test was extended for an additional 30 minutes and the second sample for TW1 was collected 8.5 hours after the start of pumping. At the 8 hour mark, the flow rate for TW1 was reduced to 23 L/min. 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 and Volatile Organic Compounds (VOCs).

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, apparent colour, and temperature.

Chloride concentrations were detected in the lab results at 262 and 267 mg/L, at the 4 hour and 8.5 hour mark, respectively, which is above the aesthetic objective of 250 mg/L. Therefore, TW1 was subjected to a supplementary 8 hour constant rate pumping test to assess the chloride concentrations under a flow rate representative of typical operational usage.

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 23 L/min for a duration of 8 hours. A groundwater sample was collected 8 hours after the start of pumping. The water sample was submitted for comprehensive testing of bacteriological, chemical, and physical water quality parameters consistent with the standard “Subdivision Supply” suite of parameters plus trace metals.

Aquifer Analysis

Water Quantity

Pumping test data was analyzed using AQTESOLV Pro Version 4.5 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)	65
Pumping Rate (L/min)	78
Pre-test Static Water Level (m btoc)	3.8
Drawdown (m)	Max – 7.9, End – 7.1
Available Drawdown (m)	69.4
% Drawdown During Pump Test (%)	6
Specific Capacity (L/min/m drawdown)	19

The drawdown data was analyzed using the Theis and Cooper-Jacob methods of analysis. Aquifer transmissivity is estimated to be 65 m^2/day. Refer to the Theis and Cooper-Jacob methods of analysis data sheets attached to this report.

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 7.9 m at approximately 5 hours into the pumping test (6 % of the available drawdown). The final drawdown at the end of the 8-hour pumping test was 7.1 m (5 % of the available drawdown). 95% recovery was achieved approximately 2 minutes after the end of pumping.

The total volume of water pumped during the 8.5-hour pumping event was approximately 38,160 L. This is approximately 3.8 times the maximum total daily design volume of water required to support the Site Plan Control Application.

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 the water supply well has intercepted an adequately strong water supply aquifer which has sufficient quantity to service the proposed Site Plan Control Application.

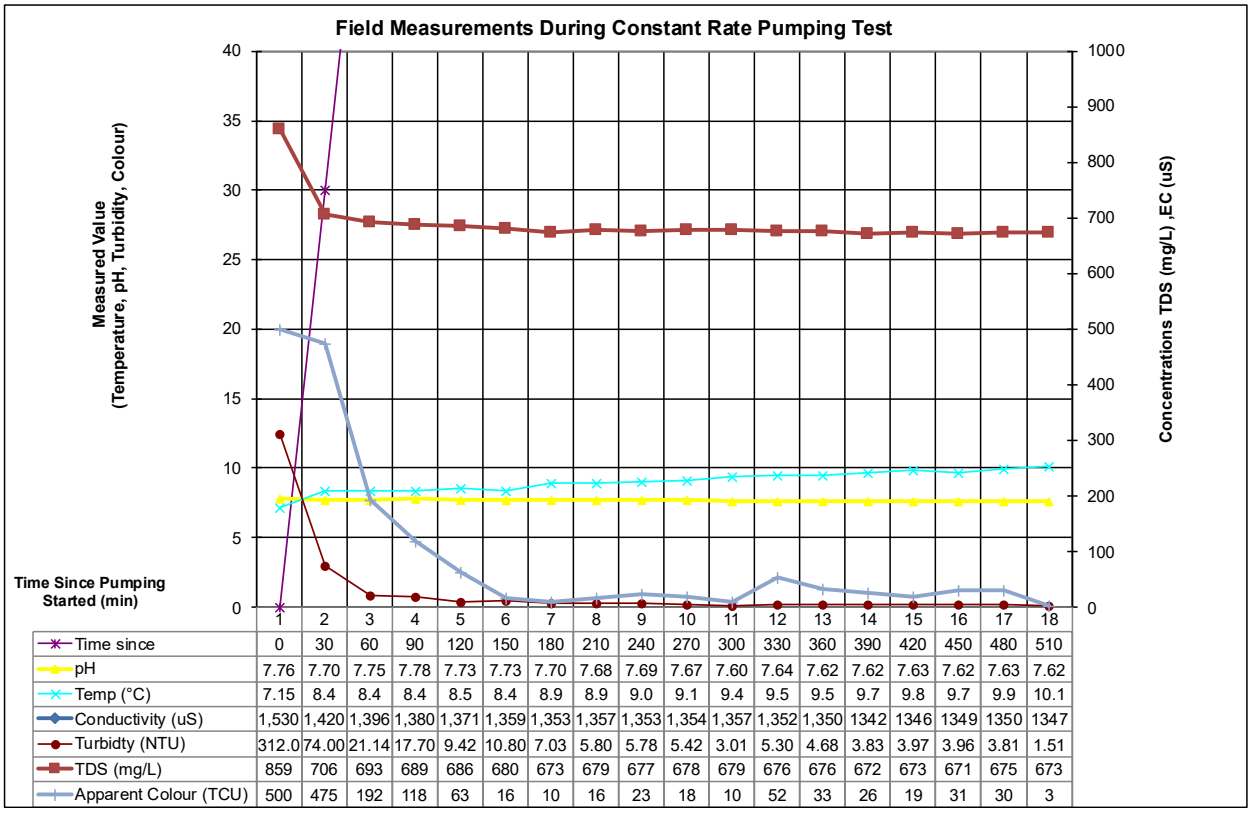
Given the analyses presented and summarized above, it is our opinion that there is an adequate supply of water to support the proposed Site Plan Control Application. Available

water well records (WWR) of the neighboring properties on the MECP Well Record mapping website indicated that the surrounding wells were screened in limestone or sandstone. Surrounding WWR's are attached to this report.

Water Quality

Field Data

Turbidity, electrical conductivity, total dissolved solids (TDS), pH, apparent 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 discharge water prior to the collection of the water samples.



Time Since Pumping Started (min)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Time since	0	30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510
pH	7.76	7.70	7.75	7.78	7.73	7.73	7.70	7.68	7.69	7.67	7.60	7.64	7.62	7.62	7.63	7.62	7.63	7.62
Temp (°C)	7.15	8.4	8.4	8.4	8.5	8.4	8.9	8.9	9.0	9.1	9.4	9.5	9.5	9.7	9.8	9.7	9.9	10.1
Conductivity (uS)	1,530	1,420	1,396	1,380	1,371	1,359	1,353	1,357	1,353	1,354	1,357	1,352	1,350	1342	1346	1349	1350	1347
Turbidty (NTU)	312.0	74.00	21.14	17.70	9.42	10.80	7.03	5.80	5.78	5.42	3.01	5.30	4.68	3.83	3.97	3.96	3.81	1.51
TDS (mg/L)	859	706	693	689	686	680	673	679	677	678	679	676	676	672	673	671	675	673
Apparent Colour (TCU)	500	475	192	118	63	16	10	16	23	18	10	52	33	26	19	31	30	3

Figure 1: Field Measurements

Laboratory Data

The Subdivision Package suite of parameters and trace metals laboratory water quality obtained from the pumping test of TW1 is provided in Table 2a and 2b below and the laboratory analyses reports can be found attached. VOC 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		
		LIMIT	TYPE	TW1 - GW1 (4 hr)	TW1 - GW2 (8.5 hr)	TW1 - GW1 (8 hr)
				2025-03-18	2025-03-18	2025-04-03
MICROBIOLOGICAL						
Escherichia Coli (E.Coli)	CFU/100mL	0	MAC	0	0	0
Total Coliforms	CFU/100mL	0	MAC	0	0	0
GENERAL CHEMICAL - HEALTH RELATED						
Fluoride (F)	mg/L	1.5	MAC	0.34	0.40	0.39
Ammonia (N-NH_3)	mg/L	-	-	0.167	0.143	0.134
Nitrite (N-NO_2)	mg/L	1	MAC	<0.5	<0.5	<0.5
Nitrate (N-NO_3)	mg/L	10	MAC	<0.5	<0.5	<0.5
Total Kjeldahl Nitrogen	mg/L	-	-	0.319	0.326	0.420
Turbidity (Field)	NTU	1.0 (5.0)	MAC/AO	5.78	1.51	0.96
Turbidity (Laboratory)	NTU	1.0 (5.0)	MAC/AO	9.9	9.6	4.0
GENERAL CHEMICAL - AESTHETIC RELATED						
Alkalinity (as CaCO3)	mg/L	30-500	OG	265	269	271
Chloride (Cl)	mg/L	250	AO	262	267	248
Colour (Field - apparent)	TCU	5	AO	23	3	0
Colour (Apparent)	TCU	5	AO	4	12	22
Colour (True)	TCU	5	AO	-	-	<2
Conductivity	uS/cm	-	-	1,380	1,380	1,360
Dissolved Organic Carbon	mg/L	5	AO	1.8	1.8	1.5
Hardness (as CaCO3)	mg/L	100	OG	474	470	444
Ion Balance	unitless	-	-	1.04	1.02	0.99
pH	unitless	6.5-8.5	AO	7.82	7.81	7.88
Phenols	mg/L	-	-	<0.001	<0.001	<0.001
Sulphate (SO_4)	mg/L	500	AO	67	69	66
Sulphide (S_2^-)	mg/L	0.05	AO	<0.01	<0.01	<0.01
Tannin & Lignin	mg/L	-	-	<0.1	<0.1	0.3
Total Dissolved Solids	mg/L	500	AO	896	900	886

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	TW1 - GW1 (4 hr)	TW1 - GW2 (8.5 hr)	TW1 - GW1 (8 hr)
				3/18/2025	3/18/2025	4/3/2025
METALS						
Aluminum (Al)	mg/L	0.1	OG	0.28	0.07	<0.01
Antimony (Sb)	mg/L	0.006	IMAC	<0.0005	<0.0005	<0.0005
Arsenic (As)	mg/L	0.01	IMAC	<0.001	<0.001	<0.001
Barium (Ba)	mg/L	1.0	MAC	0.133	0.134	0.121
Beryllium (Be)	mg/L	-	-	<0.0005	<0.0005	<0.0005
Boron (B)	mg/L	5.0	IMAC	0.25	0.25	0.23
Cadmium (Cd)	mg/L	0.005	MAC	<0.0001	<0.0001	<0.0001
Calcium (Ca)	mg/L	-	-	99	99	88
Chromium (Cr)	mg/L	0.05	MAC	<0.001	<0.001	<0.001
Cobalt (Co)	mg/L	-	-	0.0003	0.0002	<0.0002
Copper (Cu)	mg/L	1.0	AO	<0.001	<0.001	<0.001
Iron (Fe)	mg/L	0.3	AO	1.07	0.80	0.82
Lead (Pb)	mg/L	0.01	MAC	<0.001	<0.001	<0.001
Magnesium (Mg)	mg/L	-	-	55	54	51
Manganese (Mn)	mg/L	0.05	AO	0.02	0.02	0.02
Molybdenum (Mo)	mg/L	-	-	<0.005	<0.005	<0.005
Nickle (Ni)	mg/L	-	-	<0.005	<0.005	<0.005
Potassium (K)	mg/L	-	-	8	8	8
Selenium (Se)	mg/L	0.05	MAC	<0.001	<0.001	<0.001
Silver (Ag)	mg/L	-	-	<0.0001	<0.0001	<0.0001
Sodium (Na)	mg/L	200	AO	115	117	106
Strontium (Sr)	mg/L	-	-	5.10	4.97	4.94
Thallium (Tl)	mg/L	-	-	<0.0001	<0.0001	<0.0001
Uranium (U)	mg/L	0.02	MAC	<0.001	<0.001	<0.001
Vanadium (V)	mg/L	-	-	<0.001	<0.001	<0.001
Zinc (Zn)	mg/L	5.0	AO	<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 (Certificate of Analysis – Report No. 4270184) indicated that the test samples at the 4 and 8.5 hour interval were non-detect (0 CFU/100 mL) for E.Coli and Total Coliforms.

The bacteriological test results (Certificate of Analysis – Report No. 4290291) indicated that the test samples at the 8-hour interval were non-detect (0 CFU/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 $CaCO_3$)
- ❑ Total Dissolved Solids (TDS)
- ❑ Colour
- ❑ Iron

Exceedances of the above parameter are not uncommon for the water supply in the subject aquifer. 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 474, 470 and 444 mg/L, the water is considered to be hard, however, it is below the Ontario Drinking Water Objective of 500 mg/L specified in Table 3 of the MOECC guidance document Procedure D-5-5(1996).

The Langelier calculation provided an LSI of 0.7. Based on the evaluation of the result, the water is super saturated and tends to precipitate a scale layer of calcium carbonate (scale forming but non-corrosive). Based on the range of stability in the positive direction, there are no mitigative measures needed. See Langelier Saturation Index Calculation attached for calculation details.

It is recommended that water hardness be treated using conventional technologies such as water softening or reverse osmosis, if desired by the owner. Without treating hardness, scaling can occur which can result in discolouration and residue buildup on water fixtures, or reduction in boiler efficiency due to scale build-up. According to Health Canada's Guidelines for Canadian Drinking Water Quality - Summary Tables "Although hardness may have significant aesthetic effects, a guideline has not been established because public acceptance of hardness may vary considerably according to the local conditions; major contributors to hardness (calcium and magnesium) are not of direct public health concern".

Total Dissolved Solids (TDS)

TDS refers to the concentration of inorganic substances dissolved in water. The main constituents are typically chloride, sulphates, calcium, magnesium, and bicarbonates. The TDS concentrations ranging from 886 to 900 mg/L exceeds the Aesthetic Objective of 500 mg/L. At concentrations above 500 mg/L, some consumers may find the taste objectionable, however, as the objective is an aesthetic objective, no treatment is required. It is recommended that a point of use reverse osmosis unit be installed, if the

owner desires, for drinking purposes. As such, no taste problems will occur when the system is used.

The Langelier calculation provided an LSI of 0.7. Based on the evaluation of the result, the water is super saturated and tends to precipitate a scale layer of calcium carbonate (scale forming but non-corrosive). Based on the range of stability in the positive direction, there are no mitigative measures needed. See Langelier Saturation Index Calculation attached for calculation details.

Iron (Fe)

Concentrations of iron above 0.3 mg/L can contribute to staining of fixtures and a metallic taste at higher concentrations. Precipitation of iron can promote the growth of iron bacteria in pipes. The concentration of iron in the groundwater in TW1 was measured to be between 0.80 and 1.07 mg/L. The concentration of iron in the groundwater in the test well is considered to be reasonably treatable in accordance with Procedure D-5-5. It is recommended that an iron filter be used to reduce the levels of iron and reduce the potential for excessive precipitate occurring in the water supply system, if desired by the owner.

Colour

Colour may occur in drinking water for several reasons. It may be due to organic substances from the decay of vegetation, or the presence of metals such as iron, manganese, and copper, which are abundant in nature. The provincial aesthetic objective for colour in drinking water is 5 True Colour Units (TCU). The federal (Health Canada) guideline aesthetic objective limit for colour is 15 TCU (Guidelines for Canadian Drinking Water Quality, Health Canada June 2019). Procedure D-5-5 gives a maximum concentration considered reasonably treatable for colour as 7 TCU. As colour is a strictly aesthetic parameter, it can be reduced from the water supply, if desired by the owner, through the use of a manganese greensand treatment.

During the field pumping test, a DR900 colorimeter was used to measure the apparent colour in the groundwater at regular intervals. Apparent colour in the groundwater was measured as 0 TCU which is below the aesthetic guidelines of 15 TCU. The elevated colour levels detected in the lab samples are attributed to the precipitation of iron out of the groundwater and are not considered to be an exceedance.

The City of Ottawa has now required that all colour values be measured as true colour. As such, a groundwater sample was submitted from the end of the supplemental pumping test for the analysis of true colour. The geochemical result was <2 TCU.

Turbidity

Turbidity, which is generally an aesthetic parameter, was detected in the laboratory test samples at values ranging from 4.0 to 9.9 NTU. Field testing detected the samples at values ranging from 0.96 to 5.78 NTU. Continued pumping showed a decreasing trend

towards the end of the test (0.96 NTU at the end of the supplemental pumping test). It is expected that continued use of the well would further reduce turbidity values. The elevated turbidity in the laboratory analyzed samples is attributed to the precipitation of iron. Therefore, it is anticipated that turbidity levels will also decrease due to treatment of other constituents, if treatment is desired by the owner.

During the pumping test, a Hanna Instruments HI98703 Fast Tracker Turbidity Meter was used to measure the turbidity in the groundwater at regular intervals. The ODWS maximum acceptable concentration for turbidity in drinking water entering the distribution system is 1 NTU. The Aesthetic Objective for turbidity in drinking water reaching the consumer is 5 NTU. Additionally, the MCCRT for turbidity is 5 NTU. The field test parameters are below the 1 NTU objective. All bacteriological test results were non-detect (0 CFU/100 mL) for E.Coli and Total Coliforms.

Chloride

Chloride (Cl) has an Ontario Drinking Water Objective (ODWO) and Maximum Concentration Considered Reasonably Treatable (MCCRT) of 250 mg/L. Although chloride concentrations exceeded this threshold during the initial pumping test, that pumping test was designed as a stress condition and does not reflect normal operational conditions. A follow-up constant-rate pumping test representative of typical water usage was conducted on Test Well 1 (TW1). Under these conditions, the chloride concentration in the groundwater was measured at 248 mg/L, which is below both the ODWO and MCCRT. As a result, no mitigation measures or further action are warranted.

Sodium

Sodium (Na), an aesthetic parameter, was detected in the laboratory test samples at concentrations between 106 and 117 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.

Terrain Analysis

Surficial Geology

Geotechnical field investigations were carried out at the subject site by Paterson between June 2024 and April 2025 which included advancing a total of eight (8) boreholes to a maximum depth of approximately 6.7 m bgs. Practical refusal to augering was encountered at two (2) borehole locations ranging from 3.4 to 3.6 m bgs. The borehole locations for the field investigations are presented on Drawing PG7183-2 Test Hole Location Plan, attached to this report.

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 clay deposit followed by a glacial till layer. Practical refusal to augering was encountered at two (2) borehole locations at depths ranging from 3.4 to 3.6 m bgs. Four (4) PVC monitoring wells and four (4) flexible piezometers were installed as part of the geotechnical investigations. Groundwater levels were measured and varied between 0.1 and 0.5 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.

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 historically been undeveloped. Two commercial buildings with associated infrastructure and private servicing are proposed for the site. The subject site is bordered to the north by a railway followed by forested land, to the east by a commercial property, to the south by Ottawa Street followed by agricultural land and to the west by a commercial property. The adjacent properties are serviced by private wells and septic systems.

The overburden at the test hole locations generally consists of a topsoil overlying a silty clay deposit followed by glacial till. Practical refusal to augering was encountered at two (2) borehole locations ranging from 3.4 to 3.6 m bgs. The WWR from TW1 indicated that

a limestone bedrock was encountered at 9.8 m bgs. According to available geological mapping, the drift thickness within the site varies from 10 to 15 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.

According to the Ontario Building Code (OBC) Section 8.7.2.1 (1) (b)(i), highly permeable soils as it relates to sewage system design is defined by soils having a percolation rate of less than 1 minute per cm. According to the Ministry of Municipal Affairs and Housing (MMAH) Supplementary Standard SB-6 – Percolation time and soil descriptions dated January 1, 2024 only “Well graded gravels, gravel-sand mixtures, little or no fines” or “Poorly graded gravels, gravel-sand mixtures, little or no fines” have a percolation time of less than 1 minute per cm. According to the Geotechnical field investigation, soils with high levels of fines have been encountered onsite (clays, silts and silty sands). As such, septic impacts due to highly permeable soils are not anticipated.

To corroborate our position in this matter, the water quality of the bedrock aquifer targeted by the onsite drilled potable supply well shows no indication of surface water or surface impacts from sewage system effluent.

As the proposed site does not have bedrock within 2 m of the ground surface or highly permeable soils, 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. Based on available Ontario Geological Survey (OGS) mapping (GRS005), the subject site is not within an area of known, potential or inferred karst.

Conceptual Lot Development Plan

The proposed development will consist of two (2) slab-on-grade buildings consisting of a building with a distillery, a restaurant and retail store within it and a building that is a warehouse. The location of the proposed buildings can be found on the attached Site Plan prepared by N45 Architecture Inc.

All water used in the manufacturing of products is to be brought in from outside sources and will not be derived from the onsite well. Any wastewater used as part of the manufacturing process will not be directed to the sewage systems. Due to the quality of water required for manufacturing the proposed products, all water used in the manufacturing process is brought to site via tanker trucks. An onsite tank is used for all discharge (stillage) from the distilling process, as the intent is to sell/provide the stillage to local farmers for animal feed and/or crop fertilizer. This is an industry standard.

Theoretical Sewage System Volumes

A sewage system design was completed by Paterson and submitted to the Ottawa Septic System Office (OSSO) for a Sewage System Installation Permit (SSIP). The septic flows for the proposed buildings are based on Part 8 of the Ontario Building Code (OBC). The Total Daily Design Sanitary Sewage Flow (TDDSSF) volume was calculated to be 9,967 L/day.

The approved OSSO SSIP includes an Eljen DN450 treatment system, which is a NSF 245 approved sewage treatment system capable of reducing total nitrogen levels by 57 %.

The OSSO approved SSIP will be submitted separately as part of the Site Plan application.

Predictive Nitrate Impact Assessment

Nitrate is considered to be a critical parameter of concern when assessing impacts to groundwater quality downgradient of an onsite sewage system. The City's HTAG, including the annotated MECP Procedure D-5-4 applies for the proposed development. For the purpose of this guideline, the Ontario Drinking Water Objective of 10 mg/L of nitrate is used as an indicator of groundwater impact potential.

Under this guideline, where the average lot size is one hectare or larger and the minimum lot size is 0.8 ha or greater, a detailed impact assessment may not be required. It has been the City of Ottawa's policy that where the lot size of 0.8 ha or larger, a detailed assessment is typically not required since it is considered to be a low-risk development.

The subject site is 2.27 ha in size. As such, a detailed nitrate impact assessment (NIA) would not typically be necessary. An NIA was completed below to corroborate our opinion that the property can adequately support the proposed commercial development without having adverse impacts on the underlying bedrock aquifer should the minimum separation distances, well construction, and septic system be completed as per the recommendations of this report and the OBC.

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 — 2.27 ha
- ❑ Impervious area (%) — 18 %
- ❑ Daily sewage flow — 9.967 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 360 mm/yr
  (The surplus water value was estimated based on Environment Canada Climate Office values with a soil type comprised of a clay loam (Urban lawns / Shallow Rooted Crops) and anthropogenic sources.)

- ❑ Combined infiltration factor based on: 0.64
  - Topography infiltration factor 0.20
  - Soil texture infiltration factor 0.30
  - Cover infiltration factor 0.14

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 of 0.3 is based upon “medium combinations of clay and loam” with a value of 0.2 and 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 0.14 based upon the existing and proposed 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. This would reduce the nitrate concentration in the effluent from 40 mg/L down to as low as 17.2 mg/L, resulting in a predicted nitrate concentration of **7.91 mg/L**. This is below the limit of 10 mg/L of nitrate at the property boundary.

Based on the results of the predicted nitrate impact assessment, it is our opinion that the property can adequately support the proposed commercial buildings without having an adverse impact on the underlying bedrock aquifer, provided that the approved sewage system design is used.

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 the existing well is considered to be adequate to support the water quantity demands for the proposed development.

2. The preferred water supply intercepted by TW1 contains a water supply that is potable and contains only elevated concentrations of hardness, TDS and iron. The noted parameters can be treated with current readily available water conditioning equipment, specifically a water softener, a reverse osmosis unit and an iron filter, if desired by the owner.

3. A 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. The predicted nitrate concentrations at the property boundary are calculated to be 7.91 mg/L when the approved sewage system design with 57 % nitrate reduction technology is used. The Eljen DN450 is capable of providing this level of treatment. This is below the required 10 mg/L threshold.

7. 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.

8. 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.

Zavian Buchanan, E.I.T.

Erik Ardley, P.Geo

Attachments:

- ❑ Key Plan
- ❑ MECP Water Well Records
- ❑ Paterson Borehole Logs
- ❑ Sieve and Atterberg Limit Test Results
- ❑ Eurofins Certificate of Analysis
- ❑ AQTESOLV - Pumping Test Analysis Reports
- ❑ Nitrate Impact Assessment Calculations
- ❑ Langelier Saturation Index (LSI) Calculation
- ❑ Paterson Drawing PG7183-2 - Test Hole Location Plan
- ❑ Paterson Drawing PH4924-1(rev.4)
- ❑ N45 Architects Inc. Drawing A-001 Rev.01. dated October 7, 2024

FIGURE 1

KEY PLAN

PATERSON GROUP

TW1

Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☒ Imperial

We Tag#:A379088 int Below)

A379088

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
	Stratford Foxrun		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
6286 Prince of Wales Drive	North Gower	ON	K0A 2T0	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
5923 Ottawa Street	Goulbourn	X	X

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	18	435727	5004526		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	Clay	+ Gravel + Sand	+ Boulders	0	32
Grey	Limestone	[redacted]		32	234
Grey	Limestone	[redacted]		234	240

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
190	180	Neat cement	12.48
180	0	Bentonite slurry	130.26

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4"	Steel	.188	+2	190
6"	Open Hole		190	240

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	
234	☐ 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	190	9 3/4"
190	240	6"

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): 220

Pumping rate (l/min / GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 51.9

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

Recommended pump depth (m/ft): 100

Recommended pump rate (l/min/GPM): 15

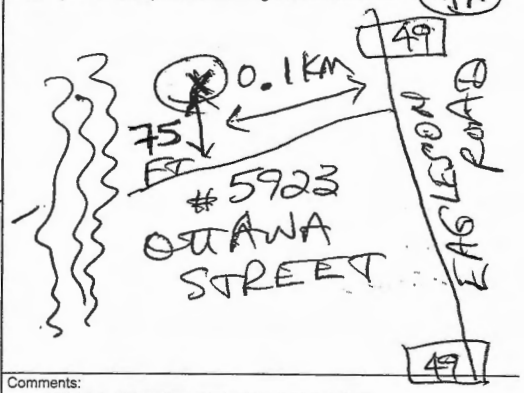
Well production (l/min/GPM): 20

Disinfected? ☒ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	146"			51.9
1	23.1	1		36.4
2	28.7	2		28.2
3	32.6	3		22.5
4	35.4	4		19.5
5	37.7	5		17.7
10	43.2	10		14.6
15	46.1	15		14.6
20	47.7	20		14.6
25	48.6	25		14.6
30	49.2	30		14.6
40	50.3	40		14.6
50	51.1	50		14.6
60	51.9"	60		14.6"

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 3/4 HP 15 GPM SET AT 100 FEET

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
6659 Franktown Road	Richmond

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

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

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted (Y Y Y Y M M D D)
T3632		2025 02 28

Well owner's information package delivered	Date Package Delivered (Y Y Y Y M M D D)	Ministry Use Only
☒ Yes ☐ No	2025 02 28	Audit No. Z443356 Received

0506E (2023/09) © King's Printer for Ontario, 2023

Ministry's Copy

UTM 18 Z 4 3 5 9 7 5 E
15 R 5 0 0 4 3 8 5 N
Elev. 4 R 0 3 0 5
Basin 25

31G4f

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District: Carleton
Township, Village, Town or City: Nepean
Con. 6 RF Lot 4
Date completed: 5 (day) April (month) 65 (year)

[redacted] dress: Richmond

Casing and Screen Record	
Inside diameter of casing	4
Total length of casing	38
Type of screen	
Length of screen	
Depth to top of screen	
Diameter of finished hole	4

Pumping Test	
Static level	20
Test-pumping rate	5 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	70 feet below ground surface

Well Log: Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Coarse Gravel	0	20		
Fine "	20	30		
" Red Sand	30	38		
Limestone	38	86	85	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: F P Sparks

Address: Stittsville

Licence Number: 1600

Name of Driller or Borer: E H Sparks

Address

Date: Aug 12

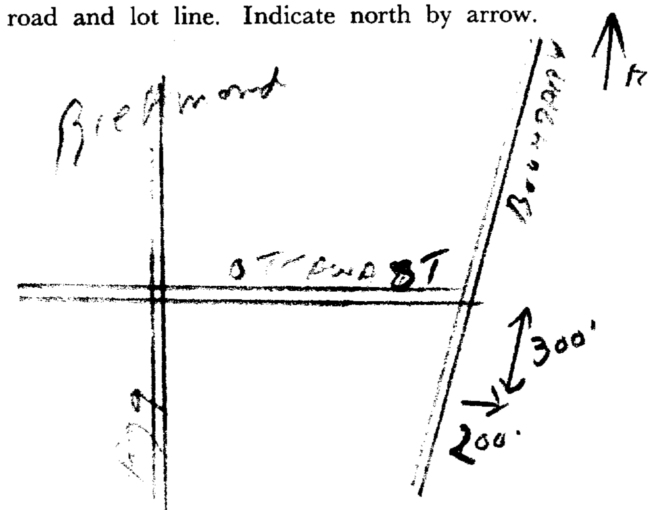
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



3164f. A

UTM 1 8 Z 4 3 5 5 3 5 E
5 R 5 0 0 4 1 0 0 N

Elev. 4 R 0 3 0 0

Basin 2 5

C

15 No. 9235

GROUND WATER BRANCH
SEP 7 1960
RESOURCES COMMISSION

The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

County or District Carleton — Township, Village, ~~Town or City~~ Richmond

Con. — Lot —

[redacted]

Date completed 5 (day) Aug (month) 60 (year)

Address Richmond

Casing and Screen Record

Inside diameter of casing 4"

Total length of casing 26'

Type of screen —

Length of screen —

Depth to top of screen —

Diameter of finished hole 4"

Pumping Test

Static level 5'

Test-pumping rate 6 G.P.M.

Pumping level 6 ft.

Duration of test pumping 1/2 hr.

Water clear or cloudy at end of test clear

Recommended pumping rate 5 G.P.M.

with pumping level of Set pump at 30 ft.

Well Log

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	0	13			
broken limestone	13	20			
limestone	20	59	55	50	fresh

Water Record

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

house

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

Drilling Firm

Address

Licence Number 483

Name of Driller Ben E. Sparks

Address

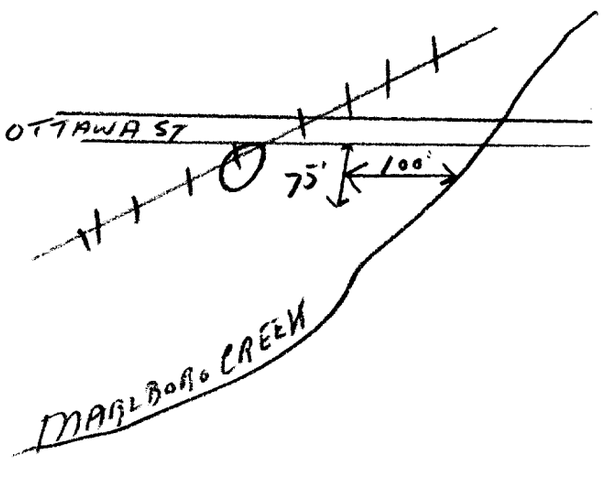
Date Aug 23/60

Ben E. Sparks

(Signature of Licensed Drilling Contractor)

Location of Well

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



Form 5
15M-58-4149

316/4f "A"

UTM 1 8 Z 4 3 5 6 5 0 E

5 R 5 0 0 4 1 3 0 N

Elev. 4 R 0 3 1 0

Basin 2 5 1

15 No 9315

B

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District: Carleton   Township, Village, Town or City: Richmond

Con. .... Lot ....   Date completed: 25 (day) Aug (month) 1967 (year)

[redacted]ress: Richmond Ont

Casing and Screen Record

Inside diameter of casing: 5"

Total length of casing: 26'

Type of screen:

Length of screen:

Depth to top of screen:

Diameter of finished hole: 5"

Pumping Test

Static level: 10'

Test-pumping rate: 10 G.P.M.

Pumping level: 12'

Duration of test pumping: 1 hr

Water clear or cloudy at end of test: cloudy

Recommended pumping rate: 5 G.P.M.

with pump setting of 35 feet below ground surface

Well Log / Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
clay	0'	15'	58'	fresh
gravel	15'	22'		
limestone	21	60		

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

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

Drilling or Boring Firm: Capital Water Supply Ltd

Address: 14 Ashford Dr Ottawa 6

Licence Number: 2381

Name of Driller or Borer: M Kavanagh

Address:

Date: Aug 25 1967

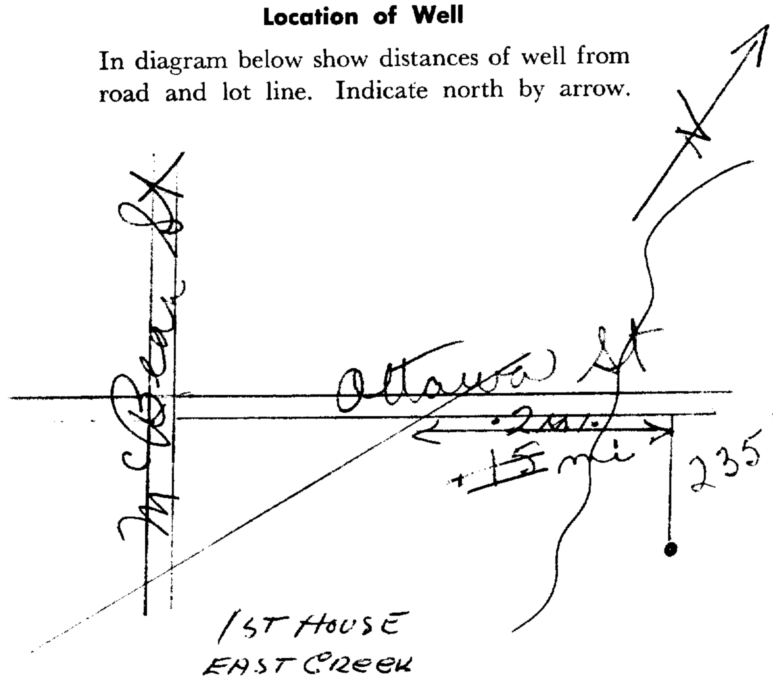
Walter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Form 7 15M-60-4138

OWRC COPY

Location of Well

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



Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

31 6/48

1. PRINT ONLY IN SPACES PROVIDED
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(11) 11514676 | MUNICIP. 15003 | CON. CON 03

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT 25-27
Carleton	Goulbourn Richmond	Con 3	026

[redacted] Richmond Ont. | DATE COMPLETED 48-53 DAY 17 MO. 03 YR. 75

[redacted] 004435 | RC. 4 | ELEVATION 306 | RC. 4 | BASIN CODE 26 | AUG 04, 1977 | 303

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
grey	clay		loamy	0	4
brown	sand			4	10
grey	clay	stones		10	45
grey	limestone			45	95

(31) 000420502 | 0010628 | 004520512 | 0095215

32

(41) WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0060	1 ☑ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
0094	1 ☑ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

(51) CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	0048
	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.)

(71) PUMPING TEST

PUMPING TEST METHOD: 1 ☑ PUMP 2 ☐ BAILER | PUMPING RATE 0010 GPM | DURATION OF PUMPING 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
004 FEET	050 FEET	050 FEET	050 FEET	050 FEET	050 FEET

WATER LEVELS DURING: 1 ☒ PUMPING 2 ☐ RECOVERY

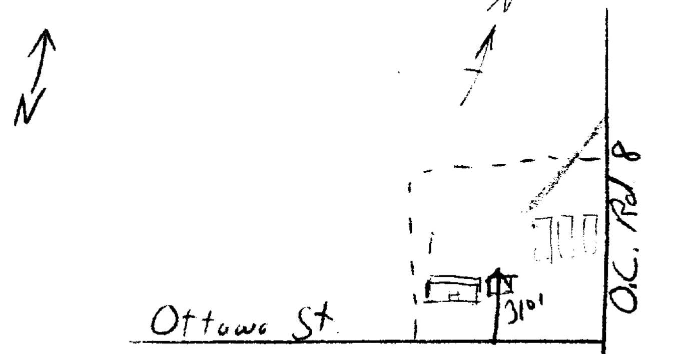
IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☑ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING 050 FEET | RECOMMENDED PUMPING RATE 0010 GPM

50-53 ______ GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL 3504

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 15
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 5
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: Henry Mains Well Drilling | LICENCE NUMBER 3644

ADDRESS: Box 326, Richmond Ont.

NAME OF DRILLER OR BORER: Henry Mains | LICENCE NUMBER

SIGNATURE OF CONTRACTOR: H. | SUBMISSION DATE DAY 29 MO. 3 YR. 75

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3644 | DATE RECEIVED 290575

DATE OF INSPECTION 26 Apr 76 | INSPECTOR P/R. Doyl

REMARKS: | P | WI

CSS.S8

FORM 7 MOE 07-091

MINISTRY OF THE ENVIRONMENT COPY

31 6/4F

Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT ONLY IN SPACES PROVIDED
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11 | 1514856 | MUNICIP. 15701 | CON.

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON., BLOCK, TRACT, SURVEY, ETC.	LOT
West Carleton	~~Richmond~~ ~~Richmond~~	~~McBean St~~	~~17~~

[redacted] Richmond Ont. | DATE COMPLETED DAY 31 MO 07 YR 75

[redacted]		RC	ELEVATION	RC	BASIN CODE	II	III	IV
[redacted] 004324		4	306	4	26	JUN 28, 1977		300

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
grey	clay			0	15
grey	limestone			15	55

31 | 0015205 | 0055215

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0053	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	.188	0	25 (0025)
	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.)

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	0004 GPM	01 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
006 FEET	030 FEET	030 FEET	030 FEET	030 FEET	030 FEET

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

RECOMMENDED PUMP TYPE: ☒ SHALLOW ☐ DEEP | RECOMMENDED PUMP SETTING 030 FEET | RECOMMENDED PUMPING RATE 0003 GPM

____ GPM./FT. SPECIFIC CAPACITY

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

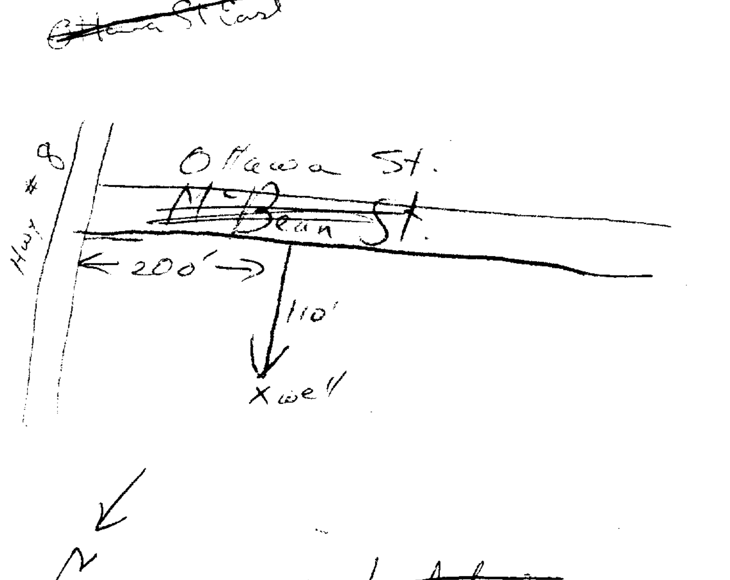
1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING: 5

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

LOCATION OF WELL 3504

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



DRILLERS REMARKS: ~~setback of prop~~

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mars Well Drilling | LICENCE NUMBER: 3644

ADDRESS: Box 326 Richmond Ont.

NAME OF DRILLER OR BORER: H J Mars | LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: [signature] | SUBMISSION DATE DAY 31 MO. 7 YR. 75

OFFICE USE ONLY

DATA SOURCE 1 | CONTRACTOR 3644 | DATE RECEIVED 150875

DATE OF INSPECTION: June 16/1976 | INSPECTOR: [signature]

REMARKS: Con. III Lot 25 | P | WI

MINISTRY OF THE ENVIRONMENT COPY

FORM 7 MOE 07-091

Ontario **Ministry of the Environment**

The Ontario Water Resources Act
WATER WELL RECORD

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

11 (1-2) **1531908** Municipality 15003 (10-14) Con. CON (15-22) 03 (23-24)

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot (25-27)
Ottawa Carleton	Goulbourn	3	25

Address: 5901 Ottawa, Street, Richmond ON. K0A 3G0

Date completed (48-53): 17 day 05 month 01 year

21 (1-2) UTM (10) Northing (12-17) RC (18) Elevation (19-24) RC (25) Basin Code (26) ii (30) iii (31) iv (32-47)

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	General description	Depth - feet From	Depth - feet To
Brown	Clay			0	12
Grey	Clay			12	35
Grey	Sand & Gravel			35	41
Grey	Limestone			41	160
Grey & white	sandstone			160	210

31 (10-14) 32 (15-21) (32-43) (54-65) (75-80)

41 WATER RECORD

Water found at - feet	Kind of water
210 (10-13)	1 ☒ Fresh 3 ☐ Sulphur 14 NOT TESTED 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
(15-18)	1 ☐ Fresh 3 ☐ Sulphur 19 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
(20-23)	1 ☐ Fresh 3 ☐ Sulphur 24 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
(25-28)	1 ☐ Fresh 3 ☐ Sulphur 29 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas
(30-33)	1 ☐ Fresh 3 ☐ Sulphur 34 2 ☐ Salty 4 ☐ Minerals 6 ☐ Gas

60

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth - feet From	Depth - feet To
6 1/4 (11-12)	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.188	0	44 (13-16)
5 7/8 (17-18)	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☒ Open hole 5 ☐ Plastic (19)		44	210 (20-23)
(24-25)	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic (26)			(27-30)

SCREEN

Sizes of opening (Slot No.) (31-33)	Diameter (34-38) inches	Length (39-40) feet
Material and type	Depth at top of screen (41-44) feet	(30)

61 PLUGGING & SEALING RECORD

☒ Annular space ☐ Abandonment

Depth set at - feet From	Depth set at - feet To	Material and type (Cement grout, bentonite, etc.)
44 (12-13)	0 (14-17)	Grouted-Cement (4)
(18-21)	(22-25)	Bentonite
(26-29)	(30-33) (80)	

71 PUMPING TEST

Pumping test method (10): 1 ☒ Pump 2 ☐ Bailer

Pumping rate (11-14): 50 GPM

Duration of pumping (15-18): 1 Hours ..... (17-18) Mins

Static level	Water level end of pumping	Water levels during (25): 1 ☒ Pumping 2 ☐ Recovery			
(19-21)	(22-24)	15 minutes (26-28)	30 minutes (29-31)	45 minutes (32-34)	60 minutes (35-37)
7'1" feet	50 feet	200 feet	200 feet	50 feet	50 feet

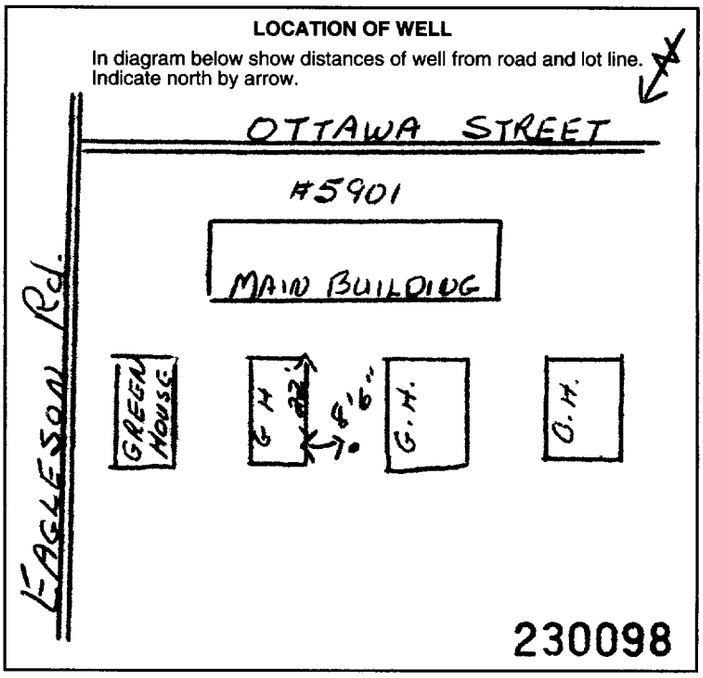
If flowing give rate (38-41)	Pump intake set at	Water at end of test (42)
GPM	feet	☐ Clear ☒ Cloudy

Recommended pump type	Recommended pump setting (43-45)	Recommended pump rate (46-49)
☐ Shallow ☒ Deep	60 feet	5 GPM

(50-53)

LOCATION OF WELL

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



230098

FINAL STATUS OF WELL (54)

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

WATER USE (55-56)

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

METHOD OF CONSTRUCTION (57)

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

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558
Address	
Box 590, Stittsville, ON. K2S 1A6	
Name of Well Technician	**Well Technician's Licence No.**
S. Miller	T0097
Signature of Technician/Contractor	**Submission date**
R Kawana	day 22 mo 05 yr 01

MINISTRY USE ONLY

Data source (58)	Contractor (59-62)	Date received (63-68) (80)
	1558	JUN 15 2001
Date of inspection	Inspector	
Remarks		CSS.ES1

2 - MINISTRY OF THE ENVIRONMENT COPY

Ontario — Ministry of the Environment

Well Tag Number (Place sticker and print number below): A013675 / A013675

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)
Hank DeKemp & Vanson	Construction	2069 Woodroffe Ave

County/District/Municipality	Township/City/Town/Village	Province	Postal Code	Telephone Number (include area code)
Ottawa Carleton	Ottawa	Ontario	K2C 3H1	613 226 6729

Address of Well Location (County/District/Municipality)	Township	Lot	Concession
Ottawa Carleton	Goulbourn	24/25	3

RR#/Street Number/Name	City/Town/Village	Site/Compartment/Block/Tract etc.
Test Well 3, King Street	Richmond	

GPS Reading	NAD	Zone	Easting	Northing	Unit Make/Model	Mode of Operation
	83	18	435457	5004602	Garmin	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth From	Depth To (Metres)
brown	clay			0	2.43
brown	hardpan	layered	hard & layered	2.43	4.26
grey	limestone	layered	hard	4.26	18.59
grey	limestone			18.59	22.25

Hole Diameter

Depth From	Depth To (Metres)	Diameter (Centimetres)
0	6.40	22.75
6.40	22.24	15.39

Water Record

Water found at ___ Metres	Kind of Water
8.53 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
12.49 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
16.15-18.59 m	☐ Fresh ☐ Sulphur ☐ Gas ☐ Salty ☐ Minerals ☐ Other:
NOT TESTED	

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

Chlorinated ☒ Yes ☐ No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Depth To (Metres)
Casing				
15.86	☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete ☐ Galvanized	0.48	+.45	6.40
	☐ 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		6.40	22.24

Test of Well Yield

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

Plugging and Sealing Record

☒ Annular space ☐ Abandonment

Depth set at - Metres From	Depth set at - Metres To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.40	0	grouted: bentonite slurry	.198m3

Method of Construction

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

Water Use

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

Final Status of Well

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

Well Contractor/Technician Information

Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

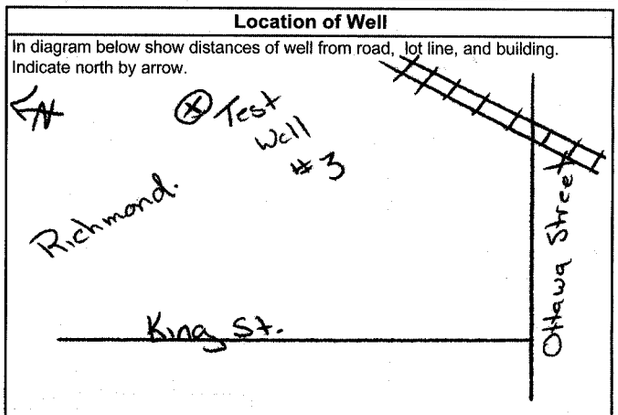
Business Address (street name, number, city etc.): Box 490 Stittsville, Ontario K2S 1A6

Name of Well Technician (last name, first name)	Well Technician's Licence No.
Miller, Stephen	T0097

Signature of Technician/Contractor: X [signature] — Date Submitted: YYYY 2005 MM 3 DD 22

Location of Well

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



Audit No. Z 13768

Date Well Completed: YYYY 2005 MM 3 DD 16

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

Date Delivered: YYYY 2005 MM 3 DD 22

Ministry Use Only

Data Source	Contractor
	1558
Date Received: YYYY MAY 18 2005 MM DD	Date of Inspection: YYYY MM DD
Remarks	Well Record Number

0506E (09/03) Contractor's Copy ☐ Ministry's Copy ☐ Well Owner's Copy ☐ *Cette formule est disponible en français*

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A051482 A 051482

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
Talos Custom Homes			

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5509 Canotek Rd. Unit 1	Ottawa	Ontario	K1J 9S8	6137739933

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
Lot 33 Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	18	435430	5004623		Garmin	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify

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

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	To
Brown	Clay	Stone	Packed	0	6.09
Gray	Limestone		Broken	6.09	8.22
Gray	Limestone		Medium	8.22	29.86

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
9.14	0	Grouted Bentonite Slurry	2.52m3

Method of Construction

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

Water Use

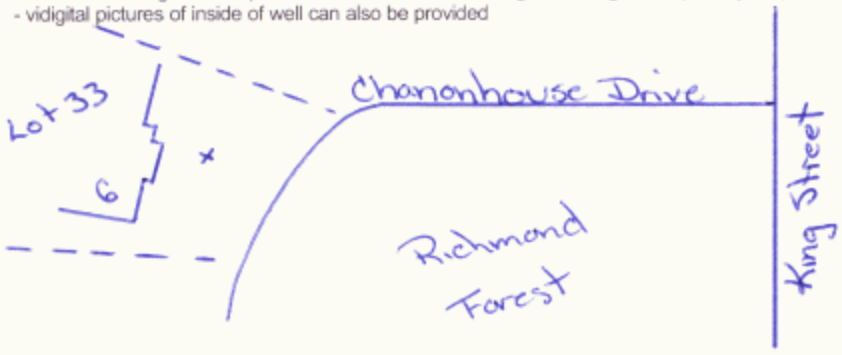
☐ Public ☐ Commercial ☐ Not used ☒ Domestic ☐ Municipal ☐ Dewatering ☐ Livestock ☐ Test Hole ☐ Monitoring ☐ Irrigation ☐ Cooling & Air Conditioning ☐ Industrial ☐ Other, specify _____

Status of Well

☒ Water Supply ☐ Dewatering Well ☐ Observation and/or Monitoring Hole ☐ Replacement Well ☐ Abandoned, Insufficient Supply ☐ Alteration (Construction) ☐ Test Hole ☐ Abandoned, Poor Water Quality ☐ Other, specify _____ ☐ Recharge Well ☐ Abandoned, other, specify _____

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd)	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)
2008/7/22	☒ Yes ☐ No	2008/7/23

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street No./Name, number, RR)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician	Date Submitted (yyyy/mm/dd)
0097		2008/7/30

Results of Well Yield Testing

Check box if after test of well yield, water was:
☒ Clear and sand free ☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method: Submersible

Pump intake set at *(Metres)*: 18.28

Pumping rate *(Litres/min)*: 54.6

Duration of pumping: 1 hrs + _____ min

Final water level end of pumping *(Metres)*: 6.09

Recommended pump type: ☐ Shallow ☒ Deep

Recommended pump depth: 15.23 Metres

Recommended pump rate *(Litres/min)*: 45.5

If flowing give rate *(Litres/min)*:

Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level	3.87	Static Level	
1	5.13	1	4.42
2	5.54	2	4.15
3	5.71	3	4.09
4	5.81	4	4.05
5	5.86	5	4.02
10	5.96	10	3.96
15	6.01	15	3.94
20	6.03	20	3.93
25	6.05	25	3.92
30	6.07	30	3.91
40	6.08	40	3.90
50	6.09	50	3.90
60	6.09	60	3.89

Water Details

Water found at Depth	Kind of Water	Water found at Depth	Kind of Water	Water found at Depth	Kind of Water
27.73 Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals Not Tested	Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals	Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used

☐ Galvanized ☒ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete

Screen Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☐ Plastic ☐ Concrete

No Casing and Screen Used

☐ Open Hole

Disinfected? ☒ Yes ☐ No

Casing and Well Details

Diameter of the Hole *(Centimetres)*: 15.39

Depth of the Hole *(Metres)*: 29.86

Wall Thickness *(Metres)*: 0.48

Inside Diameter of the Casing *(Metres)*: 15.86

Depth of the Casing *(Metres)*: +.45 to 9.14

Ministry Use Only

Audit No.	Well Contractor No.
z77400	
Date Received (yyyy/mm/dd) OCT 14 2008	**Date of Inspection** (yyyy/mm/dd)
Remarks	

0506E (11/2006)

Ministry's Copy

Ontario — Ministry of the Environment

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)*: A068310 **A 068310**

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	
Talos Custom Homes			[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
5509 Canotek Road - Unit 1	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 14 Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435404	5004631		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Soil	Stones	Packed	0	5.48
Gray	Limestone			5.48	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
7.77	0	Grouted Bentonite Slurry	.69m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	7.77

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	7.77	15.86
7.77	45.10	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 11.64

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

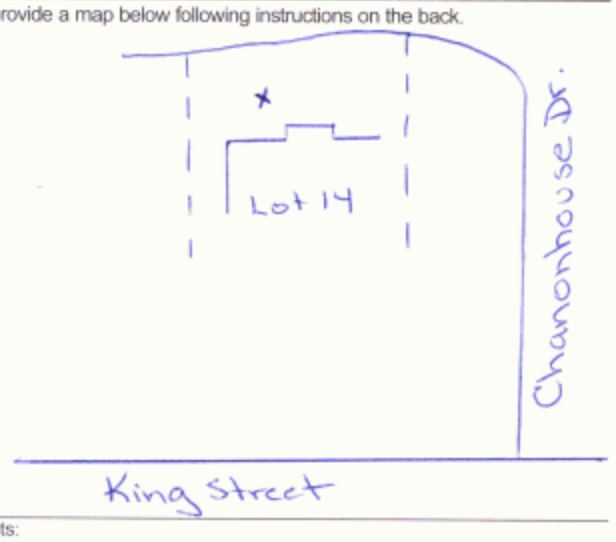
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.63		
1	5.18	1	8.37
2	6.13	2	5,67
3	6.82	3	5.03
4	7.40	4	4.30
5	8.60	5	3.45
10	9.40	10	3.65
15	10.17	15	
20	10.79	20	
25	11.05	25	
30	11.18	30	
40	11.47	40	
50	11.57	50	
60	11.64	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2008110

Well owner's information package delivered: [X] Yes [ ] No

Date Package Delivered: 20081107

Date Work Completed: 20081106

Ministry Use Only

Audit No. Z 84444

DEC 02 2008

Received

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A068354 **A 068354**

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

Measurements recorded in: [X] Metric [ ] Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	
Talos Custom Homes			[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
5509 Canotek Road	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 29 - Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD	18	435428	5004553		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay	Stones	Packed	0	3.65
Gray	Clay	Stones	Sticky	3.65	6.09
Gray	Limestone		Medium	6.09	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
8.53	0	Grouted Bentonite Slurry	.69m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.60	8.53

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	8.53	15.86
8.53	45.10	15.07

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 15.23

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

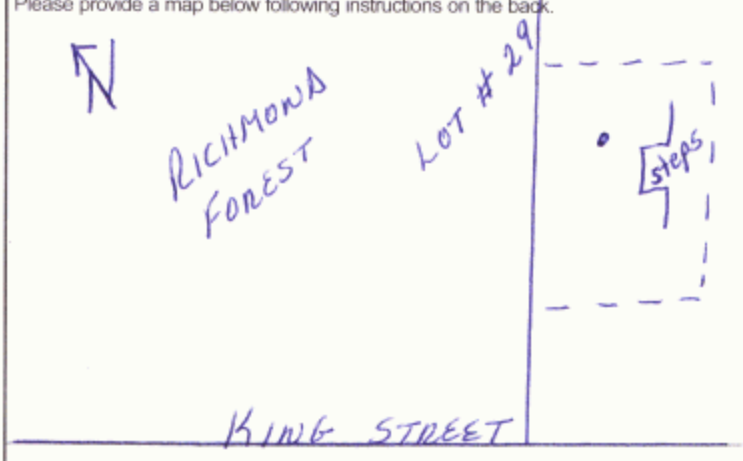
Well production (l/min / GPM)

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	4.16		
1	6.03	1	12.05
2	7.44	2	10.35
3	8.49	3	8.73
4	9.50	4	7.38
5	9.99	5	6.10
10	12.29	10	4.25
15	13.38	15	4.16
20		20	
25	14.40	25	
30	14.62	30	
40	14.95	40	
50	15.09	50	
60	15.23	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2008 11 17

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2008 11 13	2008 11 12

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Audit No. Z 84445

Received DEC 0 2 2008

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Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below): A068287 A 068287

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Talos Custom Homes		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5509 Canotek Rd. Unit 1	Ottawa	Ontario	K 1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 30, Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435437	5004548		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Soil	Stones		0	4.26
Gray	Hardpan	Boulders	Packed	4.26	8.83
Gray	Limestone		Medium	8.83	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
8.83	0	Grouted Bentonite Slurry	.84m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	8.83

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
43.27	[ ] Fresh [X] Untested	[ ]	
	[ ] Fresh [ ] Untested	[ ]	
	[ ] Fresh [ ] Untested	[ ]	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	8.83	15.86
8.83	45.10	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 5.14

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

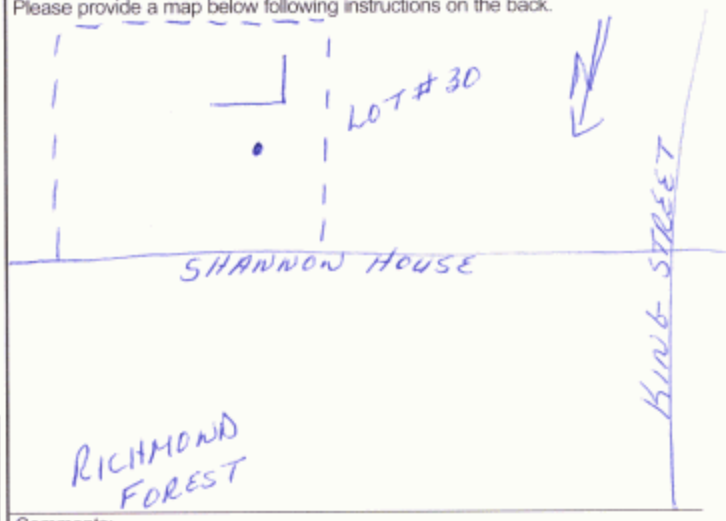
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.99		
1	4.74	1	4.27
2	4.90	2	4.11
3	4.94	3	4.04
4	4.98	4	4
5	5.	5	
10	5.08	10	
15	5.09	15	
20	5.11	20	
25	5.12	25	
30	5.12	30	
40	5.13	40	
50	5.13	50	
60	5.14	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
Box 490	Stittsville	Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
6138361766	Miller, Stephen	0097		2009/03/06

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2009/03/06	2009/03/05

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Well Tag No. *(Place Sticker and/or Print Below)* A068288 **A 068288**

Well Record

...lation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Talos Custom Homes		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5509 Canotek Rd. Unit 1	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 31, Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435452	5004599		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Soil	Stones		0	4.26
Gray	Hardpan	Boulders	Packed	4.26	7.01
Gray	Limestone		Medium	7.01	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
8.83	0	Grouted Bentonite Slurry	.84m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	8.83

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth	Kind of Water	Hole Diameter Depth (m/ft) From	To	Diameter (cm/in)
43.27 (m/ft) [ ] Gas	[ ] Fresh [X] Untested [ ] Other, specify	0	8.83	15.86
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify	8.83	45.10	15.23
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested [ ] Other, specify			

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 7.78

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

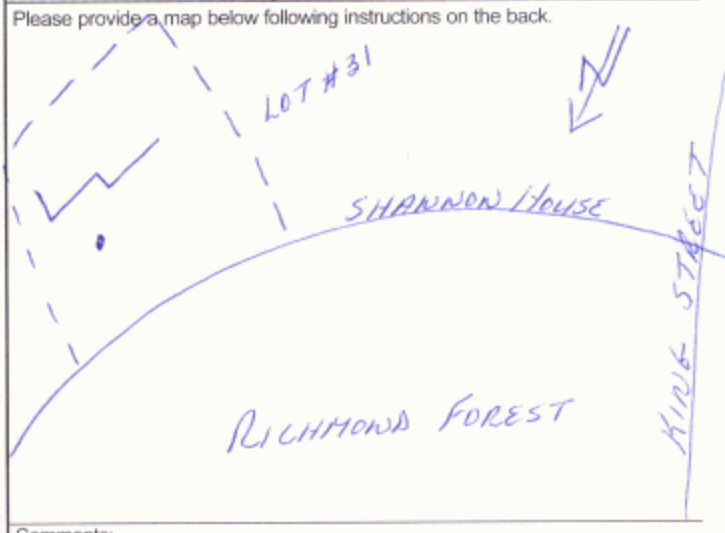
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.95		
1	5.30	1	5.62
2	5.84	2	4.50
3	6.24	3	4.04
4	6.53	4	3.93
5	6.77	5	
10	7.17	10	
15	7.37	15	
20	7.49	20	
25	7.58	25	
30	7.64	30	
40	7.68	40	
50	7.73	50	
60	7.78	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2009030 6

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2009030 6	2009030 5

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Well Tag No. *(Place Sticker and/or Print Below)* A068296 A 068296

Well Record

ulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	
	Talos Custom Homes		[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
5509 Canotek Road - Unit 1	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 26 Richmond Forest	Goulbourn	3	25

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435371	5004517		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Soil	Stones	Packed	0	3.35
Gray	Sandy Soil	Stones	Packed	3.35	5.79
Gray	Limestone		Medium	5.79	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
8.83	0	Grouted Bentonite Slurry	.42m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	8.83

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, *specify*
43.88-44.19	[ ]	[ ] Fresh [X] Untested	
	[ ]	[ ] Fresh [ ] Untested	
	[ ]	[ ] Fresh [ ] Untested	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	8.83	15.86
8.83	45.10	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify* ____

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.48

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 6.46

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

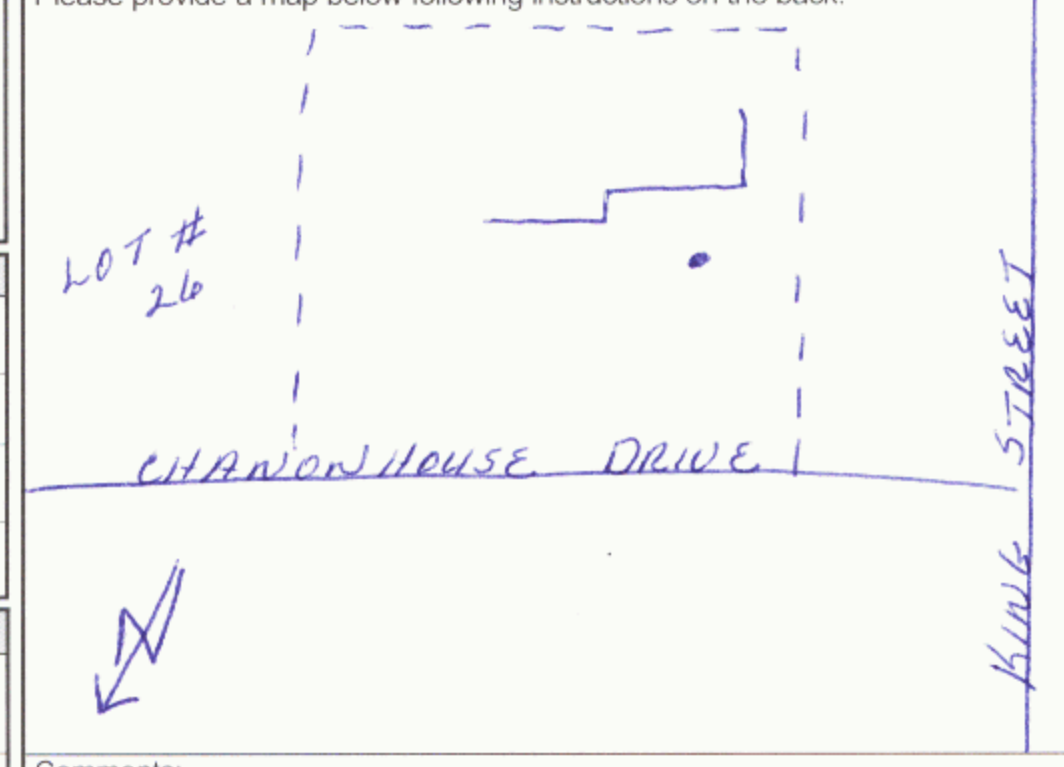
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.32		
1	4.79	1	4.26
2	5.30	2	3.91
3	5.64	3	3.46
4	5.88	4	3.41
5	5.98	5	3.39
10	6.24	10	3.33
15		15	
20	6.37	20	
25		25	
30		30	
40	6.43	40	
50	6.44	50	
60	6.46	60	

Map of Well Location

Please provide a map below following instructions on the back.



Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2009 03 30

Comments:

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2009 03 30	2009 03 24

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Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

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

A068297 A 068297

Well Record

Regulation 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 27 Chanonhouse Drive	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435407	5004510		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Clay	Stones	Packed	0	3.65
Gray	Sandy Clay	Stones	Packed	3.65	5.48
Gray	Limestone		Medium	5.48	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
8.53	0	Grouted Bentonite Slurry	.63m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	8.53

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water	Other, specify
43.58	[ ]	[X] Untested	
	[ ]	[ ] Fresh [ ] Untested	
	[ ]	[ ] Fresh [ ] Untested	

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	8.53	15.86
8.53	45.10	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 22.85

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 7.73

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

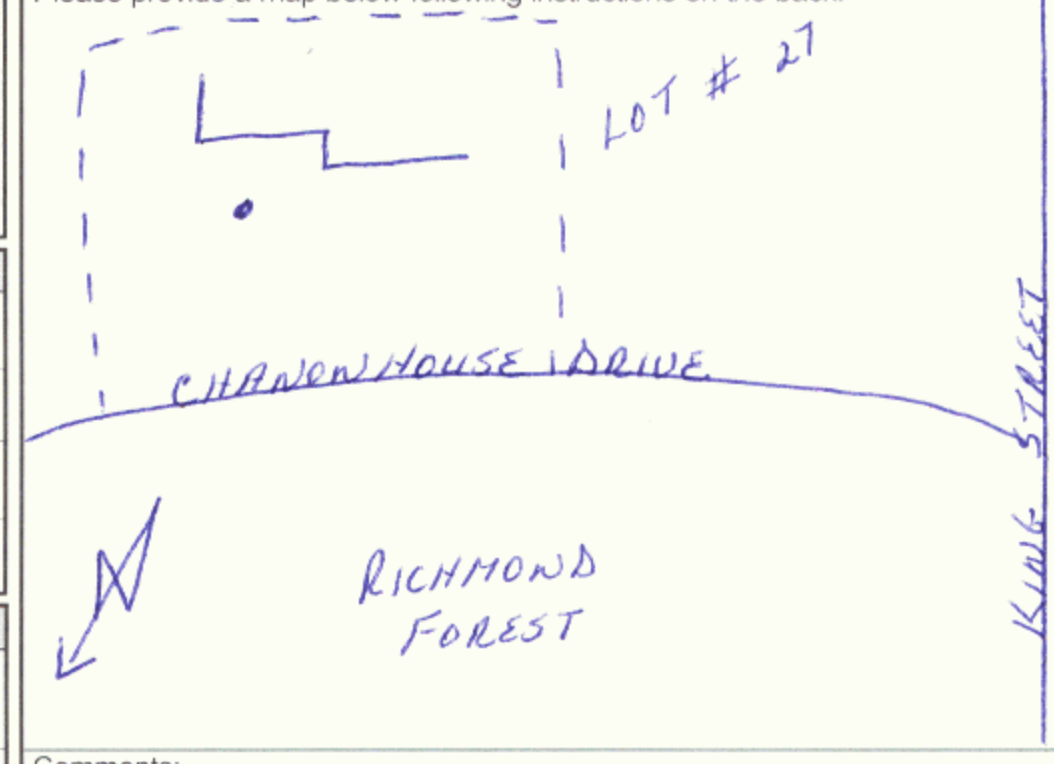
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.22		
1	4.72	1	5.09
2	5.55	2	3.92
3	6.15	3	3.47
4	6.53	4	3.32
5	6.82	5	3.27
10	7.47	10	
15	7.63	15	
20	7.66	20	
25	7.66	25	
30	7.67	30	
40	7.72	40	
50	7.72	50	
60	7.73	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
6138361766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		20090330

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	20090330	20090324

Ministry Use Only

Audit No. Z095325

Received MAY 20 2009

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Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A076798 **A076798**

Well Record

...tion 903 Ontario Water Resources Act

Page ____ of ____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 28 Richmond Forest	Goulbourn	25	3

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

UTM Coordinates: NAD 83 | Zone 18 | Easting 435398 | Northing 5004532

Municipal Plan and Sublot Number:

Other:

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay	Stones		0	4.26
Gray	Clay	Stones		4.26	5.79
Gray	Limestone			5.79	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
8.83	0	Grouted Bentonite Slurry	.42m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	8.83

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	
42.66	[ ] Fresh [X] 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	8.83	15.86
8.83	45.10	15.07

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 4.81

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

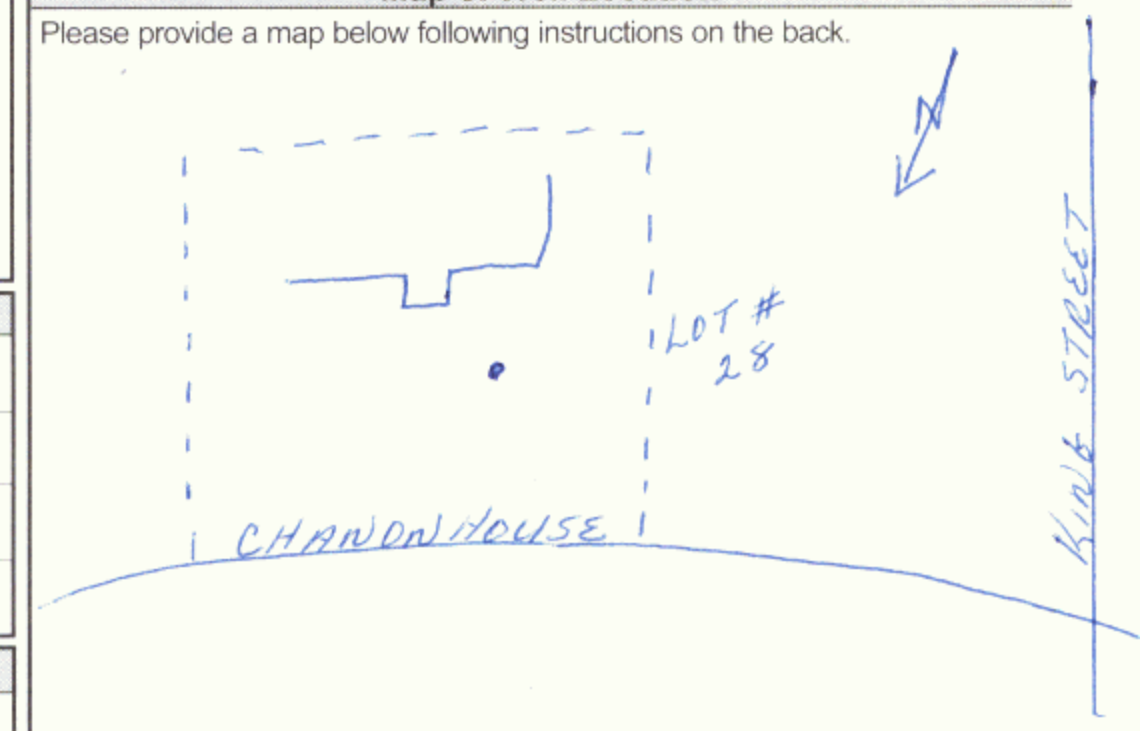
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.57		
1	4.49	1	3.67
2	4.65	2	3.58
3	4.70	3	
4	4.72	4	
5	4.73	5	
10	4.75	10	
15	4.77	15	
20	4.80	20	
25	4.80	25	
30	4.80	30	
40	4.80	40	
50	4.80	50	
60	4.81	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S1A6	office@capitalwater.ca

Bus. Telephone No. *(inc. area code)*: 6138361766

Name of Well Technician (Last Name, First Name): Miller, Stephen

Well Technician's Licence No.: 0097

Signature of Technician and/or Contractor:

Date Submitted: 20090325

Well owner's information package delivered: [X] Yes [ ] No

Date Package Delivered: 20090324

Date Work Completed: 20090323

Ministry Use Only

Audit No. Z095328

MAY 20 2009

Received

0506E (12/2007)

Ministry's Copy

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below): A076822 **A076822**

Well Record

tion 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Talos Custom Homes		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5509 Canotek Road, Unit 1	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 12, Chanonhouse	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435390	5004542		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay	Stones		0	6.09
Gray	Limestone		Medium	6.09	42.97
Gray & White	Sandstone			42.97	51.81

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
9.14	0	Grouted Bentonite Slurry	.63m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	9.14

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
50.59 m/ft	[ ] Fresh [X] Untested	[ ] Gas	[ ] Other, specify
(m/ft)	[ ] Fresh [ ] Untested	[ ] Gas	[ ] Other, specify
(m/ft)	[ ] Fresh [ ] Untested	[ ] Gas	[ ] Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	9.14	15.86
9.14	51.81	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 15.90

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

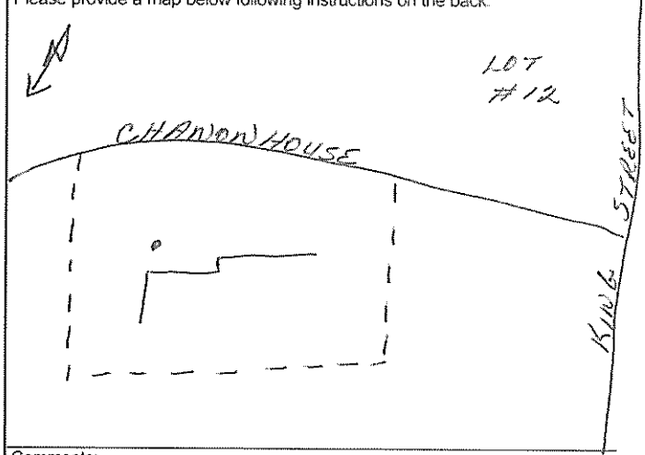
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	4.32		
1	6.03	1	13.08
2	7.12	2	11.04
3	8.20	3	9.35
4	8.83	4	7.70
5	9.48	5	6.70
10	11.80	10	4.31
15	13.20	15	
20	14.19	20	
25	14.87	25	
30	15.23	30	
40	15.66	40	
50	15.83	50	
60	15.90	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
Box 490	Stittsville	Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
613 836 1766	Miller, Stephen	0097		2009 06 19

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2009 06 18	2009 06 17

Ministry Use Only

Audit No. Z095261

Received AUG 10 2009

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below): A082857 **A 082857**

Well Record

on 903 Ontario Water Resources Act

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Talos Custom Homes		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5509 Canotek Road	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 34 Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435406	5004642		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Sandy Clay		Loose	0	2.43
Brown	Clay	Stones		2.43	6.40
Gray	Limestone		Medium	6.40	45.10

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
9.44	0	Grouted Bentonite Slurry	1.15m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	9.44

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth	Kind of Water	
43.58 (m/ft) [ ] Gas	[ ] Fresh [X] Untested	[ ] Other, specify
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, specify
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, specify

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	9.44	15.86
9.44	45.10	15.23

Results of Well Yield Testing

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

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + _____ min

Final water level end of pumping (m/ft): 4.60

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

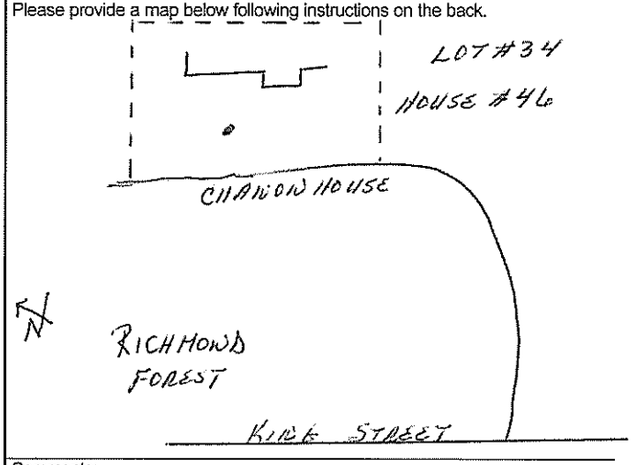
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	4.05		
1	4.47	1	4.15
2	4.51	2	4.13
3	4.52	3	4.12
4	4.54	4	4.11
5	4.55	5	4.10
10	4.58	10	4.09
15	4.60	15	4.07
20	4.60	20	
25	4.59	25	
30	4.59	30	
40	4.60	40	
50	4.60	50	
60	4.60	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
613 836 1766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2009 11 30

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[X] Yes [ ] No	2009 11 26	2009 11 25

Ministry Use Only

Audit No. Z 101774

Received FEB 16 2010

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. (Place Sticker and/or Print Below): A082914 A 082914

Well Record

...tion 903 Ontario Water Resources Act

Page ____ of ____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Talos Custom Homes		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
5509 Canotek Road, Unit 1	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 15 – Richmond Forest	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435389	5004607		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay	Stones		0	4.26
Gray	Limestone		Layered	4.26	6.09
Gray	Limestone		Medium	6.09	45.10

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
7.31	0	Grouted Bentonite Slurry	.63m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	7.31

Construction Record - Screen

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

Status of Well

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

Water Details

Water found at Depth	Kind of Water	
43.58 (m/ft) [ ] Gas	[ ] Fresh [X] Untested	[ ] Other, specify
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, specify
(m/ft) [ ] Gas	[ ] Fresh [ ] Untested	[ ] Other, specify

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
0	7.31	15.86
7.31	45.10	15.07

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, specify ____

If pumping discontinued, give reason:

Pump intake set at (m/ft): 30.47

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + ____ min

Final water level end of pumping (m/ft): 4.25

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

Recommended pump depth (m/ft): 22.85

Recommended pump rate (l/min / GPM): 45.5

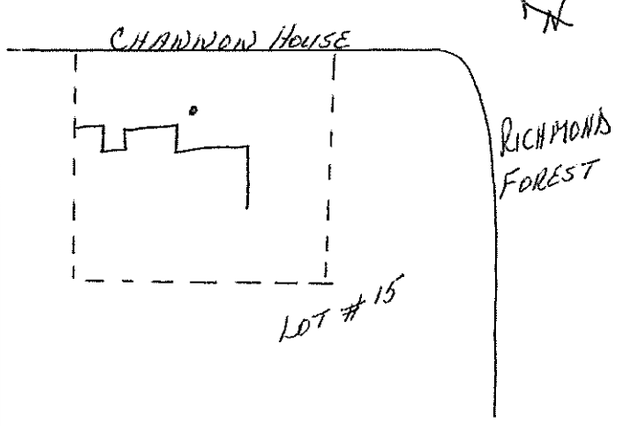
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.80		
1	4.14	1	3.86
2	4.18	2	3.82
3	4.19	3	
4	4.20	4	
5	4.21	5	
10	4.24	10	
15	4.24	15	
20	4.24	20	
25	4.23	25	
30	4.24	30	
40	4.24	40	
50	4.23	50	
60	4.24	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
Box 490	Stittsville	Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
613 836 1766	Miller, Stephen	0097		2009 10 30

Well owner's information package delivered: [X] Yes [ ] No

Date Package Delivered: 2009 10 30

Date Work Completed: 2009 10 28

Ministry Use Only

Audit No. Z 101753

Received FEB 16 2010

Ontario — Ministry of the Environment

Well Record

...ition 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)*: A076840

A076840

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	[ ] Well Constructed by Well Owner
	Talos Custom Homes		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
5509 Canotek Road, unit 1	Ottawa	Ontario	K1J 9J8	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 13 - Chanonhouse Dr.	Goulbourn	25	3

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	18	435427	5004590		

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Clay	Stones		0	4.26
Gray	Limestone		Layered & Broken	4.26	5.48
Gray	Limestone		Medium	5.48	37.48

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used *(Material and Type)*	Volume Placed (m^3/ft^3)
7.31	0	Grouted Bentonite Slurry	.84m^3

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.86	Steel	.48	+.45	7.31

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	7.31	15.86
7.31	37.48	15.23

Results of Well Yield Testing

After test of well yield, water was:
[X] Clear and sand free
[ ] Other, *specify*

If pumping discontinued, give reason:

Pump intake set at (m/ft): 18.28

Pumping rate (l/min / GPM): 54.6

Duration of pumping: 1 hrs + _____ min

Final water level end of pumping (m/ft): 4.72

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

Recommended pump depth (m/ft): 18.28

Recommended pump rate (l/min / GPM): 45.5

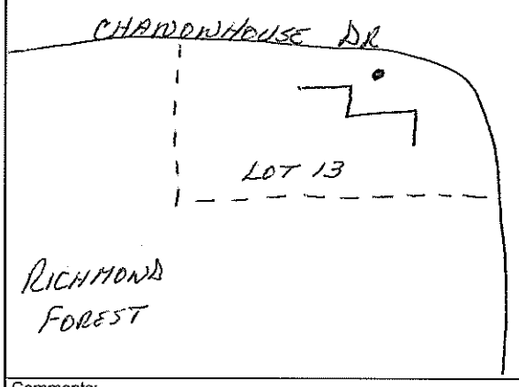
Well production (l/min / GPM):

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	3.17		
1	3.91	1	3.93
2	4.17	2	3.66
3	4.31	3	3.51
4	4.41	4	3.47
5	4.45	5	3.41
10	4.59	10	3.30
15	4.64	15	3.27
20	4.66	20	3.24
25	4.68	25	3.21
30	4.69	30	3.19
40	4.73	40	3.17
50	4.73	50	
60	4.72	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
Capital Water Supply Ltd.	1558

Business Address (Street Number/Name)	Municipality
Box 490	Stittsville

Province	Postal Code	Business E-mail Address
Ontario	K2S 1A6	office@capitalwater.ca

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
613 836 1766	Miller, Stephen

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0097		2009/08/12

Well owner's information package delivered: [X] Yes [ ] No

Date Package Delivered: 2009/08/07

Date Work Completed: 2009 Y 08 M 04 D

Ministry Use Only

Audit No. Z 101702

Received FEB 16 2010

Ontario — Ministry of the Environment, Conservation and Parks

Measurements recorded in: ☐ Metric ☒ Imperial

We Tag#:A320977 (int Below)

A320977

Well Record

Regulation 903 Ontario Water Resources Act

Page of

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
5969 Ottawa Street	Goulbourn	Pt Unit 10 Pl 4D-26	

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

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 8 3	18	435625	5004457	4R-7050 Part 1 PCL 10-3	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	Sand	& Clay	& Gravel	0'	21'
Grey	Limestone			21'	48'
Grey	Limestone			48'	154'
Grey	Limestone			154'	160'

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
27'	17'	Neat cement	7.8
17'	0'	Bentonite slurry	8.4

Method of Construction

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

Well Use

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
6 1/4"	Steel	.188"	+2'	27'
6"	Open Hole		27'	160'

Construction Record - Screen

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

Status of Well

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

Water Details

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

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0'	27'	9 3/4"
27'	160'	6"

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): 150

Pumping rate (l/min / GPM): 20

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 57.7"

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

Recommended pump depth (m/ft): 100'

Recommended pump rate (l/min/GPM): 15

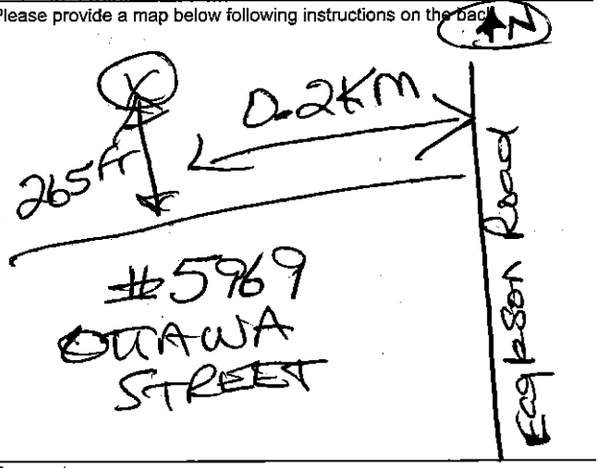
Well production (l/min/GPM): 30

Disinfected? ☒ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	9.1"		57.7"
1	18.2	1	41.5
2	24.3	2	29.9
3	28.6	3	20.7
4	31.7	4	13.5
5	34.2	5	9.1
10	44.1	10	9.1
15	48.5	15	9.1
20	51.7	20	9.1
25	54.9	25	9.1
30	56.3	30	9.1
40	57.2	40	9.1
50	57.5	50	9.1
60	57.7"	60	9.1"

Map of Well Location

Please provide a map below following instructions on the back.



Comments: 3/4HP-15GPM 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
6059 Franktown Road	Richmond

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

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

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted (Y Y Y Y M M D D)
T3058		2021 06 30

Well owner's information package delivered	Date Package Delivered (Y Y Y Y M M D D)	Date Work Completed (Y Y Y Y M M D D)
☒ Yes ☐ No	2021 06 10	2021 06 08

Ministry Use Only

Audit No. Z355197

Received JUL 28 2021

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
5923 Ottawa Street
Ottawa, Ontario

EASTING: 358362.138 **NORTHING:** 5005913.959 **ELEVATION:** 94.20
DATUM: Geodetic
REMARKS:
BORINGS BY: CME 55 Power Auger **DATE:** June 17, 2024

FILE NO. PG7183
HOLE NO. BH 1-24

SAMPLE 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 %	MONITORING WELL CONSTRUCTION
GROUND SURFACE									
TOPSOIL and organics						0	94.20		
0.28									
GLACIAL TILL: Dense brown silty sand to sandy silt with gravel, cobbles and boulders, trace clay		AU	1						
- Clay content decreasing with depth		SS	2	83	26	1	93.20		
		SS	3	58	31	2	92.20		
- Very dense by 2.4 m depth		SS	4	83	46				
		SS	5	100	+50	3	91.20		
3.56									
End of Borehole Practical refusal to augering at 3.56 m depth (GWL at 0.28 m - June 25, 2024)									

Pen. Resist. Blows / 0.3m: 20 40 60 80
Water Content %: 20 40 60 80
Shear Strength (kPa): 20 40 60 80 100
▲ Undisturbed △ Remoulded

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9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
5923 Ottawa Street
Ottawa, Ontario

EASTING: 358409.319 **NORTHING:** 5005999.639 **ELEVATION:** 93.69
DATUM: Geodetic
REMARKS:
BORINGS BY: CME 55 Power Auger **DATE:** June 17, 2024

FILE NO. PG7183
HOLE NO. BH 2-24

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	93.69
TOPSOIL and organics 0.08							
Hard to very stiff brown **SILTY CLAY**		AU	1				
		SS	2	100	9	1	92.69
1.45							
GLACIAL TILL: Dense brown silty sand with gravel, cobbles and boulders, trace clay		SS	3	67	27	2	91.69
- Clay content decreasing with depth		SS	4	58	20		
		SS	5	83	24	3	90.69
3.73							
GLACIAL TILL: Dense to very dense grey silty sand to sandy silt with gravel, cobbles and boulders		SS	6	58	20	4	89.69
		SS	7	100	38	5	88.69
		SS	8	92	33		
		SS	9	100	+50	6	87.69
6.60							
End of Borehole							
(GWL at 0.05 m - June 25, 2024)							

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

20 40 60 80

MONITORING WELL CONSTRUCTION

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

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

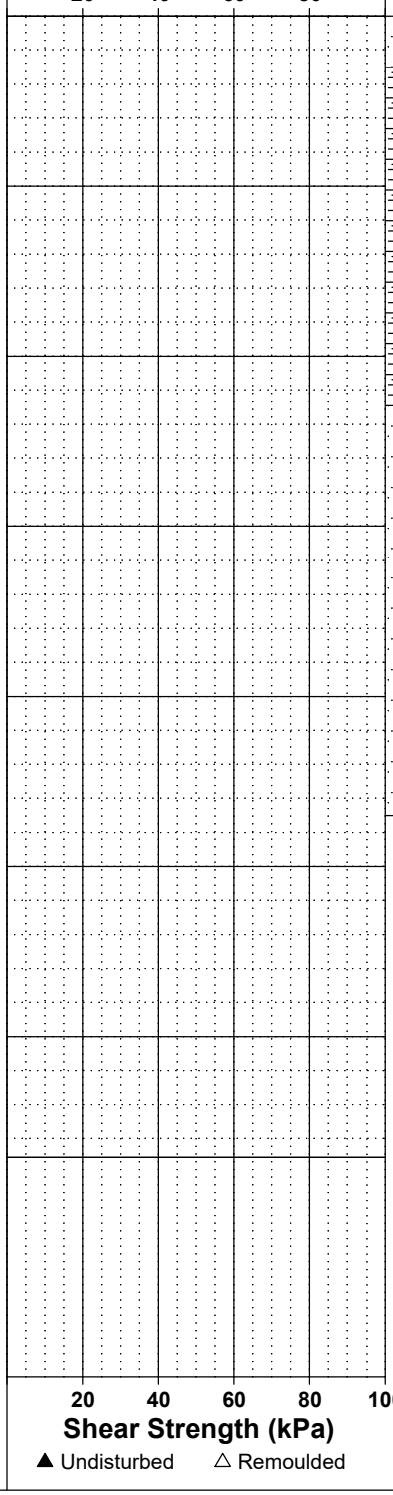
Geotechnical Investigation
5923 Ottawa Street
Ottawa, Ontario

EASTING: 358326.994 **NORTHING:** 5005950.976 **ELEVATION:** 93.85
DATUM: Geodetic
REMARKS:
BORINGS BY: CME 55 Power Auger **DATE:** June 17, 2024

FILE NO. PG7183
HOLE NO. BH 3-24

SAMPLE DESCRIPTION		STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE								
TOPSOIL and organics, trace clay	0.20						0	93.85
Very stiff brown **SILTY CLAY**	0.61		AU	1				
GLACIAL TILL: Compact to dense brown silty sand to sandy silt with gravel, cobbles and boulders, trace clay			SS	2	67	21	1	92.85
- Clay content decreasing with depth			SS	3	67	15	2	91.85
			SS	4	58	33	3	90.85
			SS	5	83	28		
GLACIAL TILL: Very dense grey silty sand to sandy silt with gravel, cobbles and boulders	4.11		SS	6	83	36	4	89.85
			SS	7	50	50	5	88.85
			SS	8	58	26	6	87.85
			SS	9		+50		
End of Borehole	6.71							
(GWL at 0.10 m - June 25, 2024)								

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



MONITORING WELL CONSTRUCTION

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9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
5923 Ottawa Street
Ottawa, Ontario

EASTING: 358331.858 **NORTHING:** 5005978.835 **ELEVATION:** 94.11
DATUM: Geodetic
REMARKS:
BORINGS BY: CME 55 Power Auger **DATE:** June 17, 2024

FILE NO. PG7183
HOLE NO. BH 4-24

SAMPLE 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									
TOPSOIL and organics 0.13		AU	1			0	94.11		
GLACIAL TILL: Dense brown silty sand to sandy silt with gravel, cobbles and boulders, some to trace clay		SS	2	50	34	1	93.11		
		SS	3	100	16	2	92.11		
		SS	4	42	32				
3.33		SS	5	91	+50	3	91.11		
End of Borehole									
(GWL at 0.45 m - June 25, 2024)									

Pen. Resist. Blows/0.3m: 20 40 60 80
Water Content %: 20 40 60 80
Shear Strength (kPa): 20 40 60 80 100
▲ Undisturbed △ Remoulded

patersongroup Consulting Engineers

9 Auriga Drive, Ottawa, Ontario K2E 7T9

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
5923 Ottawa Street
Ottawa, Ontario

EASTING: 358383.011 **NORTHING:** 5005949.836 **ELEVATION:** 93.92
DATUM: Geodetic
REMARKS:
BORINGS BY: CME 55 Power Auger **DATE:** June 17, 2024

FILE NO. PG7183
HOLE NO. BH 5-24

SAMPLE DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
TOPSOIL and organics						0	93.92
0.25							
GLACIAL TILL: Dense brown silty sand to sandy silt with gravel, cobbles and boulders, some to trace clay		AU	1				
- Clay content decreasing with depth		SS	2	100	26	1	92.92
		SS	3	92	+50	2	91.92
		SS	4	83	22	3	90.92
3.51		SS	5	25	15		
GLACIAL TILL: Compact to dense grey silty sand to sandy silt with gravel, cobbles and boulders		SS	6	42	21	4	89.92
		SS	7		14	5	88.92
5.18							
End of Borehole							
(GWL at 0.18 m - June 25, 2024)							

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

20 40 60 80

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

MONITORING WELL CONSTRUCTION

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

5923 Ottawa Street, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 358355.92 **NORTHING:** 5006024.43 **ELEVATION:** 94.07

PROJECT: Proposed Commercial Development

ADVANCED BY: Track Mounted Drill Rig

REMARKS:

DATE: April 17, 2025

FILE NO. : PG7183

HOLE NO. : BH 1-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE WATER CONTENT (%)	PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE) 20 40 60 80 / REMOULDED SHEAR STRENGTH (kPa) / UNDRAINED SHEAR STRENGTH (kPa) 20 40 60 80 / PL (%) WATER CONTENT (%) LL (%) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
CLAYEY TOPSOIL 0.41m [93.66m]			AU 1						94
Very stiff, brown **SILTY CLAY**, trace sand 1.07m [93.00m]		1	SS 2	83	2-3-5-12 8		24 36	0.44 m 2025-04-24	93
GLACIAL TILL: Compact, brown clayey silt, with gravel, trace to some sand, occasional cobbles and boulders 1.45m [92.62m]			SS 3	83	12-24-16-17 40				
GLACIAL TILL: Dense to compact, brown silty sand, with gravel, occasional cobbles and boulders		2	SS 4	83	15-11-11-44 22				92
3.73m [90.34m]		3	SS 5	75	11-11-10-7 21				91
GLACIAL TILL: Loose to compact, grey silty sand, some gravel, trace clay, occasional cobbles and boulders		4	SS 6	50	3-3-3-6 6				90
		5	SS 7	58	3-3-3-2 6				89
		6	SS 8	50	5-5-6-6 11				88
6.35m [87.72m]			SS 9	100	4-6-15-11 21				
GLACIAL TILL: Compact, grey **SANDY SILT**, some gravel, trace clay, occasional cobbles and boulders 6.71m [87.36m]		7							87
End of Borehole									
(GWL at 0.44 m depth - April 24, 2025)		8							

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

5923 Ottawa Street, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 358380.22 **NORTHING:** 5006016.15 **ELEVATION:** 94.07

PROJECT: Proposed Commercial Development

ADVANCED BY: Track Mounted Drill Rig

REMARKS:

DATE: April 17, 2025

FILE NO. : PG7183

HOLE NO. : BH 2-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE WATER CONTENT (%)	PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE) 20 40 60 80 / REMOULDED SHEAR STRENGTH (kPa) / UNDRAINED SHEAR STRENGTH (kPa) 20 40 60 80 / PL (%) WATER CONTENT (%) LL (%) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
CLAYEY TOPSOIL 0.36m [93.71m]			AU 1					0.14 m ▽ 2025-04-24	94
GLACIAL TILL: Loose to dense, brown silty sand, with gravel, some clay, occasional cobbles and boulders		1	SS 2	100	1-2-5-10 7				93
		2	SS 3	67	8-15-18-42 33				92
2.97m [91.10m]			SS 4	75	6-6-4-5 10				
GLACIAL TILL: Dense, grey sandy silt, with gravel, occasional cobbles and boulders 3.43m [90.64m]		3	SS 5	67	14-18-50-/ 68/0.23				91
End of Borehole		4							90
Practical refusal to augering at 3.43 m depth		5							89
(GWL at 0.14 m depth - April 24, 2025)		6							88
		7							87
		8							

SOIL PROFILE AND TEST DATA

Geotechnical Investigation

5923 Ottawa Street, Ottawa, Ontario

COORD. SYS.: MTM ZONE 9 **EASTING:** 358388.50 **NORTHING:** 5005993.41 **ELEVATION:** 94.07

PROJECT: Proposed Commercial Development

ADVANCED BY: Track Mounted Drill Rig

REMARKS:

DATE: April 17, 2025

FILE NO. : PG7183

HOLE NO. : BH 3-25

SAMPLE DESCRIPTION	STRATA PLOT	DEPTH (m)	SAMPLE TYPE AND NO.	SAMPLE RECOVERY (%)	SAMPLE N OR RQD	SAMPLE WATER CONTENT (%)	PEN. RESIST. (BLOWS/0.3m) DCPT (50mm DIA. CONE) 20 40 60 80 / REMOULDED SHEAR STRENGTH (kPa) / UNDRAINED SHEAR STRENGTH (kPa) 20 40 60 80 / PL (%) WATER CONTENT (%) LL (%) 20 40 60 80	PIEZOMETER CONSTRUCTION	ELEVATION (m)
GROUND SURFACE									
CLAYEY TOPSOIL 0.41m [93.66m]			AU 1					0.30 m ▼ 2025-04-24	94
Compact, brown **CLAYEY SILT**, trace sand 1.35m [92.72m]		1	SS 2	83	5-7-9-17 16				93
GLACIAL TILL: Dense to compact, brown silty sand, with gravel, occasional cobbles and boulders, trace clay 3.35m [90.72m]		2	SS 3	75	6-11-21-14 32				92
			SS 4	92	9-8-6-9 14				
		3	SS 5	83	7-8-7-11 15				91
GLACIAL TILL: Compact to dense, grey silty sand, some gravel, occasional cobbles and boulders - Trace clay by 4.6 m depth 6.71m [87.36m]		4	SS 6	100	7-8-16-14 24				90
		5	SS 7	75	10-9-8-18 17				89
			SS 8	83	4-18-17-16 35				88
		6	SS 9	75	11-16-23-25 39				
End of Borehole (GWL at 0.30 m depth - April 24, 2025)		7							87
		8							

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 relative strength of cohesionless soils is the compactness condition, 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. An SPT N value of "P" denotes that the split-spoon sampler was pushed 300 mm into the soil without the use of a falling hammer.

Compactness Condition	'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 shear vane tests, unconfined compression tests, or occasionally by the Standard Penetration Test (SPT). Note that the typical correlations of undrained shear strength to SPT N value (tabulated below) tend to underestimate the consistency for sensitive silty clays, so Paterson reviews the applicable split spoon samples in the laboratory to provide a more representative consistency value based on tactile examination.

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, S_t, is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil. The classes of sensitivity may be defined as follows:

Low Sensitivity:	$S_t < 2$
Medium Sensitivity:	$2 < S_t < 4$
Sensitive:	$4 < S_t < 8$
Extra Sensitive:	$8 < S_t < 16$
Quick Clay:	$S_t > 16$

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 NQ or larger size core. However, it can be used on smaller core sizes, such as BQ, 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, generally recovered using a piston sampler
G	-	"Grab" sample from test pit or surface materials
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size BQ, NQ, HQ, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

PLASTICITY LIMITS AND GRAIN SIZE DISTRIBUTION

WC%	-	Natural water 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 at which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2 / (D10 \times D60)$
Cu	-	Uniformity coefficient = D60 / D10

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

CONSOLIDATION TEST

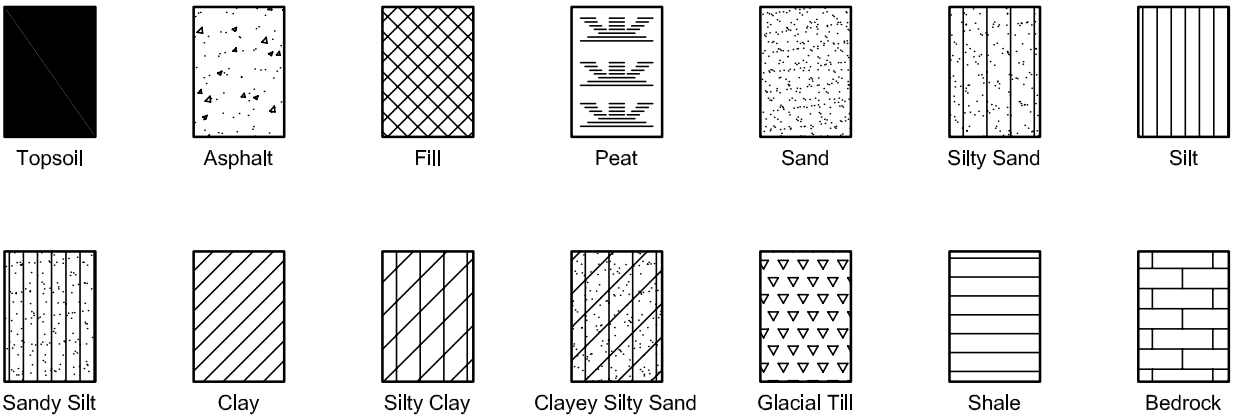
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void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

PERMEABILITY TEST

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

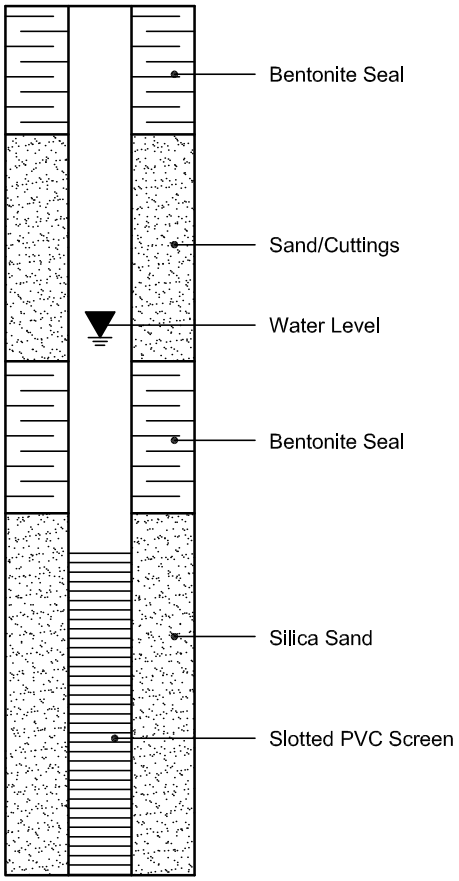
SYMBOLS AND TERMS (continued)

STRATA PLOT

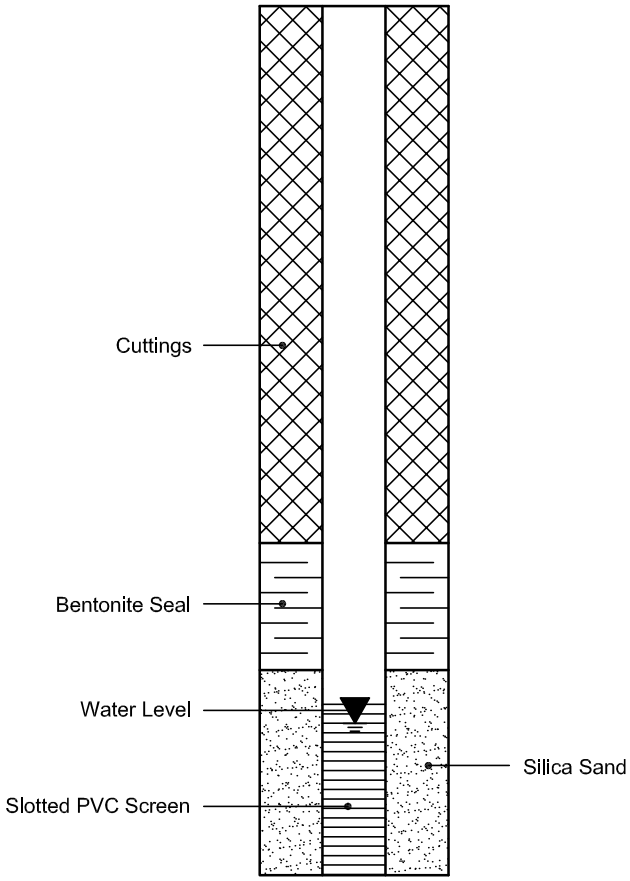


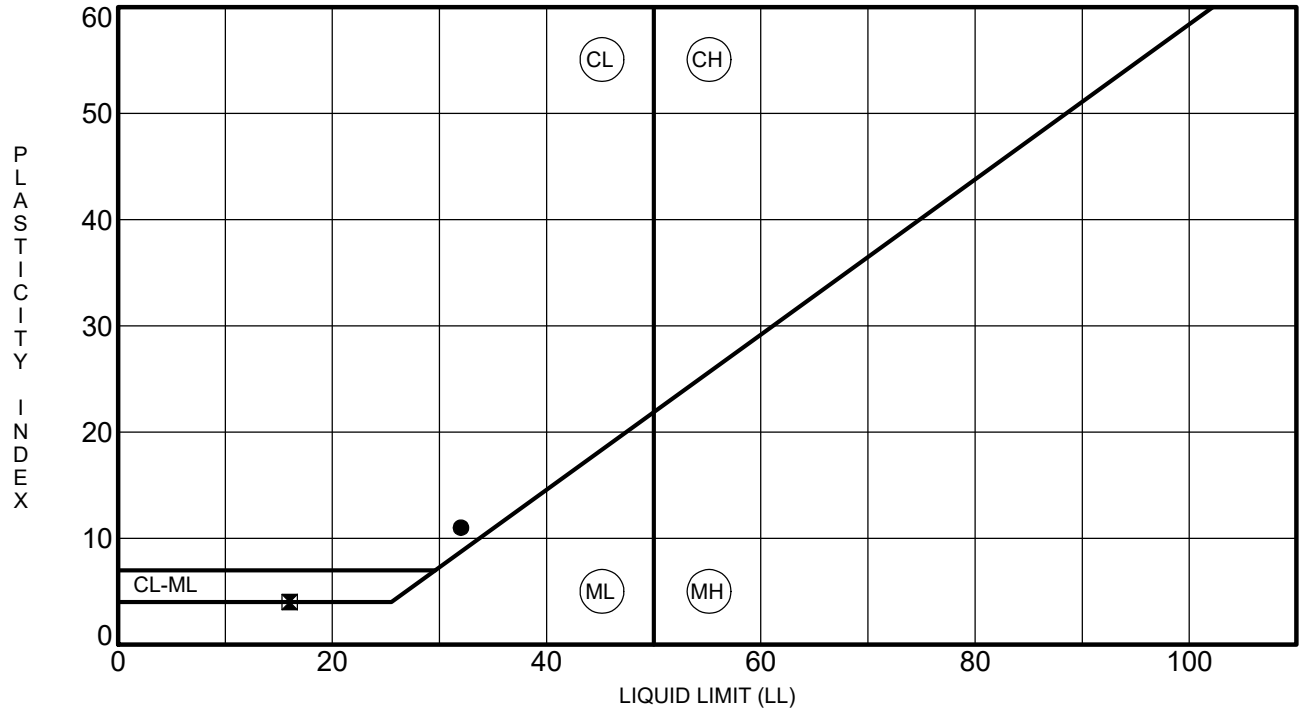
MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION





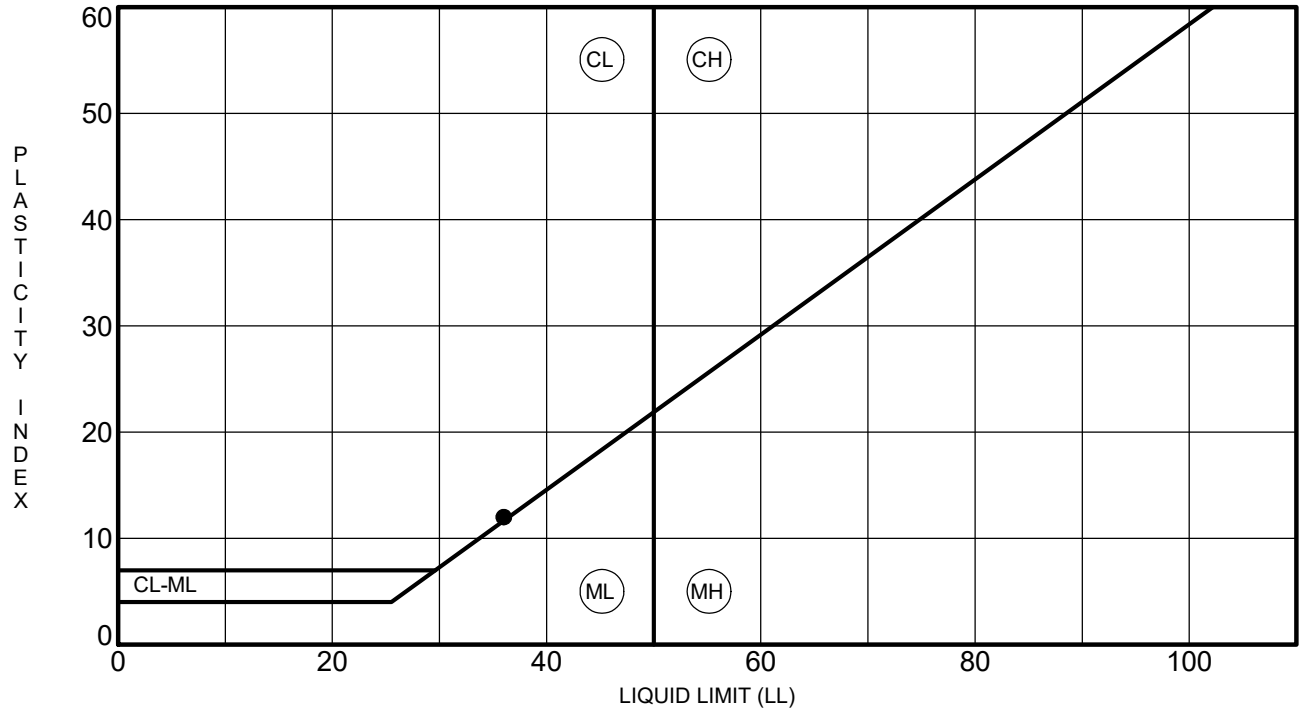
Specimen Identification		LL	PL	PI	MC	Classification
●	**BH 2-24 SS2**	**32**	**21**	**11**	32.8	**CL - Inorganic clays of low plasticity**
⧓	**BH 3-24 SS3**	**16**	**12**	**4**	10.3	**ML - Inorganic silts of high plasticity**

LL: Liquid Limit PL: Plastic Limit MC: Moisture Content in %

CLIENT	**Stratford Foxrun**	FILE NO.	**PG7183**
PROJECT	**Geotechnical Investigation - 5923 Ottawa Street**	DATE	**17 Jun 24**

PATERSON GROUP
9 Auriga Drive
Ottawa, Ontario
K2E 7T9
TEL: (613) 226-7381

ATTERBERG LIMITS' RESULTS



Specimen Identification	LL	PL	PI	MC	Classification
● **BH 1-25 SS2 (top)**	**36**	**24**	**12**	**24.2**	**CL - Inorganic clays of low plasticity**

CLIENT **Stratford Foxrun** FILE NO. **PG7183**

PROJECT **Geotechnical Investigation - 5923 Ottawa Street** DATE **28 Apr 25**

PATERSON GROUP

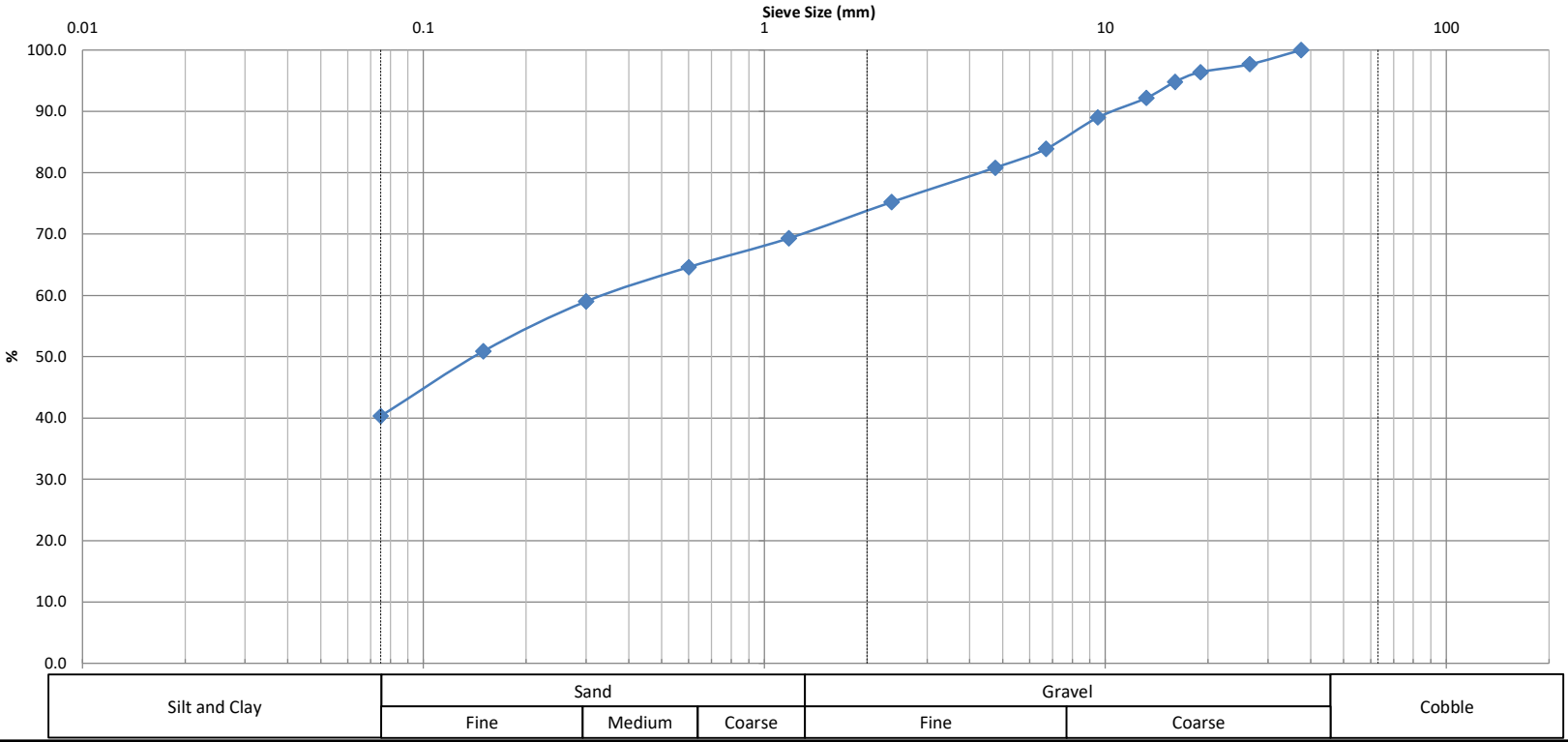
9 Auriga Drive
Ottawa, Ontario
K2E 7T9
TEL: (613) 226-7381

ATTERBERG LIMITS' RESULTS

PATERSON GROUP

SIEVE ANALYSIS
ASTM C136

CLIENT:	Stratford Foxrun	DESCRIPTION:	Silty Sand w Gravel	FILE NO:	PG7183
CONTRACT NO.:	-	SPECIFICATION:	**Silty Sand w Gravel**	LAB NO:	53405
PROJECT:	5293 Ottawa Street	INTENDED USE:	-	DATE RECEIVED:	20-Jun-24
		PIT OR QUARRY:	-	DATE TESTED:	20-Jun-24
DATE SAMPLED:	-	SOURCE LOCATION:	BH2-24 SS3	DATE REPORTED:	5-Jul-24
SAMPLED BY:	Adam E.	SAMPLE LOCATION:	-	TESTED BY:	CP



Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
										0.24	22.7
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
	37.5	0.34	0.035	0.015	19.2	40.5		40.3			

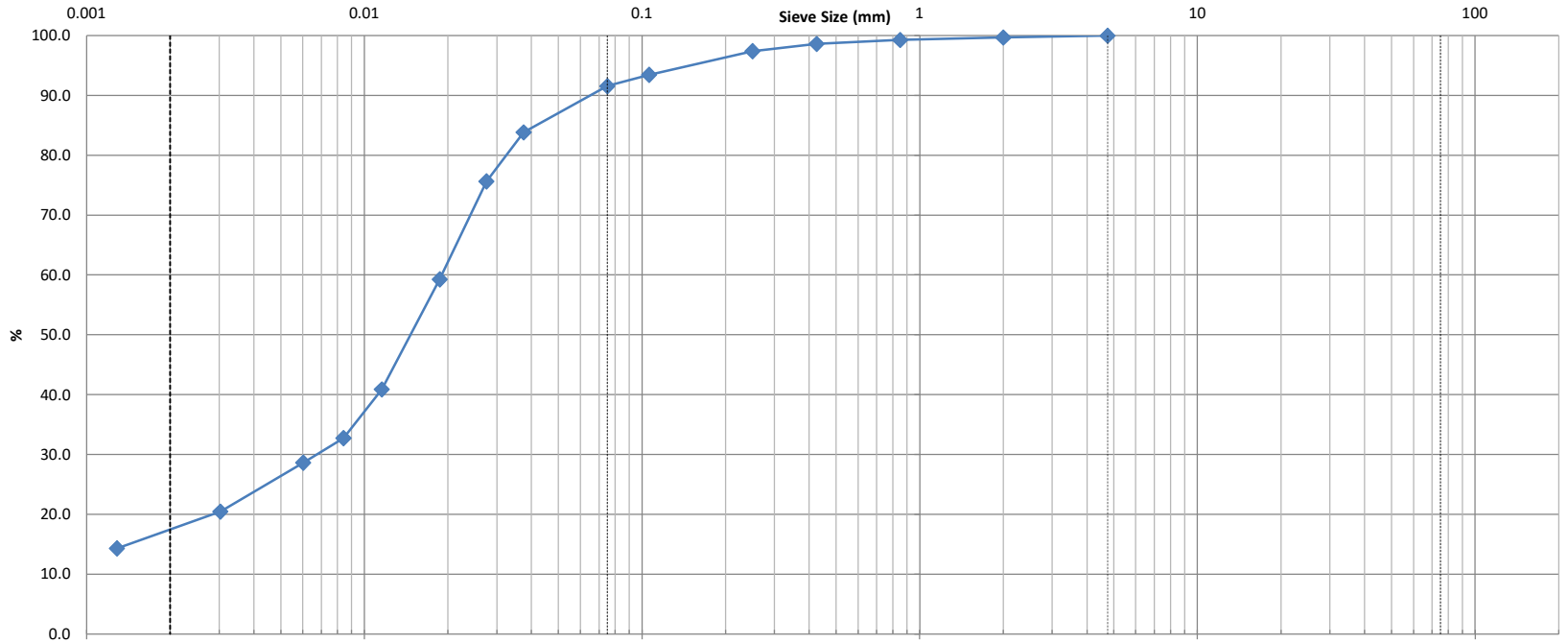
Comments:

REVIEWED BY:	Curtis Beadow	Joe Fosyth, P. Eng.

PATERSON GROUP

SIEVE ANALYSIS
ASTM C136

CLIENT:	Stratford Foxrun	DEPTH:	BH3-25 SS2	FILE NO:	PG7183
CONTRACT NO.:		BH OR TP No.:	-	LAB NO:	59250
PROJECT:	5923 Ottawa Street			DATE RECEIVED:	21-Apr-25
				DATE TESTED:	21-Apr-25
DATE SAMPLED:	17-Apr-25			DATE REPORTED:	28-Apr-25
SAMPLED BY:	C.A.			TESTED BY:	D.K



Clay	Silt	Sand			Gravel		Cobble
		Fine	Medium	Coarse	Fine	Coarse	

Identification	Soil Classification					MC(%)	LL	PL	PI	Cc	Cu
						23.9%					
	D100	D60	D30	D10	Gravel (%)	Sand (%)		Silt (%)		Clay (%)	
					0.0	8.4		73.6		18.0	

Comments:

REVIEWED BY:	Curtis Beadow	Joe Forsyth, P. Eng.

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

OFFICIAL CERTIFICATE OF ANALYSIS : 4270184

WORK REQUEST : 100343595

Report Date : 2025-03-25

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

Reception Date : 2025-03-19
Project : PH4924
Sampler : NA
PO Number : 62639
Temperature : 14 °C

Analysis	Quantity	External Method
Alkalinity (Water, Automated)	2	Modified from SM 2320 B
Ammonia, Total (Water, Colorimetry)	2	Modified from EPA 350.1
Chloride (Water, IC)	2	Modified from SM 4110 B and C
Colour, Apparent (Water, Spectrophotometry)	2	Modified from SM 2120 C
Conductivity (Water, Automated)	2	Modified from SM 2510 B
DOC (Water, IR)	2	Modified from SM 5310 B
Escherichia coli (DC Plate)	2	Modified from MECP E3407
Fluoride (Water, Auto/ISE)	2	Modified from SM 4500-F A and 4500-F C
Hardness (Water, Calculation Only)	2	SM 2340 B
Ion Balance (Water, Calculation)	2	Modified from SM1030 E
Metals Scan (Water, ICP/MS)	2	Modified from EPA 200.8
Metals Scan (Water, ICP/OES)	2	Modified from SM 3120 B
Nitrate (Water, IC)	2	Modified from SM 4110 B and C
Nitrite (Water, IC)	2	Modified from SM 4110 B and C
pH (25°C) (Water, Automated)	2	Modified from SM 4500-H+ B
Phenols (Water, Colorimetry)	2	Modified from EPA 420.2
Sulphate (Water, IC)	2	Modified from SM 4110 B and C
Sulphide (Water, Colorimetry)	2	Modified from SM 4500-S2 D
Tannin and Lignin (Water, Spec)	2	Modified from SM 5550 B
TDS (Estimated)	2	Modified from SM 2510 A
Total Coliforms (DC Plate)	2	Modified from MECP E3407
Total Kjeldahl Nitrogen (Water, Colorimetry)	2	Modified from EPA 351.2
Turbidity (Water, Turbidimeter)	2	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 :
8447153 8447155
Compliant

Certificate Comments :
8447153 8447155
N-NO2 and N-NO3 MRL increased due to matrix interference. Al, Sb and Zn spike not available due to high native analyte concentration in the mother sample.

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

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OFFICIAL CERTIFICATE OF ANALYSIS - EXCEEDENCE SUMMARY

Client : Paterson Group
Project : PH4924

Reception Date : 2025-03-19

Eurofins Sample No	Client Sample Identification	Analyte	Result	Units	Exceeded Criteria		
					A	B	C
Chloride (Water, IC)							
8447153	TW1 - GW1	Chloride	262	mg/L	250		
8447155	TW1 - GW2	Chloride	267	mg/L	250		
Colour, Apparent (Water, Spectrophotometry)							
8447155	TW1 - GW2	Colour (Apparent)	12	TCU	5		
Hardness (Water, Calculation Only)							
8447153	TW1 - GW1	Hardness as CaCO3 (Calculation)	474	mg/L	80-100		
8447155	TW1 - GW2	Hardness as CaCO3 (Calculation)	470	mg/L	80-100		
Metals Scan (Water, ICP/MS)							
8447153	TW1 - GW1	Aluminum	0.28	mg/L	0.1		
8447153	TW1 - GW1	Iron	1.07	mg/L	0.3		
8447155	TW1 - GW2	Iron	0.80	mg/L	0.3		
TDS (Estimated)							
8447153	TW1 - GW1	TDS (Estimated)^	896	mg/L	500		
8447155	TW1 - GW2	TDS (Estimated)^	900	mg/L	500		
Turbidity (Water, Turbidimeter)							
8447153	TW1 - GW1	Turbidity	9.9	NTU	5		
8447155	TW1 - GW2	Turbidity	9.6	NTU	5		

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

					Eurofins Sample No :	**8447153**	**8447155**			
					Matrix :	Groundwater	Groundwater			
					Sampling Date :	2025-03-18	2025-03-18			
					Client Sample Identification :	TW1 - GW1	TW1 - GW2			
Anions	**RL**	**Unit**	**Criteria A**	**Criteria B**	**Criteria C**					
Chloride	0.5	mg/L	250			262	267			
Nitrate (as Nitrogen)	0.1	mg/L	10.0			<0.5	<0.5			
Nitrite (as Nitrogen)	0.1	mg/L	1.0			<0.5	<0.5			
Sulphate	1	mg/L	500			67	69			

			Eurofins Sample No :	**8447153**	**8447155**				
			Matrix :	Groundwater	Groundwater				
			Sampling Date :	2025-03-18	2025-03-18				
			Client Sample Identification :	TW1 - GW1	TW1 - GW2				
Calculations	**RL**	**Unit**							
Ion Balance (Calculation)^	0.1		1.04	1.02					

					Eurofins Sample No :	**8447153**	**8447155**		
					Matrix :	Groundwater	Groundwater		
					Sampling Date :	2025-03-18	2025-03-18		
					Client Sample Identification :	TW1 - GW1	TW1 - GW2		
General Chemistry	**RL**	**Unit**	**Criteria A**	**Criteria B**	**Criteria C**				
Alkalinity (as CaCO3)	5	mg/L	500			265	269		
Colour (Apparent)	2	TCU	5			4	12		
Conductivity @ 25°C	5	µS/cm				1380	1380		
Dissolved Organic Carbon	0.5	mg/L	5			1.8	1.8		
Fluoride	0.1	mg/L	1.5			0.34	0.40		
Hardness as CaCO3 (Calculation)	1	mg/L	80-100			474	470		
pH @ 25°C	1		6.5-8.5			7.82	7.81		
Phenols-4AAP	0.001	mg/L				<0.001	<0.001		
Sulphide (S2-)	0.01	mg/L	0.05			<0.01	<0.01		
Tannin and Lignin	0.1	mg/L				<0.1	<0.1		
TDS (Estimated)^	5	mg/L	500			896	900		
Turbidity	0.1	NTU	5			9.9	9.6		

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

					Eurofins Sample No :	**8447153**	**8447155**			
					Matrix :	Groundwater	Groundwater			
					Sampling Date :	2025-03-18	2025-03-18			
					Client Sample Identification :	TW1 - GW1	TW1 - GW2			
Metals	**RL**	**Unit**	**Criteria A**	**B**	**C**					
Metals Scan (Water, ICP/MS)										
Aluminum	0.01	mg/L	0.1			0.28	0.07			
Antimony	0.0005	mg/L	0.006			<0.0005	<0.0005			
Arsenic	0.001	mg/L	0.01			<0.001	<0.001			
Barium	0.001	mg/L	1			0.133	0.134			
Beryllium	0.0005	mg/L				<0.0005	<0.0005			
Boron	0.01	mg/L	5			0.25	0.25			
Cadmium	0.0001	mg/L	0.005			<0.0001	<0.0001			
Chromium	0.001	mg/L	0.05			<0.001	<0.001			
Cobalt	0.0002	mg/L				0.0003	0.0002			
Copper	0.001	mg/L	1			<0.001	<0.001			
Iron	0.03	mg/L	0.3			1.07	0.80			
Lead	0.001	mg/L	0.01			<0.001	<0.001			
Manganese	0.01	mg/L	0.05			0.02	0.02			
Mercury	0.0001	mg/L	0.001			<0.0001	<0.0001			
Molybdenum	0.005	mg/L				<0.005	<0.005			
Nickel	0.005	mg/L				<0.005	<0.005			
Selenium	0.001	mg/L	0.05			<0.001	<0.001			
Silver	0.0001	mg/L				<0.0001	<0.0001			
Strontium	0.001	mg/L				5.10	4.97			
Thallium	0.0001	mg/L				<0.0001	<0.0001			
Uranium	0.001	mg/L	0.02			<0.001	<0.001			
Vanadium	0.001	mg/L				<0.001	<0.001			
Zinc	0.01	mg/L	5			<0.01	<0.01			
Metals Scan (Water, ICP/OES)										
Calcium	1	mg/L				99	99			
Magnesium	1	mg/L				55	54			
Potassium	1	mg/L				8	8			
Sodium	1	mg/L	200			115	117			

					Eurofins Sample No :	**8447153**	**8447155**			
					Matrix :	Groundwater	Groundwater			
					Sampling Date :	2025-03-18	2025-03-18			
					Client Sample Identification :	TW1 - GW1	TW1 - GW2			
Microbiology	**RL**	**Unit**	**Criteria A**	**B**	**C**					
Escherichia coli (DC)	0	CFU/100mL	0			0	0			
Total Coliforms (DC)	0	CFU/100mL	0			0	0			

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

Eurofins Sample No :			**8447153**	**8447155**					
Matrix :			Groundwater	Groundwater					
Sampling Date :			2025-03-18	2025-03-18					
Client Sample Identification :			TW1 - GW1	TW1 - GW2					
Nutrients	**RL**	**Unit**							
Ammonia (Total, as Nitrogen)	0.02	mg/L	0.167	0.143					
Total Kjeldahl Nitrogen	0.1	mg/L	0.319	0.326					

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

					Eurofins Sample No :	**8447155**				
					Matrix :	Groundwater				
					Sampling Date :	2025-03-18				
					Client Sample Identification :	TW1 - GW2				
Volatile Organic Compounds	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
VOCs (Water, GC/MS)										
1,1,1,2-Tetrachloroethane	0.5	ug/L				<0.5				
1,1,1-Trichloroethane	0.4	ug/L				<0.4				
1,1,2,2-Tetrachloroethane	0.5	ug/L				<0.5				
1,1,2-Trichloroethane	0.4	ug/L				<0.4				
1,1-Dichloroethane	0.4	ug/L				<0.4				
1,1-Dichloroethene	0.5	ug/L	14			<0.5				
1,2-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-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				
1,4-Dichlorobenzene	0.4	ug/L	5			<0.4				
Acetone	5	ug/L				<5.0				
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				
Dichloromethane	4	ug/L	50			<4.0				
Diethyl ether	5	ug/L				<5.0				
Ethylbenzene	0.5	ug/L	140			<0.5				
m/p-Xylene	0.4	ug/L				<0.4				
Methyl ethyl ketone (MEK)	2	ug/L				<2.0				
Methyl isobutyl ketone (MIBK)	5	ug/L				<5.0				
Methyl tert-butyl ether (MTBE)	2	ug/L				<2.0				
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				
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	%				73				
4-bromofluorobenzene (surrogate)	0	%				82				

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

						Eurofins Sample No :	**8447155**			
						Matrix :	Groundwater			
						Sampling Date :	2025-03-18			
						Client Sample Identification :	TW1 - GW2			
Volatile Organic Compounds	**RL**	**Unit**	**Criteria**							
			A	**B**	**C**					
Toluene-d8 (surrogate)	0	%				80				

Approved by :
Addrine Thomas,
Inorganic supervisor, Ottawa

Approved by :
Patrick Jacques,
Ottawa, Environmental Chemist,

eurofins | Environment Testing
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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

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			0	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-21	
Ammonia, Total (Water, Colorimetry)									
Method : Ammonia (Water, Colorimetry). Internal method: OTT-I-NUT-WI46201.									
Ammonia (Total, as Nitrogen)	mg/L	0.02	<0.020	95	80-120	98	80-120	6	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-20	
Chloride (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Chloride	mg/L	0.5	<0.5	100	80-120	116	80-120	1	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-20	
Colour, Apparent (Water, Spectrophotometry)									
Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.									
Colour (Apparent)	TCU	2	<2	97	78-116			3	0-40
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-24 Analysis Date: 2025-03-25	
Conductivity (Water, Automated)									
Method : Conductivity (Water, Autotitrator). Internal Method: OTT-I-AT-WI45398.									
Conductivity @ 25°C	uS/cm	5	<5	100	98-102			2	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-21	
DOC (Water, IR)									
Method : Organic carbon (water, IR, combustion). Internal method: OTT-I-DEM-WI46148.									
Dissolved Organic Carbon	mg/L	0.5	<0.5	104	84-116	86	80-120	10	0-15
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-21 Analysis Date: 2025-03-24	
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 : 8447153, 8447155								Prep Date: 2025-03-19 Analysis Date: 2025-03-20	
Fluoride (Water, Auto/ISE)									
Method : Fluoride by autotitrator, ion selective electrode. Internal method: OTT-I-AT-WI45398.									
Fluoride	mg/L	0.1	<0.10	97	90-110			-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-21	

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

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			1	0-20
Antimony	mg/L	0.0005	<0.0005	80	80-120			-	0-20
Arsenic	mg/L	0.001	<0.001	94	80-120	97	70-130	-	0-20
Barium	mg/L	0.001	<0.001	90	80-120	89	70-130	0	0-20
Beryllium	mg/L	0.0005	<0.0005	103	80-120	113	70-130	-	0-20
Boron	mg/L	0.01	<0.01	100	80-120	108	70-130	-	0-20
Cadmium	mg/L	0.0001	<0.0001	98	80-120	98	70-130	-	0-20
Chromium	mg/L	0.001	<0.001	110	80-120	103	70-130	26	0-20
Cobalt	mg/L	0.0002	<0.0002	102	80-120	95	70-130	1	0-20
Copper	mg/L	0.001	<0.001	100	80-120	77	70-130	1	0-20
Iron	mg/L	0.03	<0.03	90	80-120	88	70-130	1	0-20
Lead	mg/L	0.001	<0.001	100	80-120	82	70-130	0	0-20
Manganese	mg/L	0.01	<0.01	100	80-120	95	70-130	0	0-20
Mercury	mg/L	0.0001	<0.0001	111	80-120	85	70-130	-	0-20
Molybdenum	mg/L	0.005	<0.005	90	80-120	95	70-130	-	0-20
Nickel	mg/L	0.005	<0.005	100	80-120	96	70-130	0	0-20
Selenium	mg/L	0.001	<0.001	95	80-120	87	70-130	-	0-20
Silver	mg/L	0.0001	<0.0001	111	80-120	103	70-130	-	0-20
Strontium	mg/L	0.001	<0.001	100	80-120	93	70-130	1	0-20
Thallium	mg/L	0.0001	<0.0001	104	80-120	84	70-130	-	0-20
Uranium	mg/L	0.001	<0.001	90	80-120	83	70-130	-	0-20
Vanadium	mg/L	0.001	<0.001	100	80-120	108	70-130	0	0-20
Zinc	mg/L	0.01	<0.01	100	80-120			0	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-21	
Metals Scan (Water, ICP/OES)									
Method : Metals (Water, ICP/OES). Internal method: OTT-I-MET-WI48491.									
Calcium	mg/L	1	<1	103	86-115	98	70-130	2	0-20
Magnesium	mg/L	1	<1	98	91-109	100	70-130	-	0-20
Potassium	mg/L	1	<1	112	87-113	117	70-130	-	0-20
Sodium	mg/L	1	<1	107	85-115	106	70-130	-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-24 Analysis Date: 2025-03-19	
Nitrate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrate (as Nitrogen)	mg/L	0.1	<0.1	103	80-120	116	80-120	-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-20	
Nitrite (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrite (as Nitrogen)	mg/L	0.1	<0.1	102	80-120	110	80-120	-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-20	
pH (25°C) (Water, Automated)									
Method : pH (Water, Automated Meter). Internal method: OTT-I-AT-WI45398.									
pH @ 25°C		1	6.59	100	97-103			1	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-21	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Phenols (Water, Colorimetry)									
Method : Phenols (Water, Colorimetry). Internal method: OTT-I-4AAP-WI46150.									
Phenols-4AAP	mg/L	0.001	<0.001	105	75-125	105	70-130	-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-20	
Sulphate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Sulphate	mg/L	1	<1	107	90-110	114	80-120	1	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-20	
Sulphide (Water, Colorimetry)									
Method : Sulphide, S2- (Water, Colorimetry). Internal method: OTT-I-SPEC-WI45931.									
Sulphide (S2-)	mg/L	0.01	<0.01	88	80-120			-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-24 Analysis Date: 2025-03-25	
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	112	80-120			-	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-21 Analysis Date: 2025-03-21	
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 : 8447153, 8447155								Prep Date: 2025-03-19 Analysis Date: 2025-03-20	
Total Kjeldahl Nitrogen (Water, Colorimetry)									
Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.									
Total Kjeldahl Nitrogen	mg/L	0.1	<0.100	98	70-130	119	70-130	4	0-20
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-21	
Turbidity (Water, Turbidimeter)									
Method : Turbidity (Water, Turbidimeter). Internal method: OTT-I-TUR-WI46288.									
Turbidity	NTU	0.1	<0.1	103	80-120			5	0-30
Associated Samples : 8447153, 8447155								Prep Date: 2025-03-20 Analysis Date: 2025-03-24	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

Reception Date: 2025-03-19

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	105	70-130	73	70-130	-	0-30
1,1,1-Trichloroethane	ug/L	0.4	<0.4	113	70-130	74	70-130	-	0-30
1,1,2,2-Tetrachloroethane	ug/L	0.5	<0.5	109	70-130	78	70-130	-	0-30
1,1,2-Trichloroethane	ug/L	0.4	<0.4	106	70-130	74	70-130	-	0-30
1,1-Dichloroethane	ug/L	0.4	<0.4	115	70-130	75	70-130	-	0-30
1,1-Dichloroethene	ug/L	0.5	<0.5	119	70-130	128	70-130	-	0-30
1,2-Dibromoethane	ug/L	0.2	<0.2	95	70-130	104	70-130	-	0-30
1,2-Dichlorobenzene	ug/L	0.4	<0.4	103	70-130	92	70-130	-	0-30
1,2-Dichloroethane	ug/L	0.2	<0.2	111	70-130	106	70-130	-	0-30
1,2-Dichloropropane	ug/L	0.5	<0.5	105	70-130	112	70-130	-	0-30
1,3,5-Trimethylbenzene	ug/L	0.3	<0.3	86	70-130	114	70-130	-	0-30
1,3-Dichlorobenzene	ug/L	0.4	<0.4	89	70-130	83	70-130	-	0-30
1,4-Dichlorobenzene	ug/L	0.4	<0.4	89	70-130	89	70-130	-	0-30
Acetone	ug/L	5	<5.0	107	70-130	78	70-130	-	0-30
Benzene	ug/L	0.5	<0.5	95	70-130	77	70-130	-	0-30
Bromodichloromethane	ug/L	0.3	<0.3	118	70-130	79	70-130	-	0-30
Bromoform	ug/L	0.4	<0.4	112	70-130	78	70-130	-	0-30
Bromomethane	ug/L	0.5	<0.5	126	70-130	117	70-130	-	0-30
Carbon tetrachloride	ug/L	0.2	<0.2	122	70-130	78	70-130	-	0-30
Chloroethane	ug/L	0.5	<0.5	116	70-130	116	70-130	-	0-30
Chloroform	ug/L	0.5	<0.5	123	70-130	81	70-130	-	0-30
Chloromethane	ug/L	0.2	<0.2	128	70-130	105	70-130	-	0-30
cis-1,2-Dichloroethene	ug/L	0.4	<0.4	118	70-130	78	70-130	-	0-30
cis-1,3-Dichloropropene	ug/L	0.5	<0.5	83	70-130	88	70-130	-	0-30
Dibromochloromethane	ug/L	0.3	<0.3	100	70-130	98	70-130	-	0-30
Dichloromethane	ug/L	4	<4.0	106	70-130	76	70-130	-	0-30
Diethyl ether	ug/L	5	<5.0	120	70-130	110	70-130	-	0-30
Ethylbenzene	ug/L	0.5	<0.5	96	70-130	78	70-130	-	0-30
m/p-Xylene	ug/L	0.4	<0.4	129	70-130	87	70-130	-	0-30
Methyl ethyl ketone (MEK)	ug/L	2	<2.0	94	70-130	76	70-130	-	0-30
Methyl isobutyl ketone (MIBK)	ug/L	5	<5.0	124	70-130	90	70-130	-	0-30
Methyl tert-butyl ether (MTBE)	ug/L	2	<2.0	130	70-130	89	70-130	-	0-30
Monochlorobenzene	ug/L	0.5	<0.5	89	70-130	108	70-130	-	0-30
o-Xylene	ug/L	0.4	<0.4	100	70-130	101	70-130	-	0-30
Styrene	ug/L	0.5	<0.5	99	70-130	124	70-130	-	0-30
Tetrachloroethylene (PCE)	ug/L	0.3	<0.3	92	70-130	82	70-130	-	0-30
Toluene	ug/L	0.4	<0.4	124	70-130	70	70-130	4	0-30
trans-1,2-dichloroethene	ug/L	0.4	<0.4	122	70-130	77	70-130	-	0-30
trans-1,3-dichloropropene	ug/L	0.5	<0.5	100	70-130	103	70-130	-	0-30
Trichloroethylene (TCE)	ug/L	0.3	<0.3	95	70-130	113	70-130	-	0-30
Trichlorofluoromethane	ug/L	0.5	<0.5	126	70-130	122	70-130	-	0-30
Vinyl chloride	ug/L	0.2	<0.2	128	70-130	94	70-130	-	0-30
Xylene (Total)	ug/L	0.5	<0.5				-		-

Associated Samples : 8447155

Prep Date: 2025-03-20
Analysis Date: 2025-03-24

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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OFFICIAL CERTIFICATE OF ANALYSIS : 4290291

WORK REQUEST : 100346311

Report Date : 2025-04-15

Paterson Group
9 Auriga Drive
Ottawa, Ontario
Attention : Zavian Buchanan

Reception Date : 2025-04-04
Project : PH4924
Sampler : NA
PO Number : 62782
Temperature : 5 °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
E.Coli and Total Coliforms (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
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 Kjeldahl Nitrogen (Water, Colorimetry)	1	Modified from EPA 351.2
Turbidity (Water, Turbidimeter)	1	Modified from SM 2130 B

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

Sample status upon receipt :

8476750
Compliant

Certificate Comments :

Revision 1: This is an amendment and supersedes certificate 4282411. Colour (apparent) has been re-analysed and result has been changed. Colour (true) analysis added as per client's request.

8476750
N-NO2 and N-NO3 MRL increased 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

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OFFICIAL CERTIFICATE OF ANALYSIS - EXCEEDENCE SUMMARY

Client : Paterson Group
Project : PH4924

Reception Date : 2025-04-04

Eurofins Sample No	Client Sample Identification	Analyte	Result	Units	Exceeded Criteria		
					A	B	C
Colour, Apparent (Water, Spectrophotometry)							
8476750	TW1-GW1	Colour (Apparent)	22	TCU	5		
Hardness (Water, Calculation Only)							
8476750	TW1-GW1	Hardness as CaCO3 (Calculation)	444	mg/L	80-100		
Metals Scan (Water, ICP/MS)							
8476750	TW1-GW1	Iron	0.82	mg/L	0.3		
TDS (Estimated)							
8476750	TW1-GW1	TDS (Estimated)^	886	mg/L	500		

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-04-04

					Eurofins Sample No :	**8476750**
					Matrix :	Groundwater
					Sampling Date :	2025-04-03
					Client Sample Identification :	TW1-GW1
Anions	**RL**	**Unit**	**Criteria A**	**Criteria B**	**Criteria C**	
Nitrate (as Nitrogen)	0.1	mg/L	10.0			<0.5
Nitrite (as Nitrogen)	0.1	mg/L	1.0			<0.5
Sulphate	1	mg/L	500			66

					Eurofins Sample No :	**8476750**
					Matrix :	Groundwater
					Sampling Date :	2025-04-03
					Client Sample Identification :	TW1-GW1
Anions & Nutrients	**RL**	**Unit**	**Criteria A**	**Criteria B**	**Criteria C**	
Chloride	0.5	mg/L	250			248

					Eurofins Sample No :	**8476750**
					Matrix :	Groundwater
					Sampling Date :	2025-04-03
					Client Sample Identification :	TW1-GW1
Calculations	**RL**	**Unit**				
Ion Balance (Calculation)^	0.1		0.99			

					Eurofins Sample No :	**8476750**
					Matrix :	Groundwater
					Sampling Date :	2025-04-03
					Client Sample Identification :	TW1-GW1
General Chemistry	**RL**	**Unit**	**Criteria A**	**Criteria B**	**Criteria C**	
Alkalinity (as CaCO3)	5	mg/L	500			271
Colour (Apparent)	2	TCU	5			22
Colour (True)	2	TCU				<2
Conductivity @ 25°C	5	µS/cm				1360
Dissolved Organic Carbon	0.5	mg/L	5			1.5
Fluoride	0.1	mg/L	1.5			0.39
Hardness as CaCO3 (Calculation)	1	mg/L	80-100			444
pH @ 25°C	1		6.5-8.5			7.88
Phenols-4AAP	0.001	mg/L				<0.001
Sulphide (S2-)	0.01	mg/L	0.05			<0.01
Tannin and Lignin	0.1	mg/L				0.3
TDS (Estimated)^	5	mg/L	500			886
Turbidity	0.1	NTU	5			4.0

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OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Paterson Group
Project : PH4924

Reception Date: 2025-04-04

					Eurofins Sample No :	**8476750**				
					Matrix :	Groundwater				
					Sampling Date :	2025-04-03				
					Client Sample Identification :	TW1-GW1				
Metals	**RL**	**Unit**	**Criteria A**	**B**	**C**					
Metals Scan (Water, ICP/MS)										
Aluminum	0.01	mg/L	0.1			<0.01				
Antimony	0.0005	mg/L	0.006			<0.0005				
Arsenic	0.001	mg/L	0.01			<0.001				
Barium	0.001	mg/L	1			0.121				
Beryllium	0.0005	mg/L				<0.0005				
Boron	0.01	mg/L	5			0.23				
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			0.82				
Lead	0.001	mg/L	0.01			<0.001				
Manganese	0.01	mg/L	0.05			0.02				
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				4.94				
Thallium	0.0001	mg/L				<0.0001				
Uranium	0.001	mg/L	0.02			<0.001				
Vanadium	0.001	mg/L				<0.001				
Zinc	0.01	mg/L	5			<0.01				
Metals Scan (Water, ICP/OES)										
Calcium	1	mg/L				94				
Magnesium	1	mg/L				51				
Potassium	1	mg/L				8				
Sodium	1	mg/L	200			106				

					Eurofins Sample No :	**8476750**				
					Matrix :	Groundwater				
					Sampling Date :	2025-04-03				
					Client Sample Identification :	TW1-GW1				
Microbiology	**RL**	**Unit**	**Criteria A**	**B**	**C**					
E.Coli and Total Coliforms (DC Plate)										
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 : PH4924

Reception Date: 2025-04-04

Eurofins Sample No :			**8476750**						
Matrix :			Groundwater						
Sampling Date :			2025-04-03						
Client Sample Identification :			TW1-GW1						
Nutrients	**RL**	**Unit**							
Ammonia (Total, as Nitrogen)	0.02	mg/L	0.134						
Total Kjeldahl Nitrogen	0.1	mg/L	0.420						

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

Approved by :
Jason Kennedy,
Project Manager

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

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

Reception Date: 2025-04-04

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	98	95-105			0	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
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	108	80-120	5	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
Chloride (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Chloride	mg/L	0.5	<0.5	100	80-120	108	80-120	1	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
Colour, Apparent (Water, Spectrophotometry)									
Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.									
Colour (Apparent)	TCU	2	<2	109	78-116			3	0-40
Associated Samples : 8476750								Prep Date: 2025-04-11 Analysis Date: 2025-04-15	
Colour, True (Water, Spectrophotometry)									
Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.									
Colour (True)	TCU	2	<2	97	78-116			-	0-40
Associated Samples : 8476750								Prep Date: 2025-04-15 Analysis Date: 2025-04-15	
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 : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
DOC (Water, IR)									
Method : Organic carbon (water, IR, combustion). Internal method: OTT-I-DEM-WI46148.									
Dissolved Organic Carbon	mg/L	0.5	<0.5	99	85-115	90	80-120	12	0-15
Associated Samples : 8476750								Prep Date: 2025-04-08 Analysis Date: 2025-04-08	
E.Coli and Total Coliforms (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
Total Coliforms (DC)	CFU/100mL	0	0					-	0-30
Associated Samples : 8476750								Prep Date: 2025-04-04 Analysis Date: 2025-04-05	
Fluoride (Water, Auto/ISE)									
Method : Fluoride by autotitrator, ion selective electrode. Internal method: OTT-I-AT-WI45398.									
Fluoride	mg/L	0.1	<0.10	98	90-110			-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

Reception Date: 2025-04-04

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	97	70-130	1	0-20
Antimony	mg/L	0.0005	<0.0005	87	80-120	83	70-130	-	0-20
Arsenic	mg/L	0.001	<0.001	98	80-120	99	70-130	-	0-20
Barium	mg/L	0.001	<0.001	90	80-120	93	70-130	1	0-20
Beryllium	mg/L	0.0005	<0.0005	109	80-120	108	70-130	-	0-20
Boron	mg/L	0.01	<0.01	110	80-120	103	70-130	-	0-20
Cadmium	mg/L	0.0001	<0.0001	101	80-120	99	70-130	-	0-20
Chromium	mg/L	0.001	<0.001	100	80-120	95	70-130	-	0-20
Cobalt	mg/L	0.0002	<0.0002	100	80-120	97	70-130	-	0-20
Copper	mg/L	0.001	<0.001	110	80-120	98	70-130	-	0-20
Iron	mg/L	0.03	<0.03	100	80-120	91	70-130	2	0-20
Lead	mg/L	0.001	<0.001	100	80-120	98	70-130	-	0-20
Manganese	mg/L	0.01	<0.01	100	80-120	97	70-130	-	0-20
Molybdenum	mg/L	0.005	<0.005	90	80-120	88	70-130	-	0-20
Nickel	mg/L	0.005	<0.005	100	80-120	101	70-130	-	0-20
Selenium	mg/L	0.001	<0.001	98	80-120	101	70-130	-	0-20
Silver	mg/L	0.0001	<0.0001	113	80-120	90	70-130	-	0-20
Strontium	mg/L	0.001	<0.001	90	80-120	92	70-130	1	0-20
Thallium	mg/L	0.0001	<0.0001	103	80-120	97	70-130	-	0-20
Uranium	mg/L	0.001	<0.001	100	80-120	97	70-130	-	0-20
Vanadium	mg/L	0.001	<0.001	90	80-120	92	70-130	-	0-20
Zinc	mg/L	0.01	<0.01	110	80-120	105	70-130	-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
Metals Scan (Water, ICP/OES)									
Method : Metals (Water, ICP/OES). Internal method: OTT-I-MET-WI48491.									
Calcium	mg/L	1	<1	99	86-115	96	70-130	1	0-20
Magnesium	mg/L	1	<1	93	91-109	100	70-130	-	0-20
Potassium	mg/L	1	<1	101	87-113	110	70-130	-	0-20
Sodium	mg/L	1	<1	100	85-115	104	70-130	-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-04	
Nitrate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrate (as Nitrogen)	mg/L	0.1	<0.1	103	80-120	106	80-120	-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
Nitrite (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Nitrite (as Nitrogen)	mg/L	0.1	<0.1	100	80-120	103	80-120	-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
pH (25°C) (Water, Automated)									
Method : pH (Water, Automated Meter). Internal method: OTT-I-AT-WI45398.									
pH @ 25°C		1	6.75	100	97-103			0	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	

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OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Paterson Group
Project : PH4924

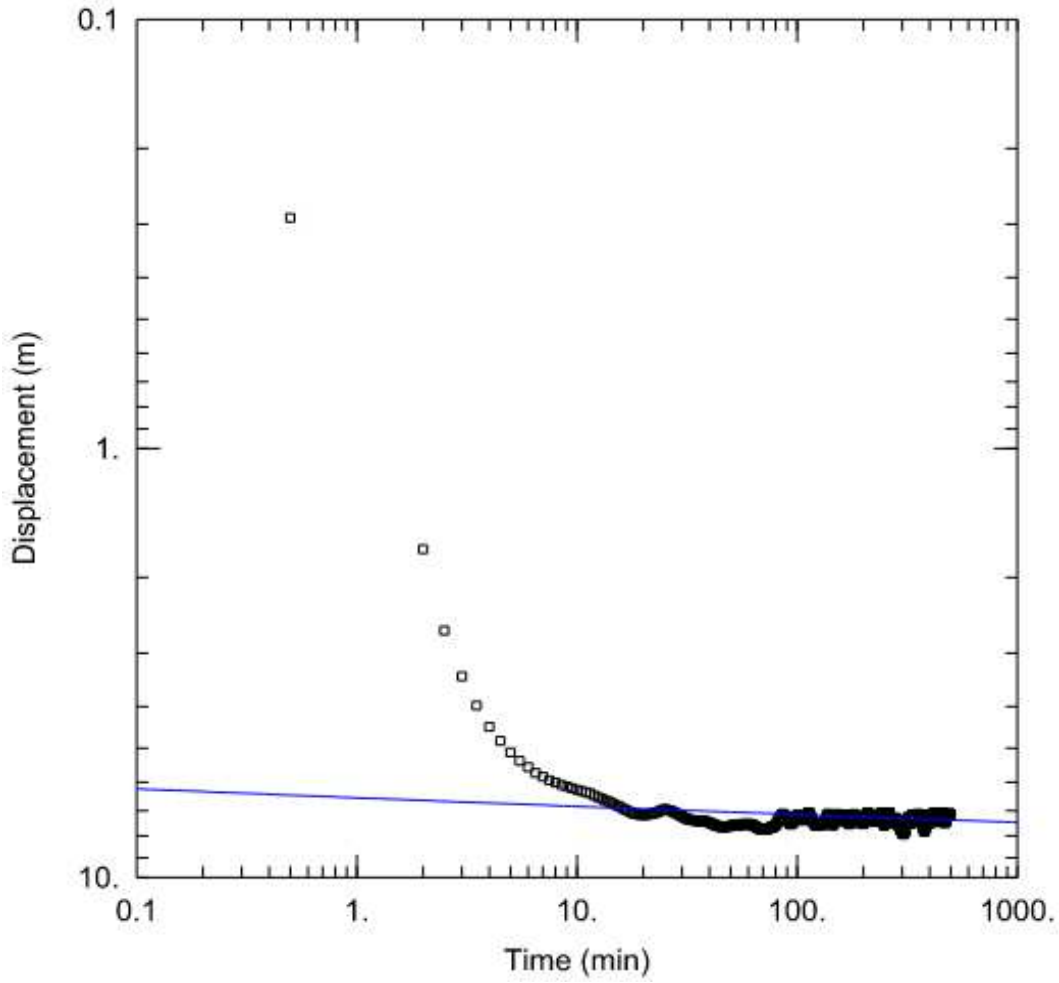
Reception Date: 2025-04-04

Parameter	Unit	RL	Blank	QC		Matrix Spike		Duplicate	
				Recovery %	Range %	Recovery %	Range %	RPD %	Range %
Phenols (Water, Colorimetry)									
Method : Phenols (Water, Colorimetry). Internal method: OTT-I-4AAP-WI46150.									
Phenols-4AAP	mg/L	0.001	<0.001	101	75-125	105	70-130	-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-08 Analysis Date: 2025-04-08	
Sulphate (Water, IC)									
Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.									
Sulphate	mg/L	1	<1	103	90-110	107	80-120	0	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
Sulphide (Water, Colorimetry)									
Method : Sulphide, S2- (Water, Colorimetry). Internal method: OTT-I-SPEC-WI45931.									
Sulphide (S2-)	mg/L	0.01	<0.01	91	80-120			-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-08 Analysis Date: 2025-04-08	
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	104	80-120			-	0-20
Associated Samples : 8476750								Prep Date: 2025-04-08 Analysis Date: 2025-04-08	
Total Kjeldahl Nitrogen (Water, Colorimetry)									
Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.									
Total Kjeldahl Nitrogen	mg/L	0.1	<0.100	89	70-130	105	70-130	11	0-20
Associated Samples : 8476750								Prep Date: 2025-04-07 Analysis Date: 2025-04-07	
Turbidity (Water, Turbidimeter)									
Method : Turbidity (Water, Turbidimeter). Internal method: OTT-I-TUR-WI46288.									
Turbidity	NTU	0.1	<0.1	98	80-120			2	0-30
Associated Samples : 8476750								Prep Date: 2025-04-05 Analysis Date: 2025-04-05	

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

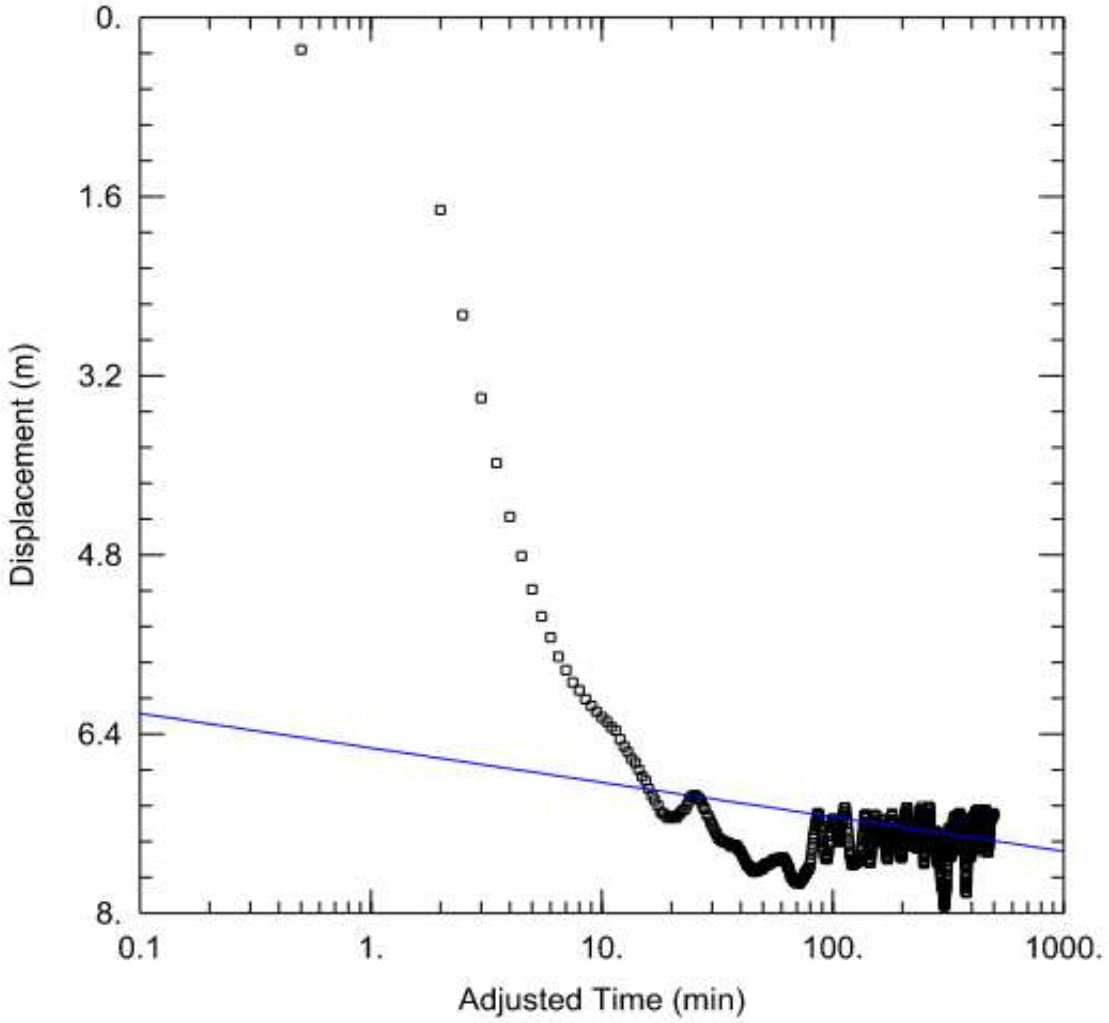
Pumping Test Analysis Report

File No.	PH4924	Well ID:	TW1
Date:	March 19, 2025	Solution Method:	**Theis**
Client:	Stratford Foxrun	Transmissitivity (m^2/day):	65
Site Address:	5923 Ottawa Street, Ottawa	Discharge Rate (L/min)	78
Project:	Proposed Commercial Development	Analysis performed by:	ZB



Pumping Test Analysis Report

File No.	PH4924	Well ID:	TW1
Date:	March 19, 2025	Solution Method:	**Cooper-Jacob**
Client:	Stratford Foxrun	Transmissitivity (m^2/day):	65
Site Address:	5923 Ottawa Street, Ottawa	Discharge Rate (L/min)	78
Project:	Proposed Commercial Development	Analysis performed by:	ZB



Pumping Test Analysis Report

File No.	PH4924
Date:	March 19, 2025
Client:	Stratford Foxrun
Site Address:	5923 Ottawa Street, Ottawa
Project:	Proposed Commercial Development

Summary Table:

Solution Method:	Well ID:	Transmissitivity (m^2/day):
Theis	TW1	65
Cooper-Jacob	TW1	65
Average:		**65.0**

PATERSON GROUP

5923 Ottawa Street, Ottawa

PH4924

PREDICTIVE NITRATE IMPACT ASSESSEMENT

Infiltration Factors		
Topography	0.20	
Soil	0.30	
Cover	0.14	
Total	**0.64**	
Site Characteristics		
Area of Site :	22680	m^2
Total of roof areas:	1572	m^2
Total area of paved driveway areas:	2575	m^2
Roof + paved driveway areas	4147	m^2
Impervious Area	4147	m^2
Percent Impervious Area =	18	%
Infiltration Area =	18533	m^2
Septic Effluent		
Concentration of Effluent (Cs) =	17.2	mg/L
Daily Sewage Flow (Qs)=	9.967	m^3
See Notes below.		
Infiltration Calculation		
Nitrate concentration in precipitation (C_i) =	0	mg/L
Surplus Water (Environment Canada)	360	mm/yr
Factored Water Surplus =	230	mm/yr
Infiltration % due to stormwater management measures	-	%
Infiltration rate from stormwater management measures =	0	mm/yr
Infiltration Flow Entering the System (Q_i) =	12	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	9.967	m^3/day
C_e = concentration of nitrates in the septic effluent	17.2	mg/L
Q_i = flow entering the system from infiltration	12	m^3/day
C_i = Concentration of nitrates in the infiltrate	0	mg/L
C_T =	**7.91**	**mg/L**

Notes: Site characteristic values were measured as approximate values from the available site plan. Daily Sewage Flow volume was calculted by Paterson Group as a preliminary design flow.

5923 Ottawa Street, Ottawa

PH4924

TW1	Inputs		
pH	7.88	A	0.19
TDS	886	B	2.38
Hardness	444	C	2.25
Alkalinity	271	D	2.43
Temp.	10.1		
		pHs =	7.194940025

Langelier Saturation Index (LSI) Calculation

(Langelier, 1936)

LSI = pH - pHs

pHs = (9.3 + A + B) - (C + D)

Where:

A = (Log10 [TDS] - 1) / 10

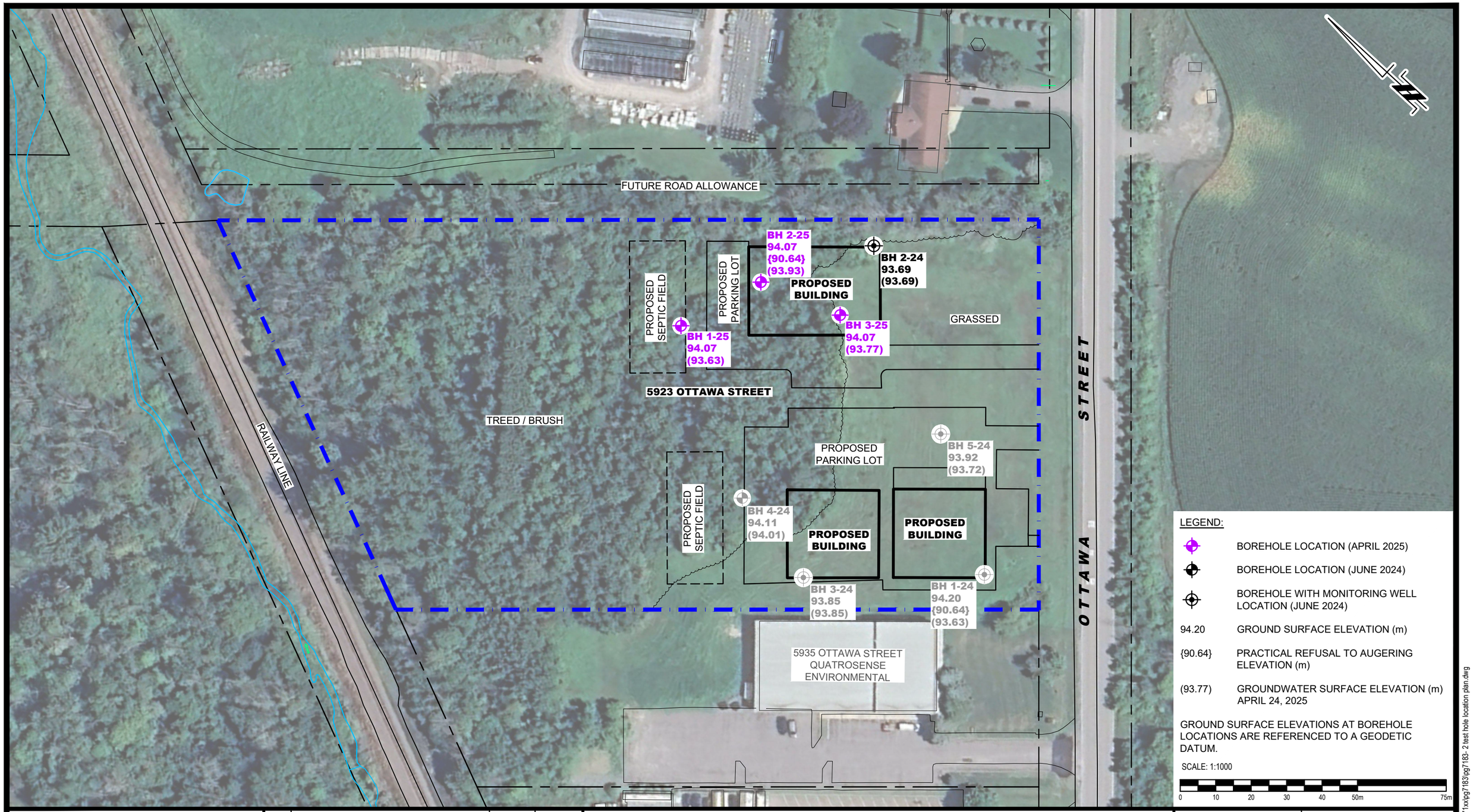
B = -13.12 x Log10 (oC + 273) + 34.55

C = Log10 [Ca2+ as CaCO3] - 0.4

D = Log10 [alkalinity as CaCO3]

LSI = 0.7

LSI	Effect
0.5 to 2	**Water is super saturated and tends to precipitate a scale layer of calcium carbonate (scale forming but non-corrosive)**
0 to 0.5	**Water is super saturated and tends to precipitate a scale layer of calcium carbonate (slightly scale forming and corrosive).**
0	Water is saturated (in equilibrium) with calcium carbonate. A scale layer of calcium carbonate is neither precipitated nor dissolved.
0 to -0.5	Water is under saturated and tends to dissolve solid calcium carbonate (slightly corrosivebut non-scale forming).
-0.5 to -2	Water is under saturated and tends to dissolve solid calcium carbonate (seriously corrosive).



LEGEND:

- BOREHOLE LOCATION (APRIL 2025)
- BOREHOLE LOCATION (JUNE 2024)
- BOREHOLE WITH MONITORING WELL LOCATION (JUNE 2024)
- 94.20 GROUND SURFACE ELEVATION (m)
- {90.64} PRACTICAL REFUSAL TO AUGERING ELEVATION (m)
- (93.77) GROUNDWATER SURFACE ELEVATION (m) APRIL 24, 2025

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

SCALE: 1:1000

0 10 20 30 40 50m 75m

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

NO.	REVISIONS	DATE	INITIAL

STRATFORD FOXRUN
GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
5923 OTTAWA STREET

OTTAWA, ONTARIO

Title:

TEST HOLE LOCATION PLAN

Scale: 1:1000	Date: 04/2025
Drawn by: GK	Report No.: PG7183-2
Checked by: DR	Dwg. No.: PG7183-2
Approved by: SD	Revision No.:

p:\autocad drawings\geotechnical\pg71xx\pg7183\pg7183- 2 test hole location plan.dwg

11x17

ROAD ALLOWANCE BETWEEN LOTS 25 & 26 CONCESSION 3

PART 1
R.P 4R-13387

N42°37'20"W

100mmØ PVC PIPE TO BE INSTALLED @ 2% (min.) SLOPE AND SHALL BE SLEEVED THROUGH A 150mm Ø PVC SDR28 PIPE AND OVERLAIN BY 75mm T x 600mm W RIGID INSULATION BOARDS UNDER ASPHALT. PATERSON TO REVIEW COVER UPON COMPLETION OF LOT GRADING AND DRAINAGE.

NEW 3,600L PRETREATMENT TANK c/w
- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
- POLYLOK PL-525 EFFLUENT FILTER
- POLY RISER & COVER ASSEMBLY (2)
- INLET INV. = 94.27m±
- OUTLET INV. = 94.22m±
- TOP OF TANK = 94.55m±
- FINISHED GRADE = 95.15m

3m L - 100mmØ PVC PIPE WITH ELBOW @ 2% (min.) SLOPE

TYP.
2 OUTLET DISTRIBUTION BOX C/W INLET BAFFLE AND POLYLOK FLOW EQUALIZERS
INLET INV. 94.90m(min.)
OUTLET INV. = 94.80m (min.)

SS 'B'

ELJEN SAMPLING PAN
- INSTALL COLLECTION PLATES AS PER MANUFACTURER SPECIFICATIONS

2 RUNS OF 4 ELJEN GSF A-42 MODULES
MODULAR BASE ELEV. @ HEAD = 94.42m
MODULAR BASE ELEV. @ FOOT = 94.40m

TYP.
100mmØ VENT PIPE INSTALLED IN 150mmØ LANDSCAPE VALVE COVER

TYP.
100mmØ SOLID PVC FOOTER PIPE
INV. = 94.58m

BH 1-25
94.07
(93.63)

TYP.
BOLLARDS

PROPOSED INDUSTRIAL BUILDING
(ONE STOREY)

38mmØ PVC SCH 40 PIPE FORCEMAIN
- SHALL BE INSTALLED TO GRAVITY DRAIN TO THE TANK.
- ENTIRE LENGTH OF FORCEMAIN SHALL BE BEDDED OF A MINIMUM OF 150mm OF OPSS GRANULAR A, AND SHALL BE COVERED WITH A MINIMUM OF 300mm OF OPSS GRANULAR A.
- ALL GRANULAR A MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 98% SPMDD.

450L (min.) BALANCING TANK c/w TIME OPERATED EFFLUENT 1/2 H.P. SIMPLEX PUMP AND AUDIBLE / VISUAL HIGH WATER ALARM.
- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
- POLY RISER AND COVER ASSEMBLY
- INLET INV. = 94.17m
- FINISHED GRADE = 95.15m

BH 2-24
93.69
(93.69)

100mmØ PERFORATED PVC SEPTIC PIPE INSTALLED @ APPROX. 0.5% ON ELJEN MODULES
HEAD INV. = 94.60m
FOOT INV. = 94.58m

ELJEN SPECIFIED SAND AREA
- 630 mm THICK (TOP OF MODULE TO BASE)
- 9.60m x 9.68m
- FOLLOWED BY 300 mm THICK OF SAND/LIGNOCELLULOSE LAYER
- FOLLOWED BY 50 mm THICK LAYER OF LIMESTONE

ASPHALT

PAVERS

NOTE:
SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.

SNOW STORAGE

NOTE:
SNOW STORAGE SHALL NOT BE LOCATED OVER OR UPGRADIENT OF THE PROPOSED SEWAGE SYSTEM.

SNOW STORAGE

TYP.
100mmØ SOLID PVC FOOTER PIPE
INV. = 94.78m

TYP.
100mmØ VENT PIPE INSTALLED IN 150mmØ LANDSCAPE VALVE COVER

TYP.
2 x LARGE 4 OUTLET DISTRIBUTION BOX C/W INLET BAFFLE AND POLYLOK FLOW EQUALIZERS
INLET INV. 95.10m(min.)
OUTLET INV. = 95.00m (min.)

100mmØ PERFORATED PVC SEPTIC PIPE INSTALLED @ APPROX. 0.5% ON ELJEN MODULES
HEAD INV. = 94.83m
FOOT INV. = 94.78m

SS 'A'

BH 4-24
94.11
(94.01)

EXISTING MONITORING WELL TO BE DECOMMISSIONED

3m L - 100mmØ PVC PIPE WITH ELBOW @ 2% (min.) SLOPE

2 CELLS OF 5 RUNS OF 11 ELJEN GSF A-42 MODULES
MODULAR BASE ELEV. @ HEAD = 94.65m
MODULAR BASE ELEV. @ FOOT = 94.60m

ELJEN SAMPLING PAN
- INSTALL COLLECTION PLATES AS PER MANUFACTURER SPECIFICATIONS

ELJEN SPECIFIED SAND AREA
- 630 mm THICK (TOP OF MODULE TO BASE)
- 37.24m x 22.50m
- FOLLOWED BY 300 mm THICK OF SAND/LIGNOCELLULOSE LAYER
- FOLLOWED BY 50 mm THICK LAYER OF LIMESTONE

PROPOSED INDUSTRIAL BUILDING
(ONE STOREY)

PROPOSED FINISHED FLOOR ELEVATION: 95.25

CONCRETE

PAVERS

BH 3-24
93.85
(93.85)

EXISTING DRILLED WELL TO BE DECOMMISSIONED

EXISTING DRILLED WELL

No. 5935
2 Storey
Block and Metal Clad
Building

100mmØ PVC PIPE TO BE INSTALLED @ 2% (min.) SLOPE AND SHALL BE SLEEVED THROUGH A 150mm Ø PVC SDR28 PIPE AND OVERLAIN BY 75mm T x 600mm W RIGID INSULATION BOARDS UNDER ASPHALT.
OUTLET ELEV. @ PROPOSED BUILDING = 94.79m±

BH 1-24
94.20
(93.63)

NEW 28,101L PRETREATMENT TANK c/w
- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS
- POLYLOK PL-525 EFFLUENT FILTER
- POLY RISER & COVER ASSEMBLY (2)
- INLET INV. = 94.50m±
- OUTLET INV. = 94.45m±
- TOP OF TANK = 94.80m±
- FINISHED GRADE = 95.40m

18,500L (min.) BALANCING TANK c/w TIME OPERATED EFFLUENT 1/2 H.P. DUPLEX PUMPS AND AUDIBLE / VISUAL HIGH WATER ALARM.
- TANK SHALL BE CPA APPROVED (OR ENGINEERED) FOR 1.2m (min.) OF COVER.
- TANK SHALL BE REVIEWED FOR BALLASTING REQUIREMENTS.
- PUMPING SYSTEM SHALL BE TIME DOSED TO OPERATE EVERY HOUR AND ALTERNATE BETWEEN CELLS.
- POLY RISER AND COVER ASSEMBLY
- INLET INV. = 94.40m±
- TOP OF TANK (max.) = 94.75m±
- FINISHED GRADE = 95.40m

2 x 38mmØ PVC SCH 40 PIPE FORCEMAIN
- SHALL BE INSTALLED TO GRAVITY DRAIN TO THE TANK.
- ENTIRE LENGTH OF FORCEMAIN SHALL BE BEDDED OF A MINIMUM OF 150mm OF OPSS GRANULAR A, AND SHALL BE COVERED WITH A MINIMUM OF 300mm OF OPSS GRANULAR A.
- ALL GRANULAR A MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 98% SPMDD.

NOTE:
INTERNAL GREASE TRAPS SHALL BE PROVIDED ON KITCHEN FIXTURES.

BH 5-24
93.92
(93.72)

TBM:
TOP OF SPIKE IN HYDRO POLE ACROSS FROM EAST PROPERTY LINE OF 5935 OTTAWA STREET
GEODETIC ELEV. = 94.86m

N42°32'25"W

N47°26'50"E

180.06

110.00

SSIB (1916)

SIB (WSG)

Ditch

Gravel Shoulder

94.66 Asphalt

OTTAWA STREET

NOTE:
SEWAGE SYSTEM 'B' HAS BEEN DESIGNED BASED ON *PATERSON GROUP REPORT PH4924-LET.01*

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW (T.D.D.S.S.F.) OR "Q" = 600 L/DAY

NATIVE SOILS = GLACIAL TILL TO SILTY CLAY = T = 40 min/cm

MINIMUM NITRATE REDUCTION LEVEL REQUIRED = 50% AS PER PATERSON GROUP REPORT No. *PH4924-LET.01*

ELJEN DN450 SHALL BE USED TO ACHIEVE THE MINIMUM REQUIRED NITRATE REDUCTION.

PRESENTLY PROPOSED ELEVATIONS ARE BASED OFF THE EXISTING TOPOGRAPHIC INFORMATION. THE PROPOSED LOT GRADING AND DRAINAGE ASSOCIATED WITH THE PROPOSED ADDITION MAY AFFECT THESE ELEVATIONS.

NOTE:
SEWAGE SYSTEM 'A' HAS BEEN DESIGNED BASED ON *PATERSON GROUP REPORT PH4924-LET.01*

TOTAL DESIGN DAILY SANITARY SEWAGE FLOW (T.D.D.S.S.F.) OR "Q" = 9,367 L/DAY

NATIVE SOILS = GLACIAL TILL TO SILTY CLAY = T = 35 min/cm

MINIMUM NITRATE REDUCTION LEVEL REQUIRED = 50% AS PER PATERSON GROUP REPORT No. *PH4924-LET.01*

ELJEN DN450 SHALL BE USED TO ACHIEVE THE MINIMUM REQUIRED NITRATE REDUCTION.

PRESENTLY PROPOSED ELEVATIONS ARE BASED OFF THE EXISTING TOPOGRAPHIC INFORMATION. THE PROPOSED LOT GRADING AND DRAINAGE ASSOCIATED WITH THE PROPOSED ADDITION MAY AFFECT THESE ELEVATIONS.

PART 4
R.P 4R-7050

Professional Engineers Ontario

Licensed Engineering Technologist

Name: H. G. VAN DE GLIND
Number: 100647862
Limitations: Inspecting, designing, and assessing residential and commercial sewage systems, grading designs and soil analysis, and overseeing installation and compliance.

Association of Professional Engineers of Ontario

LEGEND:

- Bore Hole Location
- x 70.81 — Existing Ground Surface Elev. (m)
- **x 72.70** — Proposed Ground Surface Elev. (m)
- **72.70** — Proposed Subgrade Elev. (m)
- (70.7) — Groundwater Elev. (m) - Mar.6/22
- F.F.E. — Finished Floor Elev. (m)
- Existing Structure
- Proposed Structure

All Units are in meters unless otherwise specified

BENCHMARK INFORMATION:

TBM: Top of Spike in Hydro Pole Across from East Property Line of 5935 Ottawa Street
Approximate Geodetic Elevation = 94.86m

REFERENCE:

Topographic Information obtained from Plan of Survey of Part of Unit 10 Index Plan D-26 Geographic Township of Goulbourn City of Ottawa, dated July 9, 2024, by egis Surveying Inc.

Baseplan Obtained from Site Plan No. A-001, dated May 2025, by N45 Architecture Inc.

14/08/25	Revised as per City of Ottawa Comments	4
04/06/25	Issued for Septic Permit	3
14/05/25	Issued with Revised Site Plan	2
03/10/24	Issued with Revised Site Plan	1
DD/MM/YY	Description	Rev.

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

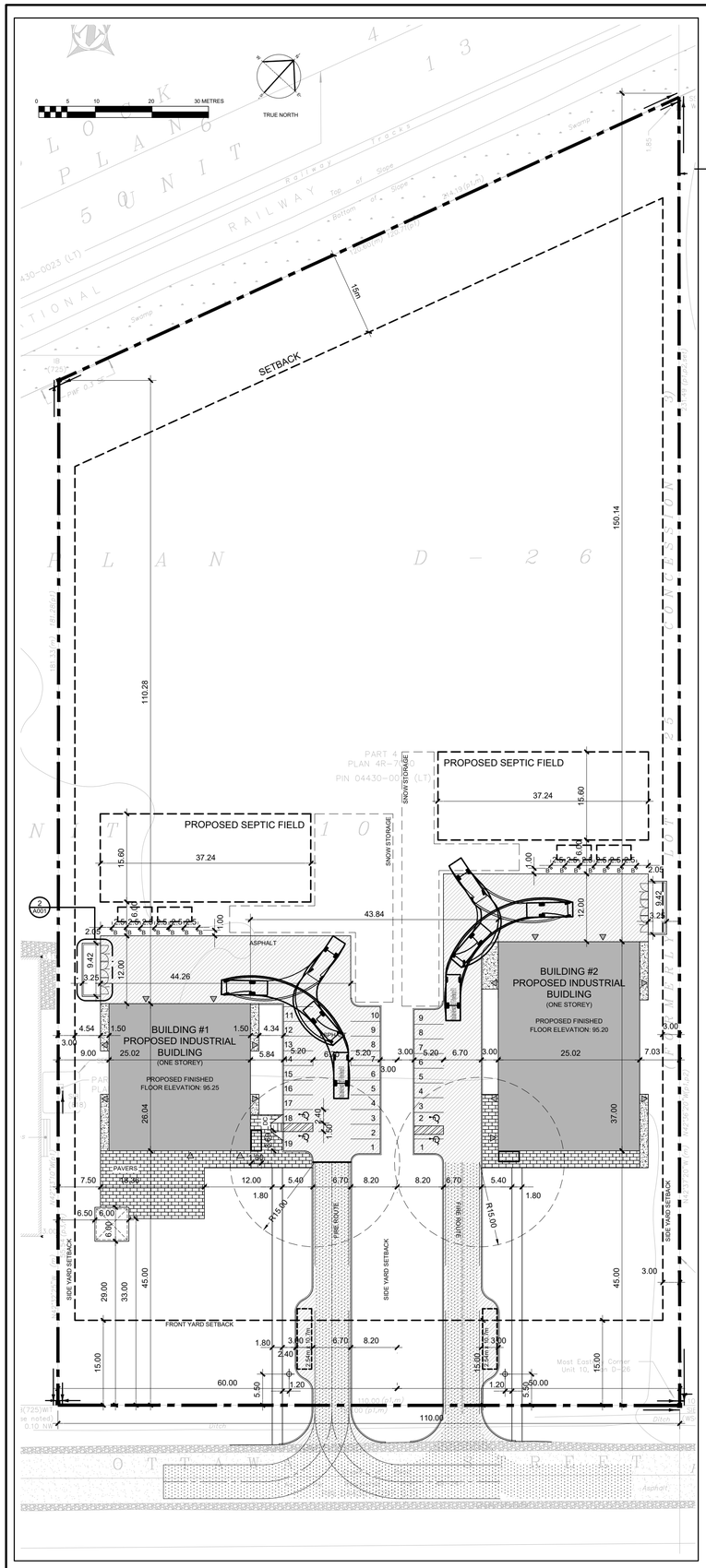
Client: **STRATFORD FOXRUN**

Project: **PROPOSED WAREHOUSE / RESTAURANT**
5923 OTTAWA STREET
OTTAWA (RICHMOND), ONTARIO

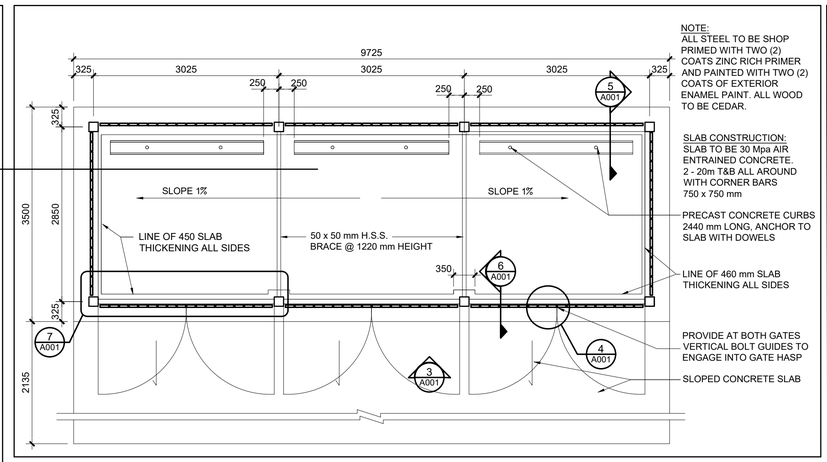
Drawing: **SEWAGE SYSTEM LAYOUT PLAN**
SEWAGE SYSTEM 'A' AND 'B'

Scale: 1:600
Drawn by: HV
Date: 08/2025
Checked by: MK
Drawing no.: **PH4924-1(rev.4)**

p:\autocad drawings\hydrogeology\ph4924-1 (rev 4).dwg



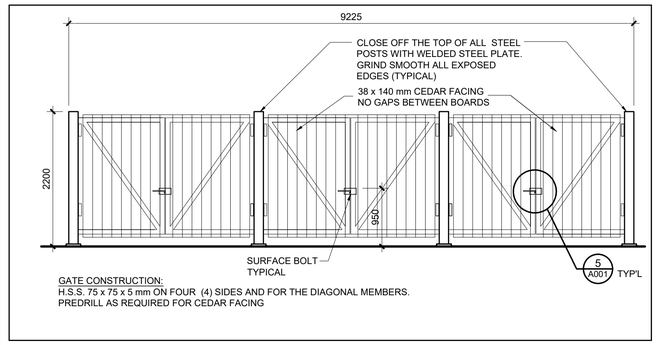
1 SITE PLAN
A-001 SCALE 1:500



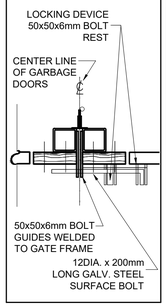
NOTE:
ALL STEEL TO BE SHOP PRIMED WITH TWO (2) COATS ZINC RICH PRIMER AND PAINTED WITH TWO (2) COATS OF EXTERIOR ENAMEL PAINT. ALL WOOD TO BE CEDAR.

SLAB CONSTRUCTION:
SLAB TO BE 30 Mpa AIR ENTRAINED CONCRETE. 2 - 20m T&B ALL AROUND WITH CORNER BARS 750 x 750 mm

2 A001 GARBAGE ENCLOSURE PLAN
SCALE 1:50

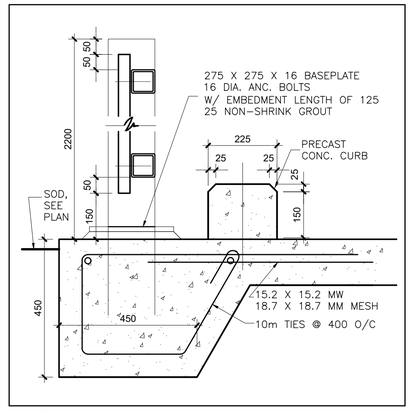


GATE CONSTRUCTION:
H.S.S. 75 x 75 x 5 mm ON FOUR (4) SIDES AND FOR THE DIAGONAL MEMBERS.
PREDRILL AS REQUIRED FOR CEDAR FACING

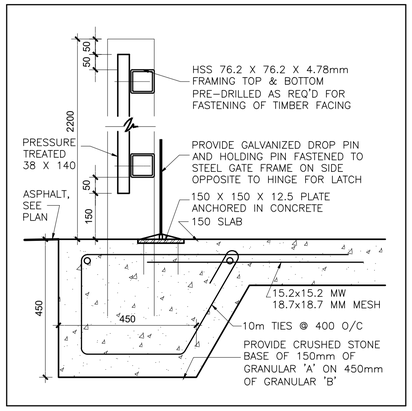


3 A001 GARBAGE ENCLOSURE ELEVATION
SCALE 1:50

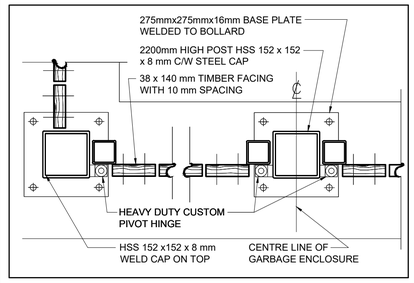
4 A001 PLAN DETAIL
SCALE 1:10



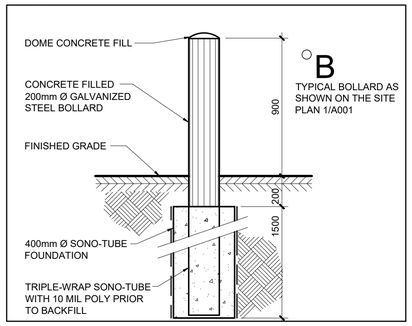
5 A001 GARBAGE ENCLOSURE SECTION DETAIL
SCALE 1:10



6 A001 GARBAGE ENCLOSURE SECTION DETAIL
SCALE 1:10



7 A001 GARBAGE ENCLOSURE PLAN DETAIL
SCALE 1:10



8 A001 BOLLARD DETAIL
SCALE 1:20

ZONING INFORMATION

NOTE: ALL ZONING DEFINITIONS AND REQUIREMENTS AS PER CITY OF OTTAWA ZONING BY-LAW 2008-250

ZONING MECHANISM	REQUIRED	PROVIDED
DEFINITION	RG3 [385r] RURAL GENERAL INDUSTRIAL ZONE	BUILDING #1: WAREHOUSE, RETAIL STORE, BAR (25%) BUILDING #2: WAREHOUSE
MIN. LOT WIDTH	30.0 m	110.0 m
MIN. LOT AREA	2,000 m²	22,680 m² (± 5.6 Acres)
MIN. FRONT YARD SETBACK	15.0 m	45.0 m
MIN. REAR YARD SETBACK	15.0 m	110.0 m
MIN. INTERIOR SIDE YARD SETBACK	3.0 m	9.0 m
MAX. LOT COVERAGE	35%	2.85%
PARKING LANDSCAPE BUFFER	FOR A PARKING LOT CONTAINING 10-100 SPACES: ABUTTING A STREET = 3 m NOT ABUTTING A STREET = 1.5 m	ABUTTING A STREET 3 m NOT ABUTTING A STREET 3 m
STANDARD PARKING SPACE	2.6m WIDTH x 5.2m LENGTH	2.6m WIDTH x 5.2m LENGTH
PARALLEL PARKING SPACE	2.6m WIDTH x 6.7m LENGTH	2.6m WIDTH x 6.7m LENGTH
ACCESSIBLE PARKING SPACE	3.4x5.2m (A); 2.4x5.2m(B)	3.4x5.2m (A); 2.4x5.2m(B)
PARKING REQUIREMENTS	BUILDING#1: LIGHT INDUSTRIAL USE (N49): 0.8 PER 100 m2 FOR THE FIRST 5,000 m2 OF GFA (3.495 REQUIRED) RETAIL STORE (N79): 3.4 PER 100m2 OF GFA (2.75 REQUIRED) BAR (N15): 6 PER 100m2 OF GFA (6.48 REQUIRED) TOTAL REQUIRED: 12.725 BUILDING#2: LIGHT INDUSTRIAL USE (N49): 0.8 PER 100 m2 FOR THE FIRST 5,000 m2 OF GFA (8.336 REQUIRED)	BUILDING#1: 19 PARKING SPACES BUILDING#2: 9 PARKING SACES
BARRIER FREE ACCESSIBLE	AS PER CITY OF OTTAWA ACCESSIBILITY DESIGN STANDARDS, PARGRAPH 3.1.2, TABLE 3 1 TYPE 'A', 1 TYPE 'B'	BUILDING#1: 2 ACCESSIBLE PARKING SPACES (1xTYPE 'A' + 1xTYPE 'B') BUILDING#2: 2 ACCESSIBLE PARKING SPACES (1xTYPE 'A' + 1xTYPE 'B')
LOADING SPACES	GFA 350-999m2 - 0 required	0 PROVIDED
BICYCLE PARKING RATE	BUILDING#1: LIGHT INDUSTRIAL USE: 1 PER 1,000 m2 OF GFA (0.4365 REQUIRED) RETAIL STORE: 1 PER 250 m2 OF GFA (0.32 REQUIRED) BAR: 1 PER 1,500 m2 OF GFA (0.072) TOTAL REQUIRED: 0.8285 BUILDING#2: LIGHT INDUSTRIAL USE: 1 PER 1,000 m2 OF GFA (1.042 REQUIRED)	BUILDING#1: 6 BICYCLE SPACES BUILDING#2: 6 BICYCLE SPACES

PROJECT INFORMATION (BUILDING#1):

BUILDING CLASSIFICATION:
THE BUILDING IS CLASSIFIED AND DESIGNED TO CONFORM TO THE ONTARIO BUILDING CODE 2024 (CURRENT EDITION) PART 3

MAJOR OCCUPANCY:
GROUP F, DIVISION 2, SPRINKLERED, UP TO TWO STOREY (3.2.2.72)
MINOR OCCUPANCIES:
GROUP E, AND GROUP D

BUILDING STATISTICS:

BUILDING AREA (FOOTPRINT):	623 sq.m.
BUILDING GFA:	738 sq.m.
NUMBER OF STOREYS:	1 (+MEZZANINE)
BUILDING SPRINKLERED:	YES
# OF STREET ACCESS ROUTES:	1
CONSTRUCTION TYPE:	NON-COMB.
FLOOR ASSEMBLY & F.R.R.:	1 HOUR

PROJECT INFORMATION (BUILDING#2):

BUILDING CLASSIFICATION:
THE BUILDING IS CLASSIFIED AND DESIGNED TO CONFORM TO THE ONTARIO BUILDING CODE 2024 (CURRENT EDITION) PART 3

MAJOR OCCUPANCY:
GROUP F, DIVISION 2, SPRINKLERED, UP TO TWO STOREY (3.2.2.72)
MINOR OCCUPANCIES:
GROUP D

BUILDING STATISTICS:

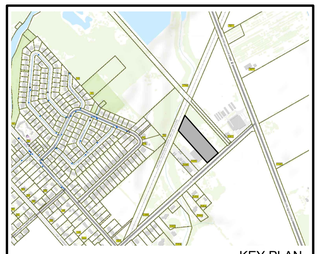
BUILDING AREA (FOOTPRINT):	925 sq.m.
BUILDING GFA:	1,042 sq.m.
NUMBER OF STOREYS:	1 (+MEZZANINE)
BUILDING SPRINKLERED:	YES
# OF STREET ACCESS ROUTES:	1
CONSTRUCTION TYPE:	NON-COMB.
FLOOR ASSEMBLY & F.R.R.:	1 HOUR

TOPOGRAPHICAL PLAN INFORMATION:

SURVEY PROPERTY BOUNDARIES TAKEN FROM TOPOGRAPHICAL PLAN, PLAN OF SURVEY OF PART OF UNIT 10, INDEX PLAN D-26, GEOGRAPHIC TOWNSHIP OF GOULBOURN, CITY OF OTTAWA

PREPARED BY EGIS SURVEYING INC, JULY 9, 2024

STRATFORD FOX RUN
GROUP OF COMPANIES



KEY PLAN

no.	revision	date
2	ISSUED FOR SPA	08MAY25
1	ISSUED FOR SITE PLAN CONTROL	07OCT24

N45 ARCHITECTURE INC.
71 Bank Street, 7th floor - Ottawa, Ontario, K1P 5N2
tel. 613.224.0095 fax 613.224.9811

project
FOXRUN RICHMOND

5923 OTTAWA STREET
OTTAWA, ON

project north

seal
ONTARIO ASSOCIATION OF ARCHITECTS
VLADIMIR POPOVIC
LICENCE
5918

drawing title
SITE PLAN

scale AS NOTED	drawn by NF
date JUNE 2022	checked by VP
project number 24-826	drawing number A-001

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BEFORE WORK COMMENCES.
DO NOT SCALE DRAWINGS.

revision
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