



July 31, 2023 (Revision 01)

Our File Ref.: 210341

Al Roberts
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Richmond, Ontario K0A 2Z0

Subject: Hydrogeological Assessment and Terrain Analysis - Proposed Mixed Use Dog
Kennel and Dwelling, 5969 Ottawa Street, Richmond, Ontario

Dear Mr. Roberts,

LRL Associates Ltd. (LRL) has conducted a Hydrogeological Assessment and Terrain Analysis Study for a proposed change in land use that would allow development on private water and wastewater services for a portion of the property located at 5969 Ottawa Street. The proposed development is a two-storey prefab building. The first floor would include a kennel to shelter up to four (4) dogs for service training. The second floor would include a two (2) bedroom caretaker's residence. The development is proposed to be constructed on the portion of the property located east of Marlborough Creek at 5969 Ottawa Street, Richmond (herein referred to as the "Site").

The proposed development intends to operate on a private, on-site supply well for drinking water, as well as a private, on-site sewage system.

The assessment was carried out to determine if the proposed development:

- Has soil conditions that are suitable for onsite water supply and sewage disposal; and
- Will not impair the use of groundwater resources on the Site or on adjacent lands.

The assessment involved a desktop review of available information on the geology and hydrogeology of the Site and adjacent lands in addition to an intrusive subsurface investigation (test pitting program), and hydrogeological pumping test of the drinking water well on the subject site.

An initial Hydrogeological Assessment and Terrain Analysis report was prepared and dated September 22, 2021. The City of Ottawa technical reviewers provided comment after a formal evaluation of the deliverable, discussed further in their October 14, 2022, first submission comments, included in **Attachment I**. This report revision has been prepared to address the City of Ottawa comments related to the Hydrogeological Assessment and Terrain Analysis report previously submitted. The findings included herein are based on the work completed from between July 20, 2021, and May 29, 2023.



1 SITE AND AREA DESCRIPTION

The property is situated at the southeastern extent of Richmond at 5969 Ottawa Street, shown in **Figure 1**. For the purpose of this report, Ottawa St direction will be inferred as east-west.

The totality of the property is triangular in shape and approximately 2.22 hectares (5.44 acres). The portion being assessed for development (the Site) is irregularly shaped, approximately 0.90 hectares (2.22 acres), and bounded by Ottawa Street on the south, the Smith Falls rail corridor on the north, an industrial lot to the east, and the Marlborough Creek to the west. The Site is vacant, approximately two thirds treed with a flat, grassed section in the southeast corner which is the proposed location of the new development. Site is zoned as RG3 – Rural General Industrial Zone (RG), Subzone 3.

The topography of the land is generally flat ranging from 94 to 95 m asl. The creek causes a slight dip in topography along the west side of the Site. GeoOttawa shows the majority of the treed portion of the Site is within a flood plain, and the grassed portion of the Site is outside of this floodplain.

These existing site features are shown in the **Figure 2**.

2 PROPOSED DEVELOPMENT

It is understood that the development will be constructed within the grassed portion of the Site between the site boundaries and the flood plain of Marlborough Creek. The associated septic system will be to the south of the proposed building; the well will be to the north. The estimated proposed building footprint is 453 m²; being approximately 18.5 m wide (east – west) by 24.5 m in length (north – south). The building will be slab on grade and supplied by a private water well and sewage disposal system. An asphalted parking and circulation area will extend from Ottawa Street along the western extent of the development area, and will include six (6) parking spaces, encompassing an overall area of approximately 620 m².

As mentioned, the Site will be serviced by a private sewage disposal system, which is proposed to be located at the southeastern extent of the property. The sewage disposal system will be a pressurized shallow buried trench bed construction, with a Norweco 3780-3M treatment unit. The Ottawa Septic System Office has approved the proposed design, and the corresponding permit is included in **Attachment II**.

In June 2021, the client retained a provincially licensed well installer (Air-Rock Drilling Co Ltd., Richmond, Ontario) to install a test well at the general northeastern portion of the Site. LRL was not present during the installation process, nor was LRL consulted on the location of the test well. This test well, referred to as TW-1 (Well Tag # A320977), was used to perform the initial aquifer evaluation on the Site, as documented in the Hydrogeological Assessment and Terrain Analysis report was prepared and dated September 22, 2021. The details of the TW-1 are summarized further herein in later sections.

Based on the results of the initial TW-1, in comparison to the applicable provincial regulations and guidelines, it was established that a new, better suited supply well (TW-2) be constructed on the Site. This newly installed proposed supply well for the development is located immediately north of the proposed building footprint, maintaining a 15 m setback from the proposed sewage disposal system location. Further details pertaining to the supply well details are included in the remaining body of this report.

The proposed development plan, including the proposed lot features are shown in **Figure 3**.



3 FIELDWORK

The fieldwork discussed herein includes the overall activities related to the hydrogeological assessment and terrain analysis completed from between July 20, 2021, and May 29, 2023. The subsequent sections provide details related to the fieldwork completed to date as part of this mandate, and are outlined in chronological order.

3.1 Potable Water Sample Collection – July 2021

3.1.1 5969 Ottawa Street

A sample of untreated water was collected from the supply water well at 5969 Ottawa Street, on July 20, 2021 to confirm the quality of the proposed supply aquifer prior to proceeding with the hydrogeological pumping test. The water was allowed to run for ten minutes before collection. The samples were collected using laboratory prepared bottles and were submitted for a subdivision package analysis.

The laboratory Certificates of Analysis are included in **Attachment III**.

3.2 Terrain Analysis Test Pit Advancement – July 2021

On July 20, 2021, three (3) test pits were completed across the proposed severed lot to determine the general upper soil and groundwater conditions, as well as to establish the depth of overburden in the area over bedrock. The test pits were advanced using a backhoe operated by Landraulics Equipment (Richmond, Ontario). LRL was present to supervise and document the advancement of the test pits. The locations of the test pits are presented in **Figure 4** with the Test Pit Logs included in **Attachment IV**.

An open tube piezometer was installed in test pits TP21-1 through TP21-3 to allow for the elevation measurement and sampling of the perched water found in the overburden, herein referred to as groundwater. Groundwater samples could not be collected from the piezometers at the time of sampling on August 11, 2021, as they were found to be dry at the time of the sampling event. The piezometers have also since been removed from the Site.

Soil samples TP21-1-3, TP21-2-4, and TP-21-3-3 were submitted to LRL's geotechnical testing laboratory for grainsize analysis. The laboratory certificates of analysis are included in **Attachment V**.

3.3 Pumping Tests

3.3.1 August 2021 – TW-1

LRL conducted an initial pumping test on the drilled test well TW-1 on August 11, 2021, in order to assess the quality and quantity of the aquifer. The test well was pumped for a total of 360 minutes (approximately 6 hours) at an average pumping rate of 40 L/min for the duration of the test.

The drawdown was measured during the pumping and recovery periods using an electronic water level tape. Following the pump's cessation, the pumping well's recovery was monitored until a minimum of 95% recovery was achieved.

3.3.2 January 2023 – TW-1

Following the technical consultation with the City of Ottawa on November 16, 2022, and as further discussed in Section 6, LRL returned to 5969 Ottawa Street to attempt a second pumping test of the existing test well, TW-1, on January 24 and 25, 2023. The test was initiated to further develop

and assess the quality and quantity of the aquifer intercepted by TW-1 prior to exploring alternative solutions to previous water quality concerns.

The test well was commenced on January 24, 2023, at a pumping rate of 40 L/min for a duration of 240 minutes (approximately 4 hours), at which time the pump being used malfunctioned, resulting in the test terminating. LRL returned on January 25, 2023, to proceed with the pumping test. The test well was pumped for a total of 480 minutes (approximately 8 hours) at an average pumping rate of 40 L/min for the duration of the test.

The drawdown was measured during the pumping and recovery periods using an electronic water level tape. Following the pump's cessation, the pumping well's recovery was monitored until a minimum of 95% recovery was achieved.

3.4 Potable Water Sample Collection – March 2023

Subsequent to the initial Hydrogeological Assessment and Terrain Analysis report submission on September 22, 2021, the City of Ottawa returned comments pertaining to the quality of the aquifer assessed at 5969 Ottawa Street. As discussed in Section 6, during a technical consultation with the City of Ottawa on November 16, 2022, held to collectively review the comments provided, it was recommended that an alternative supply aquifer be examined with respect to water quality. More specifically, one encountered at a shallower depth.

On March 15, 2023, LRL visited the property located at 5949 Ottawa Street, located immediately east of the subject site, to collect a representative water sample of their supply well, confirmed to extend to a shallower depth in comparison to the test well installed at 5969 Ottawa Street. The water was allowed to run for ten minutes before collection. The samples were collected using laboratory prepared bottles and were submitted for a subdivision package analysis.

The laboratory Certificates of Analysis are included in **Attachment III**.

3.5 Secondary Test Well Installation – May 2023

On May 8, 2023, Air-Rock Drilling Co Ltd. returned to the site, upon request by the client, to advance a second test well, TW-2. The test well was located beyond the flood plain to address concerns by the City of Ottawa. LRL visited the site at the time of the well grouting to confirm the initial construction details. At the time of the site visit, the casing extended to a depth of 58.5 m and the well was extended 51.2 m into bedrock, with bedrock encountered at 6.7 m below grade. LRL witnessed the grouting of the well, and based on the well record provided, the installation continued into bedrock (open-hole construction) to a depth of 70.1 m. Adequate grouting was completed to comply with O. Reg. 903 which generally specified a 6.0 m seal depth for a bored well. Furthermore, upon further site visits, the top of casing of the test well was measured to extend 0.63 m above ground surface, which exceeds the minimum stick up requirement of 0.4 m.

3.6 Pumping Test TW-2 - May 2023

On May 29, 2023, the recently installed test well, TW-2, was pumped for a duration of 360 minutes (approximately 6 hours) at an average pumping rate of 40 L/min for the duration of the test. The drawdown was measured during the pumping and recovery periods using an electronic water level tape. Following the pump's cessation, the pumping well's recovery was monitored until a minimum of 95% recovery was achieved.



4 TOPOGRAPHY, GEOLOGY AND HYDROGEOLOGY

4.1 Geology

4.1.1 Mapping

Surficial soil deposit mapping¹ indicates that the overburden consists of fine-textured glaciomarine deposits of massive to well laminated silt and clay, minor sand and gravel; with low permeability.

Records from the Ontario Division of Mines² indicates that the underlying bedrock is Lower Ordovician period dolomite and sandstone from the March and Oxford Formation of the Beekmantown Group.

4.1.2 Test Pitting

The test pits completed across the Site were found to have a thin layer of topsoil over clay with varying sand and silt contents that extends to 3.0 m below ground surface (bgs) where the test pits were terminated. A 0.3 m thick layer of boulders and cobbles is present between approximately 1.8 and 2.1 m bgs across all three test pits. Neither bedrock or groundwater were encountered during test pitting activities.

Representative overburden samples of the clay material encountered on the Site were collected from each test pit during the test pitting activities and submitted for sieve and hydrometer analysis. The results are summarized as follows:

- Sample TP1-3, collected from a depth of between 0.9 and 1.8 m below grade, was reported to include 6.3% gravel, 17.3% sand (generally fine to medium grained), 63.5% silt and 12.9% clay. Based on the reported values, the material is considered as silt loam;
- Sample TP2-4, collected from a depth of between 1.8 and 2.7 m below grade, was reported to include 6.7% gravel, 36.7 % sand (generally fine to medium grained), 46.4% silt and 10.2% clay. Based on the reported values, the material is considered as loam; and
- Sample TP3-3, collected from a depth of between 1.8 and 2.7 m below grade, was reported to include 13.4% gravel, 24.1% sand (generally fine grained), 45.5% silt, and 17.0% clay. Based on the reported values, the material is considered loam.

These results are presented in the sieve and hydrometer certificates of analysis that are included in **Attachment V**. Clay loam will be used to define the soil infiltration factor and fine sandy loam will be used for moisture surplus.

¹ The Ontario Geological Survey 2010. *Surficial geology of Southern Ontario*; Ontario Geological Survey, Miscellaneous Release—Data 128-REV

² Hewitt D.F., 1972. *Paleozoic Geology of Southern Ontario*; Ontario Div. Mines, GR105, 18p. Accompanied by Map 2254, scale 1 inch to 16 miles.



4.1.3 Water Well Records

Within the Rideau Valley Conservation Authority, 27,459 wells are recorded³. Of these, 4.2% are overburden wells, indicating that bedrock aquifers are the more significant water sources. The specific capacities of the 1,156 recorded overburden wells are as follows: 222 (19.2%) have no specific data, 27 (2.3%) have less than 1 L/min/m, 136 (11.8%) have between 1.0 – 5.0 L/min/m, 161 (13.9%) have between 5.0 – 10.0 L/min/m, 382 (33.1%), the greatest fraction, have between 10.0 – 50.0 L/min/m, and 228 (19.7%) have specific capacities that exceed 50.0 L/min/m.

A search was conducted of the MECP Water Well Information System (WWIS). Searching by UTM coordinates within a 500 m radius from the site returned information for eighty-eight (88) wells; locations are presented in **Figure 5**. Available well records are included in **Attachment VI**, including those of both test wells installed on the subject site (A320977 and A342311). Geological cross section of the area, generally with 500 m of the Site, are presented in **Figure 5A** and **Figure 5B**.

A review of the records within 500 m reveals that wells are drilled and extend into the bedrock, with an average depth of 33.6 ± 14.3 m ($n = 86$), ranging from 10.7 to 73.2 m. The reported geological conditions are relatively similar indicating an average overburden depth of 6.9 ± 2.9 m ($n = 86$) of mostly clay, underlain by limestone bedrock with occasional descriptions of sandstone. The general subsurface conditions reported for the twenty-five (25) wells in closest proximity to the site are found in the table below.

MECP Well Number	Distance and Direction from Site (m)	Depth (m)	Overburden Details			Bedrock Details	Groundwater Encountered (m)	Static Water Level (m)	Type of water
			Gravel (m)	Clay/ Hardpan (m)	Sand (m)	Bedrock			
A320977 (TW-1)	On-site	48.7			0 – 6.4	6.4 – 48.7 (Limestone)	14.6, 46.9	2.77	Unspecified
A342311 (TW-2)	On-site	70.1		0 – 6.7		6.7 – 50.2 (Limestone) 50.2 – 70.1 (Limestone & Sandstone Mix)	68.2	2.52	Unspecified
1531908	48 (WSW)	64		0 – 10.7	10.7 – 12.5	12.5 – 48.8 (Limestone) 48.8 – 64.0 (Sandstone)	64.0	3.0	Unspecified
7121463	151 (WNW)	45.1		4.3 – 8.8 (Hardpan)	0 – 4.3 (Topsoil)	8.8 – 45.1 (Limestone)	43.3	4.0	Unspecified
7123927	157 (SSW)	25.6		0 – 4.6		4.6 – 25.6 (Limestone)	16.7, 21.0, 22.3	3.4	Unspecified
7123924	158 (SSW)	73.2		0 – 17.1		17.1 – 53.6 (Limestone)	17.7, 27.1, 70.7	3.4	Unspecified
7115740	162 (WNW)	45.1		0 – 6.1		6.1 – 45.1 (Limestone)	42.4	4.6	Unspecified

³ Singer S.N., 2003, *The Hydrogeology of Southern Ontario – Second Edition*; Environmental Monitoring and Reporting Branch, Ministry of the Environment, 2003.

MECP Well Number	Distance and Direction from Site (m)	Depth (m)	Overburden Details			Bedrock Details	Groundwater Encountered (m)	Static Water Level (m)	Type of water
			Gravel (m)	Clay/Hardpan (m)	Sand (m)	Bedrock			
7123245	162 (WNW)	45.1		0 – 5.5		5.5 – 45.1 (Limestone)	43.6	4.9	Unspecified
1535453	171 (NW)	22.3		0 – 2.4 (Clay) 2.4 – 4.3 (Hardpan)		4.3 – 22.3 (Limestone)	8.5, 12.5, 16.2	4.0	Unspecified
7121464	172 (NW)	45.1		4.3 – 7.0 (Hardpan)	0 – 4.3 (Topsoil)	7.0 – 45.1 (Limestone)	43.3	3.7	Unspecified
7123247	178 (WNW)	45.1		0 – 5.8		5.8 – 45.1 (Limestone)	42.7	4.0	Unspecified
7139891	184 (NW)	37.5		0 – 4.3		4.3 – 37.5 (Limestone)	34.4	4.0	Unspecified
7127126	190 (WNW)	51.8		0 – 6.1		6.1 – 43.0 (Limestone) 43.0 – 51.8 (Sandstone)	50.6	4.3	Unspecified
7112996	194 (WNW)	45.1		0 – 6.1		6.1 – 45.1 (Limestone)	41.8	4.0	Unspecified
7123244	198 (WNW)	45.1			0 – 5.8 (Topsoil)	5.8 – 45.1 (Limestone)	43.9	4.0	Unspecified
7112957	205 (NW)	29.9		0 – 6.1		6.1 – 29.9 (Limestone)	27.7	4.6	Unspecified
1535994	205 (SSW)	29.6		0 – 3.7		3.7 – 29.6 (Limestone)	24.4, 27.4	1.8	Unspecified
7119244	211 (WNW)	48.8		0 – 5.8		5.8 – 48.8 (Limestone)	46.6	4.3	Unspecified
7127128	213 (W)	29.9			0 – 6.1 (Topsoil)	6.1 – 29.9 (Limestone)	25.9	3	Unspecified
7127131	216 (W)	45.1			0 – 6.1 (Topsoil)	6.4 – 45.1 (Limestone)	35.1, 43.3	4	Unspecified
7139854	225 (NW)	45.1		0 – 4.3		4.3 – 45.1 (Limestone)	43.6	4	Unspecified
7115738	229 (NW)	45.1			0 – 5.5	5.5 – 45.1 (Limestone)	42.4	4.3	Unspecified
7112965	232 (WNW)	37.5		0 – 5.5		5.5 – 37.5 (Limestone)	35.7	4	Unspecified
7139835	235 (NW)	45.1		0 – 6.4		6.4 – 45.1 (Limestone)	43.6	3.7	Unspecified

MECP Well Number	Distance and Direction from Site (m)	Depth (m)	Overburden Details			Bedrock Details	Groundwater Encountered (m)	Static Water Level (m)	Type of water
			Gravel (m)	Clay/ Hardpan (m)	Sand (m)	Bedrock			
7112983	240 (W)	29.9		0 – 4.6		4.6 – 29.9 (Limestone)	12.2, 27.4	2.7	Unspecified
7119251	242 (W)	47.2		0 – 4.6		4.6 – 47.2 (Limestone)	44.8	4	Unspecified
7139902	245 (W)	45.1			0 – 4.9 (Topsoil)	4.9 – 45.1 (Limestone)	27.4, 43.3	4.6	Unspecified

Notes

BOLD On-site test well



4.2 Hydrology

An un-named watercourse bisects the subject site in a general north-south direction. As confirmed through the Government of Canada, *The Atlas of Canada – Toporama*, the watercourse flows generally north into the Jock River, approximately 1.1 km north of the Site. Local topography of the site indicates that local overburden groundwater flow direction is most likely north/northeast following that of the un-named watercourse which bisects the site.

The Jock River flow in a northerly direction for a distance of approximately 7 km north of the site, where it intersects the Mahoney Creek and continues east to the Rideau River.

As indicated in the Plan of Survey prepared by H.A. Ken Shipman Surveying Ltd., dated July 19, 2021, and included in **Attachment VII**, the northern extent of the Site is identified as a floodplain. It is worth noting that although Ontario Regulation 903 doesn't specifically prohibit the installation of a well in the floodplain, the City of Ottawa does not recommend such practice. Further shown in the plan of survey, TW-1 is located within the identified floodplain area, and therefore the City of Ottawa requires the following specifications for installations in floodplains should they exist:

- The casing (and air vent) of the well must be 40 cm above the potential flood level; and
- The well installation cap, and vent, must be floodproof.

4.2.1 Groundwater from Test Pits

Standpipe piezometers were installed in the bottom of each of the three (3) test pits. Groundwater samples were to be collected from the piezometers. At the time of sampling on August 11, 2021, all three (3) piezometers were found to be dry.

The test pits were advanced such that it was anticipated that the local shallow groundwater would be intercepted, based on the water levels observed in the bisecting un-named watercourse, approximately 1.5 – 2.0 m below grade. The silty conditions in conjunction with the excavation methodology may have influenced groundwater infiltration conditions. LRL did not return to the site to verify if levels have changed thereafter.

4.3 Topography

The topography of the land is generally flat ranging from 94 to 95 m asl. The creek causes a slight dip in topography along the west side of the Site. GeoOttawa shows the majority of the treed portion of the Site is within a flood plain, and the grassed portion of the Site is outside of this floodplain.

5 WATER SUPPLY ASSESSMENT – AUGUST 2021 (TW-1)

The supply well of 5969 Ottawa Street (A320977) used as part of this assessment was installed by the client in June 2021 within the limestone bedrock aquifer. The location of the newly installed supply is shown in **Figure 2**. This well was installed to serve as the drinking water well for the Site and was tested directly as part of the assessment.

5.1 Quality

The chemistry of the water was determined by the sampling of untreated water from the supply water well at 5969 Ottawa Street (A320977) which was installed in June 2021 by the client for future drinking water supply at the proposed development.



Table 1A summarizes the water analysis and also includes the relative Ontario Drinking Water Standards (ODWS) (O. Reg. 169/03) for the parameters tested. The analytical results for the six (6) hour sample meet the ODWS for the parameters tested except for the following:

- Hardness was reported to be 509 mg/L in the six (6) hour sample, above the Operational Guideline (OG) of 100 mg/L and D-5-5 guideline of 500 mg/L. High levels of hardness can lead to scale deposits and excessive scum with regular soaps upon heading the water. Hardness can be reduced through the use of a water softener; however the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water.
 - The Langelier Saturation Index (LSI) is used to determine the calcium carbonate stability of water and the pH at which water is saturated with calcium carbonate (pHs). The Ryznar Stability Index (RI) is used to determine the aggressiveness of water which can indicate the scale and corrosion potential. The calculations for RI and LSI for the six (6) hour sample are shown in **Table 2**. Using a water temperature of 10°C, the LSI was calculated to be 0.66 which indicates the water is scale forming but non-corrosive. The RI was calculated to be 6.47 which indicates light scale or corrosion.
- Colour with a value of 30 TCU at the 6 hour samples, above the AO of 5 TCU and the level considered reasonably treatable of 7 TCU. Although the level of colour is above the value considered reasonable treatable, color can be reduced by use of an AC filter or a water softener.
- TDS was reported at 814 mg/L after six (6) hours, above the ODWS AO of 500 mg/L. TDS can be reduced through the use of a water softener; however, the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water. For individuals with sodium restricted diets, potassium chloride can be substituted for sodium in the ion-exchange system to lower the TDS in the water supply.
- Turbidity was reported to be 4.9 NTU after six (6) hours, below the AO of 5 NTU but above the MAC of 1.0 NTU if the treatment system is required to provide filtration. Turbidity measures the suspended solids and the relative clarity of the water. Turbidity can reduce the aesthetics of water and also reduce the efficiency of disinfection of microbiological parameters, such as in treatment processes requiring filtration.
- Chloride was reported to be 264 mg/L after six (6) hours, above the ODWS AO and D-5-5 level considered reasonably treatable of 250 mg/L. Chloride can cause a salty taste in the water. Chloride is found in nature in various forms, including salts such as sodium (NaCl), potassium (KCl) and calcium (CaCl₂) chloride. A reverse osmosis treatment system can be used to lower level of chloride in drinking water.
- Iron exceeded the 0.3 mg/L ODWS value with a level of 0.5 mg/L. This is below the MECP D-5-5 level considered reasonable treatable of 5 mg/L. Iron can be reduce through the use of a water softener or a manganese greensand filter.
- Sodium was reported to be 111 mg/L after six (6) hours, which is above the ODWS AO but within the level considered reasonably treatable in Procedure D-5-5 of 200 mg/L. The concentration is above the 20 mg/L warning level notification limit for those on a sodium restricted diet. The local Medical Officer of Health should be notified of these levels so that this information may be communicated to local physicians with regards to homeowners who follow a sodium-restricted diet. Sodium can be reduced through the use of a point-of-use reverse osmosis system, if required.



Throughout the duration of the pumping test, field measurements, in addition to water levels, were collected. These measurements included pH, Conductivity, total dissolved solids, colour, turbidity and residual chlorine. PH, Conductivity and total dissolved solids values were recorded using a Hanna Instruments HI98129 pen, and colour, turbidity and residual chlorine were measured using a LaMotte TC-300e tri-meter. The meters were calibrated and referenced to available solution standards prior to use. The measurements collected are summarized in the included **Table 3A**.

It should be noted that chlorine residuals were measured prior to obtaining a water sample for lab submission and free chlorine was measured to be 0.03 mg/L at the time of the 3-hour and 0.00 mg/L at the 6-hour sample collection. The machine detection limits of the Lamotte TC-3000 Trimeter are as follows:

- Turbidity of 0.01 NTC, with an accuracy of +/- 0.05 (or 2%, whichever is greater);
- Colour of 0.1 CU, with an accuracy of +/- 0.5 (or 2%, whichever is greater); and
- Chlorine of 0.01 ppm, with an accuracy of +/-0.02 (or 2%, whichever is greater).

For the purposes of this report, values read as less than the corresponding limits will be reported as <0.01, or <0.1.

The following calibration, or zeroing techniques performed as part of this assessment, during the filed investigations is summarized in the following Table:

Parameter	Equipment Used	Calibration and Zeroing Techniques
Turbidity	Lamotte TC-3000 Trimeter	Prior to use, the equipment was calibrated using the 'two-point' method, following manufacturer instructions. Standard calibration solutions of 0.0 NTU and a 1.0 NTU were used to calibrate the machine. The solutions were pre-made by a supplier.
Colour	Lamotte TC-3000 Trimeter	Prior to the use of the equipment, and periodically during the pumping test, colour measurements were first zeroed by following the manufacturer's instructions and using Deionized Water (prepared and supplied by Hanna Instruments – HI7040-2).
Chlorine	Lamotte TC-3000 Trimeter	Prior to each chlorine reading, a blank sample, including Deionized Water (prepared and supplied by Hanna Instruments – HI7040-2) was screened to zero the machine.
Conductivity	HI98129 Hanna Instruments	Prior to each event, where the meter is used (typically daily), the instrument was calibrated using the Hanna Instrument prepared 1413 µs/cm conductivity solution (HI7031).
pH	HI98129 Hanna Instruments	Prior to each event, where the meter is used (typically daily), the instrument was calibrated using the 'two-point' method, following manufactures specifications. As the pH readings are anticipated to be within the neutral to slightly acid range based on our knowledge of the area and past experience, solutions of 7.01 pH Units (Hanna Instruments HI7007) and 4.01 pH Units (Hanna Instruments HI7004) were used.



5.2 Quantity

5.2.1 6-Hr Pump Test

The initial static water level was measured as 2.96 m btc. The drawdown after six (6) hours of pumping was 2.17 m (final static water level of 5.13 m btc). This represents approximately 5% of the available drawdown in the well. The specific capacity of the well after six (6) hours of pumping was calculated to be 0.307 L/s/m. The calculation is presented in **Table 4**. The well achieved approximately 96% recovery within 60 minutes of the end of pumping, at which time further monitoring was ceased as targets had been achieved.

5.2.2 Aquifer Characteristics

Following the completion of the constant rate pumping test, the data was analysed using the Aquifer Test software package, by Waterloo Hydrogeologic. The data underwent Theis and Agarwal-Theis Recovery analysis, the results of which are shown in the table below. Graphical analyses are provided for reference purposes in **Attachment VII**.

Based on the information gathered from the pump test, the wells' transmissivity and coefficient of storage were calculated using the average of the Theis logarithmic approximation for the drawdown and Agarwal/Theis for the recovery. The specific yield of the well was calculated using the information obtained from the pump test, the transmissivity and coefficient of storage. The yield takes into account a minimum safety factor of 3. The characteristics of the well are summarized in the table below. The yield was calculated using the safety factor; therefore the theoretical yields can be higher.

Parameter	Test Well TW-1
	6 Hour Test
Transmissivity (m ² /day)	25.4
Coefficient of Storage	5.2 x 10 ⁻³
Pumping Rate (L/min)	40
Available Drawdown (m)	27.1
Maximum Drawdown (m)	2.13
% Drawdown	5%
Maximum Pumping Rate (L/min)	189.4
Long Term Availability (m ³ /day)	272.7

6 CITY OF OTTAWA – TECHNICAL REVIEW COMMENTS AND CORRESPONDENCE

The information and data indicated above in Section 5 was present in the initial Hydrogeological Assessment and Terrain Analysis report prepared and dated September 22, 2021. The City of Ottawa technical reviewers provided comment after a formal evaluation of the deliverable, discussed further in their October 14, 2022, first submission comments, included in **Attachment I**. The findings discussed below in Section 7 are primarily to address the concerns presented by the City of Ottawa, as well as to demonstrate that an adequate water supply is available for the Site and the indented uses.

A summary of the comments presented by the City of Ottawa, limited to the September 22, 2021, Hydrogeological Assessment and Terrain Analysis report, and water quality and quantity concerns are as follows. Note that general comments and discussion points are excluded from the following list, although are included in **Attachment I** for reference, and corresponding revisions to the report have been completed:



- As discussed in section 5.1 (September 2021 submission) of the report, the water quality sampling showed that the D-5-5 Maximum Concentration Considered Reasonably Treatable was exceeded for hardness, colour, and chloride. In addition, there was a ODWO exceedance for TDS, which doesn't have a Maximum Concentration Considered Reasonably Treatable. Given the exceedances of the D-5-5 Maximum Concentration Considered Reasonably Treatable, it hasn't been demonstrated that the proposed supply well is capable of supplying water of adequate quality for the proposed development. Consultation with a City Hydrogeologist and the City Senior Engineer on the file is required to discuss the hydrogeological concerns.
- As displayed on the Plan of Survey prepared by H.A. Ken Shipman Surveying Ltd., and dated July 19, 2021, the well is located within the floodplain. Although Ontario Regulation 903 doesn't specifically prohibit the installation of a well in the floodplain, it's not recommended. The following items are required:
 - The casing height (and air vent) must be 40cm above the potential flood level.
 - The well cap and vent must be floodproof.
- As per section 5.2.4 v) of the City's Hydrogeological and Terrain Analysis Guidelines, the minimum required water quality sampling parameters for a Site Plan application are the Subdivision Package, as well as trace metals, and VOCs. Given that the pre-application consultation meeting occurred prior to when the City's Guidelines came into effect, testing for trace metals and VOCs weren't required for the Hydrogeological Assessment and Terrain Analysis dated September 22, 2021. Please note that this exception isn't intended to set a precedent. Any additional hydrogeological assessment on this Site Plan Control application, and on future applications, are subject to the requirements of the City's Hydrogeological and Terrain Analysis Guidelines, including the minimum water quality sampling parameters for Site Plans.

7 FURTHER INVESTIGATION

7.1 Subsequent January 2023 Pumping Test – TW-1

To address the water quality concerns raised by the City of Ottawa following their review of the initial Hydrogeological Assessment and Terrain Analysis submission, September 21, 2021, it was decided that an additional pumping event of the on-site TW-1 (Well # A320977) be performed. The additional pumping was intended to extend over a period of over 24 hours consecutively, at a rate of 40 L/minute to (28,800 L/day) to further develop the well and provide a more accurate representation of the aquifer quality conditions. The test commenced on January 24, 2023, using a submersible pump, powered by a generator, and supplied by Air-Rock Drilling Co Ltd.

The pump test was set at a pumping rate of 40 L/min for a duration of 240 minutes (approximately 4 hours), at which time the pump being used malfunctioned, resulting in the test terminating. A groundwater sample was collected immediately prior to the pump test being terminated at 4 hours of pumping, and the well was permitted to recover to a water level within 95% of the initial column level.

LRL returned the following day, on January 25, 2023, to proceed with the pumping test. Using the same equipment as previously, the test well was pumped for a total of 490 minutes (approximately 8 hours) at an average pumping rate of 40 L/min for the duration of the test. Representative samples were collected at 4 hour, and at the eight (8) hour elapsed time interval. Following the collection of the eight (8) hour sample, the pumping was seized and the well was permitted to recover to at least 95% of the initial water level.



7.1.1 Quality

Further evaluation, in addition to that of the August 2021 pumping test data, was performed on the TW-1 aquifer through chemical analysis of representative water samples collected from the 5969 Ottawa Street test well (A320977). **Table 1A** summarizes the water analysis and also includes the relative Ontario Drinking Water Standards (ODWS) (O. Reg. 169/03) for the parameters tested at both four (4) hour intervals, and the eight (8) hour interval. The analytical results for the January 25, 2023 eight (8) hour sample meet the ODWS for the parameters tested except for the following:

- Dissolved Organic Carbon (DOC) was reported above the ODWS of 5 mg/L with a value of 8.9 mg/L. This value is below the MECP D-5-5 level considered reasonably treatable of 10 mg/L through available technologies including ion exchange units like water softeners. DOC was noted to be elevated in comparison to the August 2021 sample results;
- Hardness was reported to be 524 mg/L in the eight (8) hour sample, above the Operational Guideline (OG) of 100 mg/L and D-5-5 guideline of 500 mg/L. This value is comparable to those collected in the August 2021 pumping test. High levels of hardness can lead to scale deposits and excessive scum with regular soaps upon heading the water. Hardness can be reduced through the use of a water softener; however the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water.
- TDS was reported at 836 mg/L after eight (8) hours, above the ODWS AO of 500 mg/L. TDS can be reduced through the use of a water softener; however, the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water. For individuals with sodium restricted diets, potassium chloride can be substituted for sodium in the ion-exchange system to lower the TDS in the water supply. The levels encountered at this time are comparable to those retrieved in the August 2021 sampling event;
- Chloride was reported to be 299 mg/L after eight (8) hours, above the ODWS AO and D-5-5 level considered reasonably treatable of 250 mg/L. Chloride can cause a salty taste in the water. Chloride is found in nature in various forms, including salts such as sodium (NaCl), potassium (KCl) and calcium (CaCl₂) chloride. A reverse osmosis treatment system can be used to lower level of chloride in drinking water;
- Iron exceeded the 0.3 mg/L ODWS value with a level of 0.5 mg/L. This is below the MECP D-5-5 level considered reasonable treatable of 5 mg/L. This value is comparable to the August 2021 six (6) hour pumping test sample result also of 0.5 mg/L. Iron can be reduce through the use of a water softener or a manganese greensand filter; and
- Sodium was reported to be 112 mg/L after eight (8) hours, which is above the ODWS AO but within the level considered reasonably treatable in Procedure D-5-5 of 200 mg/L. The concentration is above the 20 mg/L warning level notification limit for those on a sodium restricted diet. The local Medical Officer of Health should be notified of these levels so that this information may be communicated to local physicians with regards to homeowners who follow a sodium-restricted diet. Sodium can be reduced through the use of a point-of-use reverse osmosis system, if required.

As mentioned, the water quality results encountered in the January 25, 2023, eight (8) hour pumping samples, in comparison to the August 11, 2021, six (6) hour pumping sample, were generally comparable, with select variances. Notable decreases in previously encountered parameters of concern include colour which was reported less than the detection limit (<2 CU) in



the eight (8) hour sample, and turbidity which was reported less than the ODWS limit, and MECP D-5-5 value of 5 NTU.

Although significant improvement in select parameters were encountered, the majority of those identified as a concern by the City of Ottawa, including hardness, chloride and TDS, as well as the most recent elevated concentrations of DOC detected, the upper Limestone aquifer on the site is not considered an adequate supply source for the proposed development.

7.1.2 Quantity

Although the water quality was established to be not acceptable in accordance with applicable provincial guidelines, LRL proceeded to evaluate the demand potential of the aquifer based on the January 2023, pumping data results.

The initial static water level was measured as 3.32 m btc on January 24, 2023 (with the pump installation) and 3.29 m btc upon returning to the site on January 25, 2023 (with the pump installation). The drawdown after eight (8) hours of pumping on January 25, 2023, was calculated to be 1.93 m (final water level at the end of pumping was measured as 5.22 m btc). This represents approximately 4% of the available drawdown in the well. The pumping test details, and corresponding measurements are included **Table 3B** and **Table 3C**. The well achieved approximately 99% recovery within 30 minutes of the end of pumping, at which time further monitoring was ceased as targets had been achieved.

The results from the pumping test are found to support the proposed demand requirements in accordance with current provincial guidelines.

7.2 Shallow Bedrock Aquifer Characterization

As discussed above, the previously installed test well (TW-1) installed in June 2021 at 5969 Ottawa Street (A320977) was found to have inadequate groundwater quality in comparison to applicable provincial guidelines and standards. It was decided to investigate the conditions of the shallower bedrock aquifer in the area, through the sampling of a neighbouring supply well, 5949 Ottawa Street, immediately east of the Site. The supply well extended to a depth of approximately 30.3 m below grade (measured on Site), and according to the property owner, is not in use, but rather they obtain their supply from a second well on the property, extending to a depth of approximately 51 m below grade. Well records were not retrieved for these respective installations.

The neighbouring well, which extends approximately 30.3 m in depth, was sampled on March 15, 2023. A sample of untreated water was collected. The water was allowed to run for approximately ten minutes before collection. The samples were collected using laboratory prepared bottles and were submitted for a subdivision package analysis. The laboratory Certificates of Analysis are included in **Attachment III**.

A summary of the results is included in **Table 1A**. The water results were found to be generally comparable as those on the Site in TW-1, with exceedances to the Ontario Drinking Water Standards for TDS, hardness, turbidity and chloride, of which values were encountered above the D-5-5 limits considered reasonably treatable. The shallow bedrock aquifer is not considered a suitable source of water supply for the Site.

8 WATER SUPPLY ASSESSMENT – MAY 2023 (TW-2)

As discussed above, the previously installed test well (TW-1) installed in June 2021 at 5969 Ottawa Street (A320977) was found to have inadequate groundwater quality in comparison to

applicable provincial guidelines and standards. Further investigation into shallower bedrock aquifer wells, namely that at 5949 Ottawa Street, returned comparable results and conclusions.

The client retained the services of a local well installer (Air-Rock Drilling Co Ltd., Richmond, Ontario) to complete a new test well on the Site. The well was extended to a greater depth (70.1 m) than that of the previously advanced TW-1 and was placed beyond the limits of the identified floodplain. The well construction details are included above in Section 3.5. The location of the newly installed test well is shown in **Figure 2**.

On May 29, 2023, the recently installed test well, TW-2, was pumped for a duration of 360 minutes (approximately 6 hours) at an average pumping rate of 40 L/min for the duration of the test. The test was performed using the existing submersible pump installed in the well, connected to a local power supply. Using a water level measuring tape, the top of the pump was measured to be set at approximately 49.9 m below top of casing.

Throughout the duration of the test, the drawdown was measured during the pumping and recovery periods using an electronic water level tape. Following the pump's cessation, the pumping well's recovery was monitored until a minimum of 95% recovery was achieved.

8.1 Quality

The chemistry of the water was determined by the sampling of untreated water from the newly installed test well at 5969 Ottawa Street (A342311). **Table 1A** and **Table 1B** summarizes the water analysis and also includes the relative Ontario Drinking Water Standards (ODWS) (O. Reg. 169/03) for the parameters tested.

Throughout the duration of the pumping test, field measurements, in addition to water levels, were collected. These measurements included colour, turbidity and residual chlorine, measured using a LaMotte TC-300e tri-meter. The meters were calibrated and referenced to available solution standards prior to use. The measurements collected are summarized in the pumping test measurement **Table 3D**.

Chlorine residuals were measured prior to obtaining a water sample for lab submission and free chlorine was measured to be 0.02 mg/L at the time of the 3-hour and the 6-hour sample collection. The machine detection limits of the Lamotte TC-3000 Trimeter are as follows:

- Turbidity of 0.01 NTC, with an accuracy of +/- 0.05 (or 2%, whichever is greater);
- Colour of 0.1 CU, with an accuracy of +/- 0.5 (or 2%, whichever is greater); and
- Chlorine of 0.01 ppm, with an accuracy of +/-0.02 (or 2%, whichever is greater).

For the purposes of this report, values read as less than the corresponding limits will be reported as <0.01, or <0.1.

Calibration, or zeroing techniques performed as part of this assessment, during the filed investigations is summarized above in Section 5.1.

The analytical results for the six (6) hour sample meet the ODWS for the parameters tested except for the following:

- Hardness was reported to be 478 mg/L in the six (6) hour sample, above the OG of 100 mg/L, although less than the D-5-5 guideline of 500 mg/L. High levels of hardness can lead to scale deposits and excessive scum with regular soaps upon heading the water. Hardness can be reduced through the use of a water softener; however, the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water.



- TDS was reported at 718 mg/L after six (6) hours, above the ODWS AO of 500 mg/L. Where TDS levels exceed the ODWS AO, it is required that a professional comment regarding treatment include “*written rationale that corrosion, encrustation or taste problems will not occur*”, according to the MECP D-5-5 Guideline. As indicated in the ODWS for TDS parameter “*The term total dissolved solids refer to inorganic substances dissolved in water. The principal constituents of TDS are chloride, sulphates, calcium, magnesium and bicarbonates. The effects of TDS on drinking water quality depend on the levels of the individual components. Excessive hardness, taste, mineral deposition or corrosion are common properties of highly mineralized water. The palatability of drinking water with a TDS level less than 500 mg/L is generally considered to be good.*”

In support of the required rationale with respect to TDS levels in excess of 500 mg/L, the Ryznar Stability Index (RSI) and Langelier Saturation Index (LSI) were calculated for the water sample to determine the corrosivity or scale formation potential of the water. The Langelier Saturation Index (LSI) is used to determine the calcium carbonate stability of water and the pH at which water is saturated with calcium carbonate (pHs). The Ryznar Stability Index (RI) is used to determine the aggressiveness of water which can indicate the scale and corrosion potential. The calculations for RI and LSI for the six (6) hour sample are shown in **Table 2**. Using a water temperature of 10°C, the LSI was calculated to be 0.549 which indicates the water is scale forming but non-corrosive. The RI was calculated to be 6.60 which indicates light scale or corrosion.

Furthermore, it should be noted that parameters which contribute to TDS in a water supply, including sodium, sulphates and chlorides, are noted to be within their corresponding ODSW AO. The ODWS AO for both sodium and chloride are established based on the palatability of the water. Sodium was reported with a level of 70.7 mg/L and a chloride level of 191 mg/L, which are within the AO of 200 mg/L and 250 mg/L, respectively. Therefore, these parameters are considered to be a levels which are unlikely to contribute to taste in the water supply. Additionally, sulphates were reported less than the 150 mg/L ODWS, with a level of 57 mg/L. This is indicative that sulphates will most likely not result in a distinctive or unpleasant taste.

TDS levels are also influenced by concentrations of calcium, magnesium and bicarbonates, which can result in elevated hardness. As noted above, hardness was found to exceed the ODWS OG of 100 mg/L, although less than the D-5-5 guideline of 500 mg/L. Therefore, by improving the hardness of the water, TDS levels should be directly correlated with the improvement of quality and reduce the potential for scale formation associated with TDS. High levels of hardness can lead to scale deposits and excessive scum with regular soaps upon heading the water. Hardness can be reduced through the use of a water softener; however the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water.

- Turbidity was reported to be 9.0 NTU after six (6) hours, above the AO of 5 NTU, and the D-5-5 of 5 mg/L. Turbidity measures the suspended solids and the relative clarity of the water. Turbidity can reduce the aesthetics of water and also reduce the efficiency of disinfection of microbiological parameters, such as in treatment processes requiring filtration. At the time of sampling, the levels in the field were measured as 1.40 NTU. The holding time from the point of sample collection, and possible chemical reactions with such compounds as iron within the sample likely attributed to the elevated turbidity. The field results are considered representative of the sample, and aquifer conditions.



- Iron exceeded the 0.3 mg/L ODWS value with a level of 0.6 mg/L. This is below the MECP D-5-5 level considered reasonable treatable of 5 mg/L. Iron can be reduce through the use of a water softener or a manganese greensand filter.
- Sodium was reported to be 70.7 mg/L after six (6) hours, which is above the ODWS AO but within the level considered reasonably treatable in Procedure D-5-5 of 200 mg/L. The concentration is above the 20 mg/L warning level notification limit for those on a sodium restricted diet. The local Medical Officer of Health should be notified of these levels so that this information may be communicated to local physicians with regards to homeowners who follow a sodium-restricted diet. Sodium can be reduced through the use of a point-of-use reverse osmosis system, if required.

Volatile Organic Compounds (VOCs) were also collected as part of the analysis package. VOCs were not detected in the sample submitted, and the results are summarized in **Table 1B**.

8.2 Quantity

8.2.1 6-Hr Pump Test

The initial static water level was measured as 3.19 m btc. The drawdown after six (6) hours of pumping was 2.205 m (final static water level of 5.395 m btc). This represents approximately 4.7% of the available drawdown in the well. The water level was measured to drop to a maximum depth of 5.45 m at the 3-hour pumping duration which accounts for a maximum drawdown of 2.26 m (4.8% of the total available drawdown) but recovered slightly afterwards. The specific capacity of the well after six (6) hours of pumping was calculated to be 0.302 L/s/m. The calculation is presented in **Table 4**. The well achieved approximately 95% recovery within 15 minutes of the end of pumping, and approximately 98% recovery within 60 minutes, at which time further monitoring was ceased as targets had been achieved.

8.2.2 Aquifer Characteristics

Following the completion of the constant rate pumping test, the data was analysed using the Aquifer Test software package, by Waterloo Hydrogeologic. The data underwent Theis and Agarwal-Theis Recovery analysis, the results of which are shown in the table below. Graphical analyses are provided for reference purposes in **Attachment VIII**.

Based on the information gathered from the pump test, the wells' transmissivity and coefficient of storage were calculated using the average of the Theis logarithmic approximation for the drawdown and Agarwal/Theis for the recovery. The specific yield of the well was calculated using the information obtained from the pump test, the transmissivity and coefficient of storage. The yield takes into account a minimum safety factor of 3. The characteristics of the well are summarized in the table below. The yield was calculated using the safety factor, therefore the theoretical yields can be higher.

Parameter	Test Well TW-2
	6 Hour Test
Transmissivity (m ² /day)	24.6
Coefficient of Storage	1.45 x 10 ⁻³
Pumping Rate (L/min)	40
Available Drawdown (m)	46.75
Maximum Drawdown (m)	2.26
% Drawdown	4.8%
Maximum Pumping Rate (L/min)	184.8
Long Term Availability (m ³ /day)	266.1



The required quantity of water is generally based on a per-person requirement of 450 L/day of water per day. However, based on the septic design calculations presented by others, and included in Section 9, the grand total required quantity per day is 3,450 L/day (3.45 m³/day).

Based on the observed drawdown/recovery relationship, it is concluded that the long-term yield of the test well TW-2 is in excess of minimum daily demand of 3,450 L. The maximum pumping rate is also more than sufficient to supply a peak flow demand for a residential/commercial water supply as indicated in MECP Procedure D-5-5.

9 TERRAIN ANALYSIS

The terrain analysis was conducted to demonstrate that the unconsolidated material on the Site is appropriate for the construction of an on-Site subsurface sewage disposal system. The subsurface conditions indicated for the Site are considered suitable for a Class IV septic sewage disposal system with a fully raised leaching bed depending on the lot specific soil and groundwater conditions at the actual location of the proposed septic system leaching bed. The leaching bed should be constructed to conform to the specifications set out in the Ontario Building Code (OBC).

The client retained the services of a certified sewage disposal system designer (Green Valley Environmental), who prepared the proposed system design and application to the City of Ottawa's, Ottawa Septic System Office (OSSO) for approval and permit issue. A copy of the permit, in addition to the supporting submission package, is included in **Attachment II**. Green Valley Environmental (GVE) proposed the use of a Class IV shallow buried trench, along with Norweco 3780-3M treatment unit.

GVE has calculated a daily design flow of 3,450 L/day. There assumptions area presented as follows:



Ontario Building Code: 8.2.1.3 - Sewage System Design Flows				
(Values from Table 8.2.1.3.A and 8.2.1.3.B)				
Use	Design Flow per Unit (L)	Units	Number of Units	Design Flow Subtotal (L) per day
Warehouse				
Two (2) Washrooms	950	Washroom	2	1,900
Two (2) Loading Bays	150	Loading Bay	2	300
Total				2,200
Apartment				
Two (2) Bedrooms	275	Per Person	4	1,100
Total				1,100
Kennel (Veterinary Clinic ⁽¹⁾)				
Employee	75	Employees ⁽²⁾	1	75
Floor Drain	75	Floor Drain	1	75
Total				150
Daily Flow Total				3,450

Notes

- (1) Veterinary clinic was the considered the closest applicable property use in the OBC table for animal kenneling. No veterinary services are to be completed on Site.
- (2) Assumes employees work one 8-hr shift per day and spend the rest of the day in the caretaker suite.

Based on a daily design flow of 3,450 L per day, GVE has calculated a total length of pipe required for the shallow buried trench installation, of 52.32 m and an orifice spacing of 0.6 m. The system will include a minimum 3,600 L capacity pretreatment tank with a maximum cover of 300 mm of soil. The actual treatment unit will have a capacity of 3,780 L. Based on the design details proved in the GVE application, the system will require a surface area of approximately 15 m by 15 m, or approximately 230 m². Including a replicate area to account for a replacement area, it is estimated that a total footprint of approximately 460 m² would be required to adequately install and maintain the proposed system. Further details related to the proposed construction are included in Attachment II.

The proposed development property has an area of approximately 9,000 m². Accordingly, it is considered that sufficient area exists at the proposed development for the installation of a septic system in accordance with the OBC, and includes sufficient replacement area in the event it is required. The proposed Site layout, including the anticipated septic location and configuration is shown in **Figure 3**.

The OSSO approved the application, and a permit was issued.



10 GROUNDWATER IMPACT ASSESSMENT

The groundwater impact assessment addresses the ability of the land to attenuate the sewage effluent created by the development. Three methods for conducting the assessment are outlined in MECP's *Procedure D-5-4 Technical Guideline for Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment* (1996):

- *Lot Size Consideration* for lot greater than 10 000 m²;
- *System Isolation Consideration* for areas where the septic system is hydrogeologically isolated from the potable water source; and
- *Contaminate Attenuation Consideration* for sites that do not meet the above two points.

Based on the review of the available information and site visit (above) the site is not obviously hydrogeologically sensitive (i.e. karstic areas, areas of fractured bedrock at the surface, areas of thin soil over highly permeable soils).

The Site has a total area of 22,200 m². In accordance with Section 22.5.8 of the MECP Design Guidelines for Sewage Works, the Marlborough Creek which intercepts the subject property along the western extent of the proposed development area, must be considered in the extent of the allowable dilution area. Therefore, an area of 8,976 m² has been considered for the proposed development footprint, and septic attenuation areas. Therefore, "**Contamination Attenuation**" was considered in this terrain analysis.

10.1 Contamination Attenuation Method (Predictive Assessment)

The Contaminant Attenuation Method (Predictive Assessment) was used to determine the impact of the individual on-site septic systems to the property boundaries. This procedure assesses the risk that the individual on-site systems will cause the concentration of the nitrate-nitrogen to a property boundary, or in this instances, at the surface water body extents, to exceed 10 mg/L at the property boundaries. Dilution is the only attenuation mechanism considered for nitrate-nitrogen, with precipitation being the only source of infiltration. The following parameters and assumptions were used in the nitrate-nitrogen attenuation calculations:

Infiltration factors for the proposed development property are;

- Total area of 8,976 m²;
- Flat topography;
- **Infiltration Factors:**
 - i. Based on the soil gradation completed on samples from the test pits showed the soil to be loam to silty loam across the Site. As such clay loam was used for this calculation;
 - ii. Based approximate measurements from aerial photos of the property, it was determined that around 6,079 m² of the property is woodland, and the remaining 2,897 m² is cultivated land. Due to most of the forested land being within the floodplain, it is assumed that this ratio will be maintained during the Site development;



- **Moisture Surplus:**
 - i. The forested portion of the property was considered closed mature forest, and the remaining area was considered moderately rooted crops as the post development ground cover,
 - ii. Silt loam as defined by the sieve and hydrometer testing.
- Groundwater was not encountered in the test pit piezometers. Therefore, it is assumed that background nitrate-nitrogen concentration is 0 mg/L;
- Impervious areas of 453.25 m² for the building and 620 m² of paved driveway and circulation area; and,
- Moisture surplus values from the Ottawa weather station (Environment Canada, 2011). The moisture surplus printout is included in **Attachment IX**.

Based on the total proposed sewage volume for the entire Site of 3,450 L/day, the existing available lot size, soil conditions, a nitrate concentration of the sewage of 40 mg/L, the calculated levels of nitrates at the property limits are estimated as 17.53 mg/L as presented in the attached **Table 5A**. This is above the procedure's guideline limit of 10 mg/L at the property line. Based on the "Contaminant Attenuation Method", without tertiary treatment the current lot size and soil conditions are not suitable to attenuate the nitrate impacts generated by the septic systems of the proposed development in accordance with D-5-4 guideline.

The above calculations are based on the current D-5-4 guideline which requires the use of 40 mg/L as the contaminant source as per Section 5.6.2 (a). Therefore, the use of an advanced tertiary treatment system such as Norweco tertiary system is necessary to reduce the levels of nitrates prior to discharge to the disposal field. This particular system is approved by the OBC and the Building Materials Evaluation Commission of the Ontario Ministry of Municipal Affairs and Housing. Furthermore, Section 5.7 of the D-5-4 guideline states that the Ministry recognises "*that as research continues, information and technologies may become available which warrant minor or substantial revisions to this guideline*".

The Norweco 3780-3M treatment unit is certified for a minimum 50% total nitrogen reduction, and was used in the proposed modification, and proposed development sewage disposal designs. Therefore, a nitrate effluent concentration of 20 mg/L was used for the proposed upgraded system for the existing place of worship building, and the proposed assembly hall in this assessment. A copy of the specifications for the Norweco tertiary system is included in **Attachment X**.

The detailed calculations for the proposed development are presented in **Table 5B**. It is assumed that the level of nitrates in the effluent from the proposed Norweco tertiary systems are 20 mg/L (based on a 50% nitrate reduction as indicated in the corresponding specifications). Based on these assumptions the nitrates at the property limits are estimated as 8.76 mg/L. This is below the procedure's guideline of 10.0 mg/L. Based on the "**Contaminant Attenuation Method**" the current lot size and soil conditions are suitable to attenuate the nitrate impacts generated by the septic systems on the development in accordance with current D-5-4 guidelines, provided an appropriate and maintained tertiary treatment system is used for the proposed building.



11 CONCLUSIONS

Based on our review of available information and the results of the groundwater sampling and laboratory analytical program, we conclude the following:

- Based on the information collected through the intrusive investigation completed, the site is not considered to be hydrologically sensitive.
- Sufficient area exists at the proposed developed lot for a well and the installation of a septic system in accordance with the OBC to service the dog kenneling business and the upstairs two-bedroom caretaker dwelling with a design sewage flow of up to 3,450 L/day.
- Pre-treatment of the sewage from the proposed sewage disposal systems with Norweco tertiary systems, which have a certified nitrogen reduction of a minimum of 50%, yields a calculated nitrate concentration at the property line of 8.76 mg/L, based on the "Contaminant Attenuation Method".
- Surrounding lands are serviced by private wells and septic/holding tanks sewage systems, including domestic wells within 500 m of the Site. The potable water source of these wells is the bedrock aquifer. A layer of either clay or sand being between 4.3 and 12.5 m thick over bedrock (limestone).
- The proposed development can be adequately and safely supplied with potable water as demonstrated through the installation and corresponding tests of TW-2, which extends to a depth of 70.1 m below grade, into the deeper limestone & sandstone mix bedrock formation. Although, as discussed in Section 12, select parameters encountered are elevated in comparison to the applicable ODWS, but are considered reasonably treatable through the use of a conventional treatment system.
- TW-2 has been constructed in accordance with O. Reg. 903 and is considered acceptable for use as a supply well for the proposed development on the Site.
- The results of the six (6) hour sample submitted from the May 2023 test well, TW-2, generally met the Procedure D-5-5 and ODWS limits for the tested parameters with the following exceptions:
 - Hardness was reported to be 478 mg/L in the six (6) hour sample, above the OG of 100 mg/L, although less than the D-5-5 guideline of 500 mg/L. High levels of hardness can lead to scale deposits and excessive scum with regular soaps upon heating the water. Hardness can be reduced through the use of a water softener; however the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water;
 - TDS was reported at 718 mg/L after six (6) hours, above the ODWS AO of 500 mg/L. Where TDS levels exceed the ODWS AO, it is required that a professional comment regarding treatment include "written rationale that corrosion, encrustation or taste problems will not occur", according to the MECP D-5-5 Guideline. As indicated in the ODWS for TDS parameter "The term total dissolved solids refer to inorganic substances dissolved in water. The principal constituents of TDS are chloride, sulphates, calcium, magnesium and bicarbonates. The effects of TDS on drinking water quality depend on the levels of the individual components. Excessive hardness, taste, mineral deposition or corrosion are common properties of highly mineralized water. The palatability of drinking water with a TDS level less than 500 mg/L is generally considered to be good."



In support of the required rationale with respect to TDS levels in excess of 500 mg/L, the Ryznar Stability Index (RSI) and Langelier Saturation Index (LSI) were calculated for the water sample to determine the corrosivity or scale formation potential of the water. The Langelier Saturation Index (LSI) is used to determine the calcium carbonate stability of water and the pH at which water is saturated with calcium carbonate (pHs). The Ryznar Stability Index (RI) is used to determine the aggressiveness of water which can indicate the scale and corrosion potential. The calculations for RI and LSI for the six (6) hour sample are shown in Table 2. Using a water temperature of 10°C, the LSI was calculated to be 0.549 which indicates the water is scale forming but non-corrosive. The RI was calculated to be 6.60 which indicates light scale or corrosion.

Furthermore, it should be noted that parameters which contribute to TDS in a water supply, including sodium, sulphates and chlorides, are noted to be within their corresponding ODSW AO. The ODWS AO for both sodium and chloride are established based on the palatability of the water. Sodium was reported with a level of 70.7 mg/L and a chloride level of 191 mg/L, which are within the AO of 200 mg/L and 250 mg/L, respectively. Therefore, these parameters are considered to be a levels which are unlikely to contribute to taste in the water supply. Additionally, sulphates were reported less than the 150 mg/L ODWS, with a level of 57 mg/L. This is indicative that sulphates will most likely not result in a distinctive or unpleasant taste.

TDS levels are also influenced by concentrations of calcium, magnesium and bicarbonates, which can result in elevated hardness. As noted above, hardness was found to exceed the ODWS OG of 100 mg/L, although less than the D-5-5 guideline of 500 mg/L. Therefore, by improving the hardness of the water, TDS levels should be directly correlated with the improvement of quality and reduce the potential for scale formation associated with TDS. High levels of hardness can lead to scale deposits and excessive scum with regular soaps upon heading the water. Hardness can be reduced through the use of a water softener; however the use of sodium chloride as a regenerant for the resins can increase the sodium content of the water;

- Turbidity was reported to be 9.0 NTU after six (6) hours, above the AO of 5 NTU, and the D-5-5 of 5 mg/L. Turbidity measures the suspended solids and the relative clarity of the water. Turbidity can reduce the aesthetics of water and also reduce the efficiency of disinfection of microbiological parameters, such as in treatment processes requiring filtration. At the time of sampling, the levels in the field were measured as 1.40 NTU. The holding time from the point of sample collection, and possible chemical reactions with such compounds as iron within the sample likely attributed to the elevated turbidity. The field results are considered representative of the sample, and aquifer conditions;
- Iron exceeded the 0.3 mg/L ODWS value with a level of 0.6 mg/L. This is below the MECP D-5-5 level considered reasonable treatable of 5 mg/L. Iron can be reduce through the use of a water softener or a manganese greensand filter; and
- Sodium was reported to be 70.7 mg/L after six (6) hours, which is above the ODWS AO but within the level considered reasonably treatable in Procedure D-5-5 of 200 mg/L. The concentration is above the 20 mg/L warning level



notification limit for those on a sodium restricted diet. The local Medical Officer of Health should be notified of these levels so that this information may be communicated to local physicians with regards to homeowners who follow a sodium-restricted diet. Sodium can be reduced through the use of a point-of-use reverse osmosis system, if required.

- Volatile Organic Compounds (VOCs) were also collected as part of the analysis package. VOCs were not detected in the sample submitted.
- The neighbouring land in the area are generally either un-developed, or include low-density residential developments. A train-track borders the northern extent of the Site, which is followed by un-developed land and a higher-density residential development. Commercial/Light Industrial activities occupy the adjacent land to the east, and the neighbouring property further east. These industries include an automotive repair facility (5949 Ottawa Street) and Quatrosense Environmental Ltd., a hazardous gas detection equipment manufacturer, sales and calibration service provided (5935 Ottawa Street). Based on the types of property uses in the vicinity of the Site, it is anticipated that there would be little interference with respect to water well quantity from neighbouring lands. Furthermore, based on the available well records reviewed as part of this assessment, limited supply wells within 500 m of the Site intercept the same aquifer, or extend to a comparable depth, as that of TW-2, the proposed water well to the anticipated development.

12 RECOMMENDATIONS

1. Treatment options should be considered on an individual basis. Conventional treatment options exist for the parameters exceeding the ODWS and D-5-5 guidelines, which include the following:
 - a. Hardness and TDS can be reduced through the use of a water softener; and
 - b. Iron can be reduce through the use of a water softener or an manganese greensand filter.
2. The well placement should be located upgradient of any septic field beds. The drilled well should be a minimum distance of 15 m from any septic beds and 15 m from other wells. It is also recommended that a setback of at least 3.0 m from the property boundary be maintained for further mitigation measures related to groundwater impairment from neighbouring land uses.
3. Water should be tested on an individual basis and a water treatment specialist be consulted prior to the final design and installation of any water treatment system.
4. The water treatment system should be maintained on a regular basis in accordance with the manufacturer's recommendations to ensure that it is properly functioning and providing a safe drinking water.
5. The residence is advised to have their water regularly analysed for bacteria and septic indicator parameters, such as chloride, ammonia, nitrates, nitrites, Total Kjeldahl Nitrogen, E. Coli and Total Coliforms.
6. The owner should maintain their well as outlined in the Ontario Ministry of Agricultural and Rural Affairs Best Management Series – Water Wells.
7. The subsurface conditions indicated for the proposed lots are considered suitable for a Class IV septic sewage disposal system. Use of an advanced tertiary treatment system

such as Norweco tertiary system is necessary to reduce the levels of nitrates prior to discharge to the disposal field.

8. TW-1 should be decommissioned in accordance with O. Reg. 903.
9. The casing of the proposed supply well, TW-2, must maintain a minimum stickup above the ground surface of 40 cm, following Site development and grading activities. Consideration to strategic grading to encourage surface water diversion from the supply well is recommended.
10. Based on the proposed use of the Site, possible contaminant sources that could be present at the property are identified as: waste storage (dog feces), septic systems, and animal enclosures. The sewage systems and dog waste storage should be at least 15 metres from the well location.

13 LIMITATIONS

The findings contained in this report are based on data and information collected during the Terrain Analysis of the subject property conducted by LRL Associates Ltd. The conclusions and recommendations are based solely on Site conditions encountered at the time of our fieldwork on July 20, 2021, and May 29, 2023, supplemented by historical information and data obtained as described in this report. The information presented in this report represents the groundwater conditions at the locations sampled. Due to natural variations in geological conditions, no inference is made to the soil or groundwater conditions between sampling points. No assurance is made regarding changes in conditions subsequent to the time of this investigation. If additional information is discovered or obtained, LRL Associates Ltd. should be requested to re-evaluate the conclusions presented in this report and to provide amendments as required.

In evaluating the subject property, LRL Associates Ltd. has relied in good faith on information provided by individuals as noted in this report. We assume that the information provided is factual and accurate. We accept no responsibility for any deficiencies, misstatements or inaccuracies contained in this report as a result of omissions, misinterpretation or fraudulent acts of the persons contacted.

Yours truly,
LRL Associates Ltd.



Jessica Arthurs
Environmental Engineering Manager/Associate



Kourosh Mohammadi, Ph.D., P.Eng.
Hydrogeological Engineer



FIGURES



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PROJECT

HYDROGEOLOGICAL ASSESSMENT AND TERRAIN ANALYSIS
PROPOSED MIX USE DEVELOPMENT
5969 OTTAWA STREET,
RICHMOND, ONTARIO

DRAWING TITLE

SITE LOCATION
(NOT TO SCALE)
SOURCE: GEOOTTAWA

CLIENT

A. ROBERTS

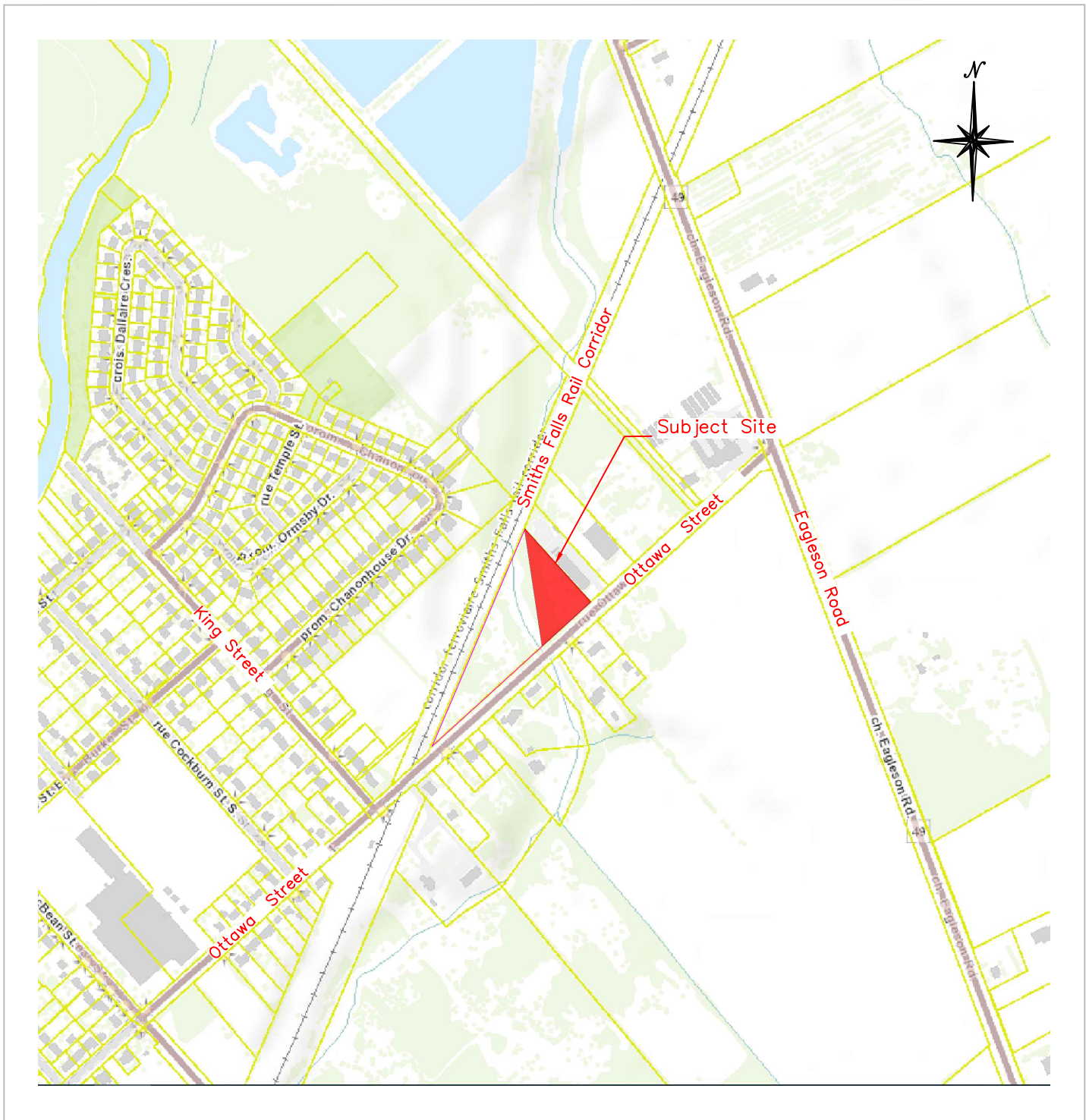
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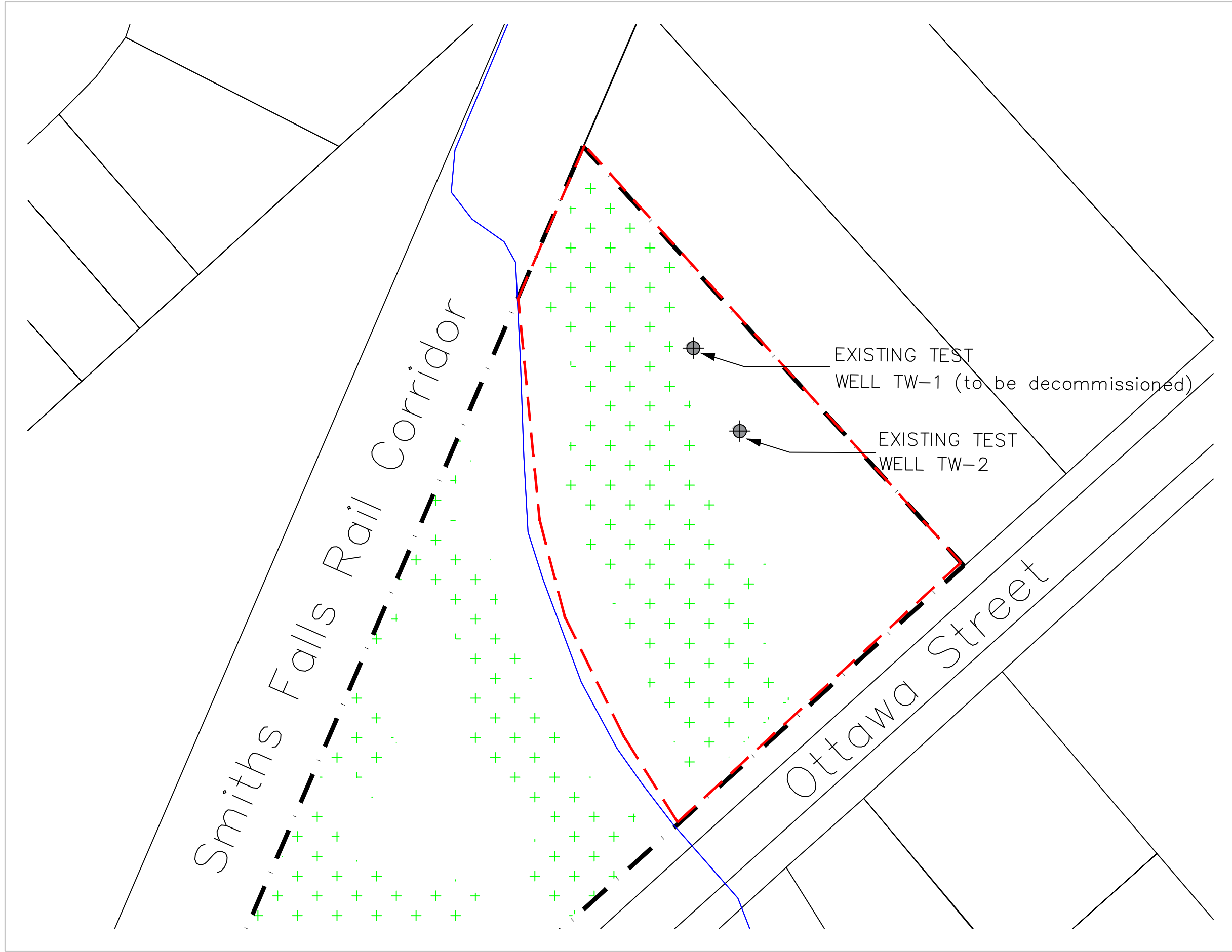
JULY 2023

PROJECT

210341

FIGURE 1





LEGEND

- Property line
- Proposed Development Area
- Existing building
- Treed
- Existing Supply Well



SCALE: 1:1000

No.	REVISIONS	BY	DATE
02	REVISION	J.A.	27/07/23
01	ISSUED FOR REVIEW	A.K.	22/09/21



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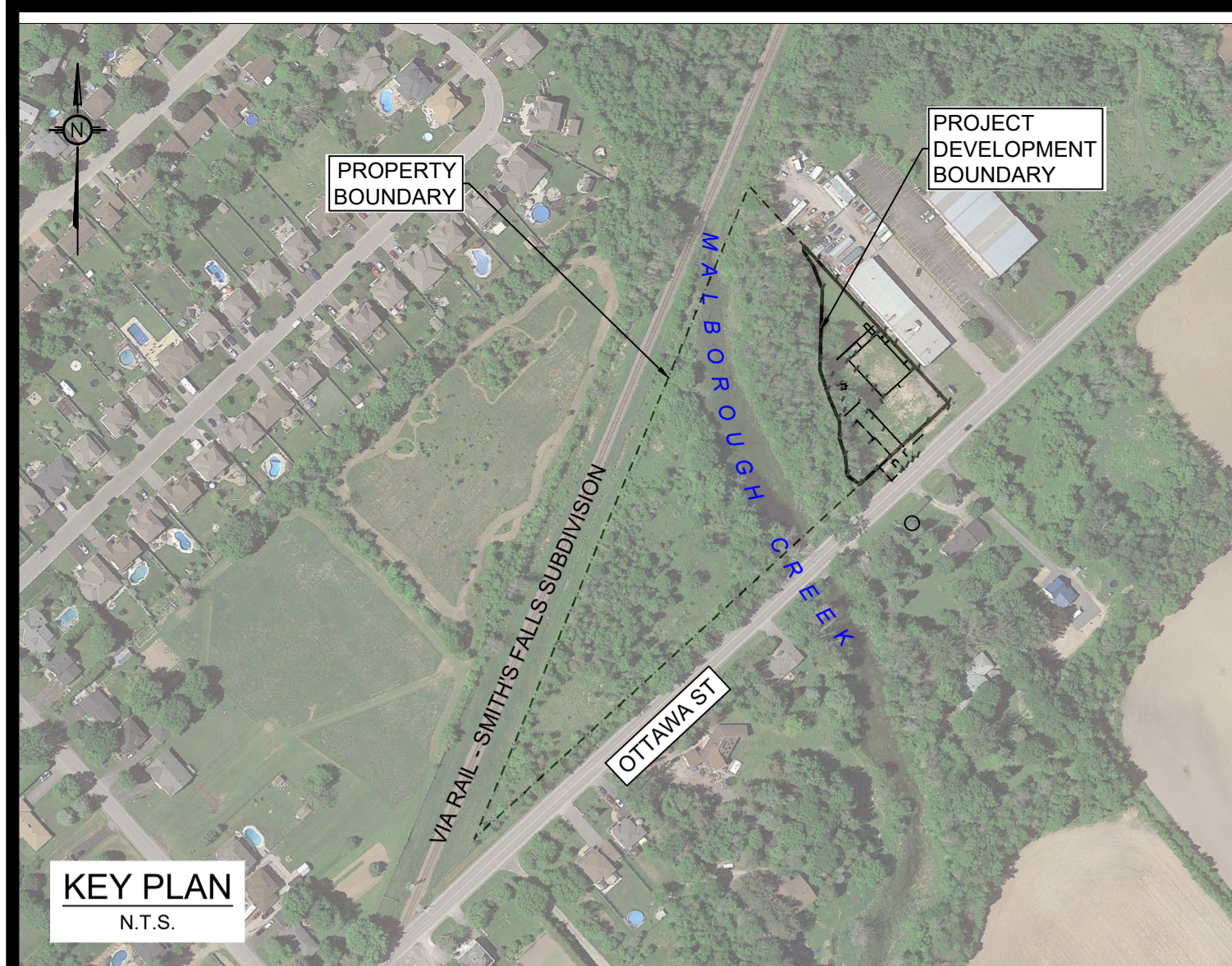
DESIGNED BY: -- DRAWN BY: A.K. APPROVED BY: A.W.

PROJECT
 HYDROGEOLOGICAL ASSESSMENT AND
 TERRAIN ANALYSIS
 PROPOSED MIXED USE DEVELOPMENT
 5969 OTTAWA STREET,
 RICHMOND, ON

DRAWING TITLE
SITE PLAN

PROJECT NO.
 210341
 DATE
 JULY 2023

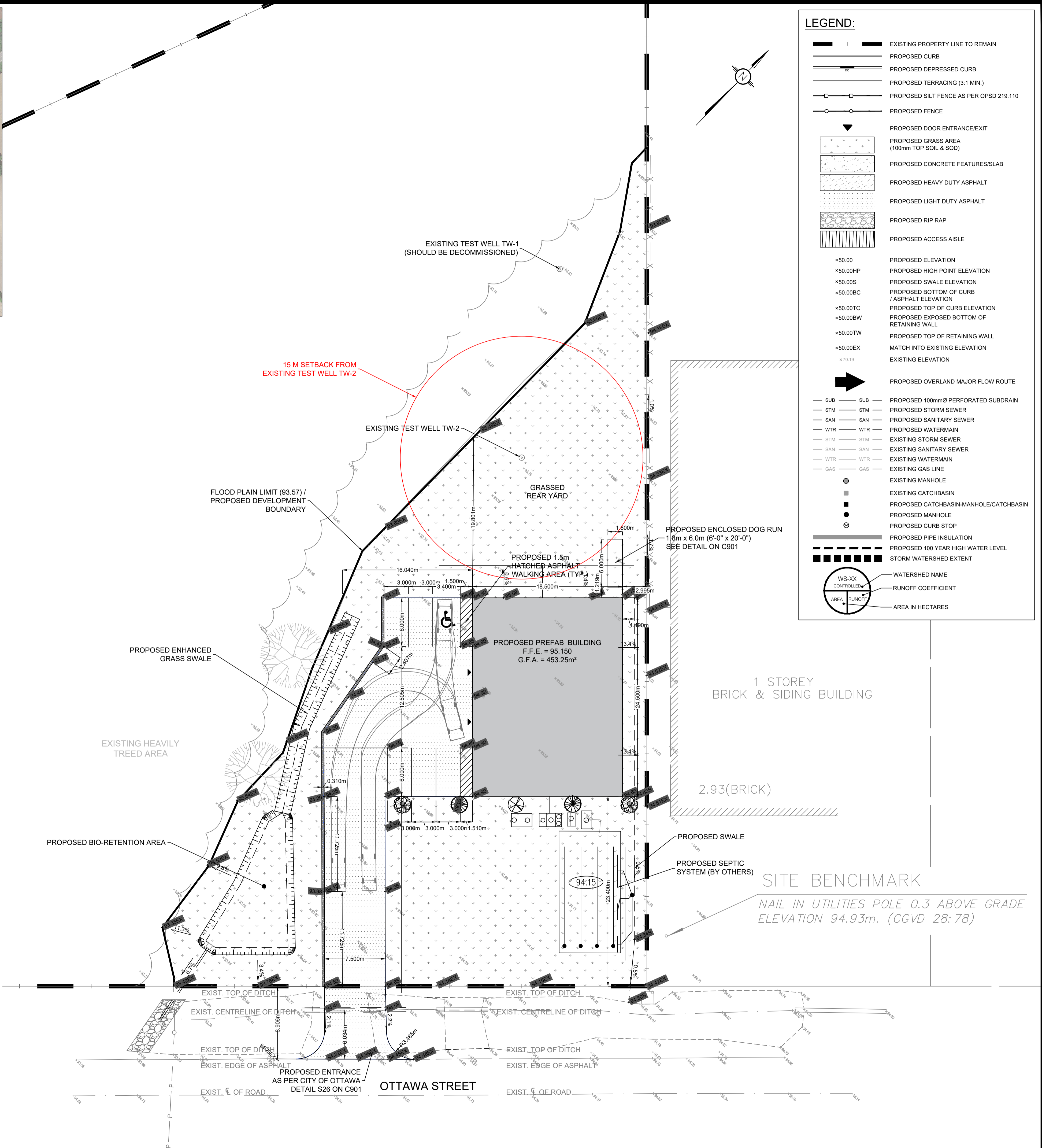
FIGURE 2



KEY PLAN
N.T.S.

DETAILS OF DEVELOPMENT

DATA	REQUIRED	PROVIDED
ZONING	RG3[385r] (RURAL GENERAL)	
SETBACKS		
FY	15.0m	23.4m
RY	15.0m	19.8m
INT.SY	3.0m	16.0m
EXT.SY	3.0m	3.0m
NET LOT AREA (sqm)	3240 sqm	
BUILDING COVERAGE	50 % (MAX)	14 %
BUILDING HEIGHT	15 m (MAX)	7.62 m (25')
GROSS FLOOR AREA	453.25 sqm	
No. of UNITS	1	
LOADING SPACES	N/A	N/A
PARKING:	4	5 + 1 HC
No. OF STOREYS	2	
OTHER:		



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
- PROPOSED DOOR ENTRANCE/EXIST
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- PROPOSED ACCESS AISLE
- PROPOSED ELEVATION
- PROPOSED HIGH POINT ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- PROPOSED TOP OF RETAINING WALL
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- PROPOSED 100mm PERFORATED SUBDRAIN
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING GAS LINE
- EXISTING MANHOLE
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CAD FILES OR OTHER ELECTRONIC MEDIA AND COPIES THEREOF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

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IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

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

No.	REVISIONS	BY	DATE
02	ISSUED FOR APPROVAL	M.L.	02 JUN 2022
01	ISSUED FOR APPROVAL	M.A.	25 NOV 2021

NOT AUTHENTIC UNLESS SIGNED AND DATED

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CLIENT: AL ROBERTS

DESIGNED BY: M.A. DRAWN BY: M.A. APPROVED BY: M.B.

PROJECT: PROPOSED DOG KENNEL
5969 OTTAWA STREET,
OTTAWA, ON






DRAWING TITLE: SITE DEVELOPMENT PLAN

PROJECT NO: 210341
DATE: 27 JULY 2021





LEGEND

-  Property Line
-  Tree Line
-  Existing Supply Well
-  Proposed Development Area
-  Test Pit Location



SCALE: 1:1000

No.	REVISIONS	BY	DATE
02	REVISION	J.A.	27/07/23
01	ISSUED FOR REVIEW	A.K.	22/09/21



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CLIENT
A. ROBERTS

DESIGNED BY: -- DRAWN BY: A.K. APPROVED BY: A.W.

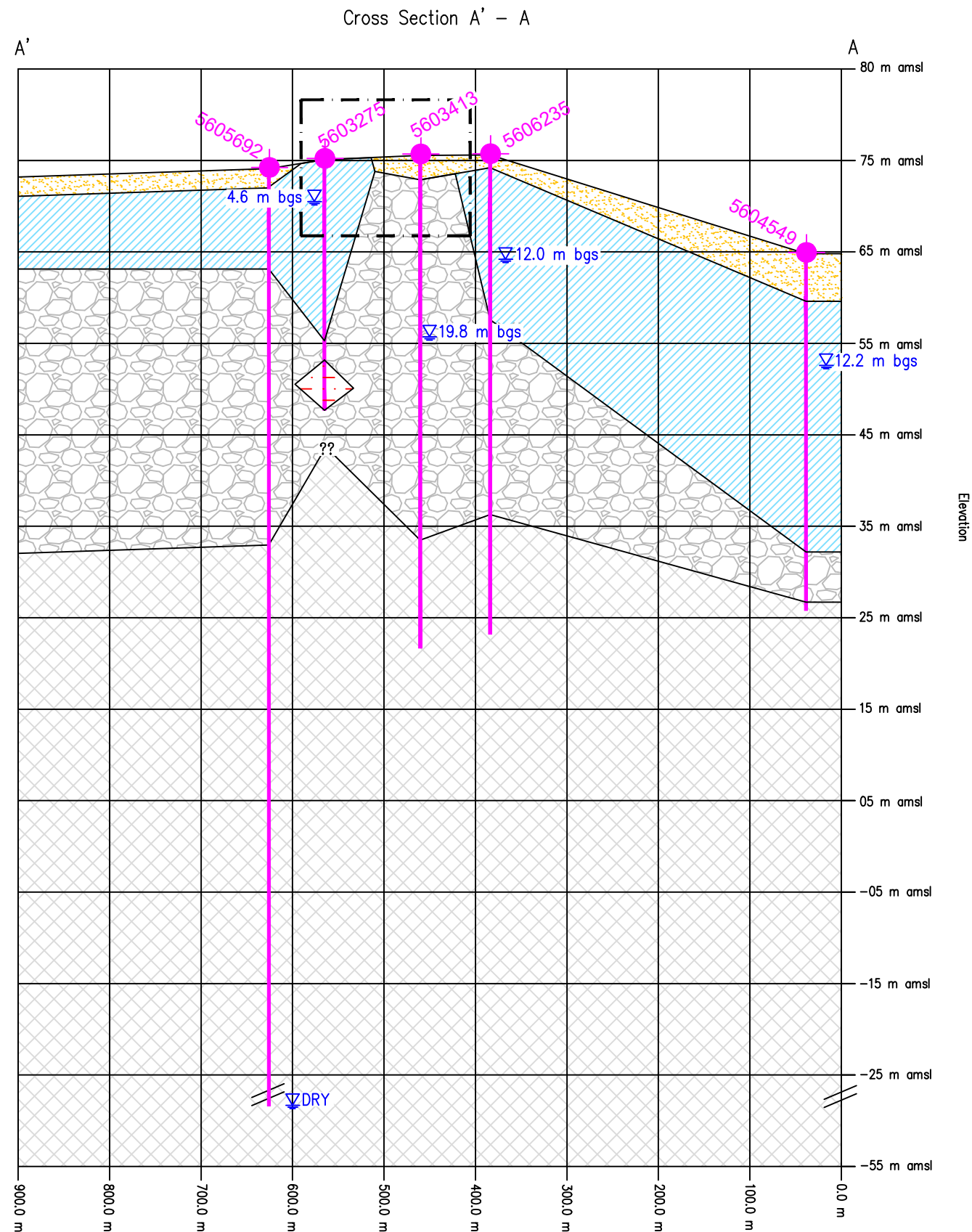
PROJECT
HYDROGEOLOGICAL ASSESSMENT AND
TERRAIN ANALYSIS
PROPOSED MIXED USE DEVELOPMENT
5969 OTTAWA STREET,
RICHMOND, ON

DRAWING TITLE
TEST PIT LOCATION

PROJECT NO.
210341

DATE
JULY 2023

FIGURE 4



- Legend**
- Sand
 - Clay stratum
 - Till stratum
 - Gravel stratum
 - Weathered Bedrock/Bedrock
 - Well
 - Groundwater encountered
 - Approximate Site location

No.	REVISIONS	BY	DATE
02	REVISION	J.A.	27/07/23
01	ISSUED FOR REVIEW	A.K.	22/09/21



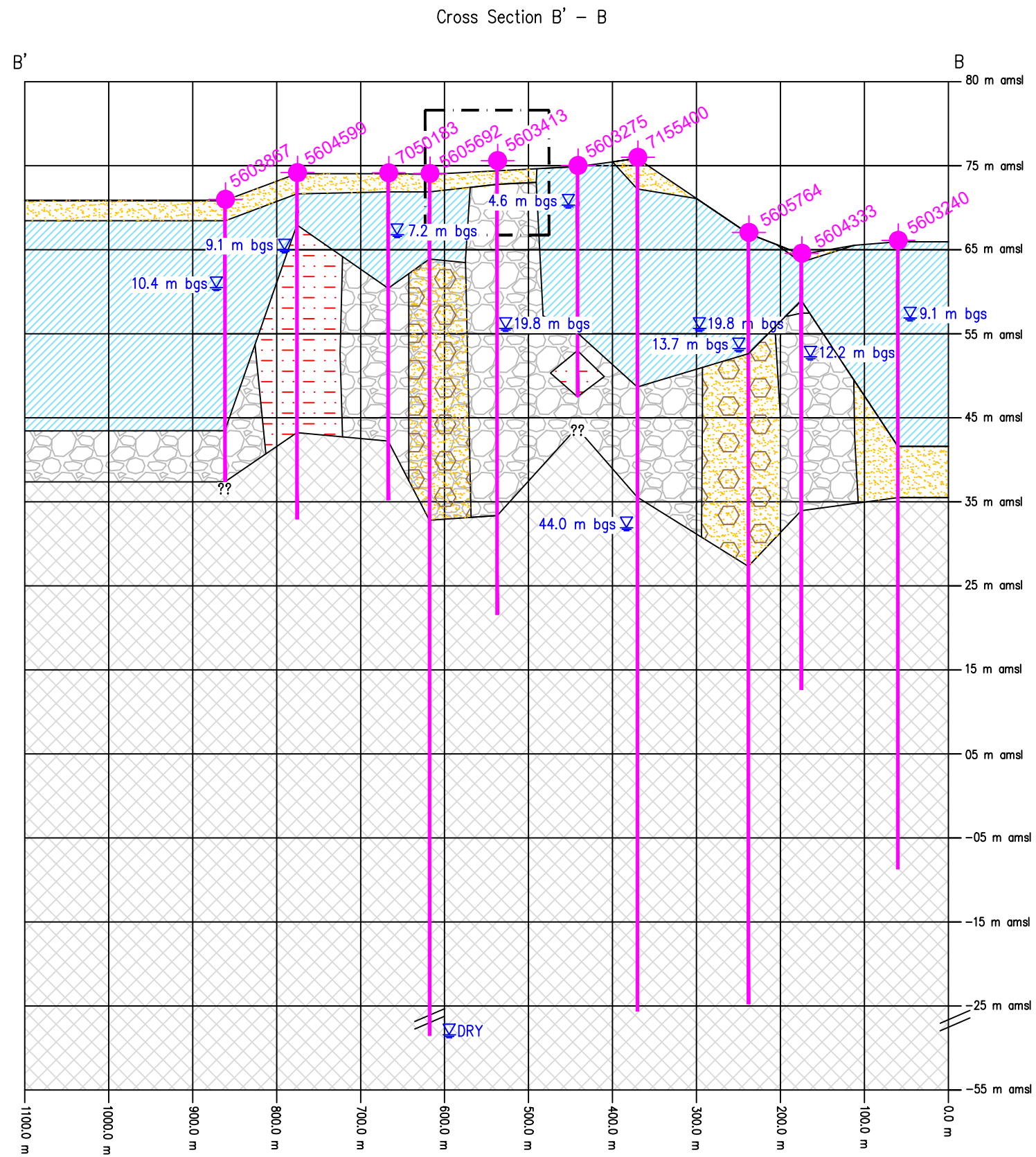
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A. ROBERTS

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PROJECT
HYDROGEOLOGICAL ASSESSMENT AND
TERRAIN ANALYSIS
PROPOSED MIXED USE DEVELOPMENT
5969 OTTAWA STREET,
RICHMOND, ON

DRAWING TITLE
GEOLOGICAL CROSS SECTION A'-A

PROJECT NO. 210341	FIGURE 5A
DATE JULY 2023	



- Legend**
- Sand
 - Clay stratum
 - Till stratum
 - Boulder stratum
 - Gravel stratum
 - Weathered Bedrock/Bedrock
 - Well
 - Groundwater encountered
 - Approximate Site location
 - Unknown location of transition between stratum

No.	REVISIONS	BY	DATE
02	REVISION	J.A.	27/07/23
01	ISSUED FOR REVIEW	A.K.	22/09/21



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PROJECT
HYDROGEOLOGICAL ASSESSMENT AND
TERRAIN ANALYSIS
PROPOSED MIXED USE DEVELOPMENT
5969 OTTAWA STREET,
RICHMOND, ON

DRAWING TITLE
GEOLOGICAL CROSS SECTION B'-B

PROJECT NO.
210341
DATE
JULY 2023

FIGURE 5B

TABLES

Table 1A
Summary of Supply Well Water Quality
Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development
5969 Ottawa Street, Richmond, Ontario
LRL File No. 210341

Parameter	Units	Ontario Drinking Water Standards				TW-1					TW-2		Neighbour's Well (5949 Ottawa St.)	
		MRL	Standard	Type	MECP D-5-5 ⁵	2021 Initial Submission			2023 Further Well Development		Pumping Test			
						SA-1	3 hr	6 hr	4 hr	4 hr	8 hr	3 hr		6hr
Sample Date (d/m/y)														
Microbiological Parameters														
Chlorine (Field Measurement)	ppm	0.01				--	0.03	0.00	0.02	0.02	0.02	0.01	0.01	--
E. Coli	CFU/100 mL	1	0	MAC		<1	<1	<1	<1	<1	<1	<1	<1	<1
Fecal Coliforms	CFU/100 mL	1	0 ¹	MAC		<1	<1	<1	<1	<1	<1	<1	<1	<1
Heterotrophic Plate Count	CFU/ml	10	--			190	280	120	<10	<10	10	80	50	100
Total Coliforms	CFU/100 mL	1	0/5 ¹	MAC		13	<1	<1	<1	<1	<1	<1	<1	<1
General Inorganics														
Alkalinity, total	mg/L	5	30 - 500	OG		274	269	269	268	268	267	274	274	259
Ammonia as N	mg/L	0.01	--			0.13	0.12	0.12	0.13	0.15	0.13	0.10	0.10	0.16
Dissolved Organic Carbon	mg/L	0.5	5	AO	10	0.7	1.8	1.9	5.7	8.9	8.9	1.6	1.8	<0.5
Colour	TCU	2	5	AO	7	25	21	30	<2	<2	<2	<2	<2	<2
Conductivity	uS/cm	5	--			1560	1550	1530	1680	1720	1710	1290	1290	1800
Hardness	mg/L	1	80 - 100	OG	500	532	514	509	549	535	524	409	478	515
pH	pH Units	0.05	6.5 - 8.5	OG		7.7	7.8	7.8	7.7	7.9	7.9	7.8	7.7	7.7
Phenolics	mg/L	0.001	--			<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Dissolved Solids	mg/L	10	500	AO		874	796	814	898	892	836	718	718	946
Sulphide	mg/L	0.02	0.05	AO		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Tannin & Lignin	mg/L	0.1	--			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Kjeldahl Nitrogen	mg/L	0.1	--			0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2
Organic Nitrogen	mg/L	0.15	OG			0.07	0.08	-0.02	--	0.05	-0.03	0.10	0.00	--
Turbidity	NTU	0.1	1/5 ²	MAC/AO	5	7.9	5.2	4.9	6.4	4.1	3.8	8.1	9.0	Z
Anions														
Chloride	mg/L	1	250	AO	250	267	266	264	298	299	299	192	191	325
Fluoride	mg/L	0.1	1.5 ³ /2.4	MAC		0.3	0.4	0.4	0.3	0.2	0.3	0.4	0.4	0.3
Nitrate as N	mg/L	0.1	10	MAC		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrite as N	mg/L	0.05	1	MAC		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulphate	mg/L	1	500	AO	500	99	82	82	77	79	78	57	57	75
Metals														
Aluminum	mg/L	0.001	0.1	OG		--	--	--	--	0.012	0.014	0.007	0.005	--
Antimony	mg/L	0.0005	0.006	MAC		--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--
Arsenic	mg/L	0.001	0.01	MAC		--	--	--	--	<0.001	<0.001	<0.001	<0.001	--
Barium	mg/L	0.001	1	MAC		--	--	--	--	0.14	0.136	0.119	0.137	--
Beryllium	mg/L	0.0005	--			--	--	--	--	--	--	<0.0005	<0.0005	--
Boron	mg/L	0.01	5	MAC		--	--	--	--	0.22	0.22	0.15	0.16	--
Cadmium	mg/L	0.0001	0.005	MAC		--	--	--	--	<0.0001	<0.0001	<0.0001	<0.0001	--
Calcium	mg/L	0.1	--			126	125	124	136	132	131	105	122	127
Chromium	mg/L	0.001	0.05	MAC		--	--	--	--	<0.001	<0.001	<0.001	<0.001	--
Cobalt	Mg/L	0.0005	--			--	--	--	--	--	--	<0.0005	<0.0005	--
Copper	mg/L	0.0005	1	OG		--	--	--	--	<0.0005	<0.0005	<0.0005	<0.0005	--
Iron	mg/L	0.1	0.3	AO	5/10	0.7	0.5	0.5	0.6	0.6	0.5	0.5	0.6	0.2
Lead	mg/L	0.0001	0.01	MAC		--	--	--	--	0.0002	<0.0001	<0.0001	<0.0001	--
Magnesium	mg/L	0.2	--			52.7	49.4	48.4	50.8	50	47.9	35.8	42.0	47.8
Manganese	mg/L	0.005	0.05	AO	1	0.018	0.016	0.016	0.016	0.017	0.017	0.014	0.016	0.016
Molybdenum	mg/L	0.0005	--			--	--	--	--	--	--	0.0020	0.0022	--
Nickel	mg/L	0.001	--			--	--	--	--	--	--	<0.001	<0.001	--
Potassium	mg/L	0.1	--			9.1	8.5	8.1	8.1	8.4	8.4	6.1	6.9	8.5
Selenium	mg/L	0.001	0	MAC		--	--	--	--	<0.001	0.001	<0.001	<0.001	--
Silver	mg/L	0.0001	--			--	--	--	--	--	--	<0.0001	<0.0001	--
Sodium	mg/L	0.2	20 ¹ /200	AO	200	115	114	111	120	118	112	61.6	70.7	129
Strontium	mg/L	0.01	--			--	--	--	--	--	--	4.03	4.09	--
Thallium	mg/L	0.001	--			--	--	--	--	--	--	<0.001	<0.001	--
Tin	mg/L	0.01	--			--	--	--	--	--	--	<0.01	<0.01	--
Titanium	mg/L	0.005	--			--	--	--	--	--	--	<0.005	<0.005	--
Tungsten	mg/L	0.01	--			--	--	--	--	--	--	<0.01	<0.01	--
Uranium	mg/L	0.0001	0.02	MAC		--	--	--	--	0.0006	0.0006	0.0005	0.0006	--
Vanadium	mg/L	0.0005	--			--	--	--	--	--	--	<0.0005	<0.0005	--
Zinc	mg/L	0.005	5	AO		--	--	--	--	<0.005	<0.005	<0.005	<0.005	--

NOTES
MRL Minimum Reportable Limit ODWS Ontario Drinking Water Standards (2006)

MAC Maximum Acceptable Concentration NA Not Analysed

AO Aesthetic Objective UNDERLINE Parameter level above ODWS

OG Operational Guideline **Italic** Notify Medical Officer of Health

BOLD Parameter level above D-5-5 maximum treatability limits

¹ As per Table 1 of MECP's technical guideline "D-5-5 Private Wells: Water Supply Assessment"

² 1.0 NTU MAC if treatment system required to provide filtration for disinfection. 5.0 NTU AO for all points of consumption

³ Where supplies of naturally occurring fluoride at levels above 1.5 mg/L but below 2.4 mg/L the Ministry of Health recommends notification of local board of health of levels to avoid excesses exposure from other sources.

⁴ Limit at which Local Medical Officer of Health should be notified of Levels.

⁵ MECP D-5-5 guideline, maximum concentration considered reasonably treatable

Table 1B
Summary of Supply Well Water Quality - Volatile Organic Compounds
 Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development
 5969 Ottawa Street, Richmond, Ontario
 LRL File No. 210341

Parameter	Units	MRL	Ontario Drinking Water Standards		TW-1		TW-2	
			Standard	Type	4 hr	8 hr	3 hr	6hr
Sample Date (d/m/y)					25.01.2023		29.05.2023	
Volatiles								
Acetone	mg/L	0.005			<0.005	<0.005	<0.005	<0.005
Benzene	mg/L	0.0005	0.001	MAC	<0.0005	<0.0005	<0.0005	<0.0005
Bromodichloromethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Bromoform	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Bromomethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Carbon Tetrachloride	mg/L	0.0002	0.002	MAC	<0.0002	<0.0002	<0.0002	<0.0002
Chlorobenzene	mg/L	0.0005	0.08	MAC	<0.0005	<0.0005	<0.0005	<0.0005
Chloroethane	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
Chloroform	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Dibromochloromethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Dichlorodifluoromethane	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
Ethylene dibromide (dibromoethane, 1,2	mg/L	0.0002			<0.0002	<0.0002	<0.0002	<0.0002
1,2-Dichlorobenzene	mg/L	0.0005	0.2	MAC	<0.0005	<0.0005	<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.005	MAC	<0.0005	<0.0005	<0.0005	<0.0005
1,1-Dichloroethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichloroethane	mg/L	0.0005	0.005	MAC	<0.0005	<0.0005	<0.0005	<0.0005
1,1-Dichloroethylene	mg/L	0.0005	0.014	MAC	<0.0005	<0.0005	<0.0005	<0.0005
cis-1,2-Dichloroethylene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
trans-1,2-Dichloroethylene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichloroethylene, total	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichloropropane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
cis-1,3-Dichloropropylene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
trans-1,3-Dichloropropylene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,3-Dichloropropene, total	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	mg/L	0.0005	0.14	MAC	<0.0005	<0.0005	<0.0005	<0.0005
Hexane	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
Methyl Ethyl Ketone (2-Butanone)	mg/L	0.005			<0.005	<0.005	<0.005	<0.005
Methyl Isobutyl Ketone	mg/L	0.005			<0.005	<0.005	<0.005	<0.005
Methyl tert-butyl ether	mg/L	0.002			<0.002	<0.002	<0.002	<0.002
Methylene Chloride	mg/L	0.005	0.05	MAC	<0.005	<0.005	<0.005	<0.005
Styrene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,1,1,2-Tetrachloroethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Tetrachloroethylene	mg/L	0.0005	0.01	MAC	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L	0.0005	0.06	MAC	<0.0005	<0.0005	<0.0005	<0.0005
1,1,1-Trichloroethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
1,1,2-Trichloroethane	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Trichloroethylene	mg/L	0.0005	0.005	MAC	<0.0005	<0.0005	<0.0005	<0.0005
Trichlorofluoromethane	mg/L	0.001			<0.001	<0.001	<0.001	<0.001
Vinyl Chloride	mg/L	0.0002	0.001	MAC	<0.0002	<0.0002	<0.0002	<0.0002
m/p-Xylene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	0.0005			<0.0005	<0.0005	<0.0005	<0.0005
Xylenes, total	mg/L	0.0005	0.09	MAC	<0.0005	<0.0005	<0.0005	<0.0005

NOTES

- | | | | |
|------------|----------------------------------|------------------|---|
| MRL | Minimum Reportable Limit | ODWS | Ontario Drinking Water Standards (2006) |
| MAC | Maximum Acceptable Concentration | NA | Not Analysed |
| AO | Aesthetic Objective | UNDERLINE | Parameter level above ODWS |
| OG | Operational Guideline | <i>Italics</i> | Notify Medical Officer of Health |
| | | BOLD | Parameter level above D-5-5 maximum treatability limits |

Table 2
Langelier and Ryznar Calculations
Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development
5969 Ottawa Street, Richmond, Ontario
LRL File No. 210341

TW1 - August 2021		TW2 - May 2023	
Analyzed Parameters		Analyzed Parameters	
TDS (mg/L)	814	TDS (mg/L)	718
Hardness(mg/L)	509	Hardness(mg/L)	478
alkalinity(mg/L)	269	alkalinity(mg/L)	274
pH (pH units)	7.8	pH (pH units)	7.7
Temperature °C	10	Temperature °C	10
Langelier		Langelier	
LSI = pH - pHs		LSI = pH - pHs	
pHs = (9.3 +A+B) - (C+D)	Where A= (Log10(TDS)-1)/10 = 0.19106244	pHs = (9.3 +A+B) - (C+D)	Where A= (Log10(TDS)-1)/10 = 0.185612
	B= (-13.12*Log10(T°C+273))+34.55 = 2.382561966		B= (-13.12*Log10(T°C+273))+34.55 = 2.382562
	C= Log10(Hardness)-0.4 = 2.306717782		C= Log10(Hardness)-0.4 = 2.279428
	D= Log10(Alkalinity) = 2.42975228		D= Log10(Alkalinity) = 2.437751
Ryznar		Ryznar	
RI=2pHs-pH		RI=2pHs-pH	
pHs=	7.137154	pHs=	7.150996
LSI=	0.662846	LSI=	0.549004
RI=	6.474309	RI=	6.601992

Table 3A
Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development - August 2021 Pumping Test Data
 5969 Ottawa Street, Richmond, Ontario
 LRL File No. 210341

Date:	21/08/2021	Technician:	A. Kader
Well Number:	TW1	Pump Depth (m BTC):	--
Depth of Well (m BTC):	48.80	Start Time:	7:58 AM
Ground Surface Elev. (m):	TBC	End Time:	3:20 PM
Top of Casing Elev. (m):	TBC	Average Pump Rate (L/min):	40.0
Water Level before Pump In (m BTC)	2.96		

Time ¹ (min)	Water Level (Pump In) (m BTC)	Drawdown (m)	Flow Rate (L/min)	Turbidity (NTU)	Residual Chlorine (mg/L)	Field Parameters			Total Dissolved (mg/L)
						Colour (TCU)	pH	Conductivity (µs)	
0.0	2.96	0.00	40.0						
0.5	3.47	0.51	40.0						
1.0	3.83	0.87	40.0						
1.5	4.20	1.24	40.0						
2.0	4.39	1.43	40.0						
2.5	4.52	1.56	40.0						
3.0	3.73	0.77	40.0						
3.5	4.76	1.80	40.0						
4.0	4.79	1.83	40.0						
4.5	4.81	1.85	40.0						
5.0	4.84	1.88	40.0						
6.0	4.87	1.91	40.0						
7.0	4.89	1.93	40.0						
8.0	4.91	1.95	40.0						
9.0	4.93	1.97	40.0						
10.0	4.94	1.98	40.0						
20.0	4.99	2.03	40.0						
30.0	5.05	2.09	40.0	1.73	0.00	<0	7.74	1246	624
60.0	5.07	2.11	40.0	1.04	0.01	15	7.65	1244	619
90.0	5.08	2.12	40.0	1.04	0.01	146	7.67	1237	618
120.0	5.11	2.15	40.0	0.64	0.05	94	7.68	1240	621
150.0	5.11	2.15	40.0	0.40	0.03	134	7.51	1234	622
180.0	5.11	2.15	40.0	0.48	0.03	87	7.44	1235	621
240.0	5.12	2.16	40.0	0.51	0.06	82	7.52	1240	620
300.0	5.13	2.17	40.0	0.73	0.03	85	7.53	1236	617
360.0	5.13	2.17	40.0	0.68	0.00	21	7.49	1241	621
Recovery				% Recovery					
0 (360)	5.13	2.17		0.0					
0.5	4.43	1.47		32.3					
1.0	3.92	0.96		55.8					
1.5	3.67	0.71		67.3					
2.0	3.45	0.49		77.4					
2.5	3.34	0.38		82.5					
3.0	3.31	0.35		83.9					
3.5	3.30	0.34		84.3					
4.0	3.28	0.32		85.3					
4.5	3.26	0.30		86.2					
5.0	3.25	0.29		86.6					
6.0	3.24	0.28		87.1					
7.0	3.23	0.27		87.6					
8.0	3.21	0.25		88.5					
9.0	3.20	0.24		88.9					
10.0	3.19	0.23		89.4					
20.0	3.12	0.16		92.6					
30.0	3.09	0.13		94.0					
60.0	3.05	0.09		95.9					

¹ Time elapse from pump turning on or off.

BTC: Below Top of Casing
NM: Not Measured
TCB: To Be Confirmed

Table 3C
Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development - January 2023 Pumping Test Data
 5969 Ottawa Street, Richmond, Ontario
 LRL File No. 210341

Date:	25/01/2023	Technician:	A. Kader
Well Number:	TW1	Pump Depth (m BTC):	44.20
Depth of Well (m BTC):	48.80	Start Time:	8:00 AM
Ground Surface Elev. (m):	TBC	End Time:	4:10 PM
Top of Casing Elev. (m):	TBC	Average Pump Rate (L/min):	40.0
Water Level before Pump In (m BTC)	3.26		

Time ¹ (min)	Water Level (Pump In) (m BTC)	Drawdown (m)	Flow Rate (L/min)	Turbidity (NTU)	Residual Chlorine (mg/L)	Field Parameters			Total Dissolved (mg/L)
						Colour (TCU)	pH	Conductivity (µs)	
0.0	3.29	0.00	40.0						
0.5	4.38	1.09	40.0						
1.0	4.62	1.33	40.0						
1.5	4.80	1.51	40.0						
2.0	4.91	1.62	40.0						
2.5	4.99	1.70	40.0						
3.0	5.05	1.76	40.0						
3.5	5.09	1.80	40.0						
4.0	5.12	1.83	40.0						
4.5	5.15	1.86	40.0						
5.0	5.17	1.88	40.0						
6.0	5.20	1.91	40.0						
7.0	5.23	1.94	40.0						
8.0	5.25	1.96	40.0						
9.0	5.26	1.97	40.0						
10.0	5.27	1.98	40.0						
20.0	5.29	2.00	40.0						
30.0	5.30	2.01	40.0						
60.0	5.32	2.03	40.0	4.35	0.01	72	7.64	1484	745
90.0	5.33	2.04	40.0						
120.0	5.33	2.04	40.0	1.43	0.03	33	7.72	1499	753
150.0	5.36	2.07	40.0						
180.0	5.33	2.04	40.0	1.09	0.02	17	7.68	1491	747
210.0	5.34	2.05	40.0						
240.0	5.36	2.07	40.0	0.66	0.02	9	7.53	1527	761
300.0	5.31	2.02	40.0	0.43	0.02	7	7.45	1461	732
360.0	5.26	1.97	40.0	0.31	0.03	9	7.52	1453	725
420.0	5.25	1.96	40.0	0.33	0.02	7	7.53	1467	732
480.0	5.24	1.95	40.0	0.39	0.02	10	7.63	1426	714
490.0	5.22	1.93	40.0						
Recovery				% Recovery					
0 (490)	5.22	1.93		0.0					
0.5	4.13	0.84		56.5					
1.0	3.67	0.38		80.3					
1.5	3.58	0.29		85.0					
2.0	3.54	0.25		87.0					
2.5	3.51	0.22		88.6					
3.0	3.50	0.21		89.4					
3.5	3.48	0.19		90.2					
4.0	3.46	0.17		91.2					
4.5	3.45	0.16		91.7					
5.0	3.44	0.15		92.2					
6.0	3.42	0.13		93.3					
7.0	3.41	0.12		94.0					
8.0	3.40	0.11		94.6					
9.0	3.39	0.09		95.1					
10.0	3.38	0.09		95.3					
20.0	3.32	0.03		98.4					
30.0	3.31	0.02		99.0					
60.0	--	--		--					

¹ Time elapse from pump turning on or off.

BTC: Below Top of Casing

NM: Not Measured

TCB: To Be Confirmed

Table 3D
Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development - May 2023 Pumping Test Data
 5969 Ottawa Street, Richmond, Ontario
 LRL File No. 210341

Date:	29/05/2023	Technician:	J. Arthurs
Well Number:	TW2	Pump Depth (m BTC):	49.94
Depth of Well (m BTC):	70.10	Start Time:	7:46 AM
Ground Surface Elev. (m):	TBC	End Time:	1:48 PM
Top of Casing Elev. (m):	TBC	Average Pump Rate (L/min):	40
Water Level before Pump In (m BTC)	3.19		

Time ¹ (min)	Water Level (Pump In) (m BTC)	Drawdown (m)	Flow Rate (L/min)	Turbidity (NTU)	Field Parameters			Total Dissolved (mg/L)
					Residual Chlorine (mg/L)	Colour (TCU)	pH	
0.0	3.19	0.00	40.0					
0.5	4.15	0.96	40.0					
1.0	4.32	1.13	40.0					
1.5	4.43	1.24	40.0					
2.0	4.46	1.27	40.0					
2.5	4.67	1.48	40.0					
3.0	4.70	1.51	40.0					
3.5	4.83	1.64	40.0					
4.0	4.84	1.65	40.0					
4.5	4.90	1.71	40.0					
5.0	4.86	1.67	40.0					
6.0	4.94	1.75	40.0					
7.0	4.95	1.76	40.0					
8.0	4.95	1.76	40.0					
9.0	5.05	1.86	40.0					
10.0	5.00	1.81	40.0					
15.0	5.01	1.82	40.0					
20.0	5.11	1.92	40.0	1.08				
25.0	5.23	2.04	40.0					
30.0	5.26	2.07	42.0	0.78		80		
40.0	5.30	2.11	40.0					
50.0	5.31	2.12	40.0	1.08	0.00	63		
60.0	5.33	2.14	40.0	0.48	0.00	16		
120.0	5.37	2.18	40.0	1.53	0.00	50		
180.0	5.45	2.26	40.0	2.55	0.01	2		
240.0	5.38	2.19	40.0	0.48	0.01	0.0		
300.0	5.40	2.21	40.0	0.60	0.01	0.0		
360.0	5.40	2.21	40.0	1.40	0.01	0.0		
Recovery				% Recovery				
0 (360)	5.40	2.21		-0.2				
0.5	3.66	0.47		78.7				
1.0	3.79	0.60		72.8				
1.5	3.63	0.44		80.0				
2.0	3.51	0.32		85.5				
2.5	3.47	0.28		87.3				
3.0	3.45	0.26		88.2				
3.5	3.42	0.23		89.6				
4.0	3.41	0.22		90.2				
4.5	3.39	0.20		90.9				
5.0	3.85	0.66		70.1				
6.0	3.36	0.17		92.3				
7.0	3.35	0.16		92.7				
8.0	3.34	0.15		93.2				
9.0	3.33	0.14		93.7				
10.0	3.32	0.13		94.1				
15.0	3.29	0.10		95.5				
20.0	3.27	0.08		96.4				
25.0	3.25	0.06		97.3				
30.0	3.25	0.06		97.3				
40.0	3.24	0.05		97.7				
50.0	3.23	0.04		98.2				
60.0	3.22	--		98.6				

¹ Time elapse from pump turning on or off.

BTC: Below Top of Casing

NM: Not Measured

TCB: To Be Confirmed

Table 4
Specific Capacity and Longterm Availability
Hydrogeological Assessment and Terrain Analysis - Proposed Mix Use Development
5969 Ottawa Street, Richmond, Ontario
LRL File No. 210341

Tested By: LRL Associates Ltd.
Test Date TW-1: 11-Aug-21
Test Date TW-2: 29-May-23

Well	Cs - Static mTOC	Cp - Pump* mTOC	Cp - Cs	Drawdown (m)	Pumping Rate L/min	Sc - Specific Capacity L/sec/m	Qsc -Maximum Pumping Rate L/min	Long Term Availability m ³ /day	Qsc GPM (US)	Qsc GPM (IMP)
TW-1	3.29	44.20	40.9	1.93	40.0	0.345	189.4	272.7	50.0	41.7
TW-2	3.19	49.94	46.8	2.26	40.0	0.295	184.8	266.1	48.8	40.6

Notes:

$$Q_{sc} = 0.67 \frac{(C_p - C_s) S_c}{SF}$$

- Qsc Pumping rate with safety factor (SF) of 3 (L/min);
- C_p - C_s Difference between pump level and static water level (m);
- S_c Specific capacity (L/min/m); and
- 0.67 Is a factor that compensates for the variation of the static water level due to
- SF 3
- Minimum Demand 3.450 m³/day
- * Assumed
- Greater than Minimum Demand
- Less than Minimum Demand
- TOC Top of Casing

Table 5A
Nitrate Attenuation Calculations

Hydrogeological Assessment and Terrain Study - Proposed Mix Use Development
5969 Ottawa Street, Richmond, Ontario
LRL File No. 210341

1. Potential Infiltration

Weather Station Ottawa

No.	Section Area (m ²)	Infiltration Factor (IF) ¹							Moisture Surplus (MS)				Potential Infiltration (PI) (IF*MS) (mm)		
		Topography	Value	Soil	Value	Cover	Value	Total	Ground Cover	Soil Type	Moisture Retention ² (mm)	Moisture Surplus ³ (mm)	Section	Weighted	
1	6,079	Flat	0.3	Clay Loam	0.2	Woodland	0.2	0.7	Closed Mature Forest	3 Silt Loam	400	301	210.7	142.7	
2	2,897	Flat	0.3	Clay Loam	0.2	Cultivated Land	0.1	0.6	Moderately Rooted Crops	3 Silt Loam	200	318	190.8	61.6	
Total														Total	204.3

2. Area Available for Infiltration

Number of Lots	n	1
Approximate footprint of house/garage	H	453 m ²
Approximate area of paved driveways	d ⁴	620 m ²
Approximate Length of Road	L	0 m
Approximate Width of Road	w	0 m
Total Area of Property		8976 m ²
Impervious Area		1073.3 m ²
Roads	l x w	0 m ²
Driveway	n x d	620 m ²
Houses	n x H	453 m ²
Area available Infiltration	A	7,903 m²

3. Nitrate Dilution Calculations

Nitrate Concentration of Infiltration	C _i	0 mg/L
Site Infiltration	Q _i = A*PI	1614 m ³
Daily Sewage Volume per Lot ⁵	Q _d	3.45 m ³
Maximum Yearly Sewage Volume (water)	Q _e = 365*n*Q _d	1259 m ³
Nitrate Concentration in Sewage ⁵	C _e	40 mg/L
Maximum Allowable Nitrate Concentration at Boundary	C _m	10.0 mg/L
Increase in Nitrate Concentration at Boundaries	C = (Q _e C _e + Q _i C _i) / (Q _e + Q _i)	17.53 mg/L

NOTES

- Table 2: Infiltration Factors, *Hydrological Technical Information Requirements for Land Development Applications*, Ministry of the Energy and Environment, April 1995.
- Thornthwaite and Mather's (1957) Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance.
- Moisture surplus for data for Ottawa ON (Environment Canada Meteorological Service of Canada, 2010).
- Area based on 10m long and 3m wide driveways
- As per *Technical Guideline for Individual On-Site Sewage Systems: Water Quality and Impact Risk Assessment*, Ministry of the Energy and Environment, August 1996.

Table 5B
Nitrate Attenuation Calculations

Hydrogeological Assessment and Terrain Study - Proposed Mix Use Development
5969 Ottawa Street, Richmond, Ontario
LRL File No. 210341

1. Potential Infiltration

Weather Station Ottawa

No.	Section Area (m ²)	Infiltration Factor (IF) ¹							Moisture Surplus (MS)				Potential Infiltration (PI) (IF*MS) (mm)	
		Topography	Value	Soil	Value	Cover	Value	Total	Ground Cover	Soil Type	Moisture Retention ² (mm)	Moisture Surplus ³ (mm)	Section	Weighted
1	6,079	Flat	0.3	Clay Loam	0.2	Woodland	0.2	0.7	Closed Mature Forest	3 Silt Loam	400	301	210.7	142.7
2	2,897	Flat	0.3	Clay Loam	0.2	Cultivated Land	0.1	0.6	Moderately Rooted Crops	3 Silt Loam	200	318	190.8	61.6
Total		8,976							Total				204.3	

2. Area Available for Infiltration

Number of Lots	n	1
Approximate footprint of house/garage	H	453 m ²
Approximate area of paved driveways	d ⁴	620 m ²
Approximate Length of Road	L	0 m
Approximate Width of Road	w	0 m
Total Area of Property		8976 m ²
Impervious Area		1073.3 m ²
Roads	l x w	0 m ²
Driveway	n x d	620 m ²
Houses	n x H	453 m ²
Area available Infiltration	A	7,903 m²

3. Nitrate Dilution Calculations

Nitrate Concentration of Infiltration	C _i	0 mg/L
Site Infiltration	Q _i = A*PI	1614 m ³
Daily Sewage Volume per Lot ⁵	Q _d	3.45 m ³
Maximum Yearly Sewage Volume (water)	Q _e = 365*n*Q _d	1259 m ³
Nitrate Concentration in Sewage ⁵	C _e	20 mg/L
Maximum Allowable Nitrate Concentration at Boundary	C _m	10.0 mg/L
Increase in Nitrate Concentration at Boundaries	C = (Q _e C _e + Q _i C _i) / (Q _e + Q _i)	8.76 mg/L

NOTES

- Table 2: Infiltration Factors, *Hydrological Technical Information Requirements for Land Development Applications*, Ministry of the Energy and Environment, April 1995.
- Thornthwaite and Mather's (1957) Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance.
- Moisture surplus for data for Ottawa ON (Environment Canada Meteorological Service of Canada, 2010).
- Area based on 10m long and 3m wide driveways
- As per *Technical Guideline for Individual On-Site Sewage Systems: Water Quality and Impact Risk Assessment*, Ministry of the Energy and Environment, August 1996.

ATTACHMENT I
City Comments – October 2022

Application D07-12-22-0046, 5969 Ottawa St

First submission comments October 14, 2022

Planning Comments

- Fencing of the rail corridor seems to be required. Can you please confirm that there is currently no fencing? Alternative fencing may be needed as the EIS would not be supportive of that fencing.
- Please look to add trees to the grassed areas at the rear of the building and along Ottawa Street
- Confirm garbage will be kept in the building as no exterior areas are shown
- Lot area on zoning chart on Site Plan should identify the 1 ha plus not the lot area to be developed.

Cheryl McWilliams

Parks Planning –

Parkland Dedication:

- a. The amount of parkland dedication that is required is to be calculated as per the City of Ottawa Parkland Dedication By-law No 2022-280.
- b. For Commercial or Industrial purposes the parkland requirement is calculated as 2% of the gross land area; “gross land area” means, for the purposes of this by-law, the lesser of the area defined as: c) For industrial or commercial redevelopment, the portion of property that is impacted by the proposed development; But not including any hazard lands or natural heritage features identified in the official plan, an approved Secondary Plan, or through an environmental impact study accepted by the City.
- c. A survey or plan will be required identifying the portion of the site being developed for commercial uses (including parking, and interior roads servicing the commercial uses). Based on the survey details provided in the Planning Rationale the developable area is 3,240 m² (0.8 acres).
- d. Parks & Facilities Planning will be requesting Cash in lieu of parkland for this proposal, to be collected at registration of the site plan agreement.
- e. The value of the land will be determined by the City’s Realty Services Branch. The owner is responsible for any appraisal costs incurred by the City.
- f. Please note that the park comments above are preliminary and subject to change. Should the proposed land use changes during the course of the Site Plan Approval process, then the parkland dedication requirement be re-evaluated accordingly.

Anissa McAlpine

Environmental Comments

After reviewing the provided documentation for 5969 Ottawa Street, I have no further concerns about potential environmental impacts from the proposed development.

The major concern from the preconsultation notes was the presence of Blanding’s Turtle habitat. However, the applicant has sought out and acquired approval from the Ministry of the

Environment, Conservation and Parks (see email dated November 8th, 2021, from Brooke Michell).

The provided EIS clearly demonstrates that applicable setbacks will be followed and that there will be enhanced grass swales and fencing to limit the impacts of a large number of dogs on site. I accept its conclusion that there are likely to be no negative impacts from this development.

While the site's location in a heavily vegetated area obviates concerns about the urban that island effect I would still encourage the applicant to consider the addition of tree plantings in the enclosed dog run to help create a cooler microclimate and provide shade on hot days.

Mark Elliott

Engineering Comments

A. List of Drawing(s):

General

Comments:

- A1. Please include a reference on the drawings to the Plan of Survey and include a note that references the horizontal and vertical datums that were used and tied into to complete the project.
- A2. The drawing included with the provided OSSO Septic Permit No. 21-035 shows a different tank and treatment unit location than the Civil drawings. Please confirm which layout is correct and update the drawings or Septic Permit, as required.

General Notes, C001, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 01, dated November 25, 2021.

Comments:

- A3. Section 5.2 of the Geotechnical Investigation dated October 2021, provides an allowable grade raise restriction. Please make note of the allowable grade raise restriction in the C001 notes or on C301.

Erosion and Sediment Control Plan, C101, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

Comments:

- A4. Drawing C001 references a mud mat, and a gravel entrance is referenced in the 'During Construction' notes on C101. Please show the location of mud mat/gravel entrance on C101.
- A5. Please remove references to any items not applicable to the site from the notes on the drawing. For example, references to ESC measures which aren't proposed and references to infrastructure not existing or proposed on the site should be removed from the drawing notes.

Demolition Plan, C102, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

No Comments.

Site Development Plan, C201, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

No Comments.

Grading and Drainage Plan, C301, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

Comments:

- A6. Please display the benchmark location.
- A7. Please indicate the elevations of the underside of footing and top of foundation for the proposed building.
- A8. Section 5.1 of the Geotechnical Investigation dated October 2021, states that it is anticipated that the footings for the proposed building will be founded below the frost penetration depth on the native, undisturbed glacial till material. Based on the Borehole Logs for BH1, BH2, and BH3 provided in Appendix B of the Geotechnical Investigation, the glacial till material starts at 1.45m below ground surface. Section 6.1 of the Geotechnical Investigation notes that it's anticipated that the max depth of excavation for the building will not extend below 1.5-1.8m. Please confirm that the applicant is aware of the extent of excavation required and the limitations on the re-use of the excavated overlying material.
- A9. Please display the limits of the stormwater retention/ponding for the 5-year and 100-year storm events.
- A10. Please include the pavement structure design information provided in the Geotechnical Investigation dated October 2021.
- A11. Adjacent to the west side of the building there are two rectangular hatched areas which are labelled on C201 as asphalt walking areas. The hatch used in these areas isn't on the legend or labelled on C301. Please identify the hatch used in the legend or with a label. If the light duty asphalt is intended to extend into these two areas, please indicate that on C301.
- A12. Does the 'Typical Stormwater Bio-Swale Cross-Section' apply to the proposed new swale along the eastern property line? If so, please update the label on the swale along the eastern property line. If not, please provide a cross-section detail for that swale.
- A13. The drawing included with the provided OSSO Septic Permit No. 21-035 doesn't appear to reflect the proposed Grading and Drainage Plan. Please confirm that the proposed grading and drainage in the vicinity of the proposed septic system have been accounted for in the design of the septic system, and that the proposed grading and drainage has accounted for the proposed septic system. For example, the proposed new swale along the eastern property line runs close

to the proposed septic system distribution chamber and some of the pipes (C301). Please confirm that there's no grading conflict at this location, and that the swale doesn't impact the septic system frost protection at this location.

- A14. Please indicate the proposed slope away from the north, east, and south sides of the building.
- A15. Please indicate the proposed slopes in the grass area south of the building/parking lot.
- A16. Please indicate the proposed slope between the gravel diaphragm and the enhanced grass swale/bioretention facility.
- A17. Please verify the proposed slopes shown west and south of the bioretention facility. A spot check found different slopes than indicated.
- A18. For the proposed driveway, please include a reference to City of Ottawa Standard Detail Drawing S26, 'Private Entrance Detail – Rural'.
- A19. As per the City of Ottawa Private Approach By-Law 2003-447, the maximum width of a private approach is 9m. It appears that the entrance exceeds 9m at the roadway edge. Please confirm and revise as required.
- A20. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the proposed septic system leaching bed.
- A21. Please indicate the top of casing elevation for the well to confirm that the casing height (and air vent) are 40cm above the potential flood level.
Note that a comment has been also made on the Hydrogeological Assessment and Terrain Analysis about this well casing requirement.
- A22. Please provide grading information in the vicinity of the well to confirm that the surface drainage will not collect or pond in the vicinity of the well (as per O.Reg. 903, section 12.3).

Stormwater Management & Servicing Plan, C601, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

Comments:

- A23. Under the 'Project Notes' on the first drawing in the Robertson 'Building Drawings Combined Set', it's noted that there will be downspouts for the roof drainage. Please indicate the downspout locations on the drawing.
- A24. Where the bioretention area outlets to the ROW, there is an existing hydro pole and guywire located near the proposed storm outlet pipe and associated rip rap. Please confirm that the stormwater outlet pipe and rip rap can be constructed while meeting any applicable setbacks from the hydro infrastructure.
- A25. The outlet invert of the proposed storm pipe discharging to the ROW is 93.33. It's a 200mm diameter pipe, so the lowest pipe overt would be approximately 93.53 at the outlet. Where the pipe crosses the property line, the ground elevation is shown as 93.49. Therefore, it appears the storm outlet pipe would be partially above the ground surface. Please confirm and revise as required.
- A26. The SWM Report and Site Servicing Brief includes specifications for the type and size of stone to be used in the gravel diaphragm border (e.g., washed stone between 3 and 10 mm in diameter) and specifications for each of the

bioretention facility materials. Please note the specifications for the material on a drawing or include a reference to where the information can be found in the SWM Report and Site Servicing Brief.

A27. Please indicate the snow storage location.

A28. There's a label pointing to the eastern property line indicating an 'Existing Natural Swale'. The Plan of Survey doesn't appear to show an existing swale at this location. Please confirm.

Pre-Development Watershed Plan, C701, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

No Comments.

Post-Development Watershed Plan, C702, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

No Comments.

Construction Detail Plan, C901, prepared by LRL Engineering, LRL Project No.: 210341, dated July 27, 2021, revision 02, dated June 2, 2022.

No Comments.

B. List of Report(s):

Geotechnical Investigation, prepared by LRL Engineering, LRL File No.: 210341, dated October 2021.

Comments:

A1. Section 2 of the report states that the site is approximately 800m² in size. This doesn't appear to match other project documents. Please confirm that this is correct.

A2. Table 1 indicates the BH2 sample submitted for lab gradation analysis had 0% fine gravel. The Particle Size Analysis in Appendix D shows 8.9% fine gravel. Please confirm.

A3. Table 3 indicates the USCS Group Symbol is CL for BH3, SS2. The Appendix D results indicate it is ML. Please clarify.

A4. Section 4.8 states that the groundwater was measured upon completion of drilling and all boreholes were found to be dry. As per section 2.7 of the Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa, in lower permeability soils or rock, the groundwater level could take a week or more before stabilizing and shouldn't not be recorded prematurely. Given the silt and clay content of the soil, please provide the rationale for the decision to not install a piezometer and allow the groundwater level to stabilize before taking the groundwater level measurement.

A5. Section 4.8 notes that groundwater levels can fluctuate with seasonal weather conditions and due to construction activities at or near the vicinity of the site.

The proposed bioretention facility requires a minimum clearance of 1 m between the bottom of the LID measure and the seasonally high groundwater elevation (refer to the Stormwater Management Report and Servicing Brief, dated November 25, 2021). Please provide sufficient information to confirm that the seasonally high groundwater elevation is not expected to be within 1m of the bottom of the bioretention area.

- A6. Section 5.2 states that the bearing capacity limits the allowable grade raise to 2.5m. Is the bearing capacity this is based on specific to the undisturbed glacial till material? If so, what's the allowable grade raise where the silt layer remains in place over the glacial till?
- A7. Section 5.9 provides the recommendations for whether permanent perimeter foundation drainage is required. Is foundation drainage proposed for this building? Section 5.4 states that the lateral earth pressure expression assumes that perimeter drainage system prevents the build-up of any hydrostatic pressure behind the foundation wall. If no foundation drainage is proposed, please make any required updates to the assumptions provided in section 5.4.
- A8. Table 4 indicates that the resistivity of the BH2 sample was 1,160 Ohm.cm. The Appendix D laboratory results indicate a resistivity of 116 Ohm.m. It appears there is a typo or conversion error. Please update Table 4.
- A9. Section 5.12 states that the measured soil resistivity falls within the "corrosive" range. Please include the recommendations associated with this finding.
- A10. Section 7.2 states that a typical value of 75 kPa for residential construction was assumed for the design load for the building. Do the Robertson 'Building Drawings Combined Set' included with the Site Plan Control application include the actual design load for the building? If not, please confirm that the 75 kPa for typical residential construction provides a conservative approximation for the proposed building use, given that it's not only residential.
- A11. Please discuss in the report how the soil parameters presented in Table 5 were established.
- A12. Please provide a scaled plan showing the location of the slope, the significant features of the planned development (e.g., structures and paved areas), the locations of the cross-sections used to establish the slope geometry, and the locations of the cross-sections where the slope stability has been assessed.

Hydrogeological Assessment and Terrain Analysis, prepared by LRL Engineering, LRL File No.: 210341, dated September 22, 2021.

Comments:

- A13. As discussed in section 5.1 of the report, the water quality sampling showed that the D-5-5 Maximum Concentration Considered Reasonably Treatable was exceeded for hardness, colour, and chloride. In addition, there was a ODWO exceedance for TDS, which doesn't have a Maximum Concentration Considered Reasonably Treatable. Given the exceedances of the D-5-5 Maximum Concentration Considered Reasonably Treatable, it hasn't been demonstrated that the proposed supply well is capable of supplying water of adequate quality

for the proposed development. Consultation with a City Hydrogeologist and the City Senior Engineer on the file is required to discuss the hydrogeological concerns. Please contact Damien.Whittaker@ottawa.ca to set up a meeting.

- A14. As displayed on the Plan of Survey prepared by H.A. Ken Shipman Surveying Ltd., and dated July 19, 2021, the well is located within the floodplain. Although O.Reg. 903 doesn't specifically prohibit the installation of a well in the floodplain, it's not recommended. The following items are required:
- The casing height (and air vent) must be 40cm above the potential flood level.
 - The well cap and vent must be floodproof.

Note that a comment has been also made on the Grading and Drainage Plan to indicate the top of casing elevation of the well.

- A15. Please provide the Well Record for the supply well.
- A16. Please include a discussion of the Hydrogeologist's assessment of whether the existing well is in conformance with O.Reg. 903.
- A17. Now that there are additional details about the proposed development available, please update section 2 of the report and Figure 3, as well as any other sections or figures which require updates based on available information.
- A18. In section 4, it's stated that the inferred groundwater flow direction is east towards the North Castor River, and that the nearest open water body that flows into the North Castor River is approximately 1.1. km east of the site. It appears that this description doesn't apply to this site. Please update.
- A19. Section 4 states that test pits found a thin layer of topsoil over clay with varying sand and silt contents. The Appendix C Particle Size Analysis results indicate that silt is the primary material in all three samples submitted, with varying amounts of sand, clay, and gravel. Please confirm and update the soil descriptions as required.
- A20. Please include a discussion about any well quantity interference with neighbouring properties.
- A21. Please include a discussion of the field parameters tested.
- A22. In the table in section 5.2.2, is the 'Maximum Drawdown' value supposed to be 2.17m instead of 2.13m? Please confirm and update as required.
- A23. In section 6, the calculated daily sewage flow (1,550 L/d) is different than the daily design flow (5,250 L/day) calculated in the provided OSSO Septic Permit Application number 21-035. However, it appears that the daily design flow calculated for the Septic Permit may not reflect the currently proposed development. Please confirm and revise if required.
- A24. The current version of the plans indicates a building footprint of 453.25m² and a paved driveway/parking area larger than the area noted in section 7.1. Please confirm the impervious areas, and update section 7.1 and the calculations as required.
- A25. The Table 4 Nitrate Attenuation Calculations use a daily sewage volume per lot of 1m³. Please provide an explanation of why the daily sewage design flow calculated in section 6 of the report (1.55m³/day) isn't use in the calculation.

- A26. In the Appendix A Test Pit Logs, the soil descriptions of the layers where samples were collected don't appear to reflect the results presented in the Appendix C Particle Size Analysis. Please confirm and update as required.
- A27. As per section 5.2.4 v) of the [City's Hydrogeological and Terrain Analysis Guidelines](#), the minimum required water quality sampling parameters for a Site Plan application are the Subdivision Package, as well as trace metals, and VOCs. Given that the pre-application consultation meeting occurred prior to when the City's Guidelines came into effect, testing for trace metals and VOCs weren't required for the Hydrogeological Assessment and Terrain Analysis dated September 22, 2021. Please note that this exception isn't intended to set a precedent. Any additional hydrogeological assessment on this Site Plan Control application, and on future applications, are subject to the requirements of the [City's Hydrogeological and Terrain Analysis Guidelines](#), including the minimum water quality sampling parameters for Site Plans.

Stormwater Management Report and Servicing Brief, prepared by LRL Engineering, LRL File No.: 210341, dated November 25, 2021.

Comments:

- A28. Section 5.3.1, item 6), states that it is anticipated that a clearance exceeding 1m is achieved between the bottom of the LID measures and the expected groundwater level. Please note that Section 4.8 of the Geotechnical Investigation dated October 2021, notes that groundwater levels can fluctuate with seasonal weather conditions and due to construction activities at or near the vicinity of the site. Although groundwater wasn't observed during the hydrogeological or geotechnical investigations, they were both completed August. Higher groundwater levels are typically expected during wet periods of the year, such as early spring. As per the bioretention facility fact sheet provided in Appendix C, a minimum of 1m separating the seasonally high water table and the bottom of the bioretention facility is required. *Note that a comment has been also made on the Geotechnical Investigation to include the seasonally high groundwater elevation to be used for design.*
- A29. Section 5.3.1 states that the proposed LID approaches will likely result in the targeted 80% TSS removal. It needs to be demonstrated that 80% TSS removal is achieved. Please provide additional information to demonstrate that the proposed LID approaches provide 80% TSS removal.
- A30. Based on the existing and proposed grades shown on the Grading and Drainage Plan, it appears that some of the runoff from 5949 Ottawa Street would flow southwest onto the site both pre and post development. In the report, please discuss how the proposed development will affect the runoff from the neighbouring property and how the existing stormwater runoff from the adjacent site that crosses the property will be accommodated by the proposed stormwater management design.
- A31. Please make note of the calculated water demands and sanitary daily design flow in the report.

- A32. The proposed septic system design provided in Appendix E shows a different tank and treatment unit location than the drawing included with the provided OSSO Septic Permit No. 21-035. Please confirm which layout is correct and update as required.

Rail Safety Study – VIA Rail Corridor Proximity, prepared by Hatch, dated June 28, 2021.

Comments:

- A33. As per section 3.7.1 of the Guidelines for New Development in Proximity to Railway Operations, all new residential developments in proximity to railway corridors must include a 1.83m high chainlink fence along the entire mutual property line. Figure A2 shows that there is an existing fence along the rail corridor at the at-grade crossing at the south end of the property. Does this existing fence continue along the entire mutual property line?
If not, please discuss if the requirement for a fence is applicable to this site. Note that the mutual property line is within the floodplain, and any work proposed within the floodplain is subject to approval from RVCA and would also need to be addressed in the EIS which is subject to MECP approval. Depending on VIA Rail and floodplain regulatory requirements, it may be preferable to propose any required fencing outside of the floodplain.
- A34. As per section 3.2 of the Guidelines for New Development in Proximity to Railway Operations, consultation with the railway is required. Please provide confirmation that the railway has been consulted and has concurred with the findings of the Rail Safety Study.
- A35. The Rail Safety Study must be stamped and sealed by a Professional Engineer.

C. Additional Comments:

- C1. Fire routes are to be designated by By-law for Fire Services to establish them as a legal fire route. Please complete the attached **Application for a Fire Route Designation** form and send to fireroutes@ottawa.ca in order to add the fire route to the By-law. The form must be filled out by the applicant/agent of the property as well as the property owner. Please cc the file lead (Cheryl.McWilliams@ottawa.ca) and Damien.Whittaker@ottawa.ca as confirmation that the form has been submitted.
- C2. Due to the industrial zoning of the site, an ECA application is required for the proposed stormwater management works, even without a proposed direct discharge to a watercourse. It may be possible for the proposed stormwater management works to be approved under the City's Transfer of Review (ToR) ECA, instead of a direct submission ECA. A ToR ECA has a quicker approval time than a direct submission ECA. A request can be made to the City (Damien.Whittaker@ottawa.ca) to consider a Transfer of Review (ToR) ECA for stormwater works for this private property, instead of the direct submission ECA. This is subject to approval by the City and MECP. If proceeding with a direct

submission ECA, after all comments are resolved, please provide the draft ECA application for the City to review prior to submission to MECP.

- C3. Please note that as per section 4.4.2 of MECP's Procedure D-5-5, warning clauses will need to be registered on title due to the water quality exceedances of the ODWO for sodium and hardness: "In cases where raw water sodium levels exceed 20 mg/L, warning clauses should be addressed to people on sodium restricted diets and should be registered on title. In addition, if water softening is utilized to reduce hardness, a warning should be registered on the title with a recommendation that a separate tap, which by-passes the softener, be installed to supply un-softened drinking water.".
- Warning clauses will also need to be registered on title for any other water treatment equipment required due to exceedances of the ODWO.
- C4. Please note that later in the Site Plan Control process (prior to Site Plan approval), information on the proposed exterior lighting design will need to be provided. The location of the fixtures, fixture types (make, model, and part number), and the mounting heights will need to be submitted. A Site Lighting Certificate prepared by a qualified Professional Engineer, licensed in the Province of Ontario, will be also required. The Certificate must state that the exterior site lighting has been designed to meet the following criteria:
- It must be designed using only fixtures that meet the criteria for full cut-off (sharp cut-off) classification, as recognized by the Illuminating Engineering Society of North America (IESNA or IES).
 - and it must result in minimal light spillage onto adjacent properties. As a guideline, 0.5 fc is normally the maximum allowable spillage.
- C5. Mapping of the 1 in 350-year floodplain is not yet available for this property (<http://ottawa.ca/floodplainmaps>), but it is anticipated that portions of this proposed development will be within the 1 in 350-year floodplain. The area between the 1 in 100-year floodplain and the 1 in 350-year floodplain is defined as the climate change flood vulnerable area. Unlike the 1 in 100-year floodplain maps, the 1 in 350-year floodplain maps are not presently used to define or control limits of development. This comment is provided for information purposes to provide advance notice that once the 1 in 350-year floodplain mapping is available, it may show that this proposed development is within the climate change flood vulnerable area.

Please consider these comments in combination with comments you receive from other technical groups, agencies, and the public.

Chris Reist

ViaRail Comments – link for contact/submissions is <https://railrequest.viarail.ca/>

The Applicant must submit engineering drawings signed and sealed by a certified professional. The engineering drawings will be reviewed by an engineering firms designated by VIA at the Applicant's expenses.

The Applicant must also submit locates to VIA. The locates must be submitted to VIA electronically and physically.

The Applicant must meet the following requirements:

- **Transport Canada:**
- *Railway Safety Act*, Part III, Sections 24 and 25.
- **For Clearance:**
- *Railway Right of Way Access Control Policy*;
- *Wire Crossings and Proximities Regulations* – C.R.C., c. 1195;
- *Standards Respecting Railway Clearances* – TC E-05;
- Notice of Railway Works Regulations, a copy of the notice must be sent to VIA.
- **For pipelines or other utilities crossings under railways:**
- *Standards Respecting Pipeline Crossings Under Railways* – TC E-10.
- **Traffic control near a railways:**
- *Circular 13 Railway Association of Canada*

- **For Grade Crossings:**
- *Grade Crossings Regulations*;
- The provisions that must be adhered to with respect to the creation of new entrance ways or intersecting roads from the nearest rail. Reference GCR Sub-Section 101(1) and Grade Crossings Standards Article 11.
- *Grade Crossings Standards*;
- *Transport Canada Standard for LED Signals Modules at Highway/Railway Grade Crossings* – TC E-14;
- *Minimum Railway/Road Crossing Sightline Requirements for All Grade Crossings Without Automatic Warning Devices* – G4-A.
- The requirements surrounding sightlines, of which any construction or activities (Duplex development) on the property or new properties must ensure they do not obstruct the required minimum grade crossing sightlines. (reference Section 21 of the GCR).

- **Canadian Standards Association:**
- CAN/CSA C22.3 No. 1 – Overhead Systems;
- CAN/CSA C22.3 No. 7 - Underground Systems;
- CAN/CSA Z662 – Oil and Pipeline Systems;
- CAN/CSA-B137.4 - Polyethylene Piping Systems for Gas Services.
- **VIA:**
- *Buried Signal and Communication Guidelines*;
- *Guidelines for New Development*;
- *guidance which the Federation of Canadian Municipalities (FCM) has created on this topic specifically, you can find their guidance within the following link: Guidelines for New Development in Proximity to Railway Operations.*

- Adjacent landowners, buildings and overhead structures are not allowed to drain or modify existing drainage ways to divert water onto railway property without a hydraulic study and approval of the VIA Rail Infrastructure Department;
- All loads must be in compliance with Cooper E90;

- **The Federation of Canadian Municipalities and the Railway Association of Canada:**
- *Guidelines for New Development in Proximity to Railway Operations.*

- **Other:**

- Proper fencing must be included or planned to be installed in order to avoid any trespassing or intrusions into the VIA right-of-way;
- All fence maintenance will be done on the Applicant expense.

In addition, the Applicant must comply with the following areas of concern for which VIA request information, reassurances and/or commitments with regards to the application:

- **Utilities:**

- Electrical and Gas Supply

VIA would like assurances from the City and the Applicant that the new development will not negatively impact on the capacity, availability, stability of the supply and future growth capability thereof.

- Communications

VIA would like assurances from the City and the Applicant, that the new development will not impact VIA's operations as a result of potential alterations to the existing cellphone towers or any other fibre-optic infrastructures supplying the VIA station and property.

- **Water & Wastewater:**

- Drainage Sanitary/Storm

VIA would like assurances that the new development will not limit or interfere with its operations, specifically the main sanitary drainage that runs South-to-North from the Train Yards, through VIA's property towards the proposed development. Refer to the blue dashed line of Exhibit A, attached to this letter.

- Water supply

VIA would like assurances that the new development will not affect the supply and water pressure that is provided for the station.

- **Construction Disturbances:**

- VIA requests a copy of the Pedestrian study (from New Development to LRT).
- VIA is concerned by the flow of people that will go through our premises (either interior or exterior) to access the LRT station.

- Station access (vehicle traffic)

Confirmation that the New Development access/exits, and traffic volumes will not affect or interfere VIA traffic circulation between Tremblay Rd and the Station parking. VIA also needs confirmation that Avenue L (yellow dotted line shown on Exhibit A), as well as the access to it, will be kept for our operations and upcoming growth.

- **Neighbour Relationships:**
- VIA requests the Applicant's monitoring and management plan of the impacts of its construction, including but not limited to:
 - Air contaminants / Dust pollution;
 - Noise pollution / Working hours;
 - Existing conditions;
 - and the impacts of vibrations.
- VIA requests the Applicant's communication and management plan for future tenants and or owners of the project with respect to VIA's active train station nearby, that may produce one or more of, but not limited to, the following: emission of noise, dust, vibration, fumes, odours and other gaseous or non-gaseous emissions that may affect the enjoyment of the development for which VIA shall not be held responsible.

VIA requests the Applicant's commitment to making all efforts not to interfere with VIA's operations, VIA's track infrastructure or use of VIA property. When in the vicinity of VIA property or Railway right-of-way, VIA requests the Applicant commitment to comply with and conform to all VIA, Department of Transport and Canadian Transportation Agency rules and regulations, or any other authority having jurisdiction.

When and where the City's or the Applicant's actions, whether direct or indirect, negatively impact any of the above, VIA's operations, and or VIA's property, VIA wants assurances from the City and the Applicant that they will take all necessary and possible steps to mitigate or eliminate those impacts.

In light of our requests, VIA requires the City and the Applicant to indemnify VIA against any and all claims, damages or proceedings (including legal costs and other costs and expenses) that may arise in relation to the non-compliance to any condition contained in this letter.

Should you have any questions or concerns, please feel free to contact the undersigned.

Sincerely,



Paul Charbachi

Infrastructure Engineer

M: 514-607-5833

Paul_Charbachi@viarail.ca

RVCA Comments – The RVCA has reviewed the above noted Site Plan Control application for a kennel, workshop and caretaker's residence on part of the property and have no objections.

Eric Lalande

Enbridge – see separate email

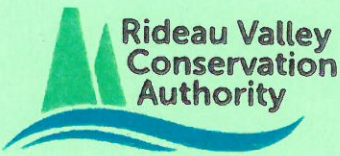
Rogers – from
Mohammed Ali Khan
Rogers Communications
475 Richmond Rd
Ottawa, Ontario, M1P 4Z3
Phone: 416-627-9363
Email: MohammedAli.Khan@rci.rogers.com

Comments received:
Mostly concerned with one aspect of this development proposal: servicing,

Additional comments:
Rogers has no comment or concerns regarding this circulation. Please contact Graham Winn at 613-216-4452 or e-mail at graham.winn@rci.rogers.com for Rogers Site Servicing if approved, or if you require additional information. Regards

ATTACHMENT II

**Ottawa Septic System Office –
Permit and Design Application**



RVCA RECEIVED
JUL 13 2023
TO: _____

STREET/CIVIC INITIAL
EMAIL ONLY

Septic Office

SEPTIC FILE #
23-042

OTTAWA

3889 Rideau Valley Drive Box 599 Manotick, ON K4M 1A5

Phone: 613-692-3571 PRESS "4" for septic office 1-800-267-3504 Fax: 613-692-1507 Email: septic@rvca.ca

SITE ADDRESS: 5969 Ottawa Township: OSG-HUN-GLO-FIT-CUM-NEP-GOU-RID-KAN-TOR

CONTACT: 1. GVE 2. ROBERTS, AI 3. _____

INFORMATION FOR OWNER/APPLICANT

Attached is your Sewage System Permit. A minimum of two inspections are required before your proposed sewage system can be approved for use (additional inspections may be required for clay soils/bedrock and/or re-inspections). Inspections must be requested in writing. Please see attached:

- Inspection fax request form (all inspections MUST be requested in writing)
- As-built components and drawing form
- Copy of the approved application and schedule pages
- Approved Part 8 permit: *Electronic copy only - Be sure to INCLUDE in B Plans Examiner at CITY of OTTAWA client services, if NEW or RENO co

****NON-RESIDENTIAL****

Commercial

Industrial

Institutional

Special Note

- A permit is valid for 12 months from the original date of issuance noted in "permit date". If lapsed, it may be renewed only once for a period of 12 months from the date of expiry.

- No person shall make a material change or cause a material change to be made to a plan, specification, document or other information on the basis of which a permit was issued without notifying, filing details with and obtaining the authorization of the Chief Building Official. (Building Code Act 1992, c.23, s.8(12))

Sewage System Permit Construction Requirements

1. Clay Soils/Bedrock only (if required per issued Approval)

In clay soils/bedrock, a site preparation inspection is required. The total contact area must be properly prepared. Scarification must be done under dry conditions prior to importing leaching bed fill.

2. Installation Inspection – 2nd inspection

When the sewage system is substantially completed (i.e., before the final fill is placed over the septic tank and leaching bed system) an installation inspection is required. Prior to any inspection request, the following must be submitted:

- "as-built components" and "as-built drawings" — see attached form
- "engineer letter" — if the system is engineered
- grain size analysis and weight bills for all Filter Media types of septic systems
- Weight bills for washed septic stone, where applicable
- Maintenance/service contract for treatment unit installed

3. Final Grading Inspection – 3rd inspection

When construction of the sewage system is complete, a final grading inspection is required. Before a Certificate of Completion can be issued, the following must be complete:

- The leaching bed and septic tank must be covered with sand fill and topsoil and graded accordingly
- All conditions of the Sewage System Permit & comments on the installation inspection report must be met
- The depth of cover & material type must be identified by inspection pipes or holes placed over trenches at 4 corners of bed
- The 4 corners of the bed must be staked

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

For use by Principal Authority			
<div style="border: 2px solid blue; padding: 5px; display: inline-block; margin-bottom: 10px;"> R.V.C.A. RECEIVED JUL 13 2023 </div> Application number: _____	Permit number (if different): _____		
Date received: _____	Roll number: _____		
OTTAWA SEPTIC SYSTEM OFFICE (Name of municipality, upper-tier municipality, board of health or conservation authority)			
A. Project information			
Building number, street name 5969 Ottawa st.		Unit number	Lot/con. 25/3
Municipality Yonge	Postal code K0A 2Z0	Plan number/other description 04430 - 001 0LT	
Project value est. \$		Area of work (m ²)	
B. Purpose of application			
<input checked="" type="checkbox"/> New construction		<input type="checkbox"/> Addition to an existing building	
<input type="checkbox"/> Alteration/repair		<input type="checkbox"/> Demolition	
<input type="checkbox"/> Conditional Permit		<input type="checkbox"/>	
Proposed use of building Commercial		Current use of building Vacant	
Description of proposed work Install a septic system for proposed commercial building with multiple occupancies.			
C. Applicant			
Applicant is:		Owner or Authorized agent of owner	
Last name Patel	First name Davis	Corporation or partnership Green Valley Environmental Inc.	
Street address 6107 First Line Rd.		Unit number	Lot/con.
Municipality North York	Postal code K4M 1A7	Province ON	E-mail engineering@gvgroup.ca
Telephone number (613) 692-2616	Fax ()	Cell number (613) 229-5890	
D. Owner (if different from applicant)			
Last name Roberts		First name Allan	
Corporation or partnership		Unit number	Lot/con.
Street address 61 Strachan St.		Unit number	Lot/con.
Municipality Yonge	Postal code K0A 2Z0	Province ON	E-mail zanneroberts@yahoo.com
Telephone number (613) 410-9561	Fax ()	Cell number ()	

Application for a Permit to Construct or Demolish – Effective January 1, 2014

E. Builder (optional)				
Last name	First name	Corporation or partnership (if applicable)		
Street address	Unit number	Lot/con.		
Municipality	Postal code	Province	E-mail	
Telephone number ()	Fax ()	Cell number ()		
F. Tarion Warranty Corporation (Ontario New Home Warranty Program)				
i. Is proposed construction for a new home as defined in the <i>Ontario New Home Warranties Plan Act</i> ? If no, go to section G.		Yes	No <input checked="" type="checkbox"/>	
ii. Is registration required under the <i>Ontario New Home Warranties Plan Act</i> ?		Yes	No <input checked="" type="checkbox"/>	
iii. If yes to (ii) provide registration number(s): _____				
G. Required Schedules				
i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.				
ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.				
H. Completeness and compliance with applicable law				
i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted).		Yes <input checked="" type="checkbox"/>	No	
Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the <i>Building Code Act, 1992</i> , to be paid when the application is made.		Yes <input checked="" type="checkbox"/>	No	
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> .		Yes <input checked="" type="checkbox"/>	No	
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.		Yes <input checked="" type="checkbox"/>	No	
iv) The proposed building, construction or demolition will not contravene any applicable law.		Yes <input checked="" type="checkbox"/>	No	
I. Declaration of applicant				
I, <u>Davis Patel</u>		declare that:		
(print name)				
1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.				
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.				
Date	<u>July 13, 2023</u>	Signature of applicant	<u>[Signature]</u>	

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

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JUL 13 2023

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name 5969 Ottawa St.		Unit no.	Lot/con. 25/3
Municipality Goulbourn	Postal code K0A 2Z0	Plan number/ other description 0430-0010 LT	
B. Individual who reviews and takes responsibility for design activities			
Name Davis Patel		Firm Green Valley Environmental Inc	
Street address 6107 First Line Rd.		Unit no.	Lot/con.
Municipality North Gower	Postal code K4M 1A7	Province ON	E-mail Engineering@gvegroup.ca
Telephone number (613) 692-2616	Fax number ()	Cell number (613) 229-5890	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]			
House	HVAC – House	Building Structural	
Small Buildings	Building Services	Plumbing – House	
Large Buildings	Detection, Lighting and Power	Plumbing – All Buildings	
Complex Buildings	Fire Protection	<input checked="" type="checkbox"/> On-site Sewage Systems	
Description of designer's work Design a septic system for proposed residential building with multiple occupancies.			
D. Declaration of Designer			
I, <u>Davis Patel</u> declare that (choose one as appropriate): (print name)			
I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: <u>119685</u> Firm BCIN: <u>16035</u>			
I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: _____ Basis for exemption from registration: _____			
The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. I have submitted this application with the knowledge and consent of the firm.			
Date	<u>July 13, 2023</u>	Signature of Designer	<u>[Signature]</u>

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1)(c) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

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JUL 13 2023

Schedule 2: Sewage System Installer Information

A. Project Information			
Building number, street name 5969 Ottawa St.		Unit number	Lot/con. 25/3
Municipality Burlington	Postal code K0A 2Z0	Plan number/ other description 04430-0010LT	
B. Sewage system installer			
Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?			
<input checked="" type="checkbox"/> Yes (Continue to Section C)		<input type="checkbox"/> No (Continue to Section E)	
		Installer unknown at time of application (Continue to Section E)	
C. Registered installer information (where answer to B is "Yes")			
Name Green Valley Environmental Inc.		BCIN 16035	
Street address 6107 First Line Rd.		Unit number	Lot/con.
Municipality North Gower	Postal code K4M 1A7	Province ON	E-mail wseabrook@gvegroup.ca
Telephone number (613) 692-2616	Fax ()	Cell number (613) 229-3900	
D. Qualified supervisor information (where answer to section B is "Yes")			
Name of qualified supervisor(s) Bill Seabrook		Building Code Identification Number (BCIN) 11234	
E. Declaration of Applicant:			
I, <u>Davis Patel</u> declare that: (print name)			
I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;			
OR			
I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.			
Date	July 13, 2023	Signature of applicant	<u>[Signature]</u>

SEPTIC FILE #
23-042
OTTAWA



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Do Not Complete
 Permit # _____
 Revision # _____
 Date _____

Schedule 4
Proposed Services
 Complete Sections 1 thru 7

SEPTIC FILE #
23-042
OTTAWA

1. Engineered

- Yes
- No

2. Water supply

- Proposed
- Existing

3. Type of work proposed

- New Installation
- Replacement
- Alteration

4. Type of Well

- Dug/bored/Sandpoint well
- Drilled well
- Municipal
- Other

5. Residential Sewage Design Flow Info.

Bedrooms _____
House (floor area) _____ m²
People _____
Total Fixture Units _____ (Schedule 8)
Residential Flow _____ L/day

6. Sewage Design Flow Other Occupancies

Design Flow 3450 L/day
 Detailed sewage flow calculations:
See attached description

7. Type of System

- Treatment Unit Norweco 3780-3M
- Class 2 – Leaching Pit
- Class 3 – Cesspool
- Class 4 – Shallow Buried Trench

- Class 4 – Trench (Schedule 9)
 - Fully raised
 - Partially raised
 - In-ground
- Class 4 – Filter Media (Schedule 10)
 - Fully raised
 - Partially raised
 - In-ground

- Class 4 – BMEC Area Bed (Schedule 11)
 - Fully raised
 - Partially raised
 - In-ground
- Class 4 – “Type A” Dispersal (Schedule 13)
 - Fully raised
 - Partially raised
 - In-ground
- Class 4 – “Type B” Dispersal (Schedule 14)
 - Fully raised
 - Partially raised
 - In-ground
- Class 5 – Holding Tank (9000L min)
- Tank/Treatment Unit/Pump Chamber ONLY
- Effluent Filter/Risers ONLY



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23-042

OTTAWA

Allan Roberts(5969 Ottawa St.)

Warehouse

2 Washroom	950 Per Washroom	1900 L/day
2 Loading Bay	150 Per Loading Bay	300 L/day
Sub-Total		2200 L/day

Apartment

2 Bedrooms	275 Per person	1100 L/day
------------	----------------	------------

Kennel (Vetrinary Clinic)

1 Employees	75 Per Employee	75 L/day
1 Floor Drain	75 Per Drain	75 L/day
Sub-Total		150 L/day

Total		3450 L/day
-------	--	------------

SEPTIC FILE #

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JUL 13 2023



Ottawa Septic System Office BUREAU DES SYSTÈMES SEPTIQUES D'OTTAWA

Do Not Complete

Permit No _____

Revision No _____

Date _____

Schedule 5 Sewage System Details

Type of System Class 4 Shallow Buried Trench (Schedule 4)
 Septic/Holding Tank Size: 3600 Litres Make: Macys
 Septic Tank Effluent Filter Make: _____ Model: _____

Treatment Unit - Make & Model Norweco HK 3780-3M
 Number of Units: 1 Other: _____

Refer to Typical Drawing # PC-5-1172 Pump(s) required Liberty 280 (0.5hp)
 Mantle Information: Pump Rate _____ L/15min

Native or imported =15m in _____ direction(s) **Note:** Alarm required for all pumping systems

Slope subgrade _____ % slope
 _____ direction(s)

Site to be Scarified (If clay) YES / NO
 Clay Seal Required (If bedrock) YES / NO

Trench **Shallow Buried Trench**
 Distribution Pipe Length _____ m Pipe Length 52.32 m
 Loading Area _____ m²
 Type of Chamber _____ **Filter Media Bed**
 Length of Chamber _____ m Stone _____ m²
 Dispersal Bed Extended Base _____ m²
 BMEC **Type A** **Type B** Pipe _____ m
 Stone _____ m² Weight of Filter Media _____ Kg
 Sand _____ m² Loading Area _____ m
 Pipe _____ m²
 Linear Loading _____ L/m²

Tank/Treatment Unit/Pump Chamber Replacement ONLY
 Effluent Filter & Riser ONLY

Construction Notes:



Ottawa Septic System Office Bureau des systèmes septiques d'Ottawa

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OTTAWA

Do Not Complete
Permit # _____
Revision # _____
Date _____

Schedule 6
Soil and Water Table Information
(Minimum depth of test pit: 2 metres)

Name of Applicant/Agent: <u>GVE</u>			Inspector: _____				
Date: <u>Jan 5, 2021</u> Time: <u>8:30 am</u>			Date: _____ Time: _____				
Applicant/Agent Signature: <u>GVE</u>			Inspector Signature: <u>[Signature]</u>				
	EG (.....) <u>94.09</u>	Soil Description	T		EG (.....)	Soil Description	
.5m	-----	-----		.5m	-----	-----	
1.0m	-----	-----		1.0m	-----	-----	
1.5m	-----	-----		1.5m	-----	-----	
2.0m	-----	-----		2.0m	-----	-----	
		<p style="text-align:center;"><i>Silty Sand</i> <i>(See sieve analysis)</i></p> <p style="text-align:center;"><i>Call owner to</i> <i>arrange for</i> <i>test hole.</i></p>				<p style="text-align:center;"><i>as per</i> <i>agent</i></p>	
.5m	-----	-----	T	.5m	-----	-----	T
1.0m	-----	-----		1.0m	-----	-----	
1.5m	-----	-----		1.5m	-----	-----	
2.0m	-----	-----		2.0m	-----	-----	
LEGEND							
BR = Bedrock		HGWT = High ground water table		EG = Existing grade			
GWT = Ground water table		M = metres		T = percolation rate			

SEPTIC FILE #

23-042



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System Office septiques d'Ottawa

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JUL 13 2023

Do Not Complete

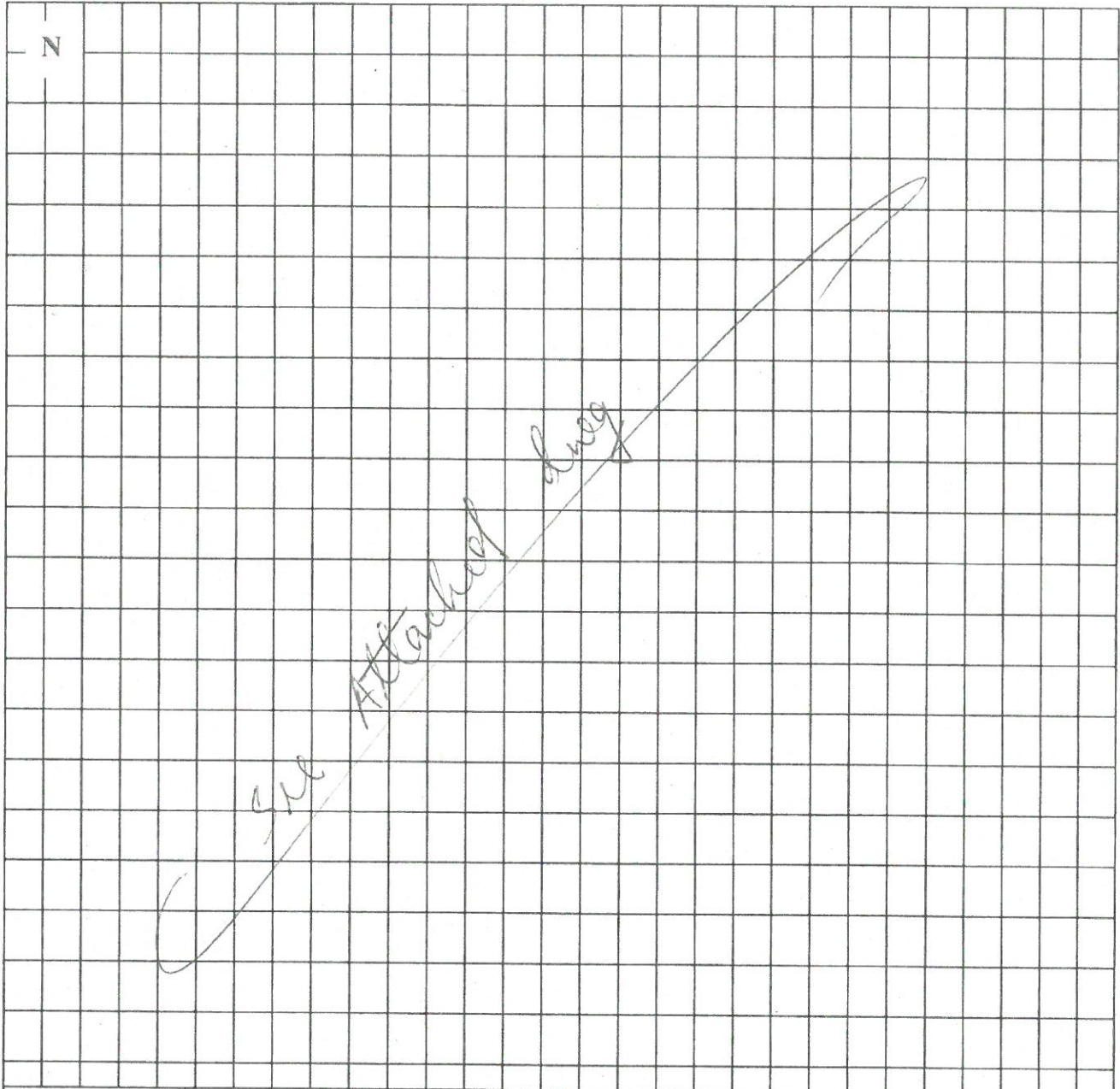
Permit # _____

Revision # _____

Date _____

Scale: 1Block = NTS

**Schedule 7
Layout Section**



○Dug Well ●Drilled Well ▲Neighbouring Homes ◇Benchmark ---Tile Drainage —Property Line

Elevations (metric only)

B.M. 94.99 m

B.M. Description Top of the concrete pad for transformer, south of property

Exact Location _____

Min. of 5 elevations in proposed system area (in X pattern)

X ₁ _____	X ₂ _____
X ₃ _____	X ₄ _____
X ₅ _____	X ₆ (toe) _____
X ₇ _____	X ₈ _____

see attached dug



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JUL 13 2023

Schedule 8

Fixture unit count

Do Not Complete

Permit # _____

Revision # _____

Date _____

Fixtures	OTTAWA	# Existing + # Proposed		X	unit count	=	Fixture Count
Bathroom							
Bathroom group (toilet, sink and tub or shower) installed in the <u>same</u> room	1	+		X	6	=	6
Bathtub with/without overhead shower		+		X	1.5	=	
Shower stall		+		X	1.5	=	
Wash basin (SINK) (1½inch trap)	2	+		X	1.5	=	3
Watercloset (TOILET) tank operated	2	+		X	4	=	8
Bidet		+		X	1	=	
Kitchen							
Dishwasher	1	+		X	1	=	1
Sink with/without garbage grinder(s), domestic and other small type single, double or 2 single with a common trap	1	+		X	1.5	=	1.5
Other							
Domestic washing machine	1	+		X	1.5	=	1.5
Combination sink and laundry tray single or double (Installed on 1½ trap)	1	+		X	1.5	=	1.5

*Total: 22.5

*Insert the TOTAL in section 5 of Schedule 4 (0.Reg 151/13 Table 7.4.9.3)

1. **Sump pumps and floor drains are not to be connected to the sewage system.** Connection of such fixtures to a sewage system may lead to a hydraulic failure of the said system. The above mentioned fixtures should be discharged separately to an approved Class 2 (leaching pit) sewage system.
2. Where laundry waste is not more than 20% of the total daily design sanitary sewage flow, it may discharge to a sewage system (Part 8, OBC, 8.1.3.1(2)).

base

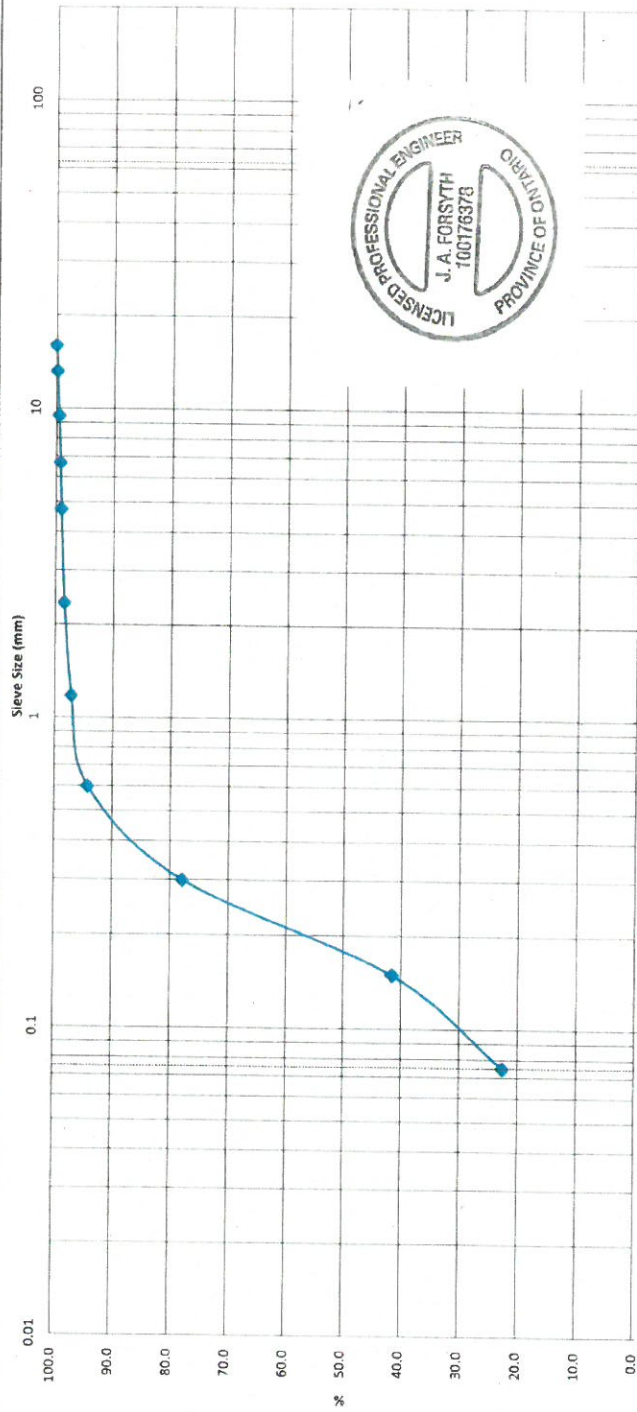
July 13, 2023

Agent/Owner signature

Date

**SIEVE ANALYSIS
ASTM C136**

CLIENT:	Green Valley Enviro. Services	DESCRIPTION:	Sand	FILE NO.:	PM10264
CONTRACT NO.:		SPECIFICATION:	Septic Sand	LAB NO.:	34450
PROJECT:	Laboratory Testing	INTENDED USE:	Septic Bed	DATE RECEIVED:	9-Jun-22
DATE SAMPLED:	9-Jun-22	PIT OR QUARRY:		DATE TESTED:	10-Jun-22
SAMPLED BY:	Client	SOURCE LOCATION:	5969 Ottawa St Richmond	DATE REPORTED:	22-Jun-22
		SAMPLE LOCATION:		TESTED BY:	C. P/A L/R/E



Identification		Soil Classification		Gravel		Cobble	
D100	16	D60	0.22	LL	PL	PI	Cc
D30	0.11	D10	0.042	MC(%)	Sand (%)	Silt (%)	Clay (%)
				Gravel (%)	76.4		22.6
				Coarse			1.31
				Fine			5.2
				Coarse			
				Medium			
				Sand			
				Silt and Clay			

Comments: The sample is representative of a Silty Sand (SM) with an Estimated T Time = 18 to 20 min/cm. The percolation rate provided above is based on the gradation of the test sample submitted, and as such, is approximate only. The values chosen for design should take into account the expected density in the field.

REVIEWED BY: *Curtis Beadon* Joe Forsyth, P. Eng.

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SEPTIC FILE #
23-042
OTTAWA

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patersongroup
consulting engineers

**SIEVE ANALYSIS
ASTM C136**

CLIENT: Green Valley Enviro. Services	DESCRIPTION: Sand	FILE NO.: PM10264
CONTRACT NO.: -	SPECIFICATION: Septic Sand	LAB NO.: 34450
PROJECT: Laboratory Testing	INTENDED USE: Septic Bed	DATE REC'D: 9-Jun-22
	PIT OR QUARRY: -	DATE TESTED: 10-Jun-22
DATE SAMPLED: 9-Jun-22	SOURCE LOCATION: 5969 Ottawa St	DATE REP'D: 22-Jun-22
SAMPLED BY: Client	SAMPLE LOCATION: Richmond	TESTED BY: C.P/A.L/R.E

WEIGHT BEFORE WASH 896.1

WEIGHT AFTER WASH 706.2

SIEVE SIZE (mm)	WEIGHT RETAINED	PERCENT RETAINED	PERCENT PASSING	LOWER SPEC	UPPER SPEC	REMARK
150						
106						
75						
63						
53						
37.5						
26.5						
19						
16	0.0	0.0	100.0			
13.2	1.5	0.2	99.8			
9.5	4.8	0.5	99.5			
6.7	7.4	0.8	99.2			
4.75	9.1	1.0	99.0			
2.36	14.7	1.6	98.4			
1.18	25.6	2.9	97.1			
0.6	51.6	5.8	94.2			
0.3	198.4	22.1	77.9			
0.15	523.4	58.4	41.6			
0.075	693.3	77.4	22.6			
PAN	706.2					

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SIEVE CHECK FINE 0.00 0.3% max. **REFERENCE MATERIAL**

OTHER TESTS	RESULT	LAB NO.	RESULT

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

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4 Transfer

In preparation on 2020 11 24 at 13:11

nis document has not been submitted and may be incomplete.

yyyy mm dd Page 1 of 2

Properties

PIN 04430 - 0010 LT Interest/Estate Fee Simple
Description PCL 10-3, SEC 4D-26; PT UNIT 10, PL 4D-26, PT 1, 4R7050 ; GOULBOURN

Consideration

Consideration \$30,000.00

Transferor(s)

The transferor(s) hereby transfers the land to the transferee(s).

Name QUATROSENSE ENVIRONMENTAL LTD.
Address for Service Acting as a company
5935 Ottawa Street
Richmond, Ontario,
K0A 2Z0

SEPTIC FILE #
23-042
OTTAWA

I, DAVID JENKINS (PRESIDENT), have the authority to bind the corporation.

This document is not authorized under Power of Attorney by this party.

Transferee(s)

Capacity Share

Name ROBERTS, ROBERTA ANNE Joint Tenants
Acting as an individual
Date of Birth 1949 06 17
Address for Service 61 Strachan Street
Richmond, ON K0A 2Z0

Name ROBERTS, ALLAN WAYNE Joint Tenants
Acting as an individual
Date of Birth 1948 12 17
Address for Service 61 Strachan Street
Richmond, ON K0A 2Z0

Calculated Taxes

Provincial Land Transfer Tax \$150.00

File Number

Transferee Client File Number : 51248002



Permit Part 8 – Sewage System Ontario Building Code

Do Not Complete
Permit No <u>23-042</u>
Revision No _____
Date _____
Related Application _____

A copy of this permit must be posted on the property at all time during construction. OBC, Division C — Part 1, Section 1.3.2.1

This permit verifies that the on-site sewage system was reviewed and approved for construction under the *Ontario Building Code* and *O.Reg. 323/12* as amended by *O.Reg. 151/13*.

Inspected & Recommended by: J.HUTTON Owner: Al Roberts
 Inspection Date & Time: Civic: July 17, 2023 (3:45PM) Weather: sun (29C)
 Address: 5969 Ottawa St Legal: _____
 In the former Township/City of Goulbourn

Design Flow for Commercial / Institutional / Industrial (as per Table 8.2.1.3.B)

Q: 3450 L/day

septic tank <u>3600</u> L	weigh bills for <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
effluent filter _____	grain size analysis required <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
pump rate <u>time dosed</u> L/15 MIN	site to be scarified <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
treatment unit <u>Norweco HK3780L-3M</u>	clay seal inspection <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
number of units <u>1</u>	mantle required <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
	sub-grade inspection <input type="checkbox"/> yes <input checked="" type="checkbox"/> no

ELEVATION In Ground Partially Raised Fully Raised

TYPE OF SYSTEM

Trench

Pipe and Stone or Chambers

type of chamber _____

loading area _____ m²

total trench length _____ m

trench configuration _____

Dispersal Bed

BMEC Type A Type B

stone _____ m²

sand _____ m²

pipe _____

weight of sand _____ kg

Shallow Buried Trench

pipe length 52.32 m

orifice spacing 0.6 m

Filter Media Bed

stone _____ m²

extended base _____ m²

pipe _____

weight of filter media _____ kg

loading area _____ m²

Class 5 Holding Tank

Septic Tank Only

Manager, Septic System Approvals: [Signature] Permit Date: July 18, 2023

Comments: 1. Refer to RVCA#RV5-21/23

maintenance/pumping required

ESA permit # required

engineer to verify

subgrade

squirt height

Class 5 Holding Tank approval only valid for three years from date of issue

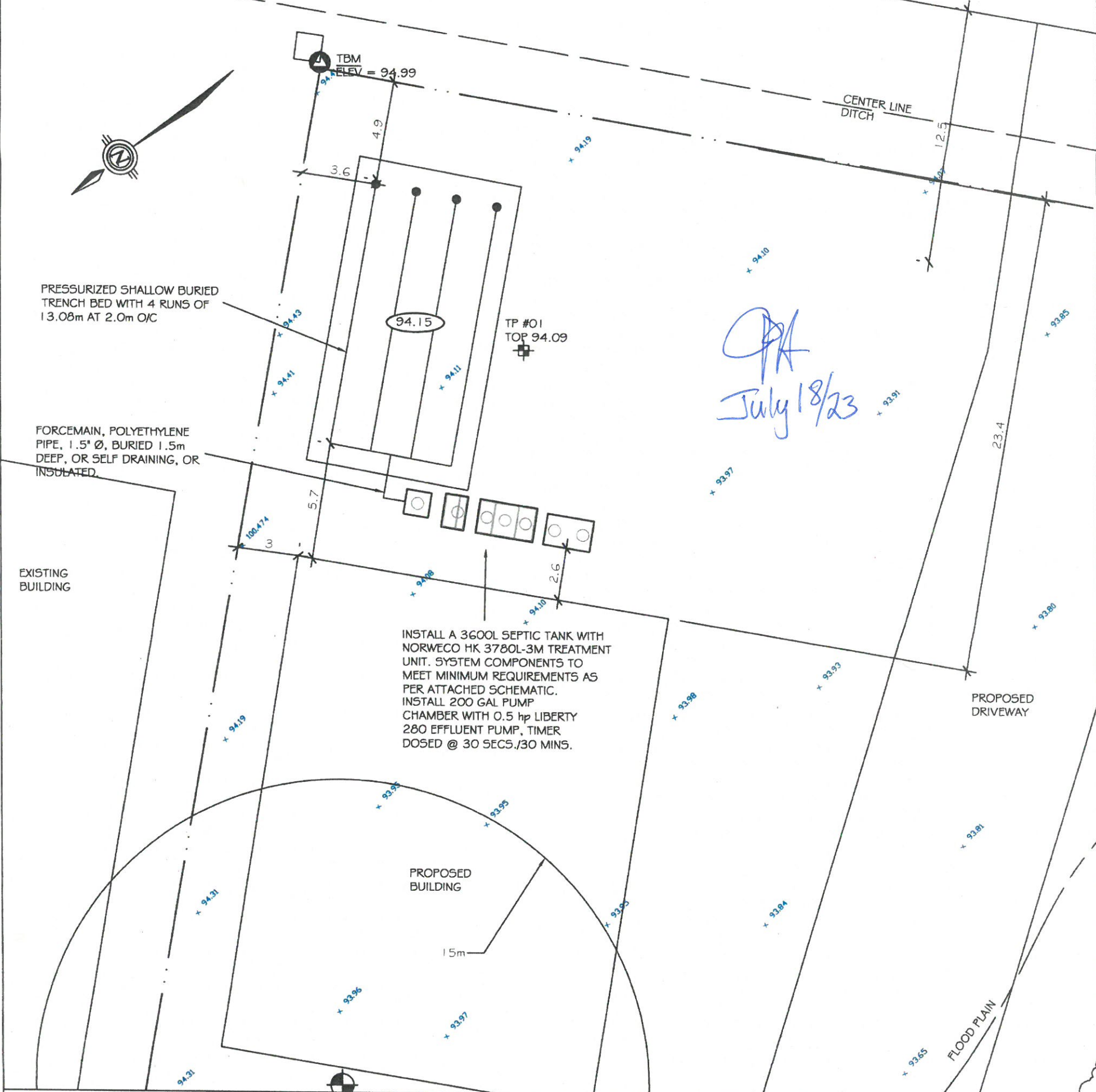
Manager, Septic System Approvals: _____ Revision Date: _____

Comments: _____

SEPTIC FILE #
23-042
OTTAWA

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OTTAWA ST.



PRESSURIZED SHALLOW BURIED TRENCH BED WITH 4 RUNS OF 13.08m AT 2.0m O/C

FORCEMAIN, POLYETHYLENE PIPE, 1.5" Ø, BURIED 1.5m DEEP, OR SELF DRAINING, OR INSULATED.

EXISTING BUILDING

INSTALL A 3600L SEPTIC TANK WITH NORWECO HK 3780L-3M TREATMENT UNIT. SYSTEM COMPONENTS TO MEET MINIMUM REQUIREMENTS AS PER ATTACHED SCHEMATIC. INSTALL 200 GAL PUMP CHAMBER WITH 0.5 hp LIBERTY 280 EFFLUENT PUMP, TIMER DOSED @ 30 SECS./30 MINS.

PROPOSED BUILDING

PROPOSED DRIVEWAY

FLOOD PLAIN

NOTES:

1. ALL TREATMENT UNITS AND LEACHING BED ARE TO BE INSTALLED IN ACCORDANCE WITH MINIMUM OBC CLEARANCE DISTANCES. ANY OMISSIONS OR INACCURACIES SHALL BE BROUGHT TO THE ATTENTION OF GVE AND OSSO.
2. CARE IS TO BE EXERCISED DURING CONSTRUCTION ACTIVITIES NEAR OVERHEAD HYDRO WIRES.
3. EXISTING ELEVATIONS ARE APPROXIMATE. CONTRACTOR MUST VERIFY ALL ELEVATIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.
4. SOIL CONDITIONS ARE ACCURATE FOR THE LOCATIONS SHOWN. CONTRACTOR MUST CONTACT THE DESIGN ENGINEER OR REGULATORY AUTHORITY SHOULD SOIL CONDITIONS DIFFER.
5. ALL DIMENSIONS AND CONDITIONS TO BE VERIFIED ON SITE. FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE.
6. UTILITY LOCATES SHALL BE COMPLETED PRIOR TO ANY EXCAVATION.
7. THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

8. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GVE GROUP. THIS DRAWING SHALL NOT BE ALTERED IN ANY MANNER.

9. EXISTING LOT SERVICED WITH A DRILLED WELL.

METRIC:

DISTANCES AND ELEVATIONS SHOWN ON THIS PLAN ARE IN METERS AND MAY BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

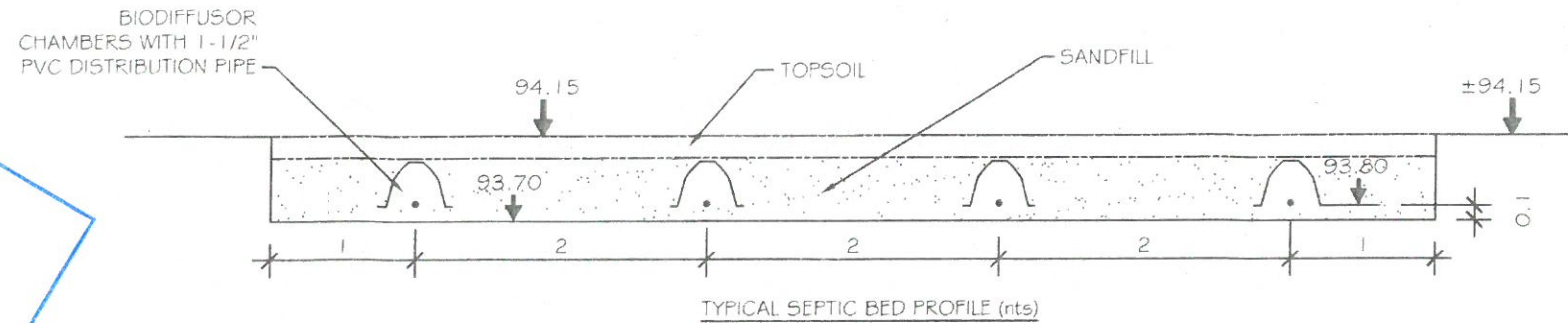
LEGEND:

- PROPOSED ELEVATION
- EXISTING ELEVATION
- EXISTING WORKS
- PROPOSED SEWAGE WORKS
- FENCE LINE
- PROPERTY LINE
- TBM TEMPORARY BENCH MARK (DESCRIPTION: TOP OF CONCRETE PAD)
- TEST PIT LOCATION

- SEPARATION DISTANCES:
1. MINIMUM CLEARANCE FROM SEPTIC PIPE TO:
 - LOT LINE = 3.0m
 - HOUSE = 5.0m
 - DRILLED WELL = 15.0m
 2. MINIMUM CLEARANCE FROM TREATMENT UNITS TO:
 - LOT LINE = 3.0m
 - HOUSE = 1.5m
 - DRILLED WELL = 15.0m

Drawn by DP	Drawn by DP	Checked by WS
Rev.	Description	Date
Township	Plan#	Lot Sublot Con
County	City Address	Date
	5969 OTTAWA ST.	11/07/23
GREEN VALLEY ENVIRONMENTAL		
On-Site Sewage Treatment Plan for the Republic of AL ROBERTS		

1. THIS CROSS SECTION IS NOT TO SCALE, ALL FIGURED DIMENSIONS TAKE PRECEDENCE OVER SCALE
2. THIS DOCUMENT IS COPYRIGHT PROTECTED AND IS THE SOLE PROPERTY OF GREEN VALLEY ENVIRONMENTAL INC. THIS DRAWING SHALL NOT BE ALTERED IN ANY MANNER.



GA
July 18/23

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JUL 13 2023

SEPTIC FILE #
23-042
OTTAWA

PRETREATMENT TANK

- INSTALL MIN. 3600L PRETREATMENT TANK.
- A MAXIMUM OF 300mm OF SOIL SHALL COVER THE PRETREATMENT TANK.
- RISERS AND LIDS SHALL BE INSTALLED FOR EASE OF ACCESS

NORWECO TREATMENT UNIT

- THE TREATMENT UNIT SHALL CONSIST OF A NORWECO HYDRO-KENETIC 3780L-3M TREATMENT UNIT.
- THE TREATMENT UNIT SHALL BE INSTALLED IN SERIES AND DOWN STREAM FROM THE PRETREATMENT TANK.
- THE TREATMENT UNIT SHALL PRODUCE A TERTIARY TREATMENT EFFLUENT QUALITY IN ACCORDANCE WITH COLUMN 2 AND 3 OPPOSITE A LEVEL IV TREATMENT UNIT OF TABLE 8.6.2.2. OF THE ONTARIO BUILDING CODE.
- THE TREATMENT UNIT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS BY A CERTIFIED INSTALLER.
- THE OWNER OF THE TREATMENT UNIT MUST ENTER INTO A MAINTENANCE AGREEMENT WITH THE MANUFACTURER'S REPRESENTATIVE.
- THE TREATMENT UNIT SHALL BE BACKFILLED AND COMPACTED, IN LIFTS, WITH SELECT GRANULAR FILL, SUCH AS SAND OR CLEAR STONE
- THE TOP OF THE TREATMENT UNIT SHALL BE ACCESSIBLE TO THE SURFACE. INSTALL RISERS AND LIDS TO SUIT.

NORWECO FILTER VAULT(S)

- FILTER VAULT(S) SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
- FILTER VAULT(S) SHALL BE INSTALLED IN SERIES AND DOWN STREAM FROM THE TREATMENT UNIT
- FILTER VAULT(S) SHALL BE ACCESSIBLE TO THE SURFACE. INSTALL RISERS AND LIDS TO SUIT.

SHALLOW BURIED TRENCH BED

- THE DISPERSAL BED SHALL CONSIST OF A TOTAL LENGTH EQUAL TO $Q/75 = 3450/75 = 46m$
- TOTAL LENGTH USED = 52.32m
- SAND FILL SHALL EXTEND 1.0m ON ALL SIDES.
- REMOVE LAYER OF TOP SOIL TO APPROXIMATE FOOT PRINT OF SEPTIC BED AND SIDE SLOPES
- THE PRESSURIZED DISTRIBUTION SYSTEM SHALL HAVE A PRESSURE HEAD OF NOT LESS THAN 600mm WHEN MEASURED AT THE MOST DISTANT POINT FROM THE PUMP.
- DISPERSAL BED SHALL BE BACKFILLED SO AS TO ENSURE THAT THE SURFACE WILL NOT FORM ANY DEPRESSIONS
- ALL SIDE SLOPES SHALL BE AT 1:4
- AT NO POINT DURING OR AFTER CONSTRUCTION SHALL A WHEELED VEHICLE DRIVE OVER THE SEPTIC BED AREA.
- EACH RUN SHALL CONSIST OF ONLY FULL CHAMBERS.
- SEPTIC DESIGN BASED ON ADS BIO3 CHAMBERS. EACH RUN SHALL CONSIST OF 6 FULL ADS BIO3 CHAMBERS WITH A TOTAL OF 24 FULL BIO3 CHAMBERS FOR THE ENTIRE SEPTIC BED.

MINIMUM CLEARANCE DISTANCE FROM LEACHING BED

- 4.0m FROM ANY PROPERTY LINE
- 6.0m FROM ANY STRUCTURE
- 16.0m FROM ANY DRILLED WELL

MINIMUM CLEARANCE DISTANCE FROM TANKS

- 3.0m FROM ANY PROPERTY LINE
- 1.5m FROM ANY STRUCTURE
- 15.0m FROM ANY DRILLED WELL

GENERAL

- THE BACKWASH WATERS FROM ANY HOUSEHOLD TREATMENT SUCH AS WATER SOFTENER SHALL NOT DISCHARGE INTO THE SEWAGE SYSTEM
- CONTRACTOR SHALL BE QUALIFIED AND REGISTERED UNDER PART 8 OF THE ONTARIO BUILDING CODE.
- CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL DOCUMENTATION TO DETERMINE SUITABLE METHODS OF CONSTRUCTION.
- INSPECTION BY THE REGULATING AUTHORITIES IS A REQUIREMENT BY SOME REGULATING AUTHORITIES AND IS STRONGLY RECOMMENDED BY GREEN VALLEY ENVIRONMENTAL INC.
- IT IS RECOMMENDED THAT ALL TREES WITHIN 5m OF THE BED AREA BE REMOVED TO PREVENT ROOTS FROM INFILTRATING THE SYSTEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE AND PROTECT ALL EXISTING UNDERGROUND SERVICES.
- SHOULD THE CONTRACTOR AT ANY TIME DURING CONSTRUCTION ENCOUNTER CONDITIONS THAT DIFFER FROM THE DESIGN CRITERIA IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE DESIGNER AND THE REGULATING AUTHORITY.
- GREEN VALLEY ENVIRONMENTAL INC. HAS PROVIDED DESIGNS BASED ON OUR INTERPRETATION OF THE ONTARIO BUILDING CODE AND THE TEST HOLES DUG ON THE PROPERTY.

Drawn by	DP	Designed by	DP	Checked by	WS
Rev.	Description			Date	Approved
Township	Plan#	Lot	Sublot	Con	
					157261-22
County	Site Address	Date	Scale		
	5969 OTTAWA ST	13/07/23	NTS		
GREEN VALLEY ENVIRONMENTAL					
On-Site Sewage Treatment Plan for the Residence of AL ROBERTS					

ATTACHMENT III
Laboratory Certificate of Analysis - Water

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Devin Clouthier

Client PO:
Project: 210341
Custody: 14477

Report Date: 23-Jul-2021
Order Date: 20-Jul-2021

Order #: 2130209

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2130209-01	SA-1

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 23-Jul-2021
 Order Date: 20-Jul-2021
 Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	22-Jul-21	22-Jul-21
Ammonia, as N	EPA 351.2 - Auto Colour	21-Jul-21	21-Jul-21
Anions	EPA 300.1 - IC	21-Jul-21	21-Jul-21
Colour	SM2120 - Spectrophotometric	21-Jul-21	21-Jul-21
Conductivity	EPA 9050A- probe @25 °C	22-Jul-21	22-Jul-21
Dissolved Organic Carbon	MOE E3247B - Combustion IR, filtration	22-Jul-21	22-Jul-21
E. coli	MOE E3407	21-Jul-21	22-Jul-21
Fecal Coliform	SM 9222D	21-Jul-21	22-Jul-21
Heterotrophic Plate Count	SM 9215C	20-Jul-21	22-Jul-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	21-Jul-21	21-Jul-21
pH	EPA 150.1 - pH probe @25 °C	22-Jul-21	22-Jul-21
Phenolics	EPA 420.2 - Auto Colour, 4AAP	21-Jul-21	21-Jul-21
Hardness	Hardness as CaCO ₃	21-Jul-21	21-Jul-21
Sulphide	SM 4500SE - Colourimetric	21-Jul-21	21-Jul-21
Tannin/Lignin	SM 5550B - Colourimetric	22-Jul-21	22-Jul-21
Total Coliform	MOE E3407	21-Jul-21	22-Jul-21
Total Dissolved Solids	SM 2540C - gravimetric, filtration	22-Jul-21	22-Jul-21
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	21-Jul-21	22-Jul-21
Turbidity	SM 2130B - Turbidity meter	21-Jul-21	21-Jul-21

Certificate of Analysis

Report Date: 23-Jul-2021

Client: LRL Associates Ltd.

Order Date: 20-Jul-2021

Client PO:

Project Description: 210341

Client ID:	SA-1	-	-	-
Sample Date:	20-Jul-21 12:30	-	-	-
Sample ID:	2130209-01	-	-	-
MDL/Units	Drinking Water	-	-	-

Microbiological Parameters

E. coli	1 CFU/100 mL	ND	-	-	-
Fecal Coliforms	1 CFU/100 mL	ND	-	-	-
Total Coliforms	1 CFU/100 mL	13	-	-	-
Heterotrophic Plate Count	10 CFU/mL	190	-	-	-

General Inorganics

Alkalinity, total	5 mg/L	274	-	-	-
Ammonia as N	0.01 mg/L	0.13	-	-	-
Dissolved Organic Carbon	0.5 mg/L	0.7	-	-	-
Colour	2 TCU	25	-	-	-
Conductivity	5 uS/cm	1560	-	-	-
Hardness	mg/L	532	-	-	-
pH	0.1 pH Units	7.7	-	-	-
Phenolics	0.001 mg/L	<0.001	-	-	-
Total Dissolved Solids	10 mg/L	874	-	-	-
Sulphide	0.02 mg/L	<0.02	-	-	-
Tannin & Lignin	0.1 mg/L	<0.1	-	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.2	-	-	-
Turbidity	0.1 NTU	7.9	-	-	-

Anions

Chloride	1 mg/L	267	-	-	-
Fluoride	0.1 mg/L	0.3	-	-	-
Nitrate as N	0.1 mg/L	<0.1	-	-	-
Nitrite as N	0.05 mg/L	<0.05	-	-	-
Sulphate	1 mg/L	99	-	-	-

Metals

Calcium	0.1 mg/L	126	-	-	-
Iron	0.1 mg/L	0.7	-	-	-
Magnesium	0.2 mg/L	52.7	-	-	-
Manganese	0.005 mg/L	0.018	-	-	-
Potassium	0.1 mg/L	9.1	-	-	-
Sodium	0.2 mg/L	115	-	-	-

Certificate of Analysis

Report Date: 23-Jul-2021

Client: LRL Associates Ltd.

Order Date: 20-Jul-2021

Client PO:

Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Colour	ND	2	TCU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NTU						
Metals									
Calcium	ND	0.1	mg/L						
Iron	ND	0.1	mg/L						
Magnesium	ND	0.2	mg/L						
Manganese	ND	0.005	mg/L						
Potassium	ND	0.1	mg/L						
Sodium	ND	0.2	mg/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL						
Fecal Coliforms	ND	1	CFU/100 mL						
Total Coliforms	ND	1	CFU/100 mL						
Heterotrophic Plate Count	ND	10	CFU/mL						

Certificate of Analysis

Report Date: 23-Jul-2021

Client: LRL Associates Ltd.

Order Date: 20-Jul-2021

Client PO:

Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	129	1	mg/L	129			0.2	10	
Fluoride	0.74	0.1	mg/L	0.74			1.1	10	
Nitrate as N	ND	0.1	mg/L	ND			NC	10	
Nitrite as N	ND	0.05	mg/L	ND			NC	10	
Sulphate	48.8	1	mg/L	49.0			0.3	10	
General Inorganics									
Alkalinity, total	270	5	mg/L	274			1.4	14	
Ammonia as N	0.306	0.01	mg/L	0.299			2.4	17.7	
Dissolved Organic Carbon	2.0	0.5	mg/L	2.2			7.8	37	
Colour	25	2	TCU	25			0.0	12	
Conductivity	1540	5	uS/cm	1560			1.8	5	
pH	7.6	0.1	pH Units	7.7			0.1	3.3	
Phenolics	ND	0.001	mg/L	ND			NC	10	
Total Dissolved Solids	80.0	10	mg/L	74.0			7.8	10	
Sulphide	ND	0.02	mg/L	ND			NC	10	
Tannin & Lignin	ND	0.1	mg/L	ND			NC	11	
Total Kjeldahl Nitrogen	0.38	0.1	mg/L	0.40			5.4	16	
Turbidity	8.2	0.1	NTU	7.9			3.6	10	
Metals									
Calcium	9.0	0.1	mg/L	9.1			0.8	20	
Iron	ND	0.1	mg/L	ND			NC	20	
Magnesium	2.0	0.2	mg/L	2.0			0.9	20	
Manganese	ND	0.005	mg/L	ND			NC	20	
Potassium	0.7	0.1	mg/L	0.7			2.3	20	
Sodium	16.9	0.2	mg/L	17.4			2.8	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL	ND			NC	30	
Fecal Coliforms	4	1	CFU/100 mL	6			40.0	30	BAC04
Total Coliforms	ND	1	CFU/100 mL	ND			NC	30	
Heterotrophic Plate Count	ND	10	CFU/mL	ND			NC	30	

Certificate of Analysis

Report Date: 23-Jul-2021

Client: LRL Associates Ltd.

Order Date: 20-Jul-2021

Client PO:

Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	139	1	mg/L	129	95.5	77-123			
Fluoride	1.63	0.1	mg/L	0.74	88.2	79-121			
Nitrate as N	1.02	0.1	mg/L	ND	102	79-120			
Nitrite as N	1.01	0.05	mg/L	ND	101	84-117			
Sulphate	58.0	1	mg/L	49.0	89.9	74-126			
General Inorganics									
Ammonia as N	0.541	0.01	mg/L	0.299	96.8	81-124			
Dissolved Organic Carbon	11.9	0.5	mg/L	2.2	96.6	60-133			
Phenolics	0.027	0.001	mg/L	ND	107	69-132			
Total Dissolved Solids	94.0	10	mg/L	ND	94.0	75-125			
Sulphide	0.50	0.02	mg/L	ND	101	79-115			
Tannin & Lignin	1.1	0.1	mg/L	ND	105	71-113			
Total Kjeldahl Nitrogen	2.39	0.1	mg/L	0.40	99.1	81-126			
Metals									
Calcium	18700	0.1	mg/L	9100	96.3	80-120			
Iron	2560	0.1	mg/L	17.9	102	80-120			
Magnesium	11400	0.2	mg/L	2050	93.4	80-120			
Manganese	53.6	0.005	mg/L	2.37	102	80-120			
Potassium	10600	0.1	mg/L	740	98.2	80-120			
Sodium	25100	0.2	mg/L	17100	80.3	80-120			

Certificate of Analysis
Client: **LRL Associates Ltd.**
Client PO:

Report Date: 23-Jul-2021
Order Date: 20-Jul-2021
Project Description: **210341**

Qualifier Notes:

Login Qualifiers :

Sample - Filtered and preserved by Paracel upon receipt at the laboratory - Metals preserved in the lab
Applies to samples: SA-1

Sample Qualifiers :

QC Qualifiers :

BAC04 : Duplicate QC data falls within method prescribed 95% confidence limits.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated



2130209

No 14477

Client Name: LRL Associates	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Devin Clauthier	Quote #:	Waterworks Number:	Name: Devin Clauthier
Address: 5430 Cavite Rd. Ottawa, ON	PO #:	Address:	Signature: <i>Devin Clauthier</i>
After Hours Contact: " "	E-mail: dclauthier@lrl.ca		Page 1 of 1
Telephone: 613-842-3434	Fax:	Public Health Unit:	Turn Around Time Required: <input type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input checked="" type="checkbox"/> 4 day

Samples Submitted Under: (Indicate ONLY one) <input type="checkbox"/> ON REG 170/03 <input type="checkbox"/> ON REG 319/08 <input checked="" type="checkbox"/> Private Well <input type="checkbox"/> ON REG 243/07 <input type="checkbox"/> Other	Sample Type: R = Raw ; T = Treated ; D = Distribution ; P = Plumbing Source Type: G = Ground Water ; S = Surface Water Reportable: Requires AWQI reporting as per Regulation - Y = Yes ; N = No	Required Analyses
Have LSN forms been submitted to MOE/MOHLTC?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A Are these samples for human consumption?: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No All information must be completed before samples will be processed.	Resample	Total Coliform/E. Coli HPC Lead THM Substances in Package

LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	SAMPLE COLLECTED		# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed: S/F (REG 243)	Total Coliform/E. Coli	HPC	Lead	THM	Substances in Package	
					DATE	TIME									
	SA-1	R	G	N	July 20/21	12:30	8								X
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															

Comments: metals bottle was not filtered, bottle was rinsed 3x before putting sample in it.	Method of Delivery: Drip Box		
Relinquished By (Sign): <i>Devin Clauthier</i>	Received By Driver/Depot: <i>Bob</i>	Received at Lab: <i>Bob</i>	Verified By: <i>Jim</i>
Relinquished By (Print): Devin Clauthier	Date/Time:	Date/Time: 20 July 2021 14:25	Date/Time: July 20, 2021 15:01
Date/Time: July 20/21 2pm	Temperature: °C	Temperature: 10.8 °C	pH Verified: <input checked="" type="checkbox"/> By: PS

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 210341
Custody: 15679

Report Date: 17-Aug-2021
Order Date: 11-Aug-2021

Order #: 2133418

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
2133418-01	5969 Ottawa St. - Supply well 3 hr
2133418-02	5969 Ottawa St. - Supply well 6 hr

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 17-Aug-2021
 Order Date: 11-Aug-2021
 Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	12-Aug-21	12-Aug-21
Ammonia, as N	EPA 351.2 - Auto Colour	13-Aug-21	13-Aug-21
Anions	EPA 300.1 - IC	12-Aug-21	12-Aug-21
Colour	SM2120 - Spectrophotometric	12-Aug-21	12-Aug-21
Conductivity	EPA 9050A- probe @25 °C	12-Aug-21	12-Aug-21
Dissolved Organic Carbon	MOE E3247B - Combustion IR, filtration	12-Aug-21	12-Aug-21
E. coli	MOE E3407	12-Aug-21	13-Aug-21
Fecal Coliform	SM 9222D	12-Aug-21	13-Aug-21
Heterotrophic Plate Count	SM 9215C	12-Aug-21	12-Aug-21
Metals, ICP-MS	EPA 200.8 - ICP-MS	12-Aug-21	12-Aug-21
pH	EPA 150.1 - pH probe @25 °C	12-Aug-21	12-Aug-21
Phenolics	EPA 420.2 - Auto Colour, 4AAP	12-Aug-21	12-Aug-21
Hardness	Hardness as CaCO ₃	12-Aug-21	12-Aug-21
Sulphide	SM 4500SE - Colourimetric	17-Aug-21	17-Aug-21
Tannin/Lignin	SM 5550B - Colourimetric	13-Aug-21	13-Aug-21
Total Coliform	MOE E3407	12-Aug-21	13-Aug-21
Total Dissolved Solids	SM 2540C - gravimetric, filtration	13-Aug-21	16-Aug-21
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	12-Aug-21	12-Aug-21
Turbidity	SM 2130B - Turbidity meter	12-Aug-21	12-Aug-21

Certificate of Analysis

Report Date: 17-Aug-2021

Client: LRL Associates Ltd.

Order Date: 11-Aug-2021

Client PO:

Project Description: 210341

Client ID:	5969 Ottawa St. - Supply well 3 hr	5969 Ottawa St. - Supply well 6 hr	-	-
Sample Date:	11-Aug-21 11:10	11-Aug-21 14:10	-	-
Sample ID:	2133418-01	2133418-02	-	-
MDL/Units	Drinking Water	Drinking Water	-	-

Microbiological Parameters

E. coli	1 CFU/100 mL	ND	ND	-	-
Fecal Coliforms	1 CFU/100 mL	ND	ND	-	-
Total Coliforms	1 CFU/100 mL	ND	ND	-	-
Heterotrophic Plate Count	10 CFU/mL	280	120	-	-

General Inorganics

Alkalinity, total	5 mg/L	269	269	-	-
Ammonia as N	0.01 mg/L	0.12	0.12	-	-
Dissolved Organic Carbon	0.5 mg/L	1.8	1.9	-	-
Colour	2 TCU	21	30	-	-
Conductivity	5 uS/cm	1550	1530	-	-
Hardness	mg/L	514	509	-	-
pH	0.1 pH Units	7.8	7.8	-	-
Phenolics	0.001 mg/L	0.001	0.001	-	-
Total Dissolved Solids	10 mg/L	796	814	-	-
Sulphide	0.02 mg/L	<0.02	<0.02	-	-
Tannin & Lignin	0.1 mg/L	<0.1	<0.1	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.2	0.1	-	-
Turbidity	0.1 NTU	5.2	4.9	-	-

Anions

Chloride	1 mg/L	266	264	-	-
Fluoride	0.1 mg/L	0.4	0.4	-	-
Nitrate as N	0.1 mg/L	<0.1	<0.1	-	-
Nitrite as N	0.05 mg/L	<0.05	<0.05	-	-
Sulphate	1 mg/L	82	82	-	-

Metals

Calcium	0.1 mg/L	125	124	-	-
Iron	0.1 mg/L	0.5	0.5	-	-
Magnesium	0.2 mg/L	49.4	48.4	-	-
Manganese	0.005 mg/L	0.016	0.016	-	-
Potassium	0.1 mg/L	8.5	8.1	-	-
Sodium	0.2 mg/L	114	111	-	-

Certificate of Analysis

Report Date: 17-Aug-2021

Client: LRL Associates Ltd.

Order Date: 11-Aug-2021

Client PO:

Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Colour	ND	2	TCU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NTU						
Metals									
Calcium	ND	0.1	mg/L						
Iron	ND	0.1	mg/L						
Magnesium	ND	0.2	mg/L						
Manganese	ND	0.005	mg/L						
Potassium	ND	0.1	mg/L						
Sodium	ND	0.2	mg/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL						
Fecal Coliforms	ND	1	CFU/100 mL						
Total Coliforms	ND	1	CFU/100 mL						
Heterotrophic Plate Count	ND	10	CFU/mL						

Certificate of Analysis

Report Date: 17-Aug-2021

Client: LRL Associates Ltd.

Order Date: 11-Aug-2021

Client PO:

Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	264	5	mg/L	266			0.7	10	
Fluoride	0.35	0.1	mg/L	0.36			3.0	10	
Nitrate as N	ND	0.1	mg/L	ND			NC	10	
Nitrite as N	ND	0.05	mg/L	ND			NC	10	
Sulphate	83.9	1	mg/L	82.4			1.8	10	
General Inorganics									
Alkalinity, total	263	5	mg/L	269			2.3	14	
Ammonia as N	0.267	0.01	mg/L	0.267			0.0	17.7	
Dissolved Organic Carbon	1.9	0.5	mg/L	2.2			16.8	37	
Colour	20	2	TCU	21			4.9	12	
Conductivity	1530	5	uS/cm	1550			1.4	5	
pH	7.7	0.1	pH Units	7.8			0.1	3.3	
Phenolics	0.001	0.001	mg/L	0.001			8.0	10	
Total Dissolved Solids	62.0	10	mg/L	62.0			0.0	10	
Sulphide	ND	0.02	mg/L	ND			NC	10	
Tannin & Lignin	ND	0.1	mg/L	ND			NC	11	
Total Kjeldahl Nitrogen	ND	0.1	mg/L	0.20			NC	16	
Turbidity	5.3	0.1	NTU	5.2			2.1	10	
Metals									
Calcium	29.8	0.1	mg/L	30.0			0.7	20	
Iron	ND	0.1	mg/L	ND			NC	20	
Magnesium	7.9	0.2	mg/L	8.2			3.3	20	
Manganese	ND	0.005	mg/L	ND			NC	20	
Potassium	0.3	0.1	mg/L	0.3			2.7	20	
Sodium	11.8	0.2	mg/L	11.7			0.6	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100 mL	ND			NC	30	
Fecal Coliforms	ND	1	CFU/100 mL	ND			NC	30	
Total Coliforms	ND	1	CFU/100 mL	ND			NC	30	

Certificate of Analysis

Report Date: 17-Aug-2021

Client: LRL Associates Ltd.

Order Date: 11-Aug-2021

Client PO:

Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	8.70	1	mg/L	ND	87.0	85-115			
Fluoride	1.27	0.1	mg/L	0.36	90.8	79-121			
Nitrate as N	1.03	0.1	mg/L	ND	103	79-120			
Nitrite as N	0.993	0.05	mg/L	ND	99.3	84-117			
Sulphate	90.6	1	mg/L	82.4	81.3	74-126			
General Inorganics									
Ammonia as N	0.522	0.01	mg/L	0.267	102	81-124			
Dissolved Organic Carbon	13.4	0.5	mg/L	2.2	112	60-133			
Phenolics	0.025	0.001	mg/L	0.001	96.5	69-132			
Total Dissolved Solids	94.0	10	mg/L	ND	94.0	75-125			
Sulphide	0.51	0.02	mg/L	ND	101	79-115			
Tannin & Lignin	1.1	0.1	mg/L	ND	106	71-113			
Total Kjeldahl Nitrogen	2.04	0.1	mg/L	0.20	92.1	81-126			
Metals									
Calcium	37600	0.1	mg/L	30000	76.1	80-120			QM-07
Iron	2350	0.1	mg/L	6.4	93.8	80-120			
Magnesium	16800	0.2	mg/L	8200	86.1	80-120			
Manganese	49.0	0.005	mg/L	0.448	97.1	80-120			
Potassium	9590	0.1	mg/L	307	92.9	80-120			
Sodium	20500	0.2	mg/L	11700	87.6	80-120			

Certificate of Analysis

Report Date: 17-Aug-2021

Client: LRL Associates Ltd.

Order Date: 11-Aug-2021

Client PO:

Project Description: 210341

Qualifier Notes:

Sample Qualifiers :

QC Qualifiers :

QM-07 : The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated



Client Name: LRI Engineering	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Abdul Kader Alhaj	Quote #:	Waterworks Number:	Name: Abdul Kader Alhaj
Address: 5430 Conster Rd.	PO #:	Address:	Signature:
After Hours Contact:	E-mail: a.kader@lri.ca awood@lri.ca	Public Health Unit:	Page <u>1</u> of <u>1</u> Turn Around Time Required: Regular <input type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input type="checkbox"/> 4 day
Telephone: 819 328 2592	Fax:		

Samples Submitted Under: (Indicate ONLY one)		Sample Type: R = Raw ; T = Treated ; D = Distribution ; P = Plumbing		Source Type: G = Ground Water ; S = Surface Water		Reportable: Requires AWQI reporting as per Regulation - Y = Yes ; N = No		Required Analyses																	
<input type="checkbox"/> ON REG 170/03 <input type="checkbox"/> ON REG 319/08 <input checked="" type="checkbox"/> Private Well <input type="checkbox"/> ON REG 243/07 <input type="checkbox"/> Other																									
Have LSN forms been submitted to MOE/MOHLTC?: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Sample Type: R/T/D/P		Source Type: G/S		Reportable: Y/N		Resample		SAMPLE COLLECTED		Free/Combined Chlorine Residual mg/L		Standing / Flushed: S/F (REG 243)		Total Coliform/E. Coli		HPC		Lead		THM		Subdivision	
Are these samples for human consumption?: <input type="checkbox"/> Yes <input type="checkbox"/> No										DATE		TIME		# of Containers											
All information must be completed before samples will be processed.																									
LOCATION NAME		SAMPLE ID																							
1	5969 Ottawa Street	5969 Ottawa - Supply well St.	3hr	R	G	N				Aug. 11. 2021	11:10 am	8													X
2	5969 Ottawa Street	5969 Ottawa - Supply well St.	5hr	↓	↓	↓				Aug. 11. 2021	2:10 p.m	↓													X
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Comments:		Method of Delivery: Drop Box	
Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab: Jameer Dalmaji	Verified By:
Relinquished By (Print): Abdul Kader Alhaj	Date/Time:	Date/Time: AUG 11, 2021 04:28	Date/Time: Aug 11, 2021 9:42
Date/Time: 11.08.2021, 4:10 p.m	Temperature: °C	Temperature: 14.9 °C	pH Verified: <input checked="" type="checkbox"/> By:

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 210341
Custody: 18578

Report Date: 30-Jan-2023
Order Date: 24-Jan-2023

Order #: 2304185

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2304185-01	Supply Well - 4hr

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 30-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	25-Jan-23	25-Jan-23
Ammonia, as N	EPA 351.2 - Auto Colour	27-Jan-23	27-Jan-23
Anions	EPA 300.1 - IC	25-Jan-23	25-Jan-23
Conductivity	EPA 9050A- probe @25 °C	25-Jan-23	25-Jan-23
Dissolved Organic Carbon	MOE E3247B - Combustion IR, filtration	25-Jan-23	25-Jan-23
E. coli	MOE E3407	25-Jan-23	25-Jan-23
Fecal Coliform	SM 9222D	25-Jan-23	25-Jan-23
Heterotrophic Plate Count	SM 9215C	25-Jan-23	25-Jan-23
Metals, ICP-MS	EPA 200.8 - ICP-MS	25-Jan-23	25-Jan-23
pH	EPA 150.1 - pH probe @25 °C	25-Jan-23	25-Jan-23
Phenolics	EPA 420.2 - Auto Colour, 4AAP	25-Jan-23	25-Jan-23
Hardness	Hardness as CaCO ₃	25-Jan-23	25-Jan-23
Sulphide	SM 4500SE - Colourimetric	26-Jan-23	26-Jan-23
Tannin/Lignin	SM 5550B - Colourimetric	30-Jan-23	30-Jan-23
Total Coliform	MOE E3407	25-Jan-23	25-Jan-23
Total Dissolved Solids	SM 2540C - gravimetric, filtration	26-Jan-23	27-Jan-23
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	27-Jan-23	30-Jan-23

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 30-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Client ID:	Supply Well - 4hr	-	-	-
Sample Date:	24-Jan-23 12:05	-	-	-
Sample ID:	2304185-01	-	-	-
MDL/Units	Drinking Water	-	-	-

Microbiological Parameters

E. coli	1 CFU/100mL	ND	-	-	-
Fecal Coliforms	1 CFU/100mL	ND	-	-	-
Total Coliforms	1 CFU/100mL	ND	-	-	-
Heterotrophic Plate Count	10 CFU/mL	<10	-	-	-

General Inorganics

Alkalinity, total	5 mg/L	268	-	-	-
Ammonia as N	0.01 mg/L	0.13	-	-	-
Dissolved Organic Carbon	0.5 mg/L	5.7	-	-	-
Conductivity	5 uS/cm	1680	-	-	-
Hardness	mg/L	549	-	-	-
pH	0.1 pH Units	7.7	-	-	-
Phenolics	0.001 mg/L	<0.001	-	-	-
Total Dissolved Solids	10 mg/L	898	-	-	-
Sulphide	0.02 mg/L	<0.02	-	-	-
Tannin & Lignin	0.1 mg/L	<0.1	-	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.2	-	-	-

Anions

Chloride	1 mg/L	298	-	-	-
Fluoride	0.1 mg/L	0.3	-	-	-
Nitrate as N	0.1 mg/L	<0.1	-	-	-
Nitrite as N	0.05 mg/L	<0.05	-	-	-
Sulphate	1 mg/L	77	-	-	-

Metals

Calcium	0.1 mg/L	136	-	-	-
Iron	0.1 mg/L	0.6	-	-	-
Magnesium	0.2 mg/L	50.8	-	-	-
Manganese	0.005 mg/L	0.016	-	-	-
Potassium	0.1 mg/L	8.1	-	-	-
Sodium	0.2 mg/L	120	-	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 30-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Metals									
Calcium	ND	0.1	mg/L						
Iron	ND	0.1	mg/L						
Magnesium	ND	0.2	mg/L						
Manganese	ND	0.005	mg/L						
Potassium	ND	0.1	mg/L						
Sodium	ND	0.2	mg/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100mL						
Fecal Coliforms	ND	1	CFU/100mL						
Total Coliforms	ND	1	CFU/100mL						
Heterotrophic Plate Count	ND	10	CFU/mL						

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 30-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	298	1	mg/L	298			0.1	20	
Fluoride	0.26	0.1	mg/L	0.27			4.2	20	
Nitrate as N	ND	0.1	mg/L	ND			NC	20	
Nitrite as N	ND	0.05	mg/L	ND			NC	20	
Sulphate	76.9	1	mg/L	76.9			0.0	20	
General Inorganics									
Alkalinity, total	265	5	mg/L	268			1.4	14	
Ammonia as N	0.031	0.01	mg/L	ND			NC	17.7	
Dissolved Organic Carbon	4.6	0.5	mg/L	5.7			21.1	37	
Conductivity	1660	5	uS/cm	1680			1.3	5	
pH	7.8	0.1	pH Units	7.7			0.9	3.3	
Phenolics	ND	0.001	mg/L	ND			NC	10	
Total Dissolved Solids	ND	10	mg/L	ND			NC	10	
Sulphide	ND	0.02	mg/L	ND			NC	10	
Tannin & Lignin	ND	0.1	mg/L	ND			NC	11	
Total Kjeldahl Nitrogen	0.19	0.1	mg/L	0.22			NC	16	
Metals									
Calcium	9.5	0.1	mg/L	9.7			1.7	20	
Iron	0.4	0.1	mg/L	0.4			0.5	20	
Magnesium	2.2	0.2	mg/L	2.3			5.8	20	
Manganese	ND	0.005	mg/L	ND			NC	20	
Potassium	0.6	0.1	mg/L	0.6			1.8	20	
Sodium	17.4	0.2	mg/L	18.3			5.1	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100mL	ND			NC	30	
Fecal Coliforms	ND	1	CFU/100mL	ND			NC	30	
Total Coliforms	ND	1	CFU/100mL	ND			NC	30	
Heterotrophic Plate Count	ND	10	CFU/mL	ND			NC	30	

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 30-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	307	1	mg/L	298	89.3	70-124			
Fluoride	1.24	0.1	mg/L	0.27	96.6	70-130			
Nitrate as N	1.00	0.1	mg/L	ND	100	77-126			
Nitrite as N	0.936	0.05	mg/L	ND	93.6	82-115			
Sulphate	86.1	1	mg/L	76.9	91.9	70-130			
General Inorganics									
Ammonia as N	1.04	0.01	mg/L	ND	104	81-124			
Dissolved Organic Carbon	7.9	0.5	mg/L	ND	79.0	60-133			
Phenolics	0.026	0.001	mg/L	ND	105	67-133			
Total Dissolved Solids	92.0	10	mg/L	ND	92.0	75-125			
Sulphide	0.51	0.02	mg/L	ND	102	79-115			
Tannin & Lignin	1.0	0.1	mg/L	ND	97.3	71-113			
Total Kjeldahl Nitrogen	1.20	0.1	mg/L	0.22	97.5	81-126			
Metals									
Calcium	17700	0.1	mg/L	9660	80.7	80-120			
Iron	2440	0.1	mg/L	416	81.1	80-120			
Magnesium	11100	0.2	mg/L	2290	88.4	80-120			
Manganese	49.5	0.005	mg/L	3.75	91.5	80-120			
Potassium	9090	0.1	mg/L	647	84.4	80-120			
Sodium	24900	0.2	mg/L	18300	66.0	80-120			QM-07

Certificate of Analysis
Client: **LRL Associates Ltd.**
Client PO:

Report Date: 30-Jan-2023
Order Date: 24-Jan-2023
Project Description: **210341**

Qualifier Notes:

Sample Qualifiers :

QC Qualifiers :

QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated



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Parcel Order Number

2304185 - 1g.
2304200 - Rush

Chain Of Custody
Ontario Drinking Water Samples

No 18578

Client Name: LRL Associates	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Abdul Kader	Quote #:	Waterworks Number:	Name: Abdul Kader
Address: 5430 Canotek Rd	PO #:	Address:	Signature:
After Hours Contact:	E-mail: akader@lrl.ca		Page 1 of 1
Telephone: 613 315 6602	Fax:	Public Health Unit:	Turn Around Time Required: <input checked="" type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input checked="" type="checkbox"/> 4 day

Samples Submitted Under: (Indicate ONLY one) <input type="checkbox"/> ON REG 170/03 <input type="checkbox"/> ON REG 319/08 <input type="checkbox"/> Private Well <input type="checkbox"/> ON REG 243/07 <input type="checkbox"/> Other ODWS		Sample Type: R = Raw ; T = Treated ; D = Distribution; P = Plumbing Source Type: G = Ground Water; S = Surface Water Reportable: Requires AWQI reporting as per Regulation - Y = Yes; N = No		Required Analyses												
Have LSN forms been submitted to MOE/MOHLTC?: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Are these samples for human consumption?: <input type="checkbox"/> Yes <input type="checkbox"/> No		All information must be completed before samples will be processed.												
LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	Resample	SAMPLE COLLECTED		# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed: S/F (REG 243)	Total Coliform/E. Coli	HPC	Lead	THM	Subdivision Package	
						DATE	TIME									
1 5969 Ottawa Street	Supply well - 4hr	RGN				2023.01.24	12:05	10								X
2																
3																
4																
5																
6																
7																
8																
9																
10																

Comments: **Rush the colour & Turbidity results (report as available).**

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Method of Delivery: Walk in
Relinquished By (Print): Abdul Kader	Date/Time:	Date/Time: 2023.01.24 2:40pm	Verified By: Sandra Derrains
Date/Time: 2023.01.24 / 2:40	Temperature: °C	Temperature: 10.9 °C	Date/Time: Jan 24 3:13
Chain of Custody (Drinking Water).xlsx		pH Verified: 7 By Sandra Derrains	

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 210341
Custody: 18578

Report Date: 25-Jan-2023
Order Date: 24-Jan-2023

Order #: 2304200

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2304200-01	Supply Well - 4hr

Approved By:



Mark Foto, M.Sc.
Lab Supervisor

Certificate of Analysis

Report Date: 25-Jan-2023

Client: LRL Associates Ltd.

Order Date: 24-Jan-2023

Client PO:

Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Colour	SM2120 - Spectrophotometric	25-Jan-23	25-Jan-23
Turbidity	SM 2130B - Turbidity meter	25-Jan-23	25-Jan-23

Certificate of Analysis

Report Date: 25-Jan-2023

Client: LRL Associates Ltd.

Order Date: 24-Jan-2023

Client PO:

Project Description: 210341

Client ID:	Supply Well - 4hr	-	-	-
Sample Date:	24-Jan-23 12:05	-	-	-
Sample ID:	2304200-01	-	-	-
MDL/Units	Drinking Water	-	-	-

General Inorganics

Colour	2 TCU	<2	-	-	-
Turbidity	0.1 NTU	6.4	-	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 25-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
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General Inorganics

Colour	ND	2	TCU						
Turbidity	ND	0.1	NTU						

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 25-Jan-2023
 Order Date: 24-Jan-2023
 Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
General Inorganics									
Colour	ND	2	TCU	ND			NC	12	
Turbidity	6.5	0.1	NTU	6.4			1.5	10	

Certificate of Analysis

Report Date: 25-Jan-2023

Client: LRL Associates Ltd.

Order Date: 24-Jan-2023

Client PO:

Project Description: 210341

Qualifier Notes:

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated



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Parcel Order Number 2304185-1g 2304200-RWS	Chain Of Custody Ontario Drinking Water Samples No 18578
Page 1 of 1	
Turn Around Time Required: <input checked="" type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input checked="" type="checkbox"/> 4 day	

Client Name: LRL Associates	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Abdul Kader	Quote #:	Waterworks Number:	Name: Abdul Kader
Address: 5430 Canotek Rd	PO #:	Address:	Signature:
After Hours Contact:	E-mail: akader@lrl.ca	Public Health Unit:	
Telephone: 613 315 6602	Fax:		

Samples Submitted Under: (indicate ONLY one)
 ON REG 170/03 ON REG 319/08 Private Well
 ON REG 243/07 Other **ODWS**

Sample Type: R = Raw ; T = Treated ; D = Distribution; P = Plumbing
 Source Type: G = Ground Water; S = Surface Water
 Reportable: Requires AWQI reporting as per Regulation - Y = Yes; N = No

LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	Resample	SAMPLE COLLECTED		# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed: S/F (REG 243)	Total Coliform/E. Coli	Required Analyses				
						DATE	TIME					HPC	Lead	TMM	Subdivision Package	
1 5969 Ottawa Street	Supply well - 4hr	R	G	N		2023.01.24	12:05	10								X
2																
3																
4																
5																
6																
7																
8																
9																
10																

Comments: **Rush the colour & Turbidity results (report as available).**

Relinquished By (Sign):	Received By Driver/Depot:	Received at Lab:	Method of Delivery: Walk in
Relinquished By (Print): Abdul Kader	Date/Time:	Date/Time: 2023.01.24 2:40pm	Verified By: Sasha Demina
Date/Time: 2023.01.24 / 2:40	Temperature: °C	Temperature: 10.9 °C	Date/Time: Jan 24 3:13
Chain of Custody (Drinking Water).xlsx		pH Verified: 7 By: Sasha	

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 210341
Custody: 18572

Report Date: 1-Feb-2023
Order Date: 26-Jan-2023

Order #: 2304338

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2304338-01	Supply Well - 4hrs
2304338-02	Supply Well - 8hrs

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	27-Jan-23	27-Jan-23
Ammonia, as N	EPA 351.2 - Auto Colour	27-Jan-23	27-Jan-23
Anions	EPA 300.1 - IC	30-Jan-23	30-Jan-23
Colour	SM2120 - Spectrophotometric	26-Jan-23	26-Jan-23
Conductivity	EPA 9050A- probe @25 °C	27-Jan-23	27-Jan-23
Dissolved Organic Carbon	MOE E3247B - Combustion IR, filtration	30-Jan-23	30-Jan-23
E. coli	MOE E3407	26-Jan-23	26-Jan-23
Fecal Coliform	SM 9222D	26-Jan-23	26-Jan-23
Heterotrophic Plate Count	SM 9215C	26-Jan-23	26-Jan-23
Metals, ICP-MS	EPA 200.8 - ICP-MS	27-Jan-23	27-Jan-23
pH	EPA 150.1 - pH probe @25 °C	27-Jan-23	27-Jan-23
Phenolics	EPA 420.2 - Auto Colour, 4AAP	27-Jan-23	27-Jan-23
Hardness	Hardness as CaCO ₃	27-Jan-23	27-Jan-23
Sulphide	SM 4500SE - Colourimetric	26-Jan-23	26-Jan-23
Tannin/Lignin	SM 5550B - Colourimetric	30-Jan-23	30-Jan-23
Total Coliform	MOE E3407	26-Jan-23	26-Jan-23
Total Dissolved Solids	SM 2540C - gravimetric, filtration	26-Jan-23	27-Jan-23
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	27-Jan-23	30-Jan-23
Turbidity	SM 2130B - Turbidity meter	26-Jan-23	26-Jan-23
VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	28-Jan-23	28-Jan-23

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Client ID:	Supply Well - 4hrs	Supply Well - 8hrs	-	-
Sample Date:	25-Jan-23 12:05	25-Jan-23 16:00	-	-
Sample ID:	2304338-01	2304338-02	-	-
MDL/Units	Drinking Water	Drinking Water	-	-

Microbiological Parameters

E. coli	1 CFU/100mL	ND	ND	-	-
Fecal Coliforms	1 CFU/100mL	ND	ND	-	-
Total Coliforms	1 CFU/100mL	ND	ND	-	-
Heterotrophic Plate Count	10 CFU/mL	<10	10	-	-

General Inorganics

Alkalinity, total	5 mg/L	268	267	-	-
Ammonia as N	0.01 mg/L	0.15	0.13	-	-
Dissolved Organic Carbon	0.5 mg/L	8.9	8.9	-	-
Colour	2 TCU	<2	<2	-	-
Conductivity	5 uS/cm	1720	1710	-	-
Hardness	mg/L	535	524	-	-
pH	0.1 pH Units	7.9	7.9	-	-
Phenolics	0.001 mg/L	<0.001	<0.001	-	-
Total Dissolved Solids	10 mg/L	892	836	-	-
Sulphide	0.02 mg/L	<0.02	<0.02	-	-
Tannin & Lignin	0.1 mg/L	<0.1	<0.1	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.2	0.1	-	-
Turbidity	0.1 NTU	4.1	3.8	-	-

Anions

Chloride	1 mg/L	299	299	-	-
Fluoride	0.1 mg/L	0.2	0.3	-	-
Nitrate as N	0.1 mg/L	<0.1	<0.1	-	-
Nitrite as N	0.05 mg/L	<0.05	<0.05	-	-
Sulphate	1 mg/L	79	78	-	-

Metals

Aluminum	0.001 mg/L	0.012	0.014	-	-
Antimony	0.0005 mg/L	<0.0005	<0.0005	-	-
Arsenic	0.001 mg/L	<0.001	<0.001	-	-
Barium	0.001 mg/L	0.140	0.136	-	-
Boron	0.01 mg/L	0.22	0.22	-	-
Cadmium	0.0001 mg/L	<0.0001	<0.0001	-	-
Calcium	0.1 mg/L	132	131	-	-
Chromium	0.001 mg/L	<0.001	<0.001	-	-
Copper	0.0005 mg/L	<0.0005	<0.0005	-	-
Iron	0.1 mg/L	0.6	0.5	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

	Client ID:	Supply Well - 4hrs	Supply Well - 8hrs	-	-
	Sample Date:	25-Jan-23 12:05	25-Jan-23 16:00	-	-
	Sample ID:	2304338-01	2304338-02	-	-
	MDL/Units	Drinking Water	Drinking Water	-	-
Lead	0.0001 mg/L	0.0002	<0.0001	-	-
Magnesium	0.2 mg/L	50.0	47.9	-	-
Manganese	0.005 mg/L	0.017	0.017	-	-
Potassium	0.1 mg/L	8.4	8.4	-	-
Selenium	0.001 mg/L	<0.001	<0.001	-	-
Sodium	0.2 mg/L	118	112	-	-
Uranium	0.0001 mg/L	0.0006	0.0006	-	-
Zinc	0.005 mg/L	<0.005	<0.005	-	-

Volatiles					
Acetone	0.0050 mg/L	<0.0050	<0.0050	-	-
Benzene	0.0005 mg/L	<0.0005	<0.0005	-	-
Bromodichloromethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Bromoform	0.0005 mg/L	<0.0005	<0.0005	-	-
Bromomethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Carbon Tetrachloride	0.0002 mg/L	<0.0002	<0.0002	-	-
Chlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
Chloroethane	0.0010 mg/L	<0.0010	<0.0010	-	-
Chloroform	0.0005 mg/L	<0.0005	<0.0005	-	-
Dibromochloromethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Dichlorodifluoromethane	0.0010 mg/L	<0.0010	<0.0010	-	-
1,2-Dibromoethane	0.0002 mg/L	<0.0002	<0.0002	-	-
1,2-Dichlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,3-Dichlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,4-Dichlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1-Dichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,2-Dichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1-Dichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
cis-1,2-Dichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
trans-1,2-Dichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,2-Dichloroethylene, total	0.0005 mg/L	<0.0005	<0.0005	-	-
1,2-Dichloropropane	0.0005 mg/L	<0.0005	<0.0005	-	-
cis-1,3-Dichloropropylene	0.0005 mg/L	<0.0005	<0.0005	-	-
trans-1,3-Dichloropropylene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,3-Dichloropropene, total	0.0005 mg/L	<0.0005	<0.0005	-	-
Ethylbenzene	0.0005 mg/L	<0.0005	<0.0005	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

	Client ID:	Supply Well - 4hrs	Supply Well - 8hrs	-	-
	Sample Date:	25-Jan-23 12:05	25-Jan-23 16:00	-	-
	Sample ID:	2304338-01	2304338-02	-	-
	MDL/Units	Drinking Water	Drinking Water	-	-
Hexane	0.0010 mg/L	<0.0010	<0.0010	-	-
Methyl Ethyl Ketone (2-Butanone)	0.0050 mg/L	<0.0050	<0.0050	-	-
Methyl Isobutyl Ketone	0.0050 mg/L	<0.0050	<0.0050	-	-
Methyl tert-butyl ether	0.0020 mg/L	<0.0020	<0.0020	-	-
Methylene Chloride	0.0050 mg/L	<0.0050	<0.0050	-	-
Styrene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,1,2-Tetrachloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,1,2-Tetrachloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Tetrachloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
Toluene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,1-Trichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,2-Trichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Trichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
Trichlorofluoromethane	0.0010 mg/L	<0.0010	<0.0010	-	-
Vinyl chloride	0.0002 mg/L	<0.0002	<0.0002	-	-
m,p-Xylenes	0.0005 mg/L	<0.0005	<0.0005	-	-
o-Xylene	0.0005 mg/L	<0.0005	<0.0005	-	-
Xylenes, total	0.0005 mg/L	<0.0005	<0.0005	-	-
4-Bromofluorobenzene	Surrogate	114%	116%	-	-
Dibromofluoromethane	Surrogate	127%	127%	-	-
Toluene-d8	Surrogate	109%	109%	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Colour	ND	2	TCU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NTU						
Metals									
Aluminum	ND	0.001	mg/L						
Antimony	ND	0.0005	mg/L						
Arsenic	ND	0.001	mg/L						
Barium	ND	0.001	mg/L						
Boron	ND	0.01	mg/L						
Cadmium	ND	0.0001	mg/L						
Calcium	ND	0.1	mg/L						
Chromium	ND	0.001	mg/L						
Copper	ND	0.0005	mg/L						
Iron	ND	0.1	mg/L						
Lead	ND	0.0001	mg/L						
Magnesium	ND	0.2	mg/L						
Manganese	ND	0.005	mg/L						
Potassium	ND	0.1	mg/L						
Selenium	ND	0.001	mg/L						
Sodium	ND	0.2	mg/L						
Uranium	ND	0.0001	mg/L						
Zinc	ND	0.005	mg/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100mL						
Fecal Coliforms	ND	1	CFU/100mL						
Total Coliforms	ND	1	CFU/100mL						
Heterotrophic Plate Count	ND	10	CFU/mL						
Volatiles									
Acetone	ND	0.0050	mg/L						
Benzene	ND	0.0005	mg/L						
Bromodichloromethane	ND	0.0005	mg/L						
Bromoform	ND	0.0005	mg/L						
Bromomethane	ND	0.0005	mg/L						
Carbon Tetrachloride	ND	0.0002	mg/L						
Chlorobenzene	ND	0.0005	mg/L						
Chloroethane	ND	0.0010	mg/L						
Chloroform	ND	0.0005	mg/L						
Dibromochloromethane	ND	0.0005	mg/L						
Dichlorodifluoromethane	ND	0.0010	mg/L						
1,2-Dibromoethane	ND	0.0002	mg/L						
1,2-Dichlorobenzene	ND	0.0005	mg/L						
1,3-Dichlorobenzene	ND	0.0005	mg/L						
1,4-Dichlorobenzene	ND	0.0005	mg/L						

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,1-Dichloroethane	ND	0.0005	mg/L						
1,2-Dichloroethane	ND	0.0005	mg/L						
1,1-Dichloroethylene	ND	0.0005	mg/L						
cis-1,2-Dichloroethylene	ND	0.0005	mg/L						
trans-1,2-Dichloroethylene	ND	0.0005	mg/L						
1,2-Dichloroethylene, total	ND	0.0005	mg/L						
1,2-Dichloropropane	ND	0.0005	mg/L						
cis-1,3-Dichloropropylene	ND	0.0005	mg/L						
trans-1,3-Dichloropropylene	ND	0.0005	mg/L						
1,3-Dichloropropene, total	ND	0.0005	mg/L						
Ethylbenzene	ND	0.0005	mg/L						
Hexane	ND	0.0010	mg/L						
Methyl Ethyl Ketone (2-Butanone)	ND	0.0050	mg/L						
Methyl Isobutyl Ketone	ND	0.0050	mg/L						
Methyl tert-butyl ether	ND	0.0020	mg/L						
Methylene Chloride	ND	0.0050	mg/L						
Styrene	ND	0.0005	mg/L						
1,1,1,2-Tetrachloroethane	ND	0.0005	mg/L						
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L						
Tetrachloroethylene	ND	0.0005	mg/L						
Toluene	ND	0.0005	mg/L						
1,1,1-Trichloroethane	ND	0.0005	mg/L						
1,1,2-Trichloroethane	ND	0.0005	mg/L						
Trichloroethylene	ND	0.0005	mg/L						
Trichlorofluoromethane	ND	0.0010	mg/L						
Vinyl chloride	ND	0.0002	mg/L						
m,p-Xylenes	ND	0.0005	mg/L						
o-Xylene	ND	0.0005	mg/L						
Xylenes, total	ND	0.0005	mg/L						
Surrogate: 4-Bromofluorobenzene	0.0918		mg/L		115	50-140			
Surrogate: Dibromofluoromethane	0.103		mg/L		129	50-140			
Surrogate: Toluene-d8	0.0870		mg/L		109	50-140			

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	255	1	mg/L	255			0.0	20	
Fluoride	0.22	0.1	mg/L	0.22			1.5	20	
Nitrate as N	ND	0.1	mg/L	ND			NC	20	
Nitrite as N	ND	0.05	mg/L	ND			NC	20	
Sulphate	ND	1	mg/L	ND			NC	20	
General Inorganics									
Alkalinity, total	265	5	mg/L	268			0.9	14	
Ammonia as N	0.031	0.01	mg/L	ND			NC	17.7	
Dissolved Organic Carbon	7.7	0.5	mg/L	8.9			14.2	37	
Colour	ND	2	TCU	ND			NC	12	
Conductivity	1690	5	uS/cm	1720			1.8	5	
pH	7.9	0.1	pH Units	7.9			0.8	3.3	
Phenolics	ND	0.001	mg/L	ND			NC	10	
Total Dissolved Solids	ND	10	mg/L	ND			NC	10	
Sulphide	ND	0.02	mg/L	ND			NC	10	
Tannin & Lignin	ND	0.1	mg/L	ND			NC	11	
Total Kjeldahl Nitrogen	0.19	0.1	mg/L	0.22			NC	16	
Turbidity	0.2	0.1	NTU	0.2			5.1	10	
Metals									
Aluminum	0.026	0.001	mg/L	0.019			34.2	20	QR-05
Antimony	ND	0.0005	mg/L	ND			NC	20	
Arsenic	ND	0.001	mg/L	ND			NC	20	
Barium	0.104	0.001	mg/L	0.112			8.1	20	
Boron	0.11	0.01	mg/L	0.11			0.3	20	
Cadmium	ND	0.0001	mg/L	ND			NC	20	
Calcium	85.0	0.1	mg/L	83.0			2.4	20	
Chromium	ND	0.001	mg/L	ND			NC	20	
Iron	2.3	0.1	mg/L	2.4			4.1	20	
Lead	0.0066	0.0001	mg/L	0.0064			4.4	20	
Magnesium	12.2	0.2	mg/L	12.2			0.2	20	
Manganese	0.049	0.005	mg/L	0.050			0.8	20	
Potassium	0.8	0.1	mg/L	0.7			5.4	20	
Selenium	ND	0.001	mg/L	ND			NC	20	
Sodium	17.1	0.2	mg/L	18.4			7.3	20	
Uranium	0.0003	0.0001	mg/L	0.0003			0.2	20	
Zinc	0.024	0.005	mg/L	0.024			1.5	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100mL	ND			NC	30	
Fecal Coliforms	ND	1	CFU/100mL	ND			NC	30	
Total Coliforms	ND	1	CFU/100mL	ND			NC	30	
Heterotrophic Plate Count	ND	10	CFU/mL	ND			NC	30	
Volatiles									
Acetone	ND	0.0050	mg/L	ND			NC	30	
Benzene	ND	0.0005	mg/L	ND			NC	30	
Bromodichloromethane	0.0039	0.0005	mg/L	0.0036			6.1	30	
Bromoform	ND	0.0005	mg/L	ND			NC	30	
Bromomethane	ND	0.0005	mg/L	ND			NC	30	
Carbon Tetrachloride	ND	0.0002	mg/L	ND			NC	30	
Chlorobenzene	ND	0.0005	mg/L	ND			NC	30	
Chloroethane	ND	0.0010	mg/L	ND			NC	30	
Chloroform	0.0234	0.0005	mg/L	0.0229			2.5	30	
Dibromochloromethane	ND	0.0005	mg/L	ND			NC	30	
Dichlorodifluoromethane	ND	0.0010	mg/L	ND			NC	30	
1,2-Dibromoethane	ND	0.0002	mg/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,1-Dichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,2-Dichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
1,2-Dichloropropane	ND	0.0005	mg/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.0005	mg/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.0005	mg/L	ND			NC	30	
Ethylbenzene	ND	0.0005	mg/L	ND			NC	30	
Hexane	ND	0.0010	mg/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	0.0050	mg/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	0.0050	mg/L	ND			NC	30	
Methyl tert-butyl ether	ND	0.0020	mg/L	ND			NC	30	
Methylene Chloride	ND	0.0050	mg/L	ND			NC	30	
Styrene	ND	0.0005	mg/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L	ND			NC	30	
Tetrachloroethylene	ND	0.0005	mg/L	ND			NC	30	
Toluene	ND	0.0005	mg/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.0005	mg/L	ND			NC	30	
Trichloroethylene	ND	0.0005	mg/L	ND			NC	30	
Trichlorofluoromethane	ND	0.0010	mg/L	ND			NC	30	
Vinyl chloride	ND	0.0002	mg/L	ND			NC	30	
m,p-Xylenes	ND	0.0005	mg/L	ND			NC	30	
o-Xylene	ND	0.0005	mg/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	0.0902		mg/L		113	50-140			
Surrogate: Dibromofluoromethane	0.104		mg/L		130	50-140			
Surrogate: Toluene-d8	0.0866		mg/L		108	50-140			

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	265	1	mg/L	255	99.4	70-124			
Fluoride	1.22	0.1	mg/L	0.22	100	70-130			
Nitrate as N	1.01	0.1	mg/L	ND	101	77-126			
Nitrite as N	0.937	0.05	mg/L	ND	93.7	82-115			
Sulphate	10.0	1	mg/L	ND	100	70-130			
General Inorganics									
Ammonia as N	1.04	0.01	mg/L	ND	104	81-124			
Dissolved Organic Carbon	17.2	0.5	mg/L	8.9	82.6	60-133			
Phenolics	0.027	0.001	mg/L	ND	109	67-133			
Total Dissolved Solids	92.0	10	mg/L	ND	92.0	75-125			
Sulphide	0.51	0.02	mg/L	ND	102	79-115			
Tannin & Lignin	1.0	0.1	mg/L	ND	97.3	71-113			
Total Kjeldahl Nitrogen	1.20	0.1	mg/L	0.22	97.5	81-126			
Metals									
Aluminum	61.7	0.001	mg/L	18.6	86.2	80-120			
Arsenic	48.9	0.001	mg/L	0.193	97.4	80-120			
Barium	154	0.001	mg/L	112	83.9	80-120			
Boron	147	0.01	mg/L	110	74.4	80-120			QM-07
Cadmium	47.7	0.0001	mg/L	0.0172	95.3	80-120			
Calcium	9450	0.1	mg/L	ND	94.5	80-120			
Chromium	50.6	0.001	mg/L	0.354	100	80-120			
Copper	45.6	0.0005	mg/L	ND	91.1	80-120			
Iron	4470	0.1	mg/L	2360	84.4	80-120			
Lead	49.5	0.0001	mg/L	6.35	86.2	80-120			
Magnesium	20700	0.2	mg/L	12200	84.7	80-120			
Manganese	99.4	0.005	mg/L	49.9	99.0	80-120			
Potassium	10300	0.1	mg/L	717	95.8	80-120			
Selenium	39.9	0.001	mg/L	0.137	79.6	80-120			QM-07
Sodium	27100	0.2	mg/L	18400	86.8	80-120			
Uranium	42.4	0.0001	mg/L	0.339	84.2	80-120			
Zinc	66.0	0.005	mg/L	23.5	85.0	80-120			
Volatiles									
Acetone	0.116	0.0050	mg/L	ND	116	50-140			
Benzene	0.0486	0.0005	mg/L	ND	122	60-130			
Bromodichloromethane	0.0458	0.0005	mg/L	ND	114	60-130			
Bromoform	0.0417	0.0005	mg/L	ND	104	60-130			
Bromomethane	0.0431	0.0005	mg/L	ND	108	50-140			
Carbon Tetrachloride	0.0445	0.0002	mg/L	ND	111	60-130			
Chlorobenzene	0.0427	0.0005	mg/L	ND	107	60-130			
Chloroethane	0.0441	0.0010	mg/L	ND	110	50-140			
Chloroform	0.0452	0.0005	mg/L	ND	113	60-130			
Dibromochloromethane	0.0479	0.0005	mg/L	ND	120	60-130			
Dichlorodifluoromethane	0.0435	0.0010	mg/L	ND	109	50-140			
1,2-Dibromoethane	0.0450	0.0002	mg/L	ND	113	60-130			
1,2-Dichlorobenzene	0.0354	0.0005	mg/L	ND	88.6	60-130			
1,3-Dichlorobenzene	0.0357	0.0005	mg/L	ND	89.2	60-130			
1,4-Dichlorobenzene	0.0328	0.0005	mg/L	ND	82.1	60-130			
1,1-Dichloroethane	0.0445	0.0005	mg/L	ND	111	60-130			

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 01-Feb-2023
 Order Date: 26-Jan-2023
 Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
1,2-Dichloroethane	0.0485	0.0005	mg/L	ND	121	60-130			
1,1-Dichloroethylene	0.0441	0.0005	mg/L	ND	110	60-130			
cis-1,2-Dichloroethylene	0.0417	0.0005	mg/L	ND	104	60-130			
trans-1,2-Dichloroethylene	0.0408	0.0005	mg/L	ND	102	60-130			
1,2-Dichloropropane	0.0490	0.0005	mg/L	ND	122	60-130			
cis-1,3-Dichloropropylene	0.0468	0.0005	mg/L	ND	117	60-130			
trans-1,3-Dichloropropylene	0.0425	0.0005	mg/L	ND	106	60-130			
Ethylbenzene	0.0456	0.0005	mg/L	ND	114	60-130			
Hexane	0.0352	0.0010	mg/L	ND	88.0	60-130			
Methyl Ethyl Ketone (2-Butanone)	0.127	0.0050	mg/L	ND	127	50-140			
Methyl Isobutyl Ketone	0.116	0.0050	mg/L	ND	116	50-140			
Methyl tert-butyl ether	0.120	0.0020	mg/L	ND	120	50-140			
Methylene Chloride	0.0451	0.0050	mg/L	ND	113	60-130			
Styrene	0.0412	0.0005	mg/L	ND	103	60-130			
1,1,1,2-Tetrachloroethane	0.0450	0.0005	mg/L	ND	112	60-130			
1,1,1,2-Tetrachloroethane	0.0302	0.0005	mg/L	ND	75.4	60-130			
Tetrachloroethylene	0.0378	0.0005	mg/L	ND	94.6	60-130			
Toluene	0.0465	0.0005	mg/L	ND	116	60-130			
1,1,1-Trichloroethane	0.0456	0.0005	mg/L	ND	114	60-130			
1,1,2-Trichloroethane	0.0464	0.0005	mg/L	ND	116	60-130			
Trichloroethylene	0.0494	0.0005	mg/L	ND	123	60-130			
Trichlorofluoromethane	0.0486	0.0010	mg/L	ND	122	60-130			
Vinyl chloride	0.0493	0.0002	mg/L	ND	123	50-140			
m,p-Xylenes	0.0811	0.0005	mg/L	ND	101	60-130			
o-Xylene	0.0412	0.0005	mg/L	ND	103	60-130			
Surrogate: 4-Bromofluorobenzene	0.0913		mg/L		114	50-140			
Surrogate: Dibromofluoromethane	0.0904		mg/L		113	50-140			
Surrogate: Toluene-d8	0.0838		mg/L		105	50-140			

Certificate of Analysis
Client: **LRL Associates Ltd.**
Client PO:

Report Date: 01-Feb-2023
Order Date: 26-Jan-2023
Project Description: **210341**

Qualifier Notes:

Sample Qualifiers :

QC Qualifiers :

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on other acceptable QC.
- QR-05 Duplicate RPDs higher than normally accepted. Remaining batch QA\QC was acceptable. May be sample effect.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

- n/a: not applicable
- ND: Not Detected
- MDL: Method Detection Limit
- Source Result: Data used as source for matrix and duplicate samples
- %REC: Percent recovery.
- RPD: Relative percent difference.
- NC: Not Calculated



2304338

No 18572

Client Name: LRL Associates	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Abdul Kader	Quote #:	Waterworks Number:	Name: Abdul Kader
Address: 5430 Canotok Rd	PO #:	Address:	Signature:
After Hours Contact:	E-mail: akader@lrl.ca		Page 1 of 1
Telephone: 613 315 6602	Fax:	Public Health Unit:	Turn Around Time Required: <input type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input checked="" type="checkbox"/> 4 day

Samples Submitted Under: (Indicate ONLY one)		Sample Type: R = Raw; T = Treated; D = Distribution; P = Plumbing		Source Type: G = Ground Water; S = Surface Water		Reportable: Requires AWQI reporting as per Regulation - Y = Yes; N = No		Required Analyses											
<input type="checkbox"/> ON REG 170/03	<input type="checkbox"/> ON REG 319/08	<input type="checkbox"/> Private Well																	
<input type="checkbox"/> ON REG 243/07	<input checked="" type="checkbox"/> Other	ODWS																	
Have LSN forms been submitted to MOE/MOHLTC?: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Are these samples for human consumption?: <input type="checkbox"/> Yes <input type="checkbox"/> No		All information must be completed before samples will be processed.		SAMPLE COLLECTED													
LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	Resample	DATE	TIME	# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed: S/F (REG 243)	Total Coliform/E. Coli	HPC	Lead	THM	Subdivision	VOC	Trace Metals		
5969 Ottawa Street	-Supply well-4hrs	R	G	N		2023.01.25	12:05	10							X	X	X		
5969 Ottawa Street	Supply well-8hrs	R	G	N		2023.01.25	4:0	10							X	X	X		

Comments:

Method of Delivery: Drop Box

Relinquished By (Sign):	Received By Driver/Depot:	Received By Lab:	Verified By:
Relinquished By (Print): Abdul Kader	Date/Time: 2023.01.25 / 6:15	Date/Time: Jan 26 2023 8:04	Date/Time: Jan 26 2023 8:17
Date/Time: 2023.01.25 / 6:15	Temperature: °C	Temperature: 7.4 °C	pH Verified: <input type="checkbox"/> By:

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Abdul Kader Alhaj

Client PO:
Project: 210341
Custody: 18571

Report Date: 21-Mar-2023
Order Date: 15-Mar-2023

Order #: 2311339

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Paracel ID	Client ID
2311339-01	OW-1

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
Client: LRL Associates Ltd.
Client PO:

Report Date: 21-Mar-2023
 Order Date: 15-Mar-2023
Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	17-Mar-23	17-Mar-23
Ammonia, as N	EPA 351.2 - Auto Colour	20-Mar-23	20-Mar-23
Anions	EPA 300.1 - IC	20-Mar-23	20-Mar-23
Colour	SM2120 - Spectrophotometric	16-Mar-23	17-Mar-23
Conductivity	EPA 9050A- probe @25 °C	17-Mar-23	17-Mar-23
Dissolved Organic Carbon	EPA 415.2	20-Mar-23	20-Mar-23
E. coli	MOE E3407	16-Mar-23	16-Mar-23
Fecal Coliform	SM 9222D	16-Mar-23	16-Mar-23
Heterotrophic Plate Count	SM 9215C	16-Mar-23	16-Mar-23
Metals, ICP-MS	EPA 200.8 - ICP-MS	16-Mar-23	17-Mar-23
pH	EPA 150.1 - pH probe @25 °C	17-Mar-23	17-Mar-23
Phenolics	EPA 420.2 - Auto Colour, 4AAP	20-Mar-23	20-Mar-23
Hardness	Hardness as CaCO ₃	16-Mar-23	17-Mar-23
Sulphide	SM 4500SE - Colourimetric	20-Mar-23	20-Mar-23
Tannin/Lignin	SM 5550B - Colourimetric	21-Mar-23	21-Mar-23
Total Coliform	MOE E3407	16-Mar-23	16-Mar-23
Total Dissolved Solids	SM 2540C - gravimetric, filtration	16-Mar-23	17-Mar-23
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	17-Mar-23	20-Mar-23
Turbidity	SM 2130B - Turbidity meter	17-Mar-23	17-Mar-23

Certificate of Analysis

Report Date: 21-Mar-2023

Client: LRL Associates Ltd.

Order Date: 15-Mar-2023

Client PO:

Project Description: 210341

Client ID:	OW-1	-	-	-
Sample Date:	15-Mar-23 14:50	-	-	-
Sample ID:	2311339-01	-	-	-
MDL/Units	Drinking Water	-	-	-

Microbiological Parameters

E. coli	1 CFU/100mL	ND	-	-	-
Fecal Coliforms	1 CFU/100mL	ND	-	-	-
Total Coliforms	1 CFU/100mL	ND	-	-	-
Heterotrophic Plate Count	10 CFU/mL	100	-	-	-

General Inorganics

Alkalinity, total	5 mg/L	259	-	-	-
Ammonia as N	0.01 mg/L	0.16	-	-	-
Dissolved Organic Carbon	0.5 mg/L	<0.5 [6]	-	-	-
Colour	2 TCU	<2	-	-	-
Conductivity	5 uS/cm	1800	-	-	-
Hardness	mg/L	515	-	-	-
pH	0.1 pH Units	7.7	-	-	-
Phenolics	0.001 mg/L	<0.001	-	-	-
Total Dissolved Solids	10 mg/L	946	-	-	-
Sulphide	0.02 mg/L	<0.02	-	-	-
Tannin & Lignin	0.1 mg/L	<0.1	-	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.2	-	-	-
Turbidity	0.1 NTU	7.0	-	-	-

Anions

Chloride	1 mg/L	325	-	-	-
Fluoride	0.1 mg/L	0.3	-	-	-
Nitrate as N	0.1 mg/L	<0.1	-	-	-
Nitrite as N	0.05 mg/L	<0.05	-	-	-
Sulphate	1 mg/L	75	-	-	-

Metals

Calcium	0.1 mg/L	127	-	-	-
Iron	0.1 mg/L	0.2	-	-	-
Magnesium	0.2 mg/L	47.8	-	-	-
Manganese	0.005 mg/L	0.016	-	-	-
Potassium	0.1 mg/L	8.5	-	-	-
Sodium	0.2 mg/L	129	-	-	-

Certificate of Analysis

Report Date: 21-Mar-2023

Client: LRL Associates Ltd.

Order Date: 15-Mar-2023

Client PO:

Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Colour	ND	2	TCU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NTU						
Metals									
Calcium	ND	0.1	mg/L						
Iron	ND	0.1	mg/L						
Magnesium	ND	0.2	mg/L						
Manganese	ND	0.005	mg/L						
Potassium	ND	0.1	mg/L						
Sodium	ND	0.2	mg/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100mL						
Fecal Coliforms	ND	1	CFU/100mL						
Total Coliforms	ND	1	CFU/100mL						
Heterotrophic Plate Count	ND	10	CFU/mL						

Certificate of Analysis

Report Date: 21-Mar-2023

Client: LRL Associates Ltd.

Order Date: 15-Mar-2023

Client PO:

Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	332	1	mg/L	325			2.2	20	
Fluoride	0.36	0.1	mg/L	0.33			9.8	20	
Nitrate as N	ND	0.1	mg/L	ND			NC	20	
Nitrite as N	ND	0.05	mg/L	ND			NC	20	
Sulphate	77.3	1	mg/L	75.5			2.3	20	
General Inorganics									
Alkalinity, total	257	5	mg/L	259			0.6	14	
Ammonia as N	0.164	0.01	mg/L	0.163			0.9	17.7	
Colour	ND	2	TCU	ND			NC	12	
Conductivity	1760	5	uS/cm	1800			1.9	5	
pH	7.8	0.1	pH Units	7.7			0.8	3.3	
Phenolics	ND	0.001	mg/L	ND			NC	10	
Total Dissolved Solids	2380	10	mg/L	2370			0.4	10	
Sulphide	ND	0.02	mg/L	ND			NC	10	
Tannin & Lignin	0.1	0.1	mg/L	0.1			NC	11	
Total Kjeldahl Nitrogen	0.25	0.1	mg/L	0.16			NC	16	
Turbidity	2.3	0.1	NTU	2.3			1.3	10	
Metals									
Calcium	452	4.3	mg/L	463			2.5	20	
Iron	1.7	0.1	mg/L	1.7			0.4	20	
Magnesium	100	0.2	mg/L	101			0.9	20	
Manganese	0.109	0.005	mg/L	0.110			1.0	20	
Potassium	12.9	0.1	mg/L	13.6			5.7	20	
Sodium	274	8.6	mg/L	283			3.4	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100mL	ND			NC	30	
Fecal Coliforms	ND	1	CFU/100mL	ND			NC	30	
Total Coliforms	ND	1	CFU/100mL	ND			NC	30	
Heterotrophic Plate Count	40	10	CFU/mL	100			86.0	30	BAC04

Certificate of Analysis

Report Date: 21-Mar-2023

Client: LRL Associates Ltd.

Order Date: 15-Mar-2023

Client PO:

Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	333	1	mg/L	325	84.3	70-124			
Fluoride	1.28	0.1	mg/L	0.33	94.9	70-130			
Nitrate as N	1.01	0.1	mg/L	ND	101	77-126			
Nitrite as N	0.950	0.05	mg/L	ND	95.0	82-115			
Sulphate	84.5	1	mg/L	75.5	90.3	70-130			
General Inorganics									
Ammonia as N	1.21	0.01	mg/L	0.163	105	81-124			
Phenolics	0.026	0.001	mg/L	ND	104	67-133			
Total Dissolved Solids	102	10	mg/L	ND	102	75-125			
Sulphide	0.51	0.02	mg/L	ND	101	79-115			
Tannin & Lignin	1.1	0.1	mg/L	0.1	98.1	71-113			
Total Kjeldahl Nitrogen	0.99	0.1	mg/L	0.16	82.7	81-126			
Metals									
Calcium	10400	0.1	mg/L	ND	104	80-120			
Iron	4060	0.1	mg/L	1740	92.7	80-120			
Magnesium	9990	0.2	mg/L	ND	99.9	80-120			
Manganese	162	0.005	mg/L	110	103	80-120			
Potassium	24100	0.1	mg/L	13600	105	80-120			
Sodium	9600	0.2	mg/L	ND	96.0	80-120			

Certificate of Analysis

Report Date: 21-Mar-2023

Client: LRL Associates Ltd.

Order Date: 15-Mar-2023

Client PO:

Project Description: 210341

Qualifier Notes:

Login Qualifiers :

Container(s) - Labeled improperly/insufficient information - One general chemistry bottle is missing the time of collection.

Applies to samples: OW-1

Sample - Not submitted in the correct container - The sulphide bottle was decanted from an unpreserved plastic bottle. The phenols and DOC bottles were decanted from an unpreserved amber glass bottle.

Applies to samples: OW-1

Sample preserved upon receipt at the lab.
sulphide & phenols

Applies to samples: OW-1

Sample Qualifiers :

6 : Subcontracted analysis - Caduceon

QC Qualifiers :

BAC04 Duplicate QC data falls within method prescribed 95% confidence limits.

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

NC: Not Calculated



Parcel ID: 2311339



Laurent Blvd.
rio K1G 4J8
-1947
paracellabs.com
labs.com

Parcel Order Number

2311339

Chain Of Custody
Ontario Drinking Water Samples

No 18571

Client Name: LRL Associates	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Abdul Kader	Quote #:	Waterworks Number:	Name: Abdul Kader
Address: 5430 Candale Rd	PO #:	Address:	Signature:
After Hours Contact:	E-mail: akader@lrl.ca	Public Health Unit:	Page 1 of 1
Telephone: 613 315 6602	Fax:	Turn Around Time Required: <input type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input checked="" type="checkbox"/> 4 day	

Samples Submitted Under: (Indicate ONLY one) <input type="checkbox"/> ON REG 170/03 <input type="checkbox"/> ON REG 319/08 <input type="checkbox"/> Private Well <input type="checkbox"/> ON REG 243/07 <input type="checkbox"/> Other ODNS		Sample Type: R = Raw ; T = Treated ; D = Distribution ; P = Plumbing Source Type: G = Ground Water ; S = Surface Water Reportable: Requires AWQI reporting as per Regulation - Y = Yes ; N = No		Required Analyses												
Have LSN forms been submitted to MOE/MOHLTC? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Are these samples for human consumption? <input type="checkbox"/> Yes <input type="checkbox"/> No		All information must be completed before samples will be processed.												
LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	Resample	SAMPLE COLLECTED		# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed S/F (REG 243)	Total Coliform/E. Coli	HPC	Lead	THM	sub-division packages	
						DATE	TIME									
1 5949 Ottawa Street	OW-1	RG				2023.03.15	2:50	9								X
2																
3																
4																
5																
6																
7																
8																
9																
10																

Comments:

Relinquished By (Sign):	Received By Driver/Depot: Byrus B...	Received By Lab: Byrus B...	Method of Delivery: walk in
Relinquished By (Print): Abdul Kader	Date/Time: 2023.03.15 / 3:50	Date/Time: March 15, 2023	Date/Time: Mar 16, 2023
Date/Time: 2023.03.15 / 3:50	Temperature: 13.3 °C	Temperature: 13.3 °C	pH Verified: <input type="checkbox"/> By: [Signature]

Certificate of Analysis

LRL Associates Ltd.

5430 Canotek Road
Ottawa, ON K1J 9G2
Attn: Jessica Arthurs

Client PO:
Project: 210341
Custody: 19086

Report Date: 2-Jun-2023
Order Date: 29-May-2023

Order #: 2322119

This Certificate of Analysis contains analytical data applicable to the following samples as submitted :

Parcel ID	Client ID
2322119-01	5969 Ottawa St. - 3 HR
2322119-02	5969 Ottawa St. - 6 HR

Approved By:



Dale Robertson, BSc
Laboratory Director

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Analysis Summary Table

Analysis	Method Reference/Description	Extraction Date	Analysis Date
Alkalinity, total to pH 4.5	EPA 310.1 - Titration to pH 4.5	31-May-23	31-May-23
Ammonia, as N	EPA 351.2 - Auto Colour	30-May-23	30-May-23
Anions	EPA 300.1 - IC	31-May-23	31-May-23
Colour	SM2120 - Spectrophotometric	30-May-23	31-May-23
Conductivity	EPA 9050A- probe @25 °C	31-May-23	31-May-23
Dissolved Organic Carbon	MOE 3247B - Combustion IR	31-May-23	1-Jun-23
E. coli	MOE E3407	30-May-23	30-May-23
Fecal Coliform	SM 9222D	30-May-23	30-May-23
Heterotrophic Plate Count	SM 9215C	30-May-23	30-May-23
Metals, ICP-MS	EPA 200.8 - ICP-MS	30-May-23	30-May-23
pH	EPA 150.1 - pH probe @25 °C	31-May-23	31-May-23
Phenolics	EPA 420.2 - Auto Colour, 4AAP	30-May-23	30-May-23
Hardness	Hardness as CaCO3	30-May-23	30-May-23
Sulphide	SM 4500SE - Colourimetric	31-May-23	1-Jun-23
Tannin/Lignin	SM 5550B - Colourimetric	1-Jun-23	1-Jun-23
Total Coliform	MOE E3407	30-May-23	30-May-23
Total Dissolved Solids	SM 2540C - gravimetric, filtration	31-May-23	1-Jun-23
Total Kjeldahl Nitrogen	EPA 351.2 - Auto Colour, digestion	30-May-23	31-May-23
Turbidity	SM 2130B - Turbidity meter	30-May-23	31-May-23
VOCs by P&T GC-MS	EPA 624 - P&T GC-MS	1-Jun-23	1-Jun-23

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Client ID:	5969 Ottawa St. - 3 HR	5969 Ottawa St. - 6 HR	-	-
Sample Date:	29-May-23 10:46	29-May-23 13:46	-	-
Sample ID:	2322119-01	2322119-02	-	-
MDL/Units	Drinking Water	Drinking Water	-	-

Microbiological Parameters

E. coli	1 CFU/100mL	ND	ND	-	-
Total Coliforms	1 CFU/100mL	ND	ND	-	-
Fecal Coliforms	1 CFU/100mL	ND	ND	-	-
Heterotrophic Plate Count	10 CFU/mL	80	50	-	-

General Inorganics

Alkalinity, total	5 mg/L	274	274	-	-
Ammonia as N	0.01 mg/L	0.10	0.10	-	-
Dissolved Organic Carbon	0.5 mg/L	1.6	1.8	-	-
Colour	2 TCU	<2	<2	-	-
Conductivity	5 uS/cm	1290	1290	-	-
Hardness	mg/L	409	478	-	-
pH	0.1 pH Units	7.8	7.7	-	-
Phenolics	0.001 mg/L	<0.001	<0.001	-	-
Total Dissolved Solids	10 mg/L	718	718	-	-
Sulphide	0.02 mg/L	<0.02	<0.02	-	-
Tannin & Lignin	0.1 mg/L	<0.1	<0.1	-	-
Total Kjeldahl Nitrogen	0.1 mg/L	0.2	0.1	-	-
Turbidity	0.1 NTU	8.1	9.0	-	-

Anions

Chloride	1 mg/L	192	191	-	-
Fluoride	0.1 mg/L	0.4	0.4	-	-
Nitrate as N	0.1 mg/L	<0.1	<0.1	-	-
Nitrite as N	0.05 mg/L	<0.05	<0.05	-	-
Sulphate	1 mg/L	57	57	-	-

Metals

Aluminum	0.001 mg/L	0.007	0.005	-	-
Antimony	0.0005 mg/L	<0.0005	<0.0005	-	-
Arsenic	0.001 mg/L	<0.001	<0.001	-	-
Barium	0.001 mg/L	0.119	0.137	-	-
Beryllium	0.0005 mg/L	<0.0005	<0.0005	-	-
Boron	0.01 mg/L	0.15	0.16	-	-
Cadmium	0.0001 mg/L	<0.0001	<0.0001	-	-
Calcium	0.1 mg/L	105	122	-	-
Chromium	0.001 mg/L	<0.001	<0.001	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

	MDL/Units	Client ID: 5969 Ottawa St. - 3 HR Sample Date: 29-May-23 10:46 Sample ID: 2322119-01 Drinking Water	5969 Ottawa St. - 6 HR 29-May-23 13:46 2322119-02 Drinking Water	-	-
Cobalt	0.0005 mg/L	<0.0005	<0.0005	-	-
Copper	0.0005 mg/L	<0.0005	<0.0005	-	-
Iron	0.1 mg/L	0.5	0.6	-	-
Lead	0.0001 mg/L	<0.0001	<0.0001	-	-
Magnesium	0.2 mg/L	35.8	42.0	-	-
Manganese	0.005 mg/L	0.014	0.016	-	-
Molybdenum	0.0005 mg/L	0.0020	0.0022	-	-
Nickel	0.001 mg/L	<0.001	<0.001	-	-
Potassium	0.1 mg/L	6.1	6.9	-	-
Selenium	0.001 mg/L	<0.001	<0.001	-	-
Silver	0.0001 mg/L	<0.0001	<0.0001	-	-
Sodium	0.2 mg/L	61.6	70.7	-	-
Strontium	0.01 mg/L	4.03	4.09	-	-
Thallium	0.001 mg/L	<0.001	<0.001	-	-
Tin	0.01 mg/L	<0.01	<0.01	-	-
Titanium	0.005 mg/L	<0.005	<0.005	-	-
Tungsten	0.01 mg/L	<0.01	<0.01	-	-
Uranium	0.0001 mg/L	0.0005	0.0006	-	-
Vanadium	0.0005 mg/L	<0.0005	<0.0005	-	-
Zinc	0.005 mg/L	<0.005	<0.005	-	-

Volatiles					
Acetone	0.0050 mg/L	<0.0050	<0.0050	-	-
Benzene	0.0005 mg/L	<0.0005	<0.0005	-	-
Bromodichloromethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Bromoform	0.0005 mg/L	<0.0005	<0.0005	-	-
Bromomethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Carbon Tetrachloride	0.0002 mg/L	<0.0002	<0.0002	-	-
Chlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
Chloroethane	0.0010 mg/L	<0.0010	<0.0010	-	-
Chloroform	0.0005 mg/L	<0.0005	<0.0005	-	-
Dibromochloromethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Dichlorodifluoromethane	0.0010 mg/L	<0.0010	<0.0010	-	-
1,2-Dibromoethane	0.0002 mg/L	<0.0002	<0.0002	-	-
1,2-Dichlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,3-Dichlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

	MDL/Units	Client ID: 5969 Ottawa St. - 3 HR Sample Date: 29-May-23 10:46 Sample ID: 2322119-01 Drinking Water	5969 Ottawa St. - 6 HR 29-May-23 13:46 2322119-02 Drinking Water	-	-
1,4-Dichlorobenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1-Dichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,2-Dichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1-Dichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
cis-1,2-Dichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
trans-1,2-Dichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,2-Dichloroethylene, total	0.0005 mg/L	<0.0005	<0.0005	-	-
1,2-Dichloropropane	0.0005 mg/L	<0.0005	<0.0005	-	-
cis-1,3-Dichloropropylene	0.0005 mg/L	<0.0005	<0.0005	-	-
trans-1,3-Dichloropropylene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,3-Dichloropropene, total	0.0005 mg/L	<0.0005	<0.0005	-	-
Ethylbenzene	0.0005 mg/L	<0.0005	<0.0005	-	-
Hexane	0.0010 mg/L	<0.0010	<0.0010	-	-
Methyl Ethyl Ketone (2-Butanone)	0.0050 mg/L	<0.0050	<0.0050	-	-
Methyl Isobutyl Ketone	0.0050 mg/L	<0.0050	<0.0050	-	-
Methyl tert-butyl ether	0.0020 mg/L	<0.0020	<0.0020	-	-
Methylene Chloride	0.0050 mg/L	<0.0050	<0.0050	-	-
Styrene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,1,2-Tetrachloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,1,2,2-Tetrachloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Tetrachloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
Toluene	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,1-Trichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
1,1,2-Trichloroethane	0.0005 mg/L	<0.0005	<0.0005	-	-
Trichloroethylene	0.0005 mg/L	<0.0005	<0.0005	-	-
Trichlorofluoromethane	0.0010 mg/L	<0.0010	<0.0010	-	-
Vinyl chloride	0.0002 mg/L	<0.0002	<0.0002	-	-
m,p-Xylenes	0.0005 mg/L	<0.0005	<0.0005	-	-
o-Xylene	0.0005 mg/L	<0.0005	<0.0005	-	-
Xylenes, total	0.0005 mg/L	<0.0005	<0.0005	-	-
4-Bromofluorobenzene	Surrogate	113%	112%	-	-
Dibromofluoromethane	Surrogate	102%	103%	-	-
Toluene-d8	Surrogate	102%	101%	-	-

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	ND	1	mg/L						
Fluoride	ND	0.1	mg/L						
Nitrate as N	ND	0.1	mg/L						
Nitrite as N	ND	0.05	mg/L						
Sulphate	ND	1	mg/L						
General Inorganics									
Alkalinity, total	ND	5	mg/L						
Ammonia as N	ND	0.01	mg/L						
Dissolved Organic Carbon	ND	0.5	mg/L						
Colour	ND	2	TCU						
Conductivity	ND	5	uS/cm						
Phenolics	ND	0.001	mg/L						
Total Dissolved Solids	ND	10	mg/L						
Sulphide	ND	0.02	mg/L						
Tannin & Lignin	ND	0.1	mg/L						
Total Kjeldahl Nitrogen	ND	0.1	mg/L						
Turbidity	ND	0.1	NTU						
Metals									
Aluminum	ND	0.001	mg/L						
Antimony	ND	0.0005	mg/L						
Arsenic	ND	0.001	mg/L						
Barium	ND	0.001	mg/L						
Beryllium	ND	0.0005	mg/L						
Boron	ND	0.01	mg/L						
Cadmium	ND	0.0001	mg/L						
Calcium	ND	0.1	mg/L						
Chromium	ND	0.001	mg/L						
Cobalt	ND	0.0005	mg/L						
Copper	ND	0.0005	mg/L						
Iron	ND	0.1	mg/L						
Lead	ND	0.0001	mg/L						
Magnesium	ND	0.2	mg/L						
Manganese	ND	0.005	mg/L						
Molybdenum	ND	0.0005	mg/L						
Nickel	ND	0.001	mg/L						
Potassium	ND	0.1	mg/L						
Selenium	ND	0.001	mg/L						
Silver	ND	0.0001	mg/L						
Sodium	ND	0.2	mg/L						
Strontium	ND	0.01	mg/L						
Thallium	ND	0.001	mg/L						
Tin	ND	0.01	mg/L						
Titanium	ND	0.005	mg/L						
Tungsten	ND	0.01	mg/L						
Uranium	ND	0.0001	mg/L						
Vanadium	ND	0.0005	mg/L						
Zinc	ND	0.005	mg/L						
Microbiological Parameters									
E. coli	ND	1	CFU/100mL						
Total Coliforms	ND	1	CFU/100mL						
Fecal Coliforms	ND	1	CFU/100mL						
Heterotrophic Plate Count	ND	10	CFU/mL						
Volatiles									
Acetone	ND	0.0050	mg/L						
Benzene	ND	0.0005	mg/L						
Bromodichloromethane	ND	0.0005	mg/L						
Bromoform	ND	0.0005	mg/L						

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Method Quality Control: Blank

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromomethane	ND	0.0005	mg/L						
Carbon Tetrachloride	ND	0.0002	mg/L						
Chlorobenzene	ND	0.0005	mg/L						
Chloroethane	ND	0.0010	mg/L						
Chloroform	ND	0.0005	mg/L						
Dibromochloromethane	ND	0.0005	mg/L						
Dichlorodifluoromethane	ND	0.0010	mg/L						
1,2-Dibromoethane	ND	0.0002	mg/L						
1,2-Dichlorobenzene	ND	0.0005	mg/L						
1,3-Dichlorobenzene	ND	0.0005	mg/L						
1,4-Dichlorobenzene	ND	0.0005	mg/L						
1,1-Dichloroethane	ND	0.0005	mg/L						
1,2-Dichloroethane	ND	0.0005	mg/L						
1,1-Dichloroethylene	ND	0.0005	mg/L						
cis-1,2-Dichloroethylene	ND	0.0005	mg/L						
trans-1,2-Dichloroethylene	ND	0.0005	mg/L						
1,2-Dichloroethylene, total	ND	0.0005	mg/L						
1,2-Dichloropropane	ND	0.0005	mg/L						
cis-1,3-Dichloropropylene	ND	0.0005	mg/L						
trans-1,3-Dichloropropylene	ND	0.0005	mg/L						
1,3-Dichloropropene, total	ND	0.0005	mg/L						
Ethylbenzene	ND	0.0005	mg/L						
Hexane	ND	0.0010	mg/L						
Methyl Ethyl Ketone (2-Butanone)	ND	0.0050	mg/L						
Methyl Isobutyl Ketone	ND	0.0050	mg/L						
Methyl tert-butyl ether	ND	0.0020	mg/L						
Methylene Chloride	ND	0.0050	mg/L						
Styrene	ND	0.0005	mg/L						
1,1,1,2-Tetrachloroethane	ND	0.0005	mg/L						
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L						
Tetrachloroethylene	ND	0.0005	mg/L						
Toluene	ND	0.0005	mg/L						
1,1,1-Trichloroethane	ND	0.0005	mg/L						
1,1,2-Trichloroethane	ND	0.0005	mg/L						
Trichloroethylene	ND	0.0005	mg/L						
Trichlorofluoromethane	ND	0.0010	mg/L						
Vinyl chloride	ND	0.0002	mg/L						
m,p-Xylenes	ND	0.0005	mg/L						
o-Xylene	ND	0.0005	mg/L						
Xylenes, total	ND	0.0005	mg/L						
Surrogate: 4-Bromofluorobenzene	0.0888		mg/L		111	50-140			
Surrogate: Dibromofluoromethane	0.0841		mg/L		105	50-140			
Surrogate: Toluene-d8	0.0829		mg/L		104	50-140			

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	192	1	mg/L	191			0.6	20	
Fluoride	0.36	0.1	mg/L	0.35			1.2	20	
Nitrate as N	ND	0.1	mg/L	ND			NC	20	
Nitrite as N	ND	0.05	mg/L	ND			NC	20	
Sulphate	57.5	1	mg/L	56.8			1.2	20	
General Inorganics									
Alkalinity, total	273	5	mg/L	274			0.1	14	
Ammonia as N	0.098	0.01	mg/L	0.098			0.6	17.7	
Dissolved Organic Carbon	1.4	0.5	mg/L	1.6			15.7	37	
Colour	ND	2	TCU	ND			NC	12	
Conductivity	1250	5	uS/cm	1290			2.7	5	
pH	7.8	0.1	pH Units	7.8			0.4	3.3	
Phenolics	ND	0.001	mg/L	ND			NC	10	
Total Dissolved Solids	82.0	10	mg/L	82.0			0.0	10	
Sulphide	ND	0.02	mg/L	ND			NC	10	
Tannin & Lignin	ND	0.1	mg/L	ND			NC	11	
Total Kjeldahl Nitrogen	0.17	0.1	mg/L	0.16			2.5	16	
Turbidity	ND	0.1	NTU	8.1			NC	10	
Metals									
Aluminum	0.022	0.001	mg/L	0.021			1.8	20	
Antimony	ND	0.0005	mg/L	ND			NC	20	
Arsenic	ND	0.001	mg/L	ND			NC	20	
Barium	0.019	0.001	mg/L	0.020			4.4	20	
Beryllium	ND	0.0005	mg/L	ND			NC	20	
Boron	0.02	0.01	mg/L	0.02			2.1	20	
Cadmium	ND	0.0001	mg/L	ND			NC	20	
Calcium	32.9	0.1	mg/L	32.5			1.3	20	
Chromium	ND	0.001	mg/L	ND			NC	20	
Cobalt	ND	0.0005	mg/L	ND			NC	20	
Copper	0.735	0.0005	mg/L	0.738			0.4	20	
Iron	0.2	0.1	mg/L	0.2			4.0	20	
Lead	0.0053	0.0001	mg/L	0.0053			0.1	20	
Magnesium	8.7	0.2	mg/L	8.6			1.1	20	
Manganese	0.005	0.005	mg/L	0.005			1.9	20	
Molybdenum	0.0010	0.0005	mg/L	0.0011			9.1	20	
Nickel	0.003	0.001	mg/L	0.003			4.7	20	
Potassium	1.8	0.1	mg/L	1.7			2.8	20	
Selenium	ND	0.001	mg/L	ND			NC	20	
Silver	ND	0.0001	mg/L	ND			NC	20	
Sodium	16.3	0.2	mg/L	16.0			2.3	20	
Thallium	ND	0.001	mg/L	ND			NC	20	
Tin	ND	0.01	mg/L	ND			NC	20	
Titanium	ND	0.005	mg/L	ND			NC	50	
Tungsten	ND	0.01	mg/L	ND			NC	20	
Uranium	0.0002	0.0001	mg/L	0.0002			2.1	20	
Vanadium	ND	0.0005	mg/L	ND			NC	20	
Zinc	0.196	0.005	mg/L	0.194			0.7	20	
Microbiological Parameters									
E. coli	ND	1	CFU/100mL	ND			NC	30	
Total Coliforms	ND	1	CFU/100mL	ND			NC	30	
Fecal Coliforms	ND	1	CFU/100mL	ND			NC	30	
Heterotrophic Plate Count	10	10	CFU/mL	80			NC	30	
Volatiles									
Acetone	ND	0.0050	mg/L	ND			NC	30	
Benzene	ND	0.0005	mg/L	ND			NC	30	
Bromodichloromethane	0.0023	0.0005	mg/L	0.0023			1.3	30	

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Method Quality Control: Duplicate

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Bromoform	ND	0.0005	mg/L	ND			NC	30	
Bromomethane	ND	0.0005	mg/L	ND			NC	30	
Carbon Tetrachloride	ND	0.0002	mg/L	ND			NC	30	
Chlorobenzene	ND	0.0005	mg/L	ND			NC	30	
Chloroethane	ND	0.0010	mg/L	ND			NC	30	
Chloroform	0.0227	0.0005	mg/L	0.0220			2.9	30	
Dibromochloromethane	ND	0.0005	mg/L	ND			NC	30	
Dichlorodifluoromethane	ND	0.0010	mg/L	ND			NC	30	
1,2-Dibromoethane	ND	0.0002	mg/L	ND			NC	30	
1,2-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,3-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,4-Dichlorobenzene	ND	0.0005	mg/L	ND			NC	30	
1,1-Dichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,2-Dichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
cis-1,2-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
trans-1,2-Dichloroethylene	ND	0.0005	mg/L	ND			NC	30	
1,2-Dichloropropane	ND	0.0005	mg/L	ND			NC	30	
cis-1,3-Dichloropropylene	ND	0.0005	mg/L	ND			NC	30	
trans-1,3-Dichloropropylene	ND	0.0005	mg/L	ND			NC	30	
Ethylbenzene	ND	0.0005	mg/L	ND			NC	30	
Hexane	ND	0.0010	mg/L	ND			NC	30	
Methyl Ethyl Ketone (2-Butanone)	ND	0.0050	mg/L	ND			NC	30	
Methyl Isobutyl Ketone	ND	0.0050	mg/L	ND			NC	30	
Methyl tert-butyl ether	ND	0.0020	mg/L	ND			NC	30	
Methylene Chloride	ND	0.0050	mg/L	ND			NC	30	
Styrene	ND	0.0005	mg/L	ND			NC	30	
1,1,1,2-Tetrachloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L	ND			NC	30	
Tetrachloroethylene	ND	0.0005	mg/L	ND			NC	30	
Toluene	ND	0.0005	mg/L	ND			NC	30	
1,1,1-Trichloroethane	ND	0.0005	mg/L	ND			NC	30	
1,1,2-Trichloroethane	ND	0.0005	mg/L	ND			NC	30	
Trichloroethylene	ND	0.0005	mg/L	ND			NC	30	
Trichlorofluoromethane	ND	0.0010	mg/L	ND			NC	30	
Vinyl chloride	ND	0.0002	mg/L	ND			NC	30	
m,p-Xylenes	ND	0.0005	mg/L	ND			NC	30	
o-Xylene	ND	0.0005	mg/L	ND			NC	30	
Surrogate: 4-Bromofluorobenzene	0.0910		mg/L		114	50-140			
Surrogate: Dibromofluoromethane	0.0835		mg/L		104	50-140			
Surrogate: Toluene-d8	0.0820		mg/L		102	50-140			

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Anions									
Chloride	199	1	mg/L	191	86.5	70-124			
Fluoride	1.38	0.1	mg/L	0.35	103	70-130			
Nitrate as N	0.98	0.1	mg/L	ND	98.0	77-126			
Nitrite as N	0.855	0.05	mg/L	ND	85.5	82-115			
Sulphate	65.0	1	mg/L	56.8	82.6	70-130			
General Inorganics									
Ammonia as N	1.15	0.01	mg/L	0.098	106	81-124			
Dissolved Organic Carbon	11.1	0.5	mg/L	1.8	93.6	60-133			
Phenolics	0.028	0.001	mg/L	ND	110	67-133			
Total Dissolved Solids	96.0	10	mg/L	ND	96.0	75-125			
Sulphide	0.50	0.02	mg/L	ND	100	79-115			
Tannin & Lignin	1.1	0.1	mg/L	ND	110	71-113			
Total Kjeldahl Nitrogen	1.12	0.1	mg/L	0.16	95.7	81-126			
Metals									
Aluminum	61.7	0.001	mg/L	21.1	81.2	80-120			
Arsenic	49.3	0.001	mg/L	0.645	97.3	80-120			
Barium	64.9	0.001	mg/L	20.1	89.6	80-120			
Beryllium	53.0	0.0005	mg/L	0.0312	106	80-120			
Boron	68.3	0.01	mg/L	21.0	94.5	80-120			
Cadmium	45.8	0.0001	mg/L	0.0364	91.5	80-120			
Calcium	13400	0.1	mg/L	5160	82.6	80-120			
Chromium	50.1	0.001	mg/L	0.114	100	80-120			
Cobalt	49.6	0.0005	mg/L	0.0377	99.1	80-120			
Copper	51.8	0.0005	mg/L	0.944	102	80-120			
Iron	2410	0.1	mg/L	225	87.5	80-120			
Lead	41.6	0.0001	mg/L	ND	83.2	80-120			
Magnesium	32600	0.2	mg/L	24200	84.7	80-120			
Manganese	54.8	0.005	mg/L	5.22	99.1	80-120			
Molybdenum	46.8	0.0005	mg/L	1.05	91.4	80-120			
Nickel	50.8	0.001	mg/L	2.99	95.6	80-120			
Potassium	11100	0.1	mg/L	1720	94.2	80-120			
Selenium	47.6	0.001	mg/L	0.242	94.7	80-120			
Silver	46.7	0.0001	mg/L	0.0578	93.2	80-120			
Sodium	9500	0.2	mg/L	ND	95.0	80-120			
Thallium	42.1	0.001	mg/L	0.025	84.1	80-120			
Tin	46.4	0.01	mg/L	0.22	92.4	80-120			
Titanium	51.4	0.005	mg/L	ND	103	70-130			
Tungsten	41.7	0.01	mg/L	0.26	82.8	80-120			
Vanadium	49.8	0.0005	mg/L	0.192	99.2	80-120			
Zinc	47.7	0.005	mg/L	2.70	90.1	80-120			
Volatiles									
Acetone	0.121	0.0050	mg/L	ND	121	50-140			
Benzene	0.0396	0.0005	mg/L	ND	98.9	60-130			
Bromodichloromethane	0.0384	0.0005	mg/L	ND	96.0	60-130			
Bromoform	0.0355	0.0005	mg/L	ND	88.7	60-130			
Bromomethane	0.0431	0.0005	mg/L	ND	108	50-140			
Carbon Tetrachloride	0.0332	0.0002	mg/L	ND	83.0	60-130			
Chlorobenzene	0.0436	0.0005	mg/L	ND	109	60-130			

Certificate of Analysis
 Client: LRL Associates Ltd.
 Client PO:

Report Date: 02-Jun-2023
 Order Date: 29-May-2023
 Project Description: 210341

Method Quality Control: Spike

Analyte	Result	Reporting Limit	Units	Source Result	%REC	%REC Limit	RPD	RPD Limit	Notes
Chloroethane	0.0463	0.0010	mg/L	ND	116	50-140			
Chloroform	0.0414	0.0005	mg/L	ND	104	60-130			
Dibromochloromethane	0.0326	0.0005	mg/L	ND	81.4	60-130			
Dichlorodifluoromethane	0.0477	0.0010	mg/L	ND	119	50-140			
1,2-Dibromoethane	0.0444	0.0002	mg/L	ND	111	60-130			
1,2-Dichlorobenzene	0.0433	0.0005	mg/L	ND	108	60-130			
1,3-Dichlorobenzene	0.0432	0.0005	mg/L	ND	108	60-130			
1,4-Dichlorobenzene	0.0401	0.0005	mg/L	ND	100	60-130			
1,1-Dichloroethane	0.0443	0.0005	mg/L	ND	111	60-130			
1,2-Dichloroethane	0.0402	0.0005	mg/L	ND	101	60-130			
1,1-Dichloroethylene	0.0490	0.0005	mg/L	ND	123	60-130			
cis-1,2-Dichloroethylene	0.0413	0.0005	mg/L	ND	103	60-130			
trans-1,2-Dichloroethylene	0.0416	0.0005	mg/L	ND	104	60-130			
1,2-Dichloropropane	0.0385	0.0005	mg/L	ND	96.3	60-130			
cis-1,3-Dichloropropylene	0.0364	0.0005	mg/L	ND	90.9	60-130			
trans-1,3-Dichloropropylene	0.0402	0.0005	mg/L	ND	100	60-130			
Ethylbenzene	0.0420	0.0005	mg/L	ND	105	60-130			
Hexane	0.0435	0.0010	mg/L	ND	109	60-130			
Methyl Ethyl Ketone (2-Butanone)	0.112	0.0050	mg/L	ND	112	50-140			
Methyl Isobutyl Ketone	0.118	0.0050	mg/L	ND	118	50-140			
Methyl tert-butyl ether	0.136	0.0020	mg/L	ND	136	50-140			
Methylene Chloride	0.0435	0.0050	mg/L	ND	109	60-130			
Styrene	0.0412	0.0005	mg/L	ND	103	60-130			
1,1,1,2-Tetrachloroethane	0.0403	0.0005	mg/L	ND	101	60-130			
1,1,1,2-Tetrachloroethane	0.0499	0.0005	mg/L	ND	125	60-130			
Tetrachloroethylene	0.0462	0.0005	mg/L	ND	115	60-130			
Toluene	0.0432	0.0005	mg/L	ND	108	60-130			
1,1,1-Trichloroethane	0.0433	0.0005	mg/L	ND	108	60-130			
1,1,2-Trichloroethane	0.0394	0.0005	mg/L	ND	98.4	60-130			
Trichloroethylene	0.0395	0.0005	mg/L	ND	98.7	60-130			
Trichlorofluoromethane	0.0480	0.0010	mg/L	ND	120	60-130			
Vinyl chloride	0.0322	0.0002	mg/L	ND	80.4	50-140			
m,p-Xylenes	0.0845	0.0005	mg/L	ND	106	60-130			
o-Xylene	0.0420	0.0005	mg/L	ND	105	60-130			
Surrogate: 4-Bromofluorobenzene	0.0878		mg/L		110	50-140			
Surrogate: Dibromofluoromethane	0.0917		mg/L		115	50-140			
Surrogate: Toluene-d8	0.0791		mg/L		98.9	50-140			

Certificate of Analysis
Client: LRL Associates Ltd.
Client PO:

Report Date: 02-Jun-2023
Order Date: 29-May-2023
Project Description: 210341

Qualifier Notes:

Sample Qualifiers :

Sample Data Revisions

None

Work Order Revisions / Comments:

None

Other Report Notes:

n/a: not applicable
ND: Not Detected
MDL: Method Detection Limit
Source Result: Data used as source for matrix and duplicate samples
%REC: Percent recovery.
RPD: Relative percent difference.
NC: Not Calculated



Bld. 4J8
ps.com

Parcel Order Number

2020119

Chain Of Custody
Ontario Drinking Water Samples

No 19086

Client Name: LRL	Project Ref: 210341	Waterworks Name:	Samples Taken By:
Contact Name: Jessica Arthurs	Quote #: --	Waterworks Number:	Name: Jessica Arthurs
Address: 5430 Canotek Rd Ottawa, ON K1J 9G2	PO #:	Address:	Signature: <i>Jessica Arthurs</i>
After Hours Contact: Jessica Arthurs	E-mail: jarthurs@lrl.ca		Page 1 of 1
Telephone: 613 978 0658	Fax:	Public Health Unit:	Turn Around Time Required: <input type="checkbox"/> 1 day <input type="checkbox"/> 2 day <input type="checkbox"/> 3 day <input checked="" type="checkbox"/> 4 day

Samples Submitted Under: (Indicate ONLY one)		Sample Type: R = Raw ; T = Treated ; D = Distribution; P = Plumbing		Source Type: G = Ground Water; S = Surface Water		Reportable: Requires AWQI reporting as per Regulation - Y = Yes; N = No		Required Analyses									
<input type="checkbox"/> ON REG 170/03 <input type="checkbox"/> ON REG 319/08 <input type="checkbox"/> Private Well <input type="checkbox"/> ON REG 243/07 <input checked="" type="checkbox"/> Other ODWS																	
Have LSN forms been submitted to MOE/MOHLTC?: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		Are these samples for human consumption?: <input type="checkbox"/> Yes <input type="checkbox"/> No		All information must be completed before samples will be processed.													
LOCATION NAME	SAMPLE ID	Sample Type: R/T/D/P	Source Type: G/S	Reportable: Y/N	Resample	SAMPLE COLLECTED		# of Containers	Free/Combined Chlorine Residual mg/L	Standing / Flushed: S/F (REG 243)	Total Coliform/E. Coli	HPC	Lead	THM	VOC	Trace Metals	Subdivision Reg
DATE	TIME																
1	5969 Ottawa St. - Well	R	G	N		May 29, 2023	10:46	10	0.00	F					X	X	X
2	↓	R	G	N		↓	13:46	10	0.01	F					X	X	X
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Comments:		Method of Delivery: walk in	
Relinquished By (Sign): <i>Jessica Arthurs</i>	Received By Driver/Depot:	Received at Lab: 1548	Verified by: <i>[Signature]</i>
Relinquished By (Print): Jessica Arthurs	Date/Time:	Date/Time: May 29/23	Date/Time: May 30 3 94
Date/Time: May 29, 2023 3:47 pm	Temperature: °C	Temperature: 10.1 °C	pH Verified: <input type="checkbox"/> By: <i>[Signature]</i>

ATTACHMENT IV
Test Pit Logs



LRJ

ENGINEERING | INGENIERIE
5430 Carotek Road | Ottawa, ON, K1J 9G2
www.lrj.ca | (613) 842-3434

PROJECT NO.: 210341

CLIENT: Al Roberts

DATE: July 20, 2021

EXCAVATION METHOD: BACKHOE KX121-3

TEST PIT LOG: TP21-1

PROJECT: Hydrogeological Assessment & Terrain Analysis

LOCATION: 5969 OTTAWA STREET, RICHMOND, ONTARIO

FIELD PERSONNEL: DC

EXCAVATION CONTRACTOR: Landraulics Equipment

DEPTH	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	SAMPLE NUMBER	N OR ROD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm)		Water Level (Standpipe)
								ISOBTYLENE (ppm)		
0.0	TOP SOIL: Sandy silty loam, dry, brown.	99.478 0.0		S1						
1.0	SANDY LOAM: Fine grained, dry, brown	99.178 0.30		S2						
3.0	SILTY LOAM: Dry, brown/grey, some discolouration like oxidization between (0.9 - 2.8) m bgs. Presence of cobbles and boulders at 1.8 m bgs.	98.578 0.90		S3 (S6)						
6.0				S4						
9.0	End of Test Pit	96.678 2.80								

EASTING: 0435611

NORTHING: 5004477

SITE DATUM: Base of concrete hydro pole in SW corner of the Site (100.00 m).

GROUND SURFACE ELEVATION: 99.478 m

TOP OF RISER ELEVATION: 99.867 m

EXCAVATION WIDTH : 1.65 m

EXCAVATION LENGTH: 0.9 m

NOTES:

bgs: Below Ground Surface

(SX): Duplicate Sample Collected



LRJ
ENGINEERING & CONSTRUCTION
5430 Canotek Road Ottawa, ON, K1J 9G2
www.lrj.ca (613) 842-3434

PROJECT NO.: 210341

CLIENT: Al Roberts

DATE: July 20, 2021

EXCAVATION METHOD: BACKHOE KX121-3

TEST PIT LOG: TP21-2

PROJECT: Hydrogeological Assessment & Terrain Analysis

LOCATION: 5969 OTTAWA STREET, RICHMOND, ONTARIO

FIELD PERSONNEL: DC

EXCAVATION CONTRACTOR: Landraulics Equipment

DEPTH	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm)		Water Level (Standpipe)
								ISOBTYLENE (ppm)		
0.0	TOP SOIL: Sandy loam, dry, fine grained, dark brown with light brown traces.	99.929 0.0		S1						
0.30	SILTY LOAM: Dry, brown, trace of oxidization.	99.629 0.30		S2 (S5)						
0.90	LOAM: Dry become moist at 2.1 m bgs, brown. Presence of cobbles and boulders at 1.8 m bgs.	99.029 0.90		S3						
2.80	End of Test Pit	97.129 2.80		S4						

EASTING: 0435644

NORTHING: 5004444

SITE DATUM: Base of concrete hydro pole in SW corner of the Site (100.00 m).

GROUND SURFACE ELEVATION: 99.929 m

TOP OF RISER ELEVATION: 100.310 m

EXCAVATION WIDTH: 1.6 m

EXCAVATION LENGTH: 1.1 m

NOTES:

bgs: Below Ground Surface
(SX): Duplicate Sample Collected



LRJ
ENGINEERING | INGENIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrj.ca | (613) 842-3434

PROJECT NO.: 210341

CLIENT: Al Roberts

DATE: July 20, 2021

EXCAVATION METHOD: BACKHOE KX121-3

TEST PIT LOG: TP21-3

PROJECT: Hydrogeological Assessment & Terrain Analysis

LOCATION: 5969 OTTAWA STREET, RICHMOND, ONTARIO

FIELD PERSONNEL: DC

EXCAVATION CONTRACTOR: Landraulics Equipment

DEPTH	SOIL DESCRIPTION	ELEV./DEPTH (m)	LITHOLOGY	SAMPLE NUMBER	N OR RQD (%)	RECOVERY (%)	LABORATORY ANALYSIS	Combustible Soil Vapours (ppm)		Water Level (Standpipe)
								ISOBTYLENE (ppm)		
0.0	TOP SOIL: Sandy loam, dry, fine grained, dark brown with light brown traces.	99.676 0.0		S1						
1.0	SILTY LOAM: Dry, brown with some grey.	99.376 0.30		S2 (S5)						
3.0	LOAM: Dry, brown, presence of cobbles and boulders at 1.8 m bgs.	98.776 0.90		S3						
6.0				S4						
9.0	End of Test Pit	96.876 2.80								

EASTING: 0435644 **NORTHING:** 5004444
SITE DATUM: Base of concrete hydro pole in SW corner of the Site (100.00 m).
GROUND SURFACE ELEVATION: 99.929 m **TOP OF RISER ELEVATION:** 100.310 m
EXCAVATION WIDTH : 1.6 m **EXCAVATION LENGTH:** 1.1 m

NOTES:
 bgs: Below Ground Surface
 (SX): Duplicate Sample Collected

ATTACHMENT VI
Water Well Records

Tag#: **A320977** (8 Digits)
 A320977

Well Owner's Information
 First Name: **Alan & Roberta Roberts** Last Name/Organization: **Alan & Roberta Roberts** E-mail Address: _____
 Mailing Address (Street Number/Name): **5069 Ottawa Street** City/Town/Village: **Richmond** Province: **ON** Postal Code: **K9A 2Z0** Telephone No. (Inc. area code): _____
 Well Location
 Address of Well Location (Street Number/Name): **5069 Ottawa Street** Township: **Oshesong** Lot: **A Unit 10 P. 4D-26**
 City/Town/Village: **Richmond** Province: **Ontario** Postal Code: _____
 OTW Corridor Zone - Existing: **Ottawa Corridor** Municipality: **Richmond** Municipal Plan and Sublot No.: **AR-1000 Part 1 PCL10-3**
 NAD 83: **18 435625 5004457**

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

General Colour	Most Common Material	Other Materials	General Description	Depth (ft)
	Sand	Clay	9 Gravel	0' 21"
Grey	Limestone			21' 48"
Grey	Limestone			48' 154"
Grey	Limestone			154' 160"

Annular Space

Depth Set at (ft)	Type of Seawall Used (Abandonment and Sealing)	Volume Placed (m³)
27' 17"	Neat cement	7.8
17' 0"	Bentonite slurry	8.4

Method of Construction

Cable Test
 Rotary (Conventional)
 Rotary (Reverse)
 Auger
 Jetting
 Other, specify: _____

Digging
 Drilling
 Other, specify: _____

Construction Record - Casing

Inside Diameter (mm)	Material (Pneum., Galvanized, Steel)	Depth (m)	From	To
64	Steel	1.99	+2'	27'
6"	Open Hole		27'	100'

Construction Record - Screen

Outside Diameter (mm)	Material (Pneum., Galvanized, Steel)	Slot No.	Depth (m)	From	To

Water Details

Water found at Depth (m)	Kind of Water	Fresh	Revised	Depth (m)	Diameter (mm)
48	Gas	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
154	Gas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0' 27'	93/4"
	Gas	<input type="checkbox"/>	<input type="checkbox"/>	27' 160'	6"

Well Contractor and Well Technician Information

Business Name of Well Contractor: **Air Rock Drilling Co. Ltd.** Well Contractor's License No.: **67081**
 Business Address (Street Number/Name): **6000 Franktown Road** Municipality: **Richmond**

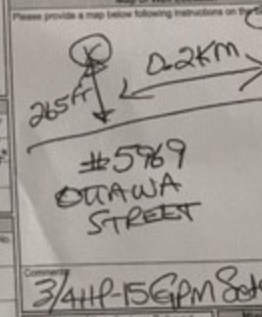
Well Technician's Information

Business E-mail Address: **air-rock@sympatico.ca**
 Name of Well Technician (Last Name, First Name): **Hogan, Dan**
 Well Technician License No.: **13882170** Date: **2021-06-30**
 Signature of Technician and/or Contractor: _____

Results of Well Yield Testing

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

Flow Rate (m³/hr)	Flow Rate (L/min)	Flow Rate (gpm)	Flow Rate (m³/day)
150	9.1	15.2	41.5
150	24.3	29.9	29.9
150	28.6	30.7	20.7
150	31.7	13.5	13.5
150	34.2	9.1	9.1
150	44.1	9.1	9.1
150	48.5	9.1	9.1
150	51.7	9.1	9.1
150	54.0	9.1	9.1
150	56.3	9.1	9.1
150	57.2	9.1	9.1
150	57.5	9.1	9.1
150	57.7	9.1	9.1



Comments: **34HP-15GPM 2021-06-30**

Well owner's information
 Date Package Delivered: **2021-06-19**
 Package Delivered: **2021-06-08**
 Ministry Use Only
 Audit No.: **2355197**

Measurements recorded in: Metric Imperial

Page _____ of _____

A342311

Well Owner's Information

First Name: _____ Last Name/Organization: **Allan Wayne & Roberta Anne Roberts** E-mail Address: _____ Well Constructed by Well Owner

Mailing Address (Street Number/Name): **61 Strachan Street Box 1305** Municipality: **Richmond** Province: **ON** Postal Code: **K0A 2Z0** Telephone No. (inc. area code): _____

Well Location

Address of Well Location (Street Number/Name): **5969 Ottawa Street** Township: **Goulbourn** Lot: **PT Unit 10 PL 4D-26** Concession: _____

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

UTM Coordinates: Zone: **18** Easting: **435611** Northing: **5004467** Municipal Plan and Sublot Number: **4R-7050 PT 1** Other: **PC10-3** **Well #2**

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)
	Clay	Gravel		0' - 22'
Grey	Limestone			22' - 165'
Grey	Limestone	w/white & Grey Sandstone	Mix	165' - 224'
Grey	Limestone	w/white & Grey Sandstone	Mix	224' - 230'

Annular Space		
Depth Set at (m)	Type of Sealant Used (Material and Type)	Volume Placed (m ³)
190' - 180'	Neat cement	12.48
180' - 0'	Bentonite slurry	25.2

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input type="checkbox"/> Rotary (Reverse) <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____

Construction Record - Casing				Status of Well	
Inside Diameter (cm)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
6.4"	Steel	.188	+2'	190'	<input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring <input type="checkbox"/> Cooling & Air Conditioning
6"	Open Hole		190'	230'	

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft)	Diameter (cm/in)
224'		0' - 190'	9.75"
		190' - 230'	6"

Well Contractor and Well Technician Information

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

Business Address (Street Number/Name): **6650 Frankton Road** Municipality: **Richmond**

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

Bus. Telephone No. (inc. area code): **813882170** Name of Well Technician (Last Name, First Name): **Hanna, Jeremy**

Well Technician's Licence No.: **T3632** Signature of Technician and/or Contractor: _____ Date: **2023 05 31**

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input type="checkbox"/> Clear and sand free	<input type="checkbox"/> Other, specify Not tested	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: _____		Static Level	8'3"		77.4"
Pump intake set at (m/ft): 220		1	17.5	1	61.4
Pumping rate (l/min/GPM): 20		2	23.8	2	50.7
Duration of pumping: 1 hrs + 0 min		3	28.3	3	41.4
Final water level end of pumping (m/ft): 77.4"		4	34	4	33.2
If flowing give rate (l/min/GPM): _____		5	38	5	26.3
Recommended pump depth (m/ft): 140 FT		10	52.3	10	9.8
Recommended pump rate (l/min/GPM): 10		15	61	15	8.3
Well production (l/min/GPM): 20		20	66.2	20	8.3
Disrupted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		25	69.6	25	8.3
		30	72	30	8.3
		40	75.3	40	8.3
		50	76.8	50	8.3
		60	77.4	60	8.3

Map of Well Location

Please provide a map below following instructions on the back.

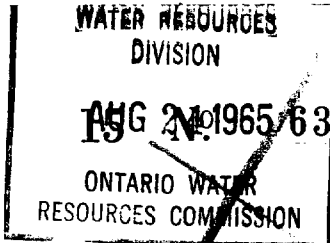
Handwritten notes on map: **190 FT**, **0.2KM**, **5969 OTTAWA STREET**, **AN**, **bicycle path**, **Call #2**, **1/2 HP 10 GPM @ 140 FT**

Well owner's information package delivered: **Y 2023 M 05 D 31**

Date Package Delivered: **2023 05 08**

Ministry Use Only: Audit No. **Z394568**

Received: _____



UTM 18Z 435975 1E

31644

(15R 5004385)^N

The Ontario Water Resources Commission Act

Elev. 412 10305

WATER WELL RECORD

Basin 25 | | | | | ABLETAN

Township, Village, Town or City Napanee

Con. 6 R.F. Lot 4

Date completed 5 APRIL 65
(day month year)

Address Wellington

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

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>COARSE SAND</u>	<u>0</u>	<u>20</u>		
<u>FINE</u>	<u>20</u>	<u>30</u>		
<u>" BED SAND</u>	<u>30</u>	<u>38</u>		
<u>Limestone</u>	<u>28</u>	<u>86</u>	<u>85</u>	<u>FRESH</u>

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 STEEPLE

Licence Number 1600

Name of Driller or Borer F.P. SPARKS

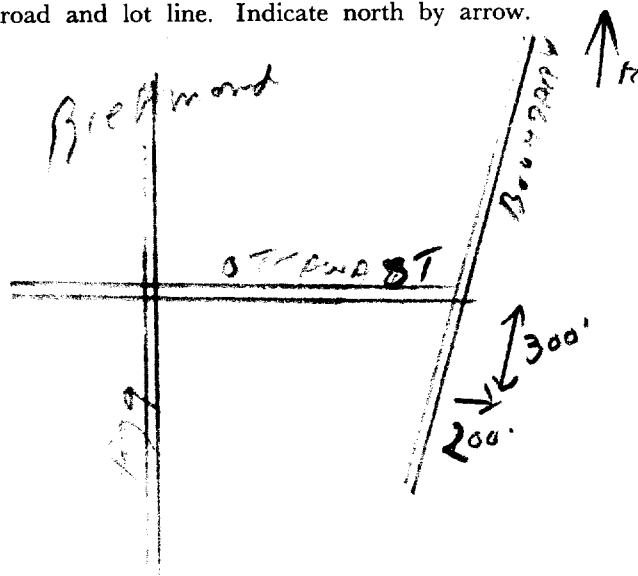
Address

Date Aug 12 65

(Signature of Licensed Drilling or Boring Contractor)

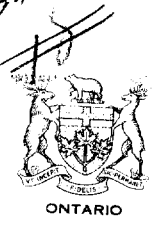
Location of Well

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



UTM 182 435250^F
5R 5003905^N
 Elev. 4R 0310
 Basin 25

314/4 "A"



RECEIVED
 DEC 21 1949
 GEOLOGICAL BRANCH
 DEPARTMENT OF MINES

9093
 X

The Well Drillers Act
 Department of Mines, Province of Ontario

Water Well Record

Village of RICHMOND.

Con. Lot. Pt. Lot.
Richmond Acres 1/4
 Date Completed July 20/48 Cost of well (not including pump) 160.00

Pipe and Casing Record

Pumping Test

Casing diameter(s) <u>4"</u>	Date <u>July 20/48</u>
Length(s) of casing(s) <u>25'</u>	Developed Capacity <u>250 G.P.H.</u>
Length of screen <u>no screen</u>	Duration of Test <u>1 hr</u>
Type of screen <u> </u>	Pumping Rate <u> </u>
Type of pump <u>no pump</u>	Drawdown <u> </u>
Capacity of pump <u> </u>	Static level of completed well <u>20'</u>
Depth of pump setting <u> </u>	Is well a gravel-wall type? <u>gravel</u>

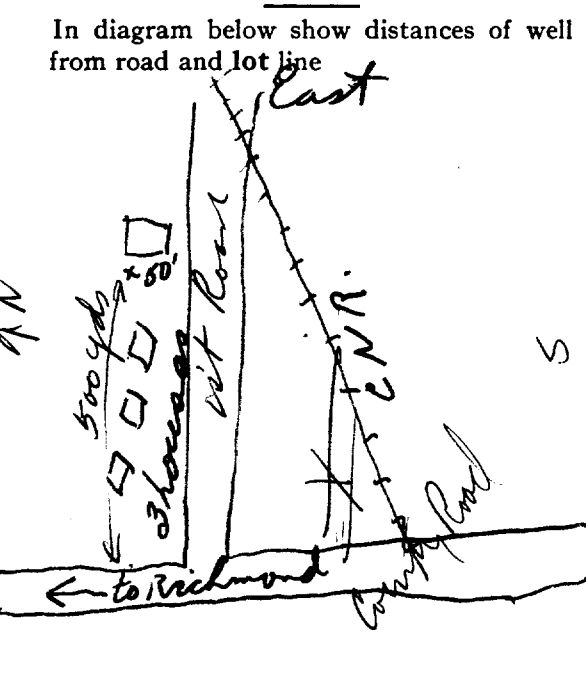
Water Record

Kind (fresh or mineral) <u>fresh</u>	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
Quality (hard, soft, contains iron, sulphur etc.) <u>hard</u>	<u>60'</u>		<u>40'</u>
Appearance (clear, cloudy, coloured) <u>clear</u>	<u>73</u>	<u>good</u>	<u>53'</u>
For what purpose(s) is the water to be used? <u>house</u>			
How far is well from possible source of contamination? <u>200</u>			
What is source of contamination? <u>creek</u>			
Enclose a copy of any mineral analysis that has been made of water <u> </u>			

Well Log

Drift and Bedrock Record	From	To
<u>gravel</u>	0 ft.	<u>25 ft.</u>
<u>limestone Rock</u>	<u>25</u>	<u>25</u>

Location of Well



Situation: Is well on upland, in valley, or on hillside? flat
 Drilling Firm F.P. Sparks
 Address Stittsville Ont
 Recorded by F.P. Sparks Address Stittsville
 Date Dec 8/49 Licence Number 133

UTM 182 434955

SR 5003805N

Elev. 42 0308

Basin 25

316/AF 7'



ONTARIO

The Well Drillers Act
Department of Mines, Province of Ontario



Water Well Record

County or Territorial District: County Carleton
Town, Village, Town or City: RICHMOND
Street and Number (if in Village, Town or City): Richmond, Ont.
Owner: County Carleton High School
Date Completed: Mar 20 1951
Cost of Well (excluding pump): Well only \$ 775.00

Pipe and Casing Record

Pumping Test

Casing diameter(s): 6"
Length(s) of casing(s): 26'
Type of screen:
Length of screen:
Distance from top of screen to ground level:
Is well a gravel-wall type? clay 26'
Date:
Static level: 0'
Pumping level: 0'
Pumping rate: 5000 g.p.h.
Duration of test: 3 hrs
Distance from cylinder or bowls to ground level:

Water Record

Kind (fresh or mineral): fresh
Quality (hard, soft, contains iron, sulphur, etc.): no
Appearance (clear, cloudy, coloured): clear
For what purpose(s) is the water to be used?: Furnished School
How far is well from possible source of contamination?: 700 yds
What is the source of contamination?: subty tank
Enclose a copy of any mineral analysis that has been made of water.

Table with 3 columns: Depth(s) to Water Horizon(s), Kind of Water, No. of Feet Water Rises. Includes handwritten entries: 120, fresh, 140'

Well Log

Overburden and Bedrock Record

From To

Table with 3 columns: Description, From, To. Includes handwritten entries: 26 feet overburden, 114 Bedrock

Location of Well

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

see over

Situation: Is well on upland, in valley, or on hillside? flat
Drilling Firm: G.P. Sparks & Son
Address: Stittville Ont.
Name of Driller: Same
Date:
Licence Number: 396

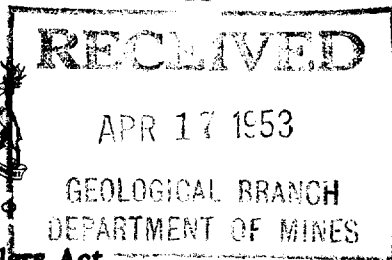
Signature of Licensee: G.P. Sparks

UTM 11 B 2 4 3 5 2 2 5 7

5 R 5 0 0 3 8 1 1 0 N

Elev. 4 R 0 3 1 0

Basin 2 5



15 No. ~~9111~~

The Well Drillers Act

Department of Mines, Province of Ontario

Water Well Record

Locality, Village, Town or City Richmond

Town or City

Richmond

Date Completed 10 Aug 52 Cost of Well (excluding pump)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) of casing(s) 25 ft.
Type of screen

Date

Water Record

Kind (fresh or mineral) fresh
Quality (hard, soft, contains iron, sulphur, etc.) unknown
Appearance (clear, cloudy, coloured) clear
For what purpose(s) is the water to be used? household
How far is well from possible source of contamination? 55 ft.
What is the source of contamination? privy
Enclose a copy of any mineral analysis that has been made of water

Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
<u>75</u>	<u>fresh</u>	<u>65</u>
<u>148</u>	<u>fresh</u>	

Well Log

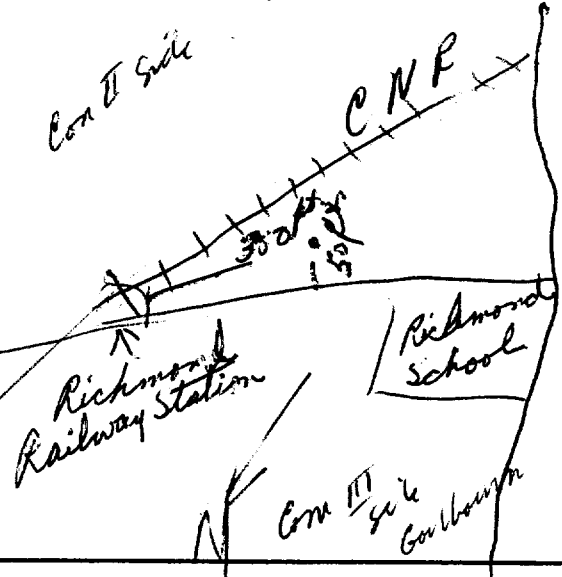
Overburden and Bedrock Record

From To
0 ft.ft.

till 0 21
limestone 21 52

Location of Well

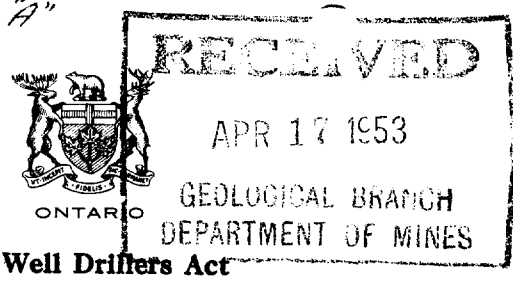
In diagram below show distances of well from road and lot line. Indicate north by arrow.



Situation: Is well on upland, in valley or on hillside? upland
Drilling Firm R. Sparks F. E. J. Hunter Valley Drilling
Address South March
Name of Driller R. Sparks Address

647 - 319/af. "A"

UTM 11B 2 435265 P
5 R 5003920 N
Elev. 4 R 0310
Basin 25



15 No. 9113

The Well Drifters Act
Department of Mines, Province of Ontario

Water Well Record

Locality, Village, Town or City: Richmond
Town or City: Richmond
S: Richmond

Date Completed: 30 Aug 52 (day) (month) (year) Cost of Well (excluding pump)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4
Length(s) of casing(s) 22 ft
Type of screen

Date Aug 30
Static level 89 ft
Pumping level 44 ft
Pumping rate 2.50 per hr
Duration of test 20 minutes
Distance from cylinder or bowls to ground level

Water Record

Kind (fresh or mineral) fresh
Quality (hard, soft, contains iron, sulphur, etc.) unknown
Appearance (clear, cloudy, coloured) clear
For what purpose(s) is the water to be used? household
How far is well from possible source of contamination? 60 ft
What is the source of contamination? septic tank
Enclose a copy of any mineral analysis that has been made of water

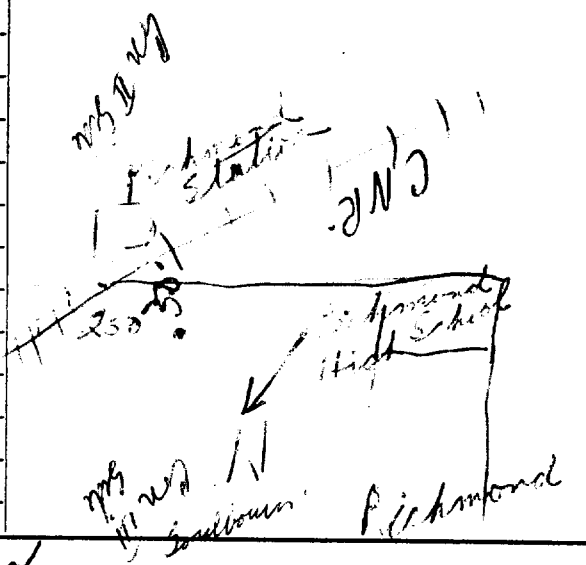
Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
<u>70</u>		<u>60</u>
<u>115</u>		<u>2</u>

Well Log

Overburden and Bedrock Record	From	To
	0 ft.	...ft.
<u>Till</u>		<u>19</u>
<u>Limestone</u>	<u>19</u>	<u>20</u>

Location of Well

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



Situation: Is well on upland, in valley, or on hillside? upland
Drilling Firm: F. Sparks Address: E.E. Johnston Valley Parkway
Name of Driller: F. Sparks Address:

Date: Aug 26 / 53 Licence Number: 490
Signature of Licensee: F. Sparks

316/4f "A"

UTM 18 2 4 3 5 1 0 5 P
5 R 5 0 0 3 7 0 0 N
Elev. 4 R 0 3 1 0
Basin 2 5



RECEIVED 15 No 9115
APR 17 1953
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

X

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

Richmond
Village, Town or City... *Richmond*
Town or City... *Richmond*

Date Completed... 15 Sept 52 Cost of Well (excluding pump).....

Pipe and Casing Record

Pumping Test

Casing diameter(s)..... <u>4'</u>	Date..... <u>Sept 15/52</u>
Length(s) of casing(s)..... <u>26'</u>	Static level..... <u>12</u>
Type of screen.....	Pumping level..... <u>80</u>
Length of screen.....	Pumping rate..... <u>100 gal/hr</u>
Distance from top of screen to ground level.....	Duration of test..... <u>2 hrs</u>
Is well a gravel-wall type?.....	Distance from cylinder or bowls to ground level.....

Water Record

Kind (fresh or mineral)..... <u>fresh</u>	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
Quality (hard, soft, contains iron, sulphur, etc.)... <u>hard</u>	<u>140</u>	<u>fresh</u>	<u>128</u>
Appearance (clear, cloudy, coloured)..... <u>clear</u>			
For what purpose(s) is the water to be used?..... <u>household</u>			
How far is well from possible source of contamination?..... <u>200 ft.</u>			
What is the source of contamination?..... <u>toilet</u>			
Enclose a copy of any mineral analysis that has been made of water.....			

Well Log

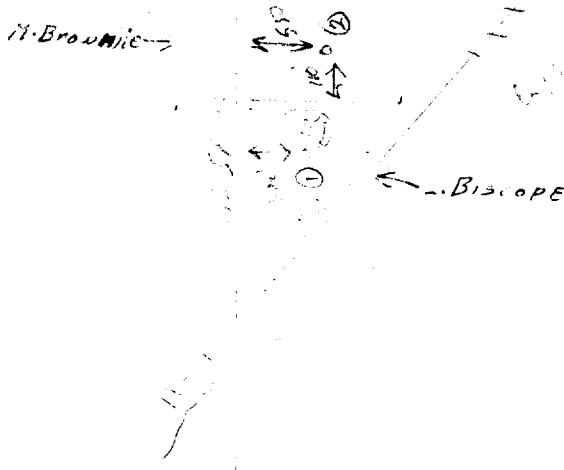
Overburden and Bedrock Record

From	To
0 ft.	25 ft.
25	151

Clay & Balder
Blue limestone

Location of Well

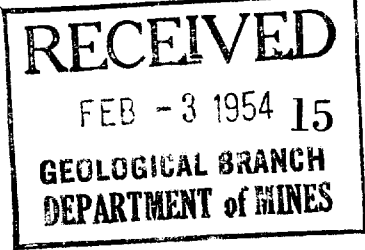
In diagram below show distances of well from road and lot line. Indicate north by arrow.



Situation: Is well on upland, in valley, or on hillside?..... upland
 Drilling Firm..... Valley Drilling Co.
 Address..... 393 Cambridge St.
 Name of Driller..... Ken Sparks Address.....
 Date..... April 15/53 Licence Number.....

[Signature]
Signature of Licensee

319/AF "A"



No. 9123

UTM 482 435025 F

5 R 5003710 N

Elev. 4 R 0308

Basin 25



ONTARIO

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record Richmond

County or Territorial District Carleton Place, Village, Town or City, Township, Village, Town or City, Richmond Ont.

Date Completed Dec 3 1953 Cost of Well (excluding pump)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4 inch
Length(s) of casing(s) 50 feet
Type of screen No. screen
Length of screen 11'
Distance from top of screen to ground level
Is well a gravel-wall type?
Date Dec 3 1953
Static level 8 feet
Pumping level 12'
Pumping rate 150 gpm
Duration of test 20 minutes
Distance from cylinder or bowls to ground level

Water Record

Kind (fresh or mineral) fresh
Quality (hard, soft, contains iron, sulphur, etc.) soft
Appearance (clear, cloudy, coloured) clear
For what purpose(s) is the water to be used? private home
How far is well from possible source of contamination? 50 feet
What is the source of contamination? out door closet
Enclose a copy of any mineral analysis that has been made of water

Table with 3 columns: Depth(s) to Water Horizon(s), Kind of Water, No. of Feet Water Rises. Row 1: 45, fresh, 37'

Well Log

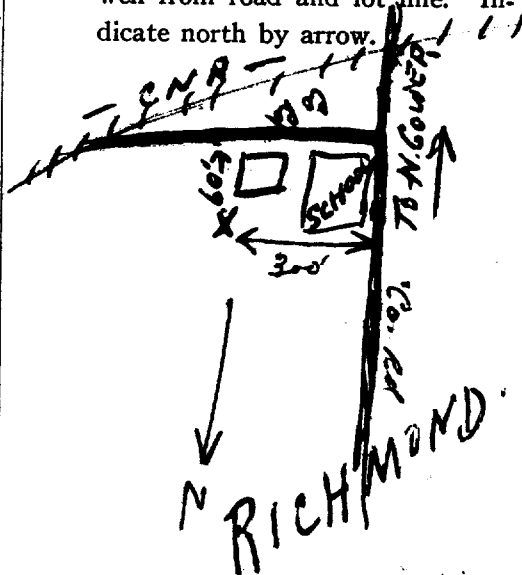
Overburden and Bedrock Record

From To

blue clay 0 ft. 30 ft.
grey limestone 30 60

Location of Well

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



Situation: Is well on upland, in valley, or on hillside? valley
Drilling Firm J.P. Sparks
Address Stittsville Ont.
Name of Driller Clayton Sparks Address Stittsville Ont.
Date Dec 3 1953 Licence Number 396

Signature of Licensee J.P. Sparks

316/4f "A"

U.L.M. 1 8 2 4 3 5 2 6 1 0 F
5 R 5 1 0 0 4 0 0 5 N
Elev. 4 R 0 3 1 1 0
Basin 2 5



15 No 9129

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

RICHMOND

Owner... T. I. M. L. T. O. R. Address... Richmond Ont.
Date Completed... 8th July 1954 (day month year) Cost of Well (excluding pump).....
Village, Town or City... ~~Richmond~~ Ottawa
Town or City... Ottawa

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4 inch Date 8 July 1954
Length(s) of casing(s) 17 feet Static level 3 feet
Type of screen Pumping level 15 feet
Length of screen Pumping rate 240 gal per hr
Distance from top of screen to ground level 15 feet Duration of test 2 hrs
Is well a gravel-wall type? Rock Distance from cylinder or bowls to ground level

Water Record

Kind (fresh or mineral)	Depth(s) to Water Horizon(s)	Kind of Water	No. of Feet Water Rises
fresh	185 feet	fresh	182 feet
Quality (hard, soft, contains iron, sulphur, etc.) soft			
Appearance (clear, cloudy, coloured) clear			
For what purpose(s) is the water to be used? house			
How far is well from possible source of contamination? x			
What is the source of contamination? x			
Enclose a copy of any mineral analysis that has been made of water... x			

Well Log

Overburden and Bedrock Record

From To

0 ft. 185 ft.

CLAY

0 7

BOULDERS

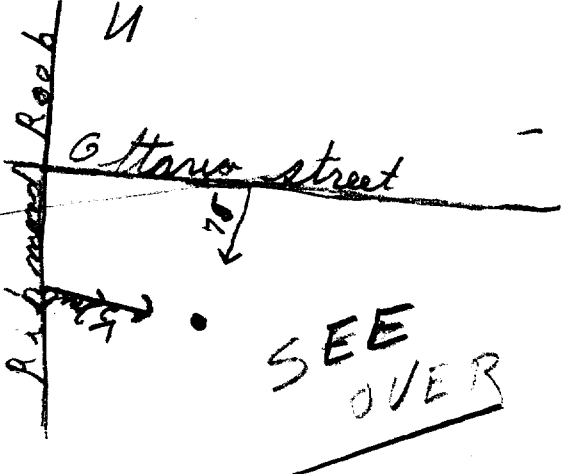
7 12

BLUISH LIMESTONE

12 190

Location of Well

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



Situation: Is well on upland, in valley, or on hillside? upland
Drilling Firm... D. B. D. Dubreane
Address... 1870 Carling Ottawa
Name of Driller... W. Ray
Date... 8 July 1954
Address... 232 St Joseph Blvd Hull
Licence Number... 394
Signature of Licensee... W. Ray

UTM | 18 | 2 | 4351100 | F
 | 9 | R | 510037810 | N
 Elev. | 9 | R | 03110 |
 Basin | 25 | | |

316/af "A"



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 APR - 3 1956
 GEOLOGICAL BRANCH
 DEPARTMENT of MINES
 Act, 1954

15 No. ~~9139~~ ^{6W}

The Water-well Drillers
 Department of Mines

Water-Well Record

County or Territorial District Outlet Township, Village, Town or City Richmond
 Address Richmond
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4" Static level 3'
 Length(s) 28' Pumping rate 200 GPM
 Type of screen Pumping level 8'
 Length of screen Duration of test 1 h

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1'</u>	<u>26'</u>	<u>46'</u>	<u>46.</u>	<u>fresh</u>
<u>limestone</u>	<u>26</u>	<u>31'</u>			

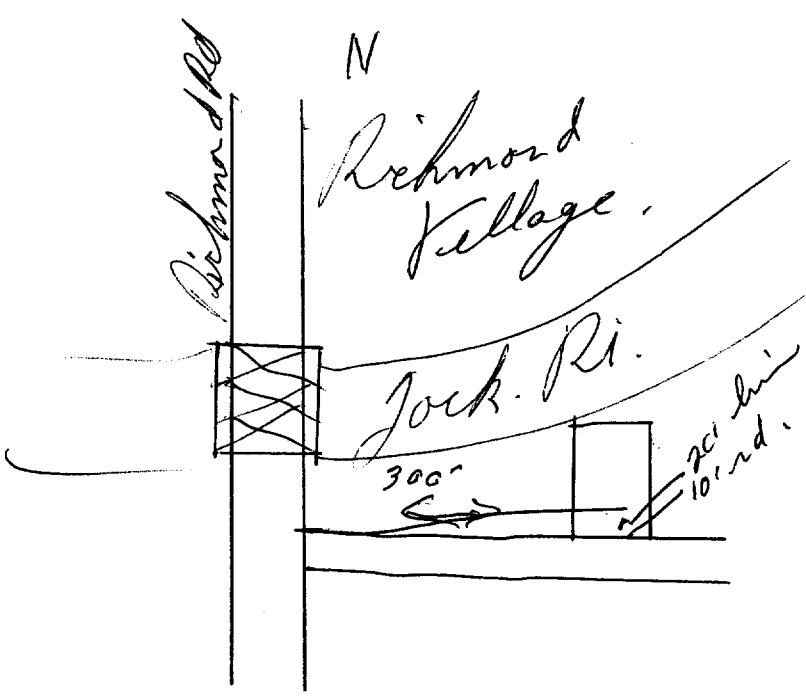
For what purpose(s) is the water to be used? home
 Is water clear or cloudy? clear
 Is well on upland, in valley, or on hillside? valley
 Drilling firm M M Meagh
 Address 639 Howarthwood Ave
Ottawa
 Name of Driller M M Meagh
 Licence Number 171

I certify that the foregoing statements of fact are true.

Date Mar 28 1956
 Signature of Licensee

Location of Well

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



314/4f "A"

UTM 18 2 4 3 4 8 2 0 F

5 R 5 0 0 4 0 4 0 N

Elev. 4 R 0 3 0 5

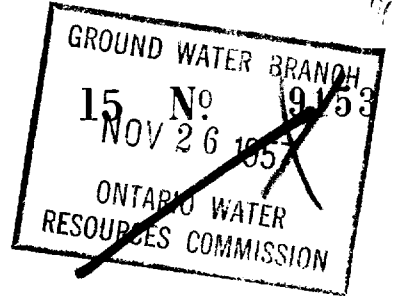
Basin 2 5



ONTARIO

The Water-well Drillers Act, 1954

Department of Mines



Water-Well Record

RICHMOND

County or Territorial District Carleton Township, Village, Town or City Yardbown
 Con. 5 Lot 24 Street and Number (if in Village, Town or City) Richmond
 Owner Edgar Rene Bledus Ltd Address Richmond
 Date completed Aug 12 57
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter (s) 4"
 Length (s) 28'
 Type of screen NONE
 Length of screen

Static level 11'
 Pumping rate 250 G.P.M.
 Pumping level 12'
 Duration of test 1 hr

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1'</u>	<u>27'</u>			
<u>Lime stone</u>	<u>27'</u>	<u>30'</u>	<u>30'</u>	<u>39'</u>	<u>fresh</u>

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

Is water clear or cloudy? clear

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

Drilling firm M. McLaughlin

Address 639 Richmond Rd Ottawa

Name of Driller M. McLaughlin

Address

Licence Number 191

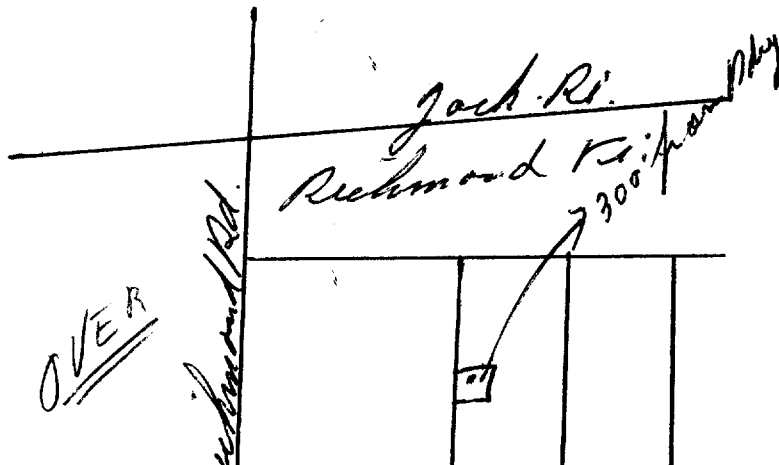
I certify that the foregoing statements of fact are true.

Date Aug 12 M. McLaughlin

Signature of Licensee

Location of Well

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



Con 3
 Lot 24
 Well No 4.
 5

316/AF 7A

UTM 182 434840 F
5R 5004015 N

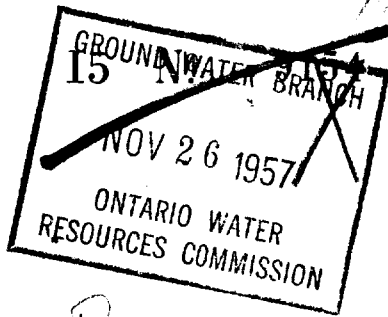


ONTARIO

Elev. 4R 0305

Basin 25

The Water-well Drillers Act, 1954
Department of Mines



Water-Well Record

County or Territorial District... Queleton Township, Village, Town or City... Youtboum
Con... 3 Lot... 29 Street and Number (if in Village, Town or City)... Richmond
Owner... Cedar Home Builders Ltd. Address... Richmond
Date completed... Aug 17 57
(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 28'
Type of screen NONE
Length of screen

Static level 11'
Pumping rate 230 G.P.M.
Pumping level 12'
Duration of test 1 hr.

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1'</u>	<u>27'</u>			
<u>Limestone</u>	<u>27'</u>	<u>51'</u>	<u>51'</u>	<u>40'</u>	<u>fresh</u>

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

Is water clear or cloudy? clear

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

Drilling firm M. McEaghr

Address 639 Hawah wood Ave

Ottawa

Name of Driller M. McEaghr

Address

Licence Number 171

I certify that the foregoing statements of fact are true.

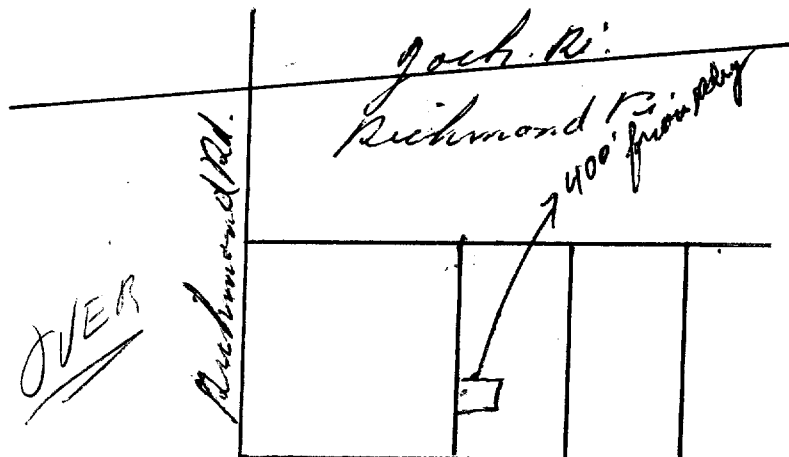
Date Aug 17 M. McEaghr

Signature of Licensee

Location of Well

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

N



Lot 3
Lot 24
well No 5

UTM ~~18~~ 2 4 3 4 8 6 0 P

5 R 5 0 0 4 0 0 0 N

Elev. 4 R 0 3 0 3

Basin 2 5

316/AF 7"



ONTARIO

The Water-well Drillers Act, 1954
Department of Mines

NO. 9155
GROUND WATER BRANCH
NOV 26 1957
ONTARIO WATER
RESOURCES COMMISSION

Water-Well Record

County or Territorial District Parleton Township, Village, Town or City Richmond
Con. 2 Lot 24 Street and Number (if in Village, Town or City) Richmond
Owner Edgar Home Bldg. Ltd. Address Richmond
Date completed Aug 26 57
(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 28'
Type of screen NONE
Length of screen

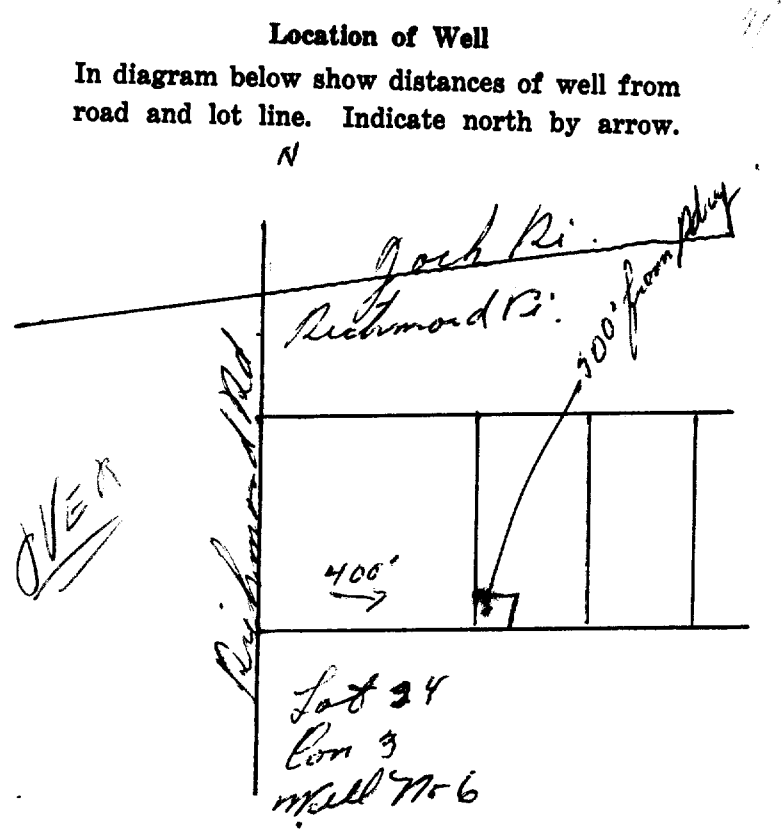
Static level 10'
Pumping rate 260 G.P.D.
Pumping level 11'
Duration of test 1 hr.

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1'</u>	<u>28'</u>			
<u>Limestone</u>	<u>28'</u>	<u>30'</u>	<u>30'</u>	<u>40'</u>	<u>fresh</u>

For what purpose(s) is the water to be used?
home
Is water clear or cloudy? clear
Is well on upland, in valley, or on hillside? valley
Drilling firm M. Meagher
Address 639 Rowanwood Ave. Ottawa
Name of Driller M. Meagher
Address
Licence Number 171
I certify that the foregoing statements of fact are true.
Date Aug 26 M. Meagher
Signature of Licensee



UTM 18 2 4 3 4 9 2 0

5 R 5 0 0 4 0 5 N

Elev. 4 R 0 3 0 8

Basin 2 5

318/af. A



The Water-well Drillers Act, 1954
Department of Mines

GROUND WATER
No. 160 BRA
NOV 2 1957
ONTARIO WATER
RESOURCES COMMISSION

Water-Well Record

DICKINSON

County or Territorial District Calleton Township, Village, Town or City Richmond
Con. 3 Lot 24 Street and Number (if in Village, Town or City) Richmond
Owner Edgar Home Plumber Ltd. Address Richmond
Date completed Sept 14 57
(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 28'
Type of screen NONE
Length of screen

Static level 12'
Pumping rate 240 G.P.M.
Pumping level 12'
Duration of test 1 hr.

Well Log

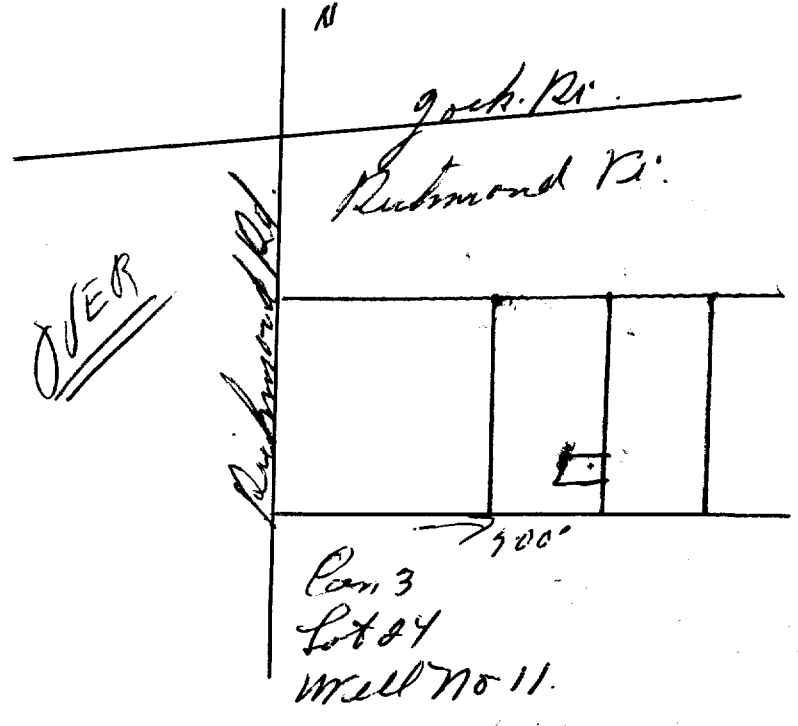
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1</u>	<u>28'</u>			
<u>Limestone</u>	<u>28'</u>	<u>32'</u>	<u>32'</u>	<u>40'</u>	<u>fresh</u>

For what purpose(s) is the water to be used? home
Is water clear or cloudy? clear
Is well on upland, in valley, or on hillside? valley
Drilling firm M. Meagher
Address 639 Hawthornwood Ave. Ottawa
Name of Driller M. Meagher
Address
Licence Number 171
I certify that the foregoing statements of fact are true.
Date Sept 14 M. Meagher
Signature of Licensee

Location of Well

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

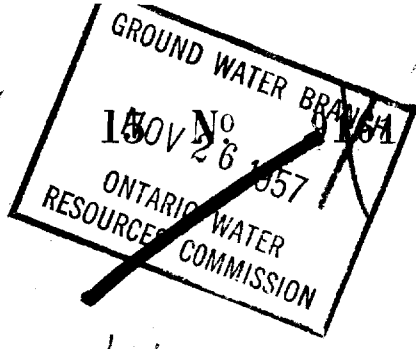


500'
Can 3
Lot 24
Well No 11.

UTM 18 2 43 4 9 3 5 F
5 R 50 0 4 0 3 0 N
 Elev. 4 R 0 3 0 8
 Basin 2 5



316/48 "A"



The Water-well Drillers Act, 1954
 Department of Mines

Water-Well Record

Richmond

County or Territorial District Caletton Township, Village, Town or City York Brown
 Con. 3 Lot 24 Street and Number (if in Village, Town or City) Richmond
 Owner Edos Home Alder Ltd. Address Richmond
 Date completed Sept 15 57
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter (s) 4"
 Length (s) 28'
 Type of screen NONE
 Length of screen

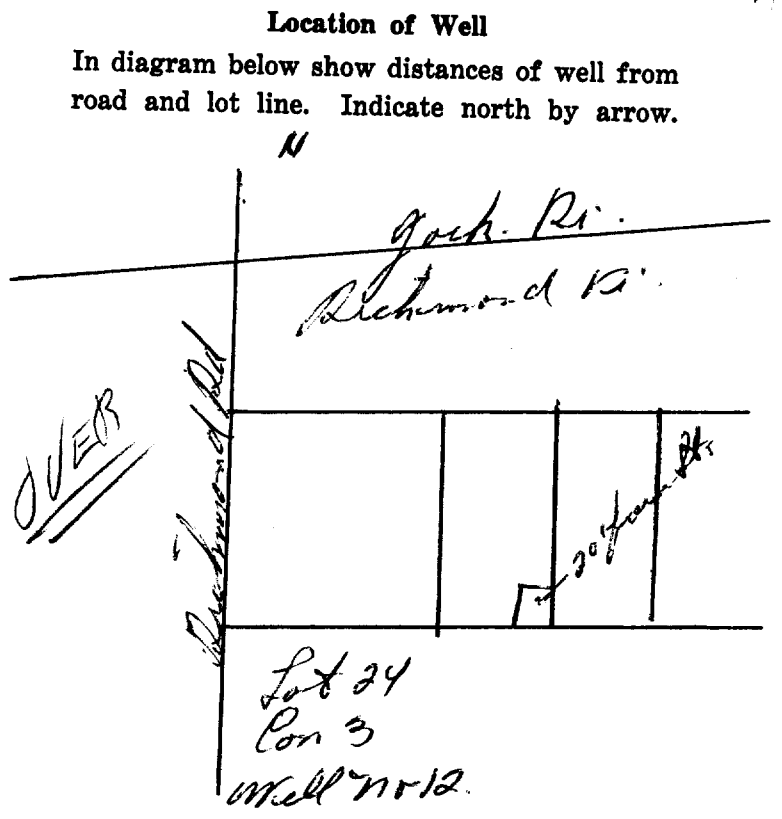
Static level 11'
 Pumping rate 250 G.P.H.
 Pumping level 12'
 Duration of test 1 hr.

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1'</u>	<u>28'</u>			
<u>Limestone</u>	<u>28'</u>	<u>51'</u>	<u>51'</u>	<u>40'</u>	<u>fresh</u>

For what purpose(s) is the water to be used?
home
 Is water clear or cloudy? clear
 Is well on upland, in valley, or on hillside? valley
 Drilling firm M. Meagher
 Address 39 Hawshawood Ave. Ottawa
 Name of Driller M. Meagher
 Address
 Licence Number 171
 I certify that the foregoing statements of fact are true.
 Date Sept 15 M. Meagher
 Signature of Licensee



310/af. 71

UTM ~~V~~ 82 434965 F

5R 5004105 N

Elev. 4R 0308

Basin 25



ONTARIO

The Water-well Drillers Act, 1954
Department of Mines



Water-Well Record

RICHMOND

County or Territorial District Peleton Township, Village, Town or City Southdown
Con. 3 Lot 24 Street and Number (if in Village, Town or City) Richmond
Owner Edna Mary Bldg. Ltd Address Richmond
Date completed Sept 16 57
(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 28'
Type of screen NONE
Length of screen

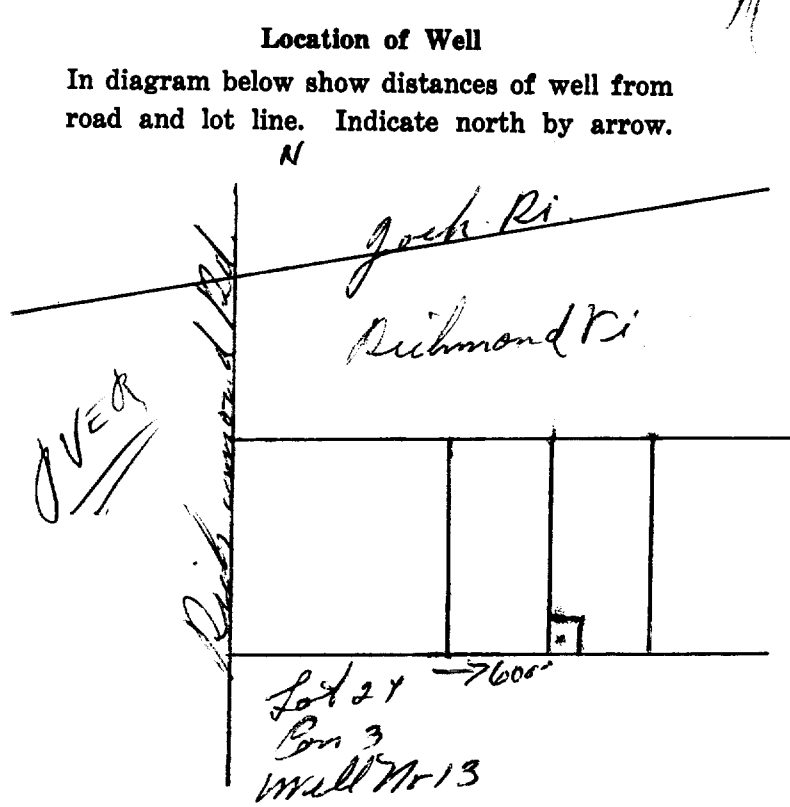
Static level 12'
Pumping rate 250 G.P.H.
Pumping level 13'
Duration of test 1 hr.

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1</u>	<u>28'</u>			
<u>Limestone</u>	<u>28</u>	<u>52'</u>	<u>53'</u>	<u>40'</u>	<u>fresh</u>

For what purpose(s) is the water to be used?
home
Is water clear or cloudy? clear
Is well on upland, in valley, or on hillside? valley
Drilling firm M. McLaughlin
Address 139 Woodwood Ave
Name of Driller M. McLaughlin
Address 139 Woodwood Ave
Licence Number 171
I certify that the foregoing statements of fact are true.
Date Sept 16 1957
Signature of Licensee



316/Af. "A"

UTM 18 2 435050 P

SR 5004185 N

Elev. 4R 0308

Basin 25



ONTARIO

GROUND WATER BRANCH
15 NOV 26 1997 63
ONTARIO WATER RESOURCES COMMISSION

The Water-well Drillers Act, 1954
Department of Mines

Water-Well Record

County or Territorial District Queleton Township, Village, Town or City Yapfdown
Con. 39 Lot 24 Street and Number (if in Village, Town or City) Richmond
Owner Elder Home Bldg Ltd Address Richmond
Date completed Sept 18 57
(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 28'
Type of screen NONE
Length of screen
Static level 12'
Pumping rate 240 G.P.M.
Pumping level 12'
Duration of test 1 hr.

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>Clay</u>	<u>1'</u>	<u>20'</u>			
<u>Limestone</u>	<u>28'</u>	<u>58'</u>	<u>58'</u>	<u>40'</u>	<u>fresh</u>

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

Is water clear or cloudy? clear

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

Drilling firm M. Magher

Address 639 Richmondwood Ave. Victoria

Name of Driller M. Magher

Address

Licence Number 171

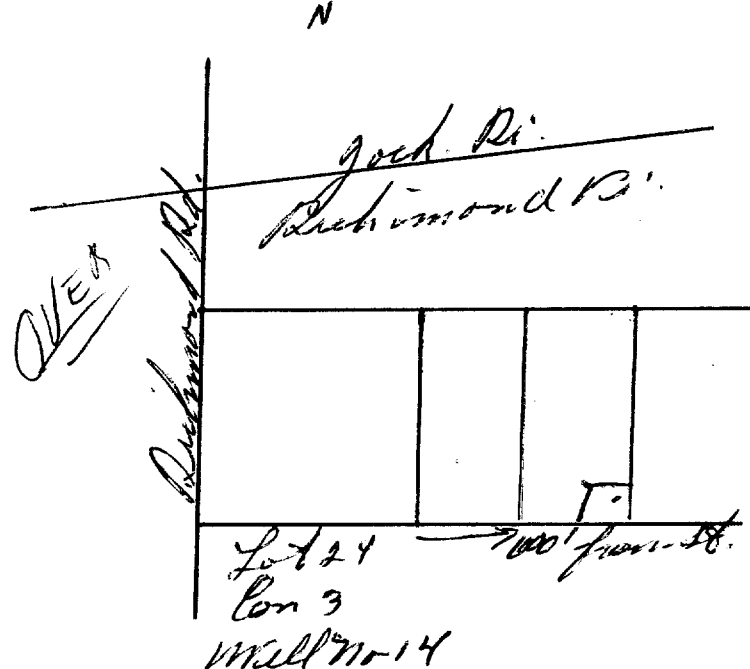
I certify that the foregoing statements of fact are true.

Date Sept 18 1957 M. Magher

Signature of Licensee

Location of Well

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



310/af "A"

1 8 2 4 3 5 1 4 5 P

5 R 5 0 0 3 8 0 0 N

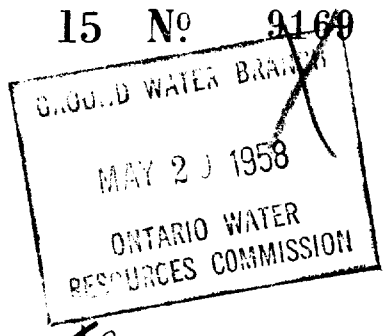
Elev. 4 R 0 3 0 8

Basin 2 5



ONTARIO

The Water-well Drillers Act, 1954
Department of Mines



Water-Well Record

County or Territorial District... CARLETON Township, Village, Town or City... Richmond Hill
In Village, Town or City... Richmond Hill
Address... Richmond Hill

(day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 4"
Length(s) 30'
Type of screen None
Length of screen

Static level Top "0"
Pumping rate 2.5 GPM
Pumping level 2'
Duration of test 1 hr

Well Log

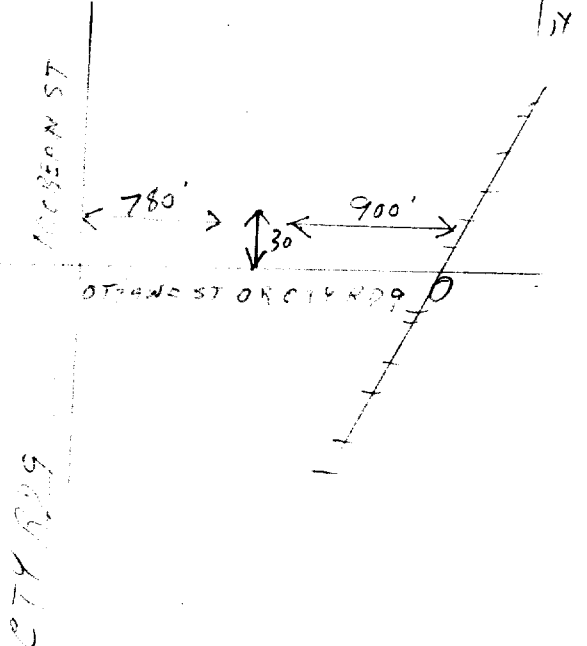
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
<u>CLAY BEDROCK</u>	<u>0</u>	<u>25</u>			
<u>HAARD</u>	<u>25</u>	<u>30</u>			
<u>SANDSTONE</u>	<u>30</u>	<u>47</u>	<u>35-45</u>	<u>1-2'</u>	<u>FRESH</u>

For what purpose(s) is the water to be used?
HOUSE
Is water clear or cloudy?..... Clear
Is well on upland, in valley, or on hillside?.....
Drilling firm S. J. ...
Address
Name of Driller
Address
Licence Number.....

Location of Well

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



I certify that the foregoing statements of fact are true.

Date..... 12/58 Signature of Licensee

UTM 182 434955

5R 5004120N

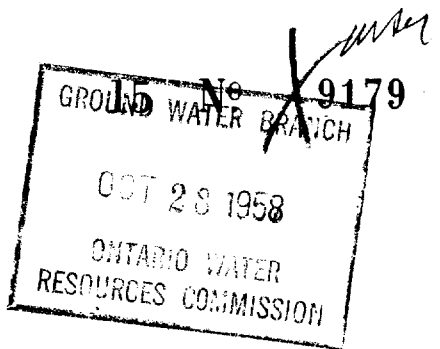
Elev. 4R 0308

Basin 25

316/4f. 'A'



The Water-well Drillers Act, 1954
Department of Mines



Water-Well Record

County or Territorial District Carleton Township, Village, Town or City Richmond
 Con. III Lot 25 Street and Number (if in Village, Town or City) Richmond Ont.
 Owner Coady Construction Address 212 Ellendale Crescent
 Date completed Sept. 17, 1958
 (day) (month) (year)

Pipe and Casing Record

Pumping Test

Casing diameter(s) 5" Static level 14 ft.
 Length(s) 21 ft. Pumping rate 300 gph
 Type of screen none Pumping level 21 ft.
 Length of screen Duration of test 1 hr

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water (s) found	No. of feet water rises	Kind of water (fresh, salty, or sulphur)
Clay	0	16			
limestone	16	27	71	57	fresh

For what purpose(s) is the water to be used?
house
 Is water clear or cloudy? clear
 Is well on upland, in valley, or on hillside? upland
 Drilling firm F.A. McLean & Son
 Address
 Name of Driller W. Kavanagh
 Address
 Licence Number.....
 I certify that the foregoing statements of fact are true.
 Date Sept. 30
 Signature of Licensee F.A. McLean

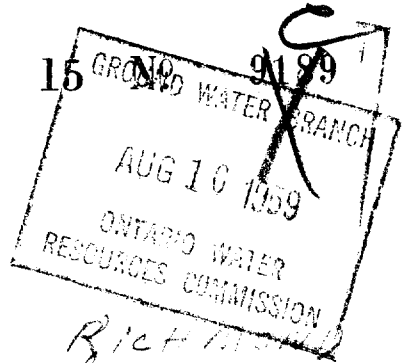
Location of Well
 In diagram below show distances of well from road and lot line. Indicate north by arrow.

ST

N

CSS.88

TIME 11:18 Z 413489 E P
 5 R 5003945 N
 Elev. 4 R 0308
 Basin 25



The Ontario Water Resources Commission Act, 1957

WATER WELL RECORD

County or District CHESTER Township, Village, Town or City Delaware
 completed 3 - 7 - 59
(day month year)
 Address ALUMPKAY ST.

Casing and Screen Record

Pumping Test

Inside diameter of casing.....	<u>2 inches</u>	Static level.....	<u>5 feet</u>
Total length of casing.....	<u>26 feet</u>	Test-pumping rate.....	<u>4</u> G.P.M.
Type of screen.....	<u>none</u>	Pumping level.....	<u>10 feet</u>
Length of screen.....	<u>none</u>	Duration of test pumping.....	<u>1/2 hr.</u>
Depth to top of screen.....	<u>none</u>	Water clear or cloudy at end of test.....	<u>clear</u>
Diameter of finished hole.....	<u>2 inches</u>	Recommended pumping rate.....	<u>20</u> G.P.M.
		with pumping level of.....	<u>18 feet</u>

Well Log

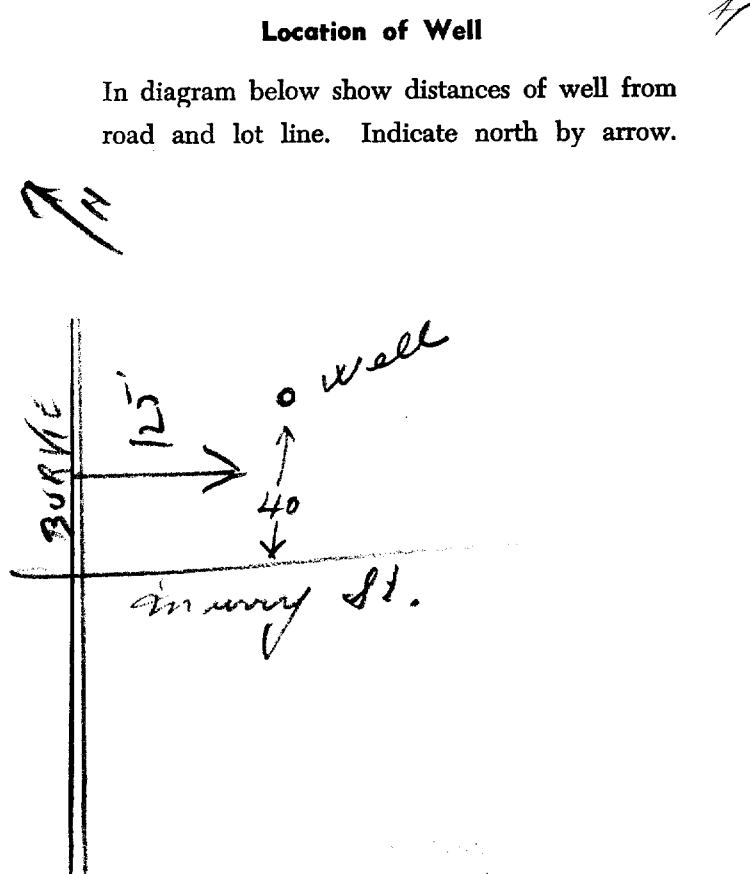
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
<u>CLAY</u>	<u>0</u>	<u>25</u>			
<u>Grey lime rock</u>	<u>25</u>	<u>44</u>	<u>44</u>	<u>39</u>	<u>fresh</u>

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

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

Drilling Firm Garcel Rosette
 Address 120 S. Main St. EASTAIRE DR. DIST.
 Licence Number 257
 Name of Driller James
 Address James
 Date 2/2/57
M. Rosette
(Signature of Licensed Drilling Contractor)



3164f. A'

UTM 18Z 435535F
5R 5004100N



15 No. 9235
GROUND WATER BRANCH
SEP 7 1960
RESOURCES COMMISSION

Elev. 4R 0300

The Ontario Water Resources Commission Act, 1957

Basin 25

WATER WELL RECORD

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

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

Casing and Screen Record

Pumping Test

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"

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 30ft.

Well Log

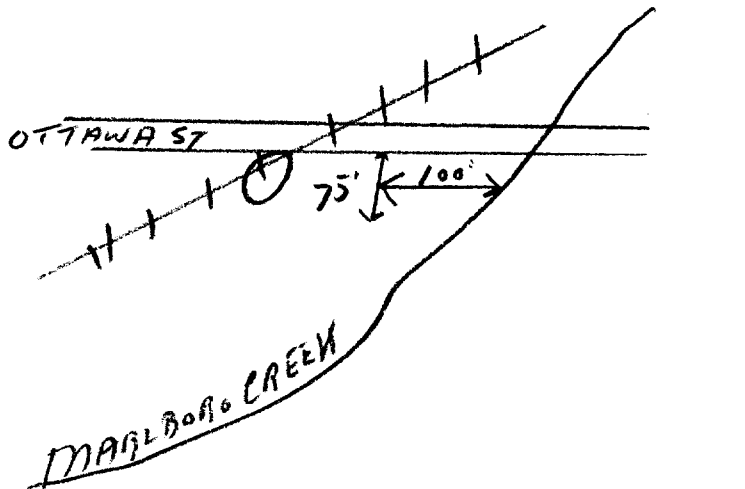
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	No. of feet water rises	Kind of water (fresh, salty, sulphur)
<u>clay</u>	<u>0</u>	<u>13</u>			
<u>broken limestone</u>	<u>13</u>	<u>20</u>			
<u>limestone</u>	<u>20</u>	<u>59</u>	<u>55</u>	<u>50</u>	<u>fresh</u>

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 Edwards
Address _____
Date Aug 23/60
Ben Edwards
(Signature of Licensed Drilling Contractor)

Location of Well

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



316/4f. 79"



GROUND WATER BRANCH
JUN 15 1962
9257
ONTARIO WATER RESOURCES COMMISSION

UTG 1 18 2 4 3 5 3 1 1 5 1 P

5 R 5 0 0 3 9 8 0 N

The Ontario Water Resources Commission Act

WATER WELL RECORD

Elev. 4 R 0 3 0 9

Basin 2 5
County or District

Township, Village, Town or City

Date completed 29 Mar 62
(day month year)

Address Richmond Ont

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 28.5'
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 4 15/16"

Pumping Test

Static level 8'
Test-pumping rate 10 G.P.M.
Pumping level 17'
Duration of test pumping 1/2 hr
Water clear or cloudy at end of test CLEAR
Recommended pumping rate 10 G.P.M.
with pump setting of 50' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

From ft.

To ft.

Depth(s) at which water(s) found

Kind of water (fresh, salty, sulphur)

sandy clay with boulders
blue limestone

0
23

23'
80

60'
76'
76'

fresh
"
"

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

household

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

upland

Drilling or Boring Firm

Capital Water

Address

1243 Nelson Rd
Ottawa Ont

Licence Number

482

Name of Driller or Borer

A Kavanagh

Address

Stittsville Ont

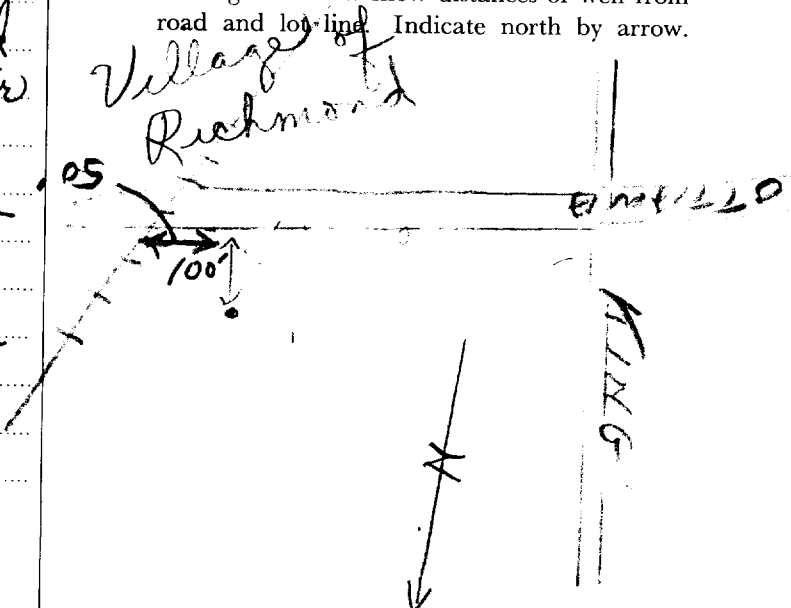
Date

Mar 29 1962

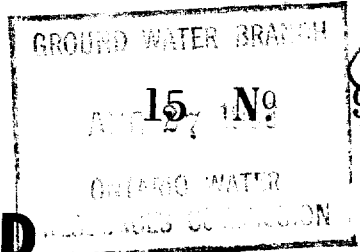
Walter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



31G/af. "A"



UTM 1182 4349151F

SR 5010411715N

The Ontario Water Resources Commission Act

Elev. 4R 03015

WATER WELL RECORD

Basin 25
County or District Carl

Township, Village, Town or City Richmond

Con. 111 Lot

Date completed 14 June 63
(day month year)

Address Richmond Ont

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 19'
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 5"

Pumping Test

Static level 5'
Test-pumping rate 10 G.P.M.
Pumping level 7
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 50 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>clay</u>	<u>0</u>	<u>16</u>	<u>40</u>	<u>fresh</u>
<u>blue limestone</u>	<u>16</u>	<u>64</u>	<u>62</u>	<u>"</u>

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

New household

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

Drilling or Boring Firm Capital Water Supply

Address 1243 Heron Rd
Ottawa

Licence Number 976

Name of Driller or Borer M Kavanagh

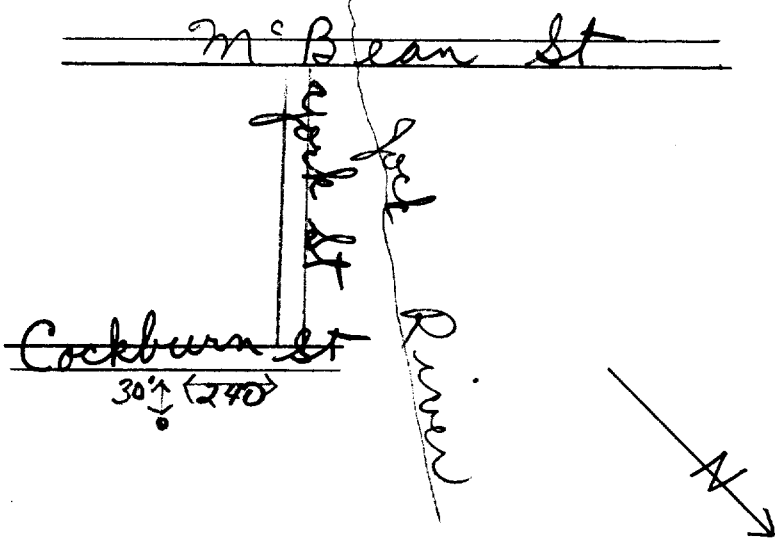
Address

Date 14 June 63

Walter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



314/47 7A



WATER RESOURCES DIVISION
15 No. 9291
JAN 19 1965
ONTARIO WATER RESOURCES COMMISSION

UTM 18Z 435090E

5R 5004130N The Ontario Water Resources Commission Act

Elev. 4R 0309

WATER WELL RECORD

Basin 25 Carl Township, Village, Town or City Richmond

County or District Date completed 16 Nov. 1964 (day month year)

Con Lot Address Metcalfe Ontario

Casing and Screen Record

Inside diameter of casing 5"

Total length of casing 23'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 5"

Pumping Test

Static level 18

Test-pumping rate 5 G.P.M.

Pumping level 30

Duration of test pumping 1hr.

Water clear or cloudy at end of test cloudy

Recommended pumping rate 5 G.P.M.

with pump setting of 50 feet below ground surface

Well Log

Overburden and Bedrock Record

clay	0	12	66	fresh
limestone	12	68		

Water Record

From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
0	12	66	fresh
12	68		

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

Address 1245 Heron Rd.,

Ottawa 735-0600

Licence Number 1223

Name of Driller or Borer M Kavanagh

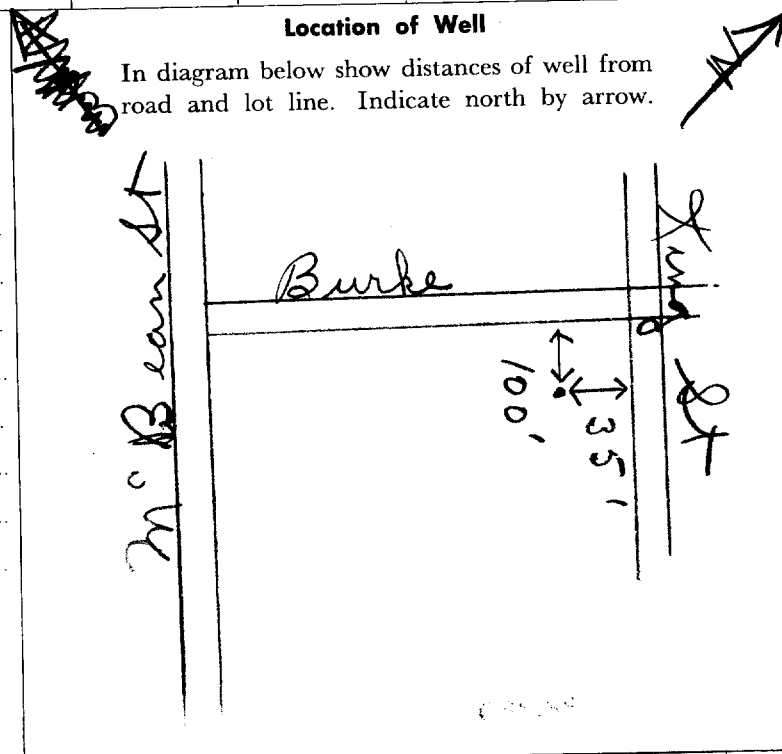
Address

Date Nov 17 1964

Walter Kavanagh (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



314/47 7A



WATER RESOURCES DIVISION
15 No. 9291
JAN 19 1965
ONTARIO WATER RESOURCES COMMISSION

UTM 18Z 435090E

5R 5004130N The Ontario Water Resources Commission Act

Elev. 4R 0309

WATER WELL RECORD

Basin 25 Carl Township, Village, Town or City Richmond

County or District Date completed 16 Nov. 1964 (day month year)

Con Lot Address Metcalfe Ontario

Casing and Screen Record

Inside diameter of casing 5"

Total length of casing 23'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 5"

Pumping Test

Static level 18

Test-pumping rate 5 G.P.M.

Pumping level 30

Duration of test pumping 1hr.

Water clear or cloudy at end of test cloudy

Recommended pumping rate 5 G.P.M.

with pump setting of 50 feet below ground surface

Well Log

Overburden and Bedrock Record

clay	0	12	66	fresh
limestone	12	68		

Water Record

From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
0	12	66	fresh
12	68		

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

Address 1245 Heron Rd.,

Ottawa 735-0600

Licence Number 1223

Name of Driller or Borer M Kavanagh

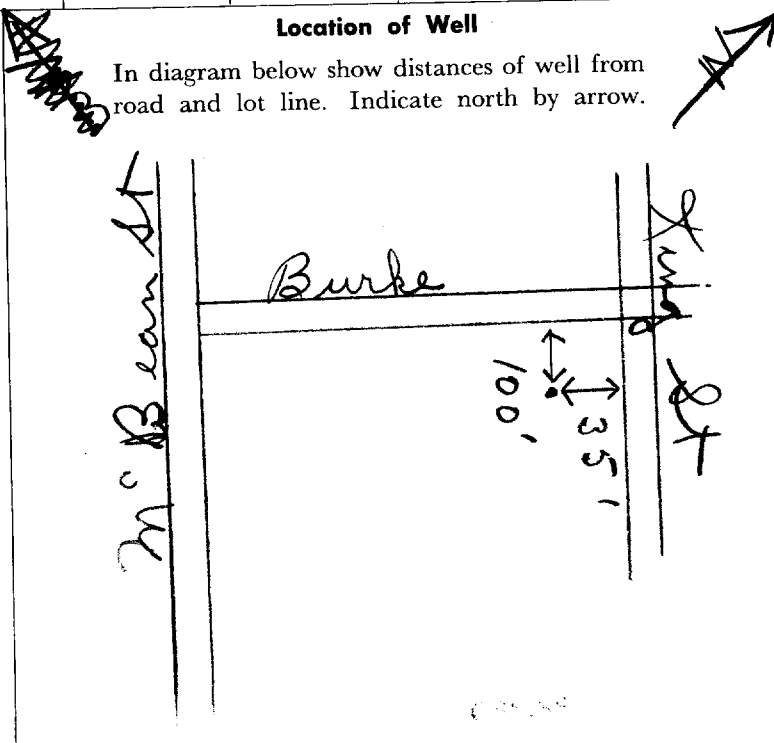
Address

Date Nov 17 1964

Walter Kavanagh (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



31G/af 7A



WATER RESOURCES DIVISION **15** No. **9303**

DEC 14 1966

UTM: 182 4352110P

5R 5004055N The Ontario Water Resources Commission Act

Elev. 4R 03110

WATER WELL RECORD

ONTARIO WATER RESOURCES COMMISSION

Basin 25 Carl
County or District

Township, Village, Town or City Richmond

Date completed 21 Oct 1966
(day) month year)

Con. Lot

Address Richmond Ont.

Casing and Screen Record

Pumping Test

Inside diameter of casing 5'
 Total length of casing 30'
 Type of screen
 Length of screen
 Depth to top of screen
 Diameter of finished hole 5"

Static level 18'
 Test-pumping rate 10 G.P.M.
 Pumping level 24'
 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 60' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>clay</u>	<u>0'</u>	<u>8'</u>	<u>73'</u>	<u>fresh</u>
<u>hardpan & boulders</u>	<u>8'</u>	<u>23'</u>		
<u>limestone</u>	<u>23'</u>	<u>75'</u>		

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

Address 14 Ashford Dr. Ottawa 6

Licence Number 2158

Name of Driller or Borer A Scott

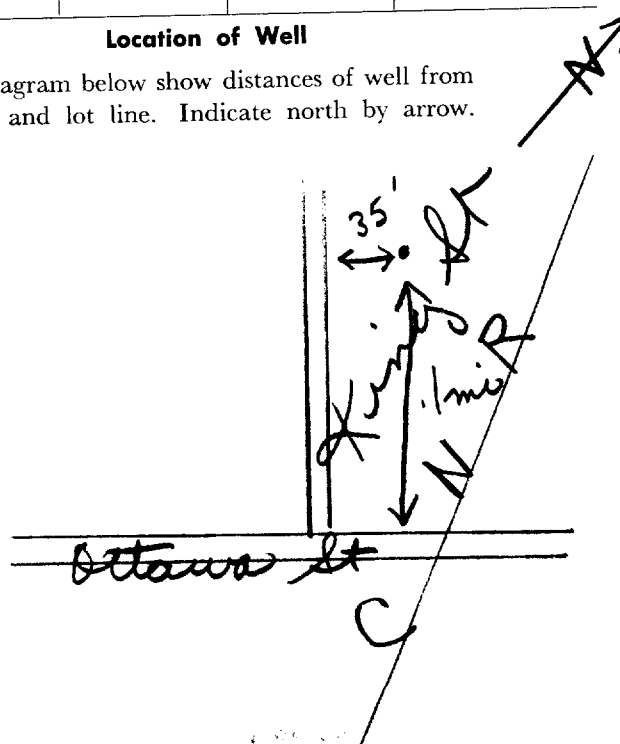
Address

Date Oct 21 1966

Walter Lavanagh
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



31G/4f "A"



WATER RESOURCES DIVISION
15 No 9311
SEP 19 1967
ONTARIO WATER RESOURCES COMMISSION

UTM 18Z 434910

5R 5004185

The Ontario Water Resources Commission Act

Elev. 4R 0305

WATER WELL RECORD

Basin 25 Carleton

Township, Village, Town or City Richmond

Con. Lot

Date completed 21 June 1967

Richmond Ont.

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 22'
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 5"

Pumping Test

Static level 5'
Test-pumping rate 10 G.P.M.
Pumping level 15'
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 30 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

clay
Boulders & gravel
limestone

From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
0'	14'	53	fresh
14	18		
18	55-		

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

new house

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

Drilling or Boring Firm Capital Water Supply Ltd

Address 14 Ashford Dr Ottawa 6

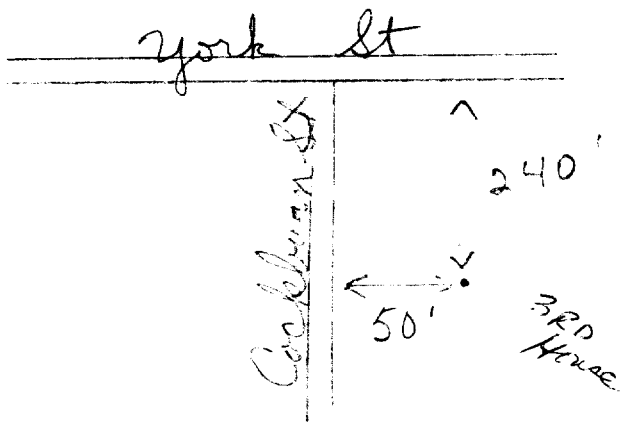
Licence Number 2381

Name of Driller or Borer M Kavanagh

Date June 21 1967
Shatter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



31G/af. "A"



WATER RESOURCES
DIVISION

15 No. 9315

SEP 13 1967

ONTARIO WATER
RESOURCES COMMISSION

UTM 18Z 435650

5R 5004130

The Ontario Water Resources Commission Act

Elev. 4R 03110

WATER WELL RECORD

Basin 215 | Carleton

Township, Village, Town or City Richmond

Date completed 25 Aug 1967

Con. Lot

Address 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 1.0 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

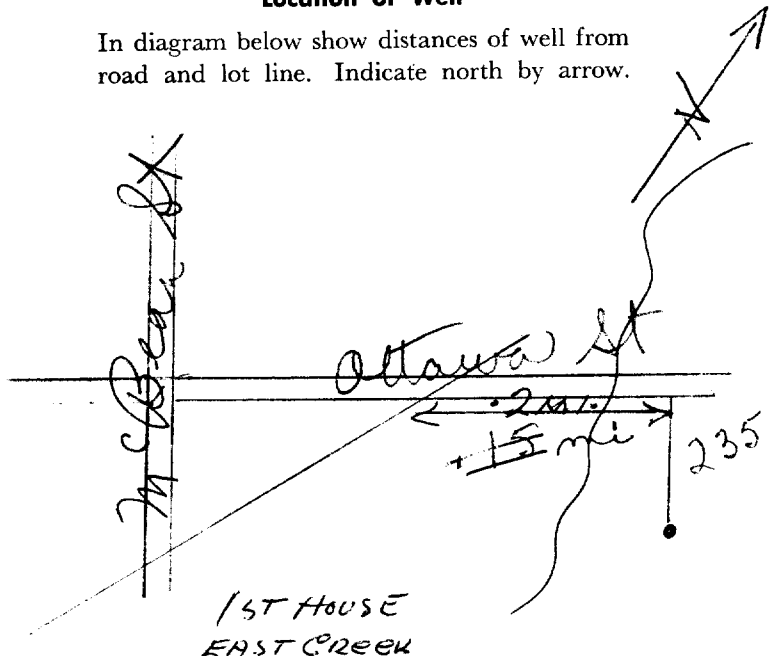
Date Aug 25 1967

Malter Kavanagh

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



Form 7 15M-60-4138

OWRC COPY



18-435110
4-50041101

CODED

1509776

WATER RESOURCES DIVISION
NOV 14 1968
ONTARIO WATER RESOURCES COMMISSION

18-435110
4-50041101
The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Carleton Township, Village, Town or City Rushford
Con. 711 Lot 23 Date completed 15 Oct 1968
(day month year)
Address Almonte Ont.

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 29'
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 5"

Pumping Test

Static level 9'
Test-pumping rate 10 G.P.M.
Pumping level 35
Duration of test pumping 1 hr
Water clear or cloudy at end of test
Recommended pumping rate 5 G.P.M.
with pump setting of 60 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
----------	--------	----------------------------------	---------------------------------------

<u>clay</u>	<u>0'</u>	<u>13'</u>	<u>83</u>	<u>fresh</u>
<u>limestone</u>	<u>13'</u>	<u>85'</u>		

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

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

Drilling or Boring Firm Capital Water Supply Ltd.

Address 14 Ashford Dr
Ottawa 6

Licence Number 2857

Name of Driller or Borer H Mains

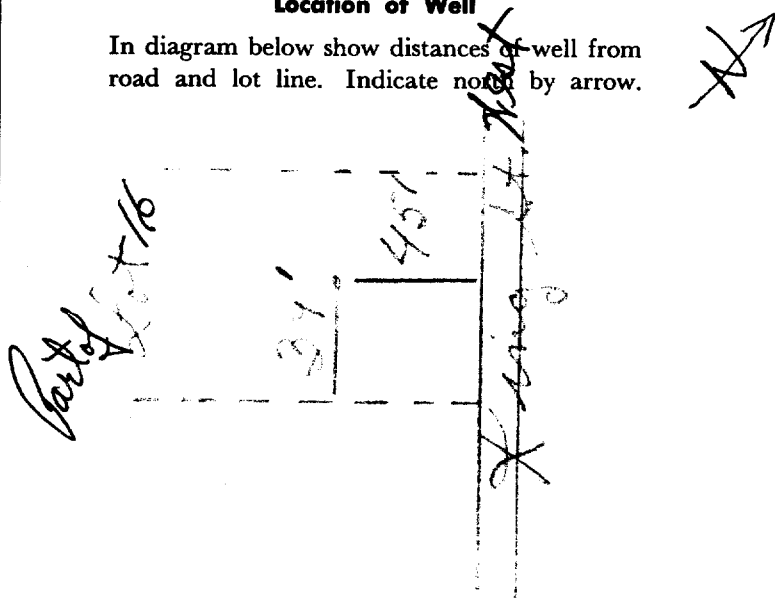
Address

Date 15 Oct 1968

Walter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



18 435 0815
 14 50 04 13 01
 0308



1509799

MAY 8 1968

The Ontario Water Resources Commission Act

WATER WELL RECORD

ONTARIO WATER RESOURCES COMMISSION

County or District Carleton Township, Village, Town or City Richmond
 Con. III Lot 24 Date completed 24 Apr 1968
 (day month year)
 Address Richmond Dnt

Casing and Screen Record

Inside diameter of casing 5"
 Total length of casing 23'
 Type of screen
 Length of screen
 Depth to top of screen
 Diameter of finished hole 5"

Pumping Test

Static level 5'
 Test-pumping rate 10 G.P.M.
 Pumping level 5'
 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 50 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>clay</u>	<u>0'</u>	<u>14'</u>	<u>69'</u>	<u>fresh</u>
<u>sand & boulders</u>	<u>14'</u>	<u>19'</u>		
<u>limestone</u>	<u>19'</u>	<u>70'</u>		

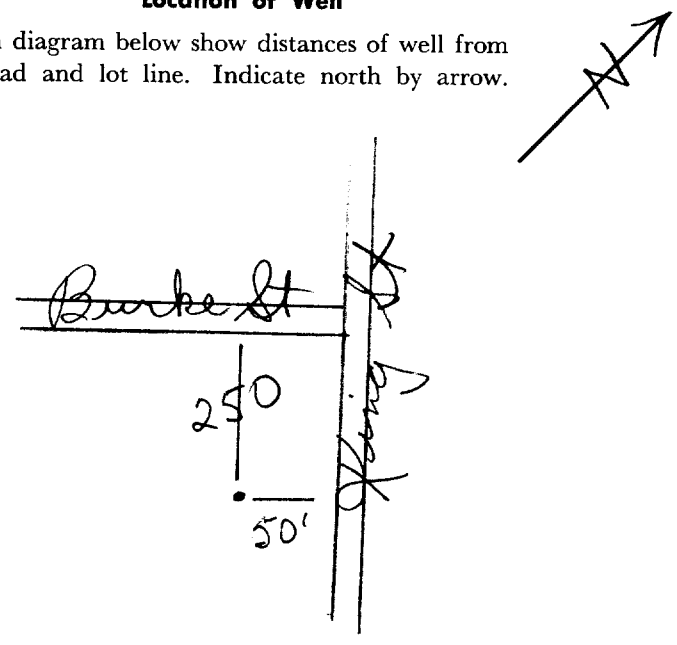
Water Record

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

Is well on upland, in valley or on hillside?
 Drilling or Boring Firm Capital Water Supply Ltd
 Address 14 Ashford Dr
Ottawa 6
 Licence Number 2857
 Name of Driller or Borer B. Acres
 Address
 Date Apr 26 1968
Shalter Lavanagh
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



STN. 18 435 015
 48 5004 215
 Elev. 0306
 25



1509800
 3

WATER RESOURCES
 DIVISION
 MAY 8 1968
 ONTARIO WATER
 RESOURCES COMMISSION

B

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Carleton Township, Village, Town or City Richmond
 Con. 14 Lot 24 Date completed 29 Apr 1968
 (day month year)
 Address Richmond Ont.

Casing and Screen Record

Inside diameter of casing 5"
 Total length of casing 22'
 Type of screen
 Length of screen
 Depth to top of screen
 Diameter of finished hole 5"

Pumping Test

Static level 6'
 Test-pumping rate 10 G.P.M.
 Pumping level 14'
 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 30 feet below ground surface

Well Log

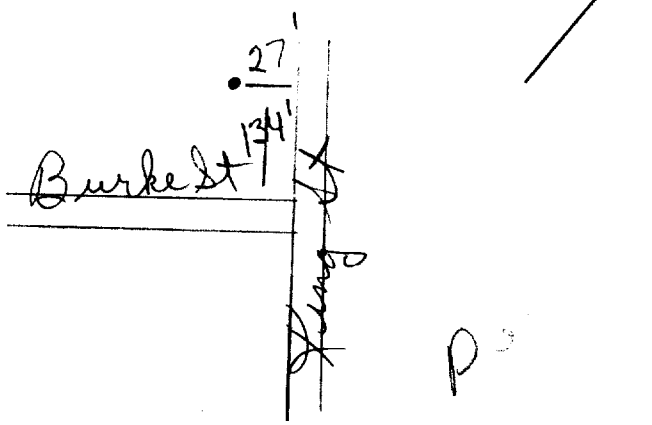
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>clay</u>	<u>0'</u>	<u>15'</u>	<u>58'</u>	<u>fresh</u>
<u>sand & boulders</u>	<u>15'</u>	<u>17'</u>		
<u>limestone</u>	<u>17</u>	<u>60</u>		

For what purpose(s) is the water to be used?
new house
 Is well on upland, in valley, or on hillside?
 Drilling or Boring Firm Capital Water Supply Ltd
 Address 14 Ashford Dr
Ottawa 6
 Licence Number 2857
 Name of Driller or Borer B Acres
 Address
 Date Apr 29 1968
Thaler Kavanagh
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



18-4341980
 4504260
 4-03051
 25



316/4f
 1510028
 3 9

DIVISION OF WATER RESOURCES
 MAY 5 1969
 ONTARIO WATER RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Stittsville Township York Village, Town or City Stittsville
 Con. T/L Lot 23 Date completed 3 10 68
 (day month year)
 Address Richmond Ont.

Casing and Screen Record

Inside diameter of casing 4"
 Total length of casing 17'
 Type of screen well
 Length of screen 17'
 Depth to top of screen 4"
 Diameter of finished hole 4"

Pumping Test

Static level 10
 Test-pumping rate 5 G.P.M.
 Pumping level 13
 Duration of test pumping 2 hrs
 Water clear or cloudy at end of test clear
 Recommended pumping rate 5 G.P.M.
 with pump setting of 25 feet below ground surface

Well Log

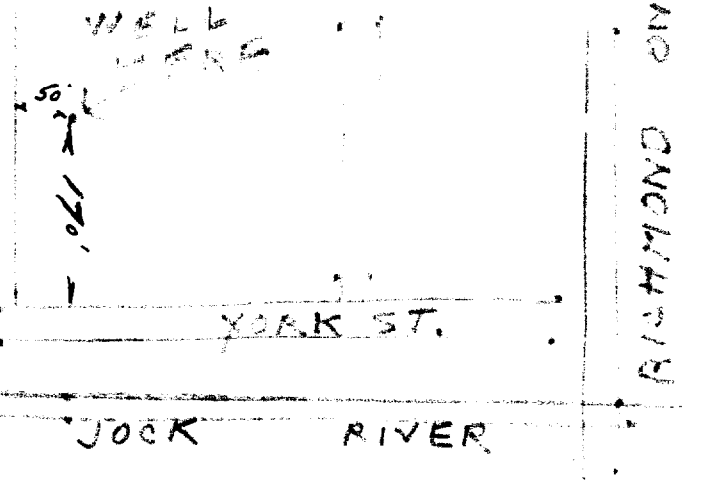
Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Blue clay</u>	<u>0</u>	<u>15</u>		
<u>gravel</u>	<u>15</u>	<u>17</u>		
<u>grey limestone cack</u>	<u>17</u>	<u>20</u>	<u>40-60</u>	<u>fresh</u>

For what purpose(s) is the water to be used? new house
 Is well on upland, in valley, or on hillside? valley
 Drilling or Boring Firm Le. H. Sparks
100 main st.
 Address Stittsville Ont.
 Licence Number 3140
 Name of Driller or Borer Rayton H. Sparks
 Address 100 main st. Stittsville
 Date Oct. 3 1968
Rayton H. Sparks
 (Signature of Licensed Drilling or Boring Contractor)

Location of Well

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



1 8 2 4 1 4 8 3 0
 4 R 5 0 2 9 4 1 1 0
 5 R 0 3 6 5
 2 5



1510026
31F/8E

DIVISION OF
 WATER RESOURCES
 MAY 5 1969
 ONTARIO WATER
 RESOURCES COMMISSION

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Carleton Township, Village, Town or City Jitzroy
 Con. 12 Lot 546 Date completed 23 JAN 1969
 (day month year)
 Address 255 Melville St. Apt 3169

Casing and Screen Record

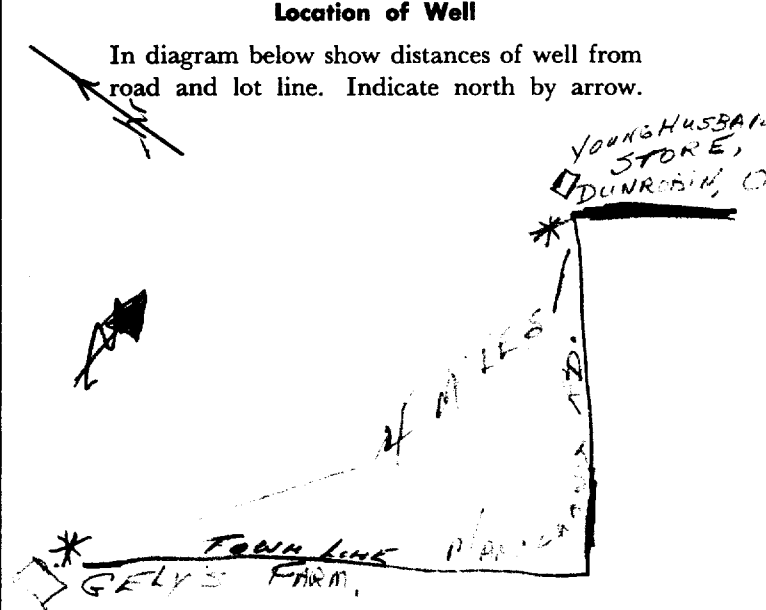
Inside diameter of casing 2"
 Total length of casing 22'
 Type of screen -
 Length of screen -
 Depth to top of screen -
 Diameter of finished hole 2"

Pumping Test

Static level 8'
 Test-pumping rate 300 GAL PER HR. G.P.M.
 Pumping level 22'
 Duration of test pumping 2 HRS.
 Water clear or cloudy at end of test CLEAR
 Recommended pumping rate 300 GAL PER HR. G.P.M.
 with pump setting of 22' feet below ground surface

Well Log			Water Record	
Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>SAND.</u>	<u>0</u>	<u>11</u>		
<u>BLACK GRANITE</u>	<u>11</u>	<u>88'</u>	<u>88'</u>	<u>FRESH</u>

For what purpose(s) is the water to be used? HOUSE
 Is well on upland, in valley, or on hillside? HILLSIDE
 Drilling or Boring Firm W. A. DEEVY
 Address 2898 HAUGHTON ST.
OTTAWA 14 ONT
 Licence Number _____
 Name of Driller or Borer W. A. DEEVY
 Address 2898 HAUGHTON ST
 Date JANUARY 23 1969
W. A. Deevy
 (Signature of Licensed Drilling or Boring Contractor)



WTM 18 2 4 3 5 1 4 0



316/4F

1510064

4 0 5 0 0 4 0 4 0

Water management in Ontario

The Ontario Water Resources Commission Act

ev 5 R 0 1 3 1 5

WATER WELL RECORD

County or District Carl

112 Lot 34

DIVISION OF WATER RESOURCES

Township, Village, Town or City Richmond

Date completed 14 Apr. 1969
(day month year)

Address 218 Monterey Dr Ottawa

ONTARIO WATER RESOURCES COMMISSION

Casing and Screen Record

Inside diameter of casing 5"
Total length of casing 38'
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 5"

Pumping Test

Static level 15'
Test-pumping rate 10 G.P.M.
Pumping level 20'
Duration of test pumping 1 hr
Water clear or cloudy at end of test
Recommended pumping rate 5 G.P.M.
with pump setting of 50 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>clay</u>	<u>0</u>	<u>15'</u>	<u>84'</u>	
<u>sandy gravel with boulders</u>	<u>15'</u>	<u>29'</u>		
<u>limestone</u>	<u>29'</u>	<u>85'</u>		

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

Is well on upland, in valley or on hillside?

Drilling or Boring Firm Capital Water Supply Ltd.

Address 14 Ashford Dr Ottawa 6

Licence Number 3216

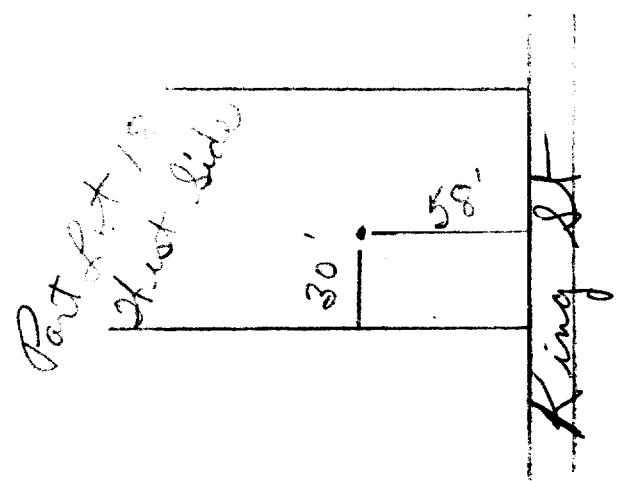
Name of Driller or Borer M. Kavanagh

Date Apr 14 1969

Halter Kavanagh
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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





The Ontario Water Resources Commission Act

WATER WELL RECORD

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

11 1510301 1517011

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond CON., BLOCK, TRACT, SURVEY, ETC.: Ottawa St. LOT: 219

DATE COMPLETED: DAY 14 MO. 10 YR. 69

NG: 093750 RC: 4 ELEVATION: 0308 RC: 4 BASIN CODE: 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>brown</u>	<u>clay</u>	<u>stones</u>		<u>0</u>	<u>21</u>
<u>grey</u>	<u>limstone</u>			<u>21</u>	<u>71</u>

31 0021/0051/2 0071/25

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
<u>0070</u>	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>05</u>	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	<u>244</u>	<u>0</u>	<u>0024</u>
	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE			<u>0071</u>
	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.): 31-33 DIAMETER: 34-38 LENGTH: 39-40

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: 41-44 80

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: PUMP BAILER

PUMPING RATE: 0004 GPM. DURATION OF PUMPING: 01 HOURS 00 MINS.

STATIC LEVEL: 009 FEET WATER LEVEL END OF PUMPING: 030 FEET

WATER LEVELS DURING:

15 MINUTES: <u>050</u>	30 MINUTES: <u>060</u>	45 MINUTES: <u>060</u>	60 MINUTES: <u>060</u>
------------------------	------------------------	------------------------	------------------------

IF FLOWING, GIVE RATE: _____ GPM. PUMP INTAKE SET AT: _____ FEET WATER AT END OF TEST: _____ FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 065 FEET

RECOMMENDED PUMPING RATE: 0004 GPM.

50-53: 000.2 GPM./FT. SPECIFIC CAPACITY

LOCATION OF WELL

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

DRILLERS REMARKS:

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR: Henny Mairs Well Drilling LICENCE NUMBER: 3520

ADDRESS: Box 326, Richmond Ont

NAME OF DRILLER OR BORER: Henny Mairs LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: Henny Mairs SUBMISSION DATE: DAY 27 MO. Oct YR. 69

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 101269

DATE OF INSPECTION: _____ INSPECTOR: Phillip P.P.

REMARKS:



The Ontario Water Resources Commission Act WATER WELL RECORD

319/4F

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

11

1510409

MUNICIP. 15701

CON. 10 14 15 22 23 24

COUNTY OR DISTRICT: Carl TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond CON., BLOCK, TRACT, SURVEY, ETC.: _____ LOT 25-27: _____

OWNER (SURNAME FIRST): Star Quality Homes ADDRESS: Stittsville Ont. DATE COMPLETED: DAY 13 MO. 10 YR. 69

U ZONE: 18 EASTING: 235020 NORTHING: 5004180 RC: 4 ELEVATION: 0315 RC: 5 BASIN CODE: 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>brown</u>	<u>clay</u>	<u>boulders</u>	<u>packed</u>	<u>0'</u>	<u>18'</u>
<u>grey</u>	<u>limestone</u>		<u>hard</u>	<u>18</u>	<u>60</u>

31 001860513 9060215

32 _____

41 WATER RECORD

WATER FOUND FEET	KIND OF WATER
<u>0058</u> 10-13	<input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>04</u>	<input checked="" type="checkbox"/> STEEL	<u>214</u>	<u>0</u>	<u>20</u>
<u>06</u>	<input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input checked="" type="checkbox"/> OPEN HOLE		<u>20</u>	<u>60</u>
<u>17-18</u>	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input checked="" type="checkbox"/> OPEN HOLE			<u>20-23</u>
<u>24-25</u>	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE			<u>27-30</u>

SCREEN

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

MATERIAL AND TYPE _____ DEPTH TO TOP OF SCREEN _____ FEET

61 PLUGGING & SEALING RECORD

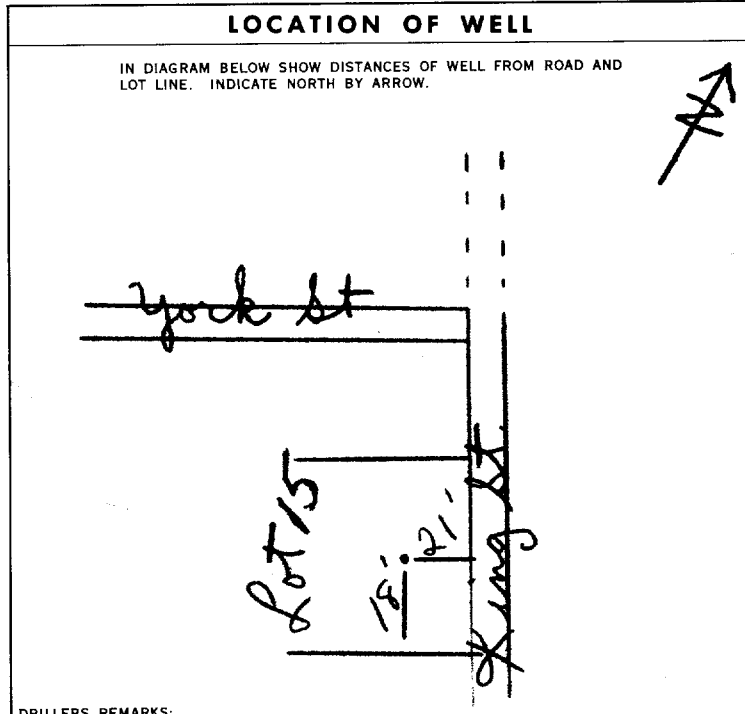
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
<u>10-13</u>	<u>14-17</u>	
<u>18-21</u>	<u>22-25</u>	
<u>26-29</u>	<u>30-33</u>	

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
<input type="checkbox"/> PUMP <input checked="" type="checkbox"/> BAILER	<u>0010</u> GPM.	<u>01</u> HOURS <u>00</u> MINS.
STATIC LEVEL	WATER LEVELS DURING	
<u>011</u> FEET	<u>013</u> FEET	<u>013</u> FEET
<u>013</u> FEET	<u>013</u> FEET	<u>013</u> FEET
<u>013</u> FEET	<u>013</u> FEET	<u>013</u> FEET
<u>013</u> FEET	<u>013</u> FEET	<u>013</u> FEET

IF FLOWING, GIVE RATE _____ PUMP INTAKE SET AT _____ FEET WATER AT END OF TEST _____ FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP RECOMMENDED PUMP SETTING: 030 FEET RECOMMENDED PUMPING RATE: 0005 GPM.



FINAL STATUS OF WELL

WATER SUPPLY ABANDONED, INSUFFICIENT SUPPLY
 OBSERVATION WELL ABANDONED, POOR QUALITY
 TEST HOLE UNFINISHED
 RECHARGE WELL

WATER USE

DOMESTIC COMMERCIAL
 STOCK MUNICIPAL
 IRRIGATION PUBLIC SUPPLY
 INDUSTRIAL COOLING OR AIR CONDITIONING
 OTHER NOT USED

METHOD OF DRILLING

CABLE TOOL BORING
 ROTARY (CONVENTIONAL) DIAMOND
 ROTARY (REVERSE) JETTING
 ROTARY (AIR) DRIVING
 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: Capital Water Supply LICENCE NUMBER: 3216
ADDRESS: 14 Ashford Dr Ottawa
NAME OF DRILLER OR BOPER: W Lavinagh LICENCE NUMBER: _____
SIGNATURE OF CONTRACTOR: Walter Lavinagh SUBMISSION DATE: _____
DAY _____ MO. _____ YR. _____

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 1503 DATE RECEIVED: 291269
DATE OF INSPECTION: _____ INSPECTOR: RD
REMARKS: _____



WATER WELL RECORD

316/4F

1510411

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

11

MUNICIP.

15701

CON.

COUNTY OR DISTRICT Carl	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Richmond	CON., BLOCK, TRACT, SURVEY, ETC.	LOT 25-27
OWNER (SURNAME FIRST) Star Quality Homes	ADDRESS Stittville Ont	DATE COMPLETED DAY 15 MO. 10 YR. 69	
21	ZONE U 118 T 10	EASTING 435030	NORTHING 5004288
	RC. 4	ELEVATION 0315	RC. 5
		BASIN CODE 25	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
brown	clay	boulders	packed	0	17'
grey	limestone		hard	17	58

31	001709513	0058215
32		

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13 0058	1 <input checked="" type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 2 <input type="checkbox"/> SALTY 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

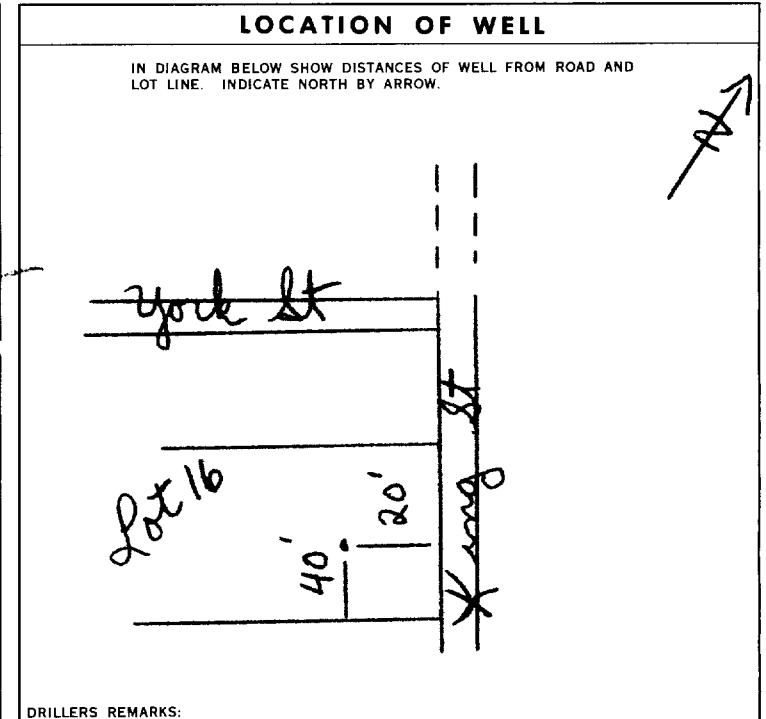
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
5.8	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0	0021
05	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		21	58
05	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE			0058

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

1 <input type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> BAILER	10 PUMPING RATE 0010 GPM.	11-14 DURATION OF PUMPING 15-16 HOURS 01 17-18 MINS. 00
STATIC LEVEL 008 FEET	WATER LEVEL END OF PUMPING 012 FEET	WATER LEVELS DURING 15 MINUTES 012 FEET 30 MINUTES 012 FEET 45 MINUTES 012 FEET 60 MINUTES 012 FEET
IF FLOWING, GIVE RATE	38-41 PUMP INTAKE SET AT	42 WATER AT END OF TEST 1 <input type="checkbox"/> CLEAR 2 <input checked="" type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE 1 <input checked="" type="checkbox"/> SHALLOW 2 <input type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 030 FEET	43-45 RECOMMENDED PUMPING RATE 0005 GPM.



FINAL STATUS OF WELL

54 1 WATER SUPPLY
2 OBSERVATION WELL
3 TEST HOLE
4 RECHARGE WELL
5 ABANDONED, INSUFFICIENT SUPPLY
6 ABANDONED, POOR QUALITY
7 UNFINISHED

WATER USE

55-56 1 DOMESTIC
2 STOCK
3 IRRIGATION
4 INDUSTRIAL
5 COMMERCIAL
6 MUNICIPAL
7 PUBLIC SUPPLY
8 COOLING OR AIR CONDITIONING
9 NOT USED

METHOD OF DRILLING

57 1 CABLE TOOL
2 ROTARY (CONVENTIONAL)
3 ROTARY (REVERSE)
4 ROTARY (AIR)
5 AIR PERCUSSION
6 BORING
7 DIAMOND
8 JETTING
9 DRIVING

CONTRACTOR

NAME OF WELL CONTRACTOR: **Capital Water Supply** LICENCE NUMBER: **3216**
ADDRESS: **14 Ashford Dr Ottawa**
NAME OF DRILLER OR BORER: **Maurice** LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: **Walter Lavanagh** SUBMISSION DATE: MO. YR.

OFFICE USE ONLY

58 CONTRACTOR: **1503** 59-62 DATE RECEIVED: **291269** 63-68
DATA SOURCE: **1**
DATE OF INSPECTION: INSPECTOR: **[Signature]**
REMARKS:



COD ED

The Ontario Water Resources Commission Act

31648

WATER WELL RECORD

Water management in Ontario

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

COD ED 1510783

MUNICIP. _____ CON. _____

COUNTY OR DISTRICT: **CARLETON** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **Richmond**

OWNER (SURNAME FIRST): **Judicial Constr. Ltd.** ADDRESS: **Richmond Ont** DATE COMPLETED: **48-53**

DAY: **9** MO: **10** YR: **70**

ZONE: **1B** EASTING: **434985** NORTHING: **604330** RC: **4** ELEVATION: **0308** RC: **4** BASIN CODE: **25**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	CLAY	SAND & STONES	PACKED	0	8
GREY	CLAY	BOULDERS	PACKED	8	12
GREY	LIMESTONE		HARD	12	55
BLACK	LIMESTON		HARD	55	65
grey	limestone		hard	65	207
grey	sandstone		hard	207	217

31 _____ 32 _____

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
120	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> SALTY	<input type="checkbox"/> MINERAL
216	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> SALTY	<input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
8 7/8	<input checked="" type="checkbox"/> STEEL	188	0	65
8	<input checked="" type="checkbox"/> OPEN HOLE		65	217

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	
18-21	
26-29	

71 PUMPING TEST

PUMPING TEST METHOD: PUMP BAILER

PUMPING RATE: _____ GPM.

DURATION OF PUMPING: _____ HOURS _____ MINS.

STATIC LEVEL: _____ FEET

WATER LEVEL END OF PUMPING: _____ FEET

WATER LEVELS DURING PUMPING:

15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
_____ FEET	_____ FEET	_____ FEET	_____ FEET

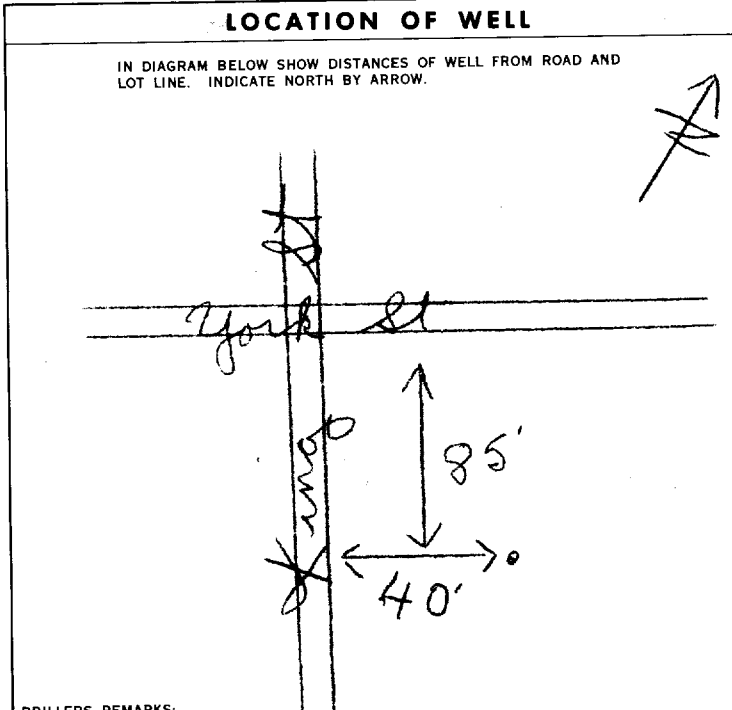
IF FLOWING, GIVE RATE: _____ GPM.

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: **200** FEET

WATER AT END OF TEST: _____ FEET

RECOMMENDED PUMPING RATE: _____ GPM.



FINAL STATUS OF WELL

WATER SUPPLY ABANDONED, INSUFFICIENT SUPPLY

OBSERVATION WELL ABANDONED, POOR QUALITY

TEST HOLE UNFINISHED

RECHARGE WELL

WATER USE

DOMESTIC COMMERCIAL

STOCK MUNICIPAL

IRRIGATION PUBLIC SUPPLY

INDUSTRIAL COOLING OR AIR CONDITIONING

OTHER NOT USED

METHOD OF DRILLING

CABLE TOOL BORING

ROTARY (CONVENTIONAL) DIAMOND

ROTARY (REVERSE) JETTING

ROTARY (AIR) DRIVING

AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: **Capital Water Supply** LICENCE NUMBER: **1558**

ADDRESS: **14 Ashford Dr Ottawa**

NAME OF DRILLER OR BUILDER: **Mauro H Kavanagh** LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: _____ SUBMISSION DATE: _____

DAY: _____ MO: _____ YR: _____

OFFICE USE ONLY

DATA SOURCE: _____ CONTRACTOR: _____ DATE RECEIVED: **230271**

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

P Jm
W Jh



WATER WELL RECORD

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED

2. CHECK CORRECT BOX WHERE APPLICABLE

11

1510923

MUNICIP. 15701

CON.

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond CON., BLOCK, TRACT, SURVEY, ETC.: King St LOT: 6

OWNER (SURNAME FIRST): Julia Construction ADDRESS: Richmond Ont. DATE COMPLETED: DAY 20 MO. SEP YR. 70

ZONE: 18 EASTING: 434945 NORTHING: 5004290 RC: 4 ELEVATION: 0305 RC: 4 BASIN CODE: 25

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>brown</u>	<u>clay</u>	<u>stones</u>		<u>0</u>	<u>14</u>
<u>grey</u>	<u>limestone</u>			<u>14</u>	<u>55</u>

31 001400512 0053215

32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	<input checked="" type="checkbox"/> STEEL		<u>0</u>	<u>20</u>
17-18	<input checked="" type="checkbox"/> GALVANIZED	<u>188</u>	<u>0</u>	<u>2020</u>
24-25	<input checked="" type="checkbox"/> OPEN HOLE			<u>0055</u>

SCREEN

SIZE(S) OF OPENING (SLOT NO.):

DIAMETER: 31-33 INCHES

LENGTH: 34-38 FEET

MATERIAL AND TYPE: 41-44

DEPTH TO TOP OF SCREEN: 45-50 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10-13	
18-21	
26-29	

71 PUMPING TEST

PUMPING TEST METHOD: PUMP BAILER

PUMPING RATE: 0010 GPM

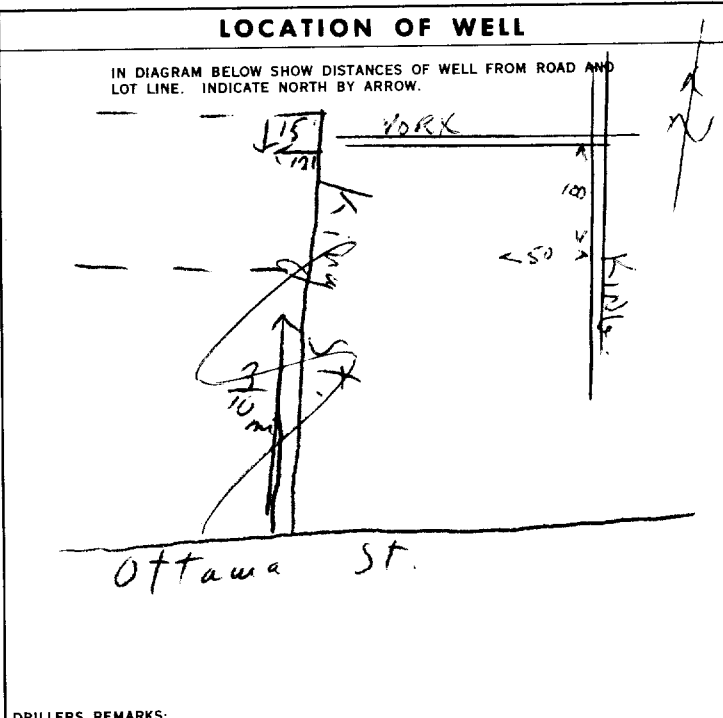
DURATION OF PUMPING: 01 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
<u>006</u>	<u>020</u>	15 MINUTES: <u>006</u>	30 MINUTES: <u>006</u>	45 MINUTES: <u>006</u>	60 MINUTES: <u>006</u>

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 025 FEET

RECOMMENDED PUMPING RATE: 0010 GPM.



FINAL STATUS OF WELL

WATER SUPPLY

WATER USE

01 DOMESTIC

METHOD OF DRILLING

CABLE TOOL

CONTRACTOR: Henry Mains Well Drilling LICENCE NUMBER: 3644

ADDRESS: Box 326, Richmond Ont.

NAME OF DRILLER OR BORER: Barry Acres LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: Henry Mains SUBMISSION DATE: DAY 30 MO. PT YR. 70

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 201170

DATE OF INSPECTION: INSPECTOR: R/K

REMARKS:

1 8 2 4 3 5 2 2 0
 4 R 5 0 0 3 8 5 0
 EB 0 3 0 5
 2 5



1510997 31614f B

The Ontario Water Resources Commission Act
WATER WELL RECORD

County or District Grenville CARLETON Township, Village, Town or City Oxford Richmond
 Con. TLL Lot 234 Date completed 14th June 1968
 (day month year)
 Address Kemptville, Ont.

Casing and Screen Record

Inside diameter of casing 6 3/16
 Total length of casing 29
 Type of screen -
 Length of screen -
 Depth to top of screen -
 Diameter of finished hole 6

Pumping Test

Static level 4
 Test-pumping rate 200 GPH GPM
 Pumping level 24
 Duration of test pumping 1/2 hr.
 Water clear or cloudy at end of test clear
 Recommended pumping rate 3 G.P.M.
 with pump setting of 100 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>clay, sand, gravel mix</u>	<u>0</u>	<u>26</u>	<u>100</u>	<u>fresh</u>
<u>limestone</u>	<u>26</u>	<u>104</u>		

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

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

Drilling or Boring Firm J.B. DUFRESNE & CO. LIMITED

Address 1014 Maitland Ave.,
Ottawa 5, Ont.

Licence Number 2999

Name of Driller or Borer R. Laniel

Address 6 Bellevue Cr. - Lucerne, Que.

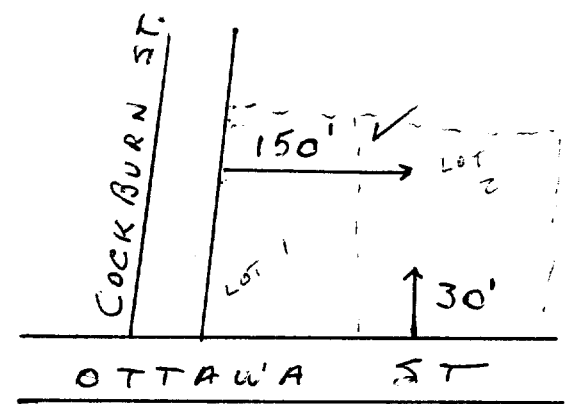
Date June 14th 1968

R. Laniel
 (Signature of Licensed Drilling or Boring Contractor)
 for: J.B. Dufresne & Co. Limited

Form 7 5M 60-20912

Location of Well

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



VILLAGE OF RICHMOND

p/km
 LC/km

CS9.S8

OWRC COPY



2401870

316/4f B

1511083

1 8 2 4 3 5 1 9 0

4 5 0 0 3 8 4 0

5 R 0 3 0 5

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Grenville CARLETON Township, Village, Town or City Oxford Richmond

Con. T/L Lot + 24 Date completed 14th June 1968
(day month year)

Address Kemptville, Ont.

Casing and Screen Record

Inside diameter of casing 6 3/16

Total length of casing 29

Type of screen -

Length of screen -

Depth to top of screen -

Diameter of finished hole 6

Pumping Test

Static level 10

Test-pumping rate 150 GPH XXXX

Pumping level 35

Duration of test pumping 1/2 hr.

Water clear or cloudy at end of test clear

Recommended pumping rate 2 G.P.M.
with pump setting of 78 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Clay, sand, gravel mix</u>	<u>0</u>	<u>26</u>	<u>35-68</u>	<u>fresh</u>
<u>limestone</u>	<u>26</u>	<u>80</u>		

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

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

Drilling or Boring Firm

J.B. DUFRESNE & CO. LIMITED

Address 1014 Maitland Ave.,

Ottawa 5, Ont.

Licence Number 2999

Name of Driller or Borer R. Laniel

Address 6 Bellevue Cr. - Lucerne, Que.

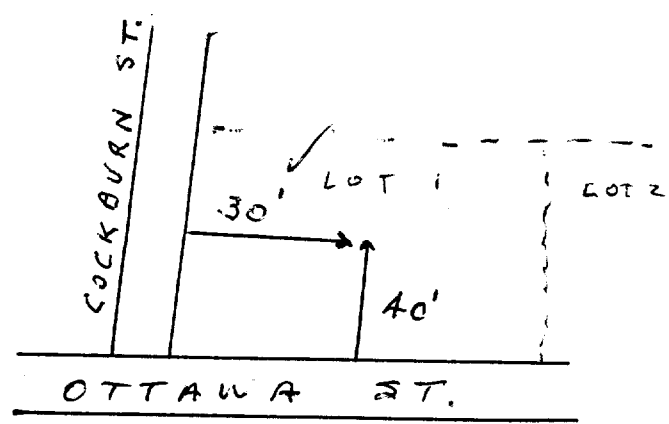
Date June 14th 1968

(Signature)
for: J.B. Dufresne & Co. Limited

Form 7 5M 60-20912

Location of Well

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



VILLAGE OF RICHMOND

CS8.S8

OWRC COPY

P/Km
Lc/Km



The Ontario Water Resources Commission Act WATER WELL RECORD

3164F

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

COUNTY OR DISTRICT: **CARLETON** TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **Richmond** CON., BLOCK, TRACT, SURVEY, ETC.: _____ LOT: 25-27

OWNER (SURNAME FIRST): **JULIA CONST. LTD.** ADDRESS: **Richmond Ont.** DATE COMPLETED: DAY **15** MO. **03** YR. **71**

21 U.T.M. ZONE: **18** EASTING: **435225** NORTHING: **5004520** RC: **4** ELEVATION: **0302** RC: **5** BASIN CODE: **25**

JULIA CONST. LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
BROWN	CLAY	SAND & STONES	LOOSE	0	8
GREY	CLAY	SAND & BOULDERS	PACKED	8	12
GREY	LIMESTONE		HARD	12	164
GREY	SANDSTONE		HARD	164	190
WHITE	SANDSTONE		HARD	190	200
APL					

31 0008650912 00122050913 0164215 0190218 0200118

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0080	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
0105	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
0165	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
0189	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10 1/4	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		0	64
10	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE			20-23
	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			27-30

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER

PUMPING RATE: **0270** GPM. DURATION OF PUMPING: 15-16 HOURS **00** MINS.

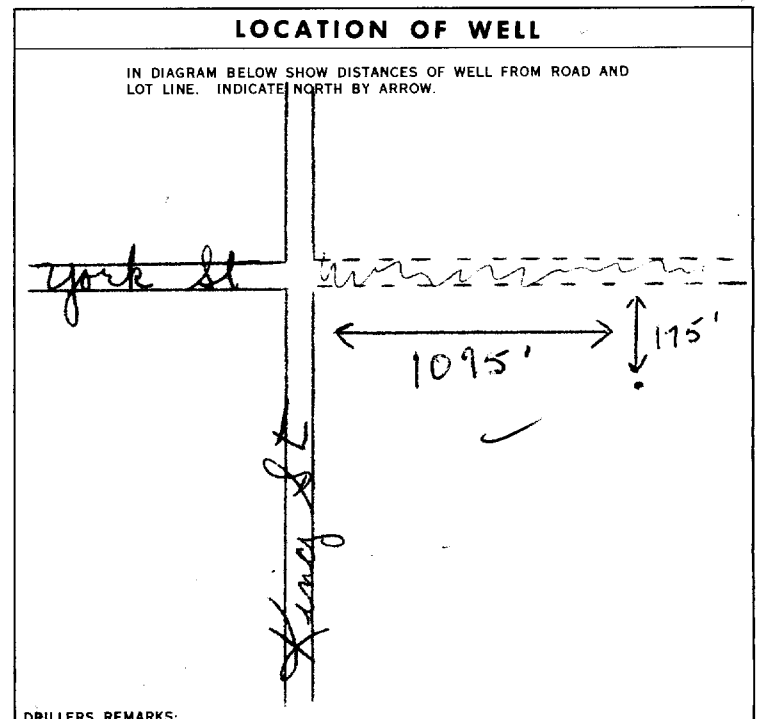
WATER LEVELS DURING PUMPING: 2 PUMPING 2 RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
47'	117'	110'	115'	116'	117'

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: **180** FEET

RECOMMENDED PUMPING RATE: **0265** GPM.



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: **Capital Water Supply** LICENCE NUMBER: **1558**

ADDRESS: **14 Ashford Dr Ottawa**

NAME OF DRILLER OR BORER: **J Moore** LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: **Walter Lavigne** SUBMISSION DATE: _____ MO. _____ YR. _____

OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **1558** DATE RECEIVED: **140470**

DATE OF INSPECTION: _____ INSPECTOR: **RL**

REMARKS: _____

PX

WI



WATER WELL RECORD

Water management in Ontario

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

11
1 2

1511257

3 1511257

MUNICIP. 15701

CON.

COUNTY OR DISTRICT: Carleton Place TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond Ont CON., BLOCK, TRACT, SURVEY, ETC.: Albion St.

DATE COMPLETED: DAY 09 MO June YR 71

G 03.88 24 RC 4 25 ELEVATION 031.0 26 RC 4 30 BASIN CODE 25 31

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	hardpan	stones		15	20
grey	limestone			20	100

31 0015205 00202412 0100215

32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

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

SCREEN

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

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER

PUMPING RATE: 0005 GPM.

DURATION OF PUMPING: 01 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
19-21	22-24	15 MINUTES 25-28
<u>004</u> FEET	<u>080</u> FEET	30 MINUTES 29-31
		45 MINUTES 32-34
		60 MINUTES 35-37
		<u>070</u> FEET
		<u>080</u> FEET

IF FLOWING, GIVE RATE: _____ GPM.

PUMP INTAKE SET AT: _____ FEET

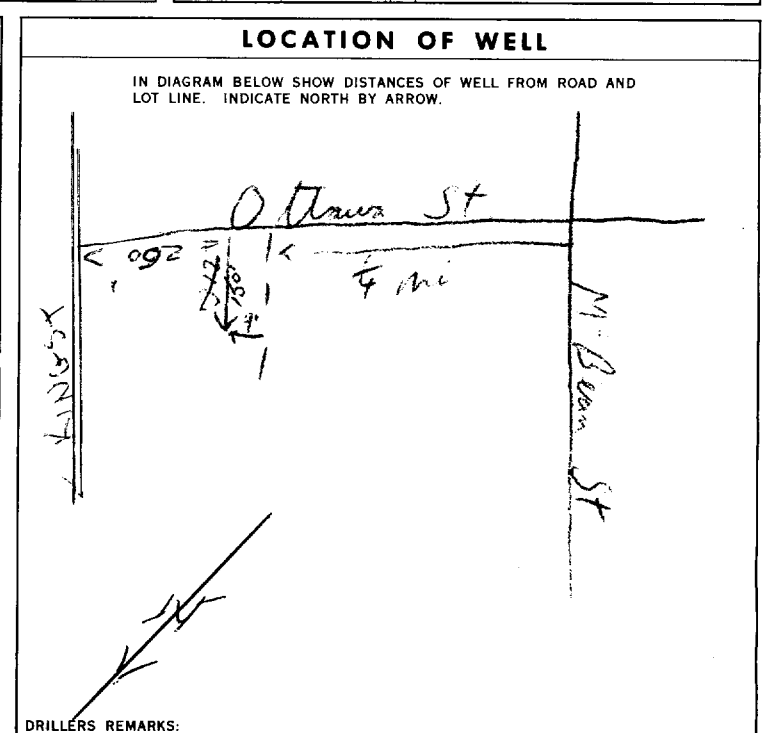
WATER AT END OF TEST: 1 CLEAR 2 CLOUDY

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 080 FEET

RECOMMENDED PUMPING RATE: 0005 GPM.

50-53 0.001 GPM./FT. SPECIFIC CAPACITY



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Maine Well Drilling LICENCE NUMBER: 3644

ADDRESS: Box 326, Richmond Ont.

NAME OF DRILLER OR BORE: Henry Maine LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: Henry Maine SUBMISSION DATE: DAY 10 MO June YR 71

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 08/07/71

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

P _____
WI _____



Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

316/98

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

11 11514676 15003 CAN 03

COUNTY OR DISTRICT: Chatham TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Shelburne Richmond Can 3 CON., BLOCK, TRACT, SURVEY, ETC.: 026

DATE COMPLETED: DAY 17 MO. 03 YR. 75

ING: 004435 RC.: 4 ELEVATION: 306 RC.: 4 BASIN CODE: 26 II: AUG 04, 1977 III: 303 IV: 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
10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 4 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11	1 <input checked="" type="checkbox"/> STEEL 12	188	0	0048
17-18	1 <input type="checkbox"/> STEEL 19			20-23
24-25	1 <input type="checkbox"/> STEEL 26			27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
		41-44
		80

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER

PUMPING RATE: 0010 GPM

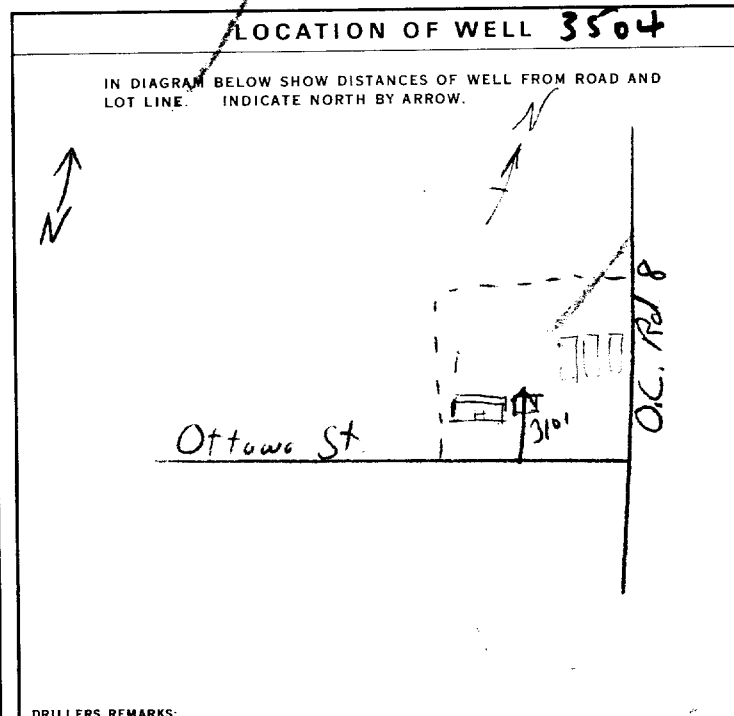
DURATION OF PUMPING: 15-16 HOUR 01 17-18 MINS 00

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
19-21	22-24	15 MINUTES 30 MINUTES 45 MINUTES 60 MINUTES
<u>004</u> FEET	<u>050</u> FEET	<u>050</u> FEET <u>050</u> FEET <u>050</u> FEET <u>050</u> FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 050 FEET

RECOMMENDED PUMPING RATE: 0010 GPM



FINAL STATUS OF WELL 54

1 WATER SUPPLY 5 ABANDONED, INSUFFICIENT SUPPLY

2 OBSERVATION WELL 6 ABANDONED, POOR QUALITY

3 TEST HOLE 7 UNFINISHED

4 RECHARGE WELL

WATER USE 55-56

1 DOMESTIC 5 COMMERCIAL

2 STOCK 6 MUNICIPAL

3 IRRIGATION 7 PUBLIC SUPPLY

4 INDUSTRIAL 8 COOLING OR AIR CONDITIONING

9 OTHER 9 NOT USED

METHOD OF DRILLING 57

1 CABLE TOOL 6 BORING

2 ROTARY (CONVENTIONAL) 7 DIAMOND

3 ROTARY (REVERSE) 8 JETTING

4 ROTARY (AIR) 9 DRIVING

5 AIR PERCUSSION

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mains Well Drilling LICENCE NUMBER: 3644

ADDRESS: 96 326, Richmond Ont.

NAME OF DRILLER OR BORER: Henry Mains LICENCE NUMBER: _____

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

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 290575

DATE OF INSPECTION: 26 Jun 76 INSPECTOR: P/R. Dosh

REMARKS: _____

P

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Ontario

WATER WELL RECORD

316/4F

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

11

1514856

MUNICIPALITY 15701

COUNTY OR DISTRICT *West*
Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE *Richmond* CON. BLOCK, TRACT, SURVEY, ETC. *11 Bean St.* LOT 25-27

Richmond Ont. DATE COMPLETED DAY 31 MO 07 YR 75

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
<i>gray</i>	<i>clay</i>			0	15
<i>gray</i>	<i>limestone</i>			15	55

31 0015205 0056215

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0053 10-13	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

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

SCREEN

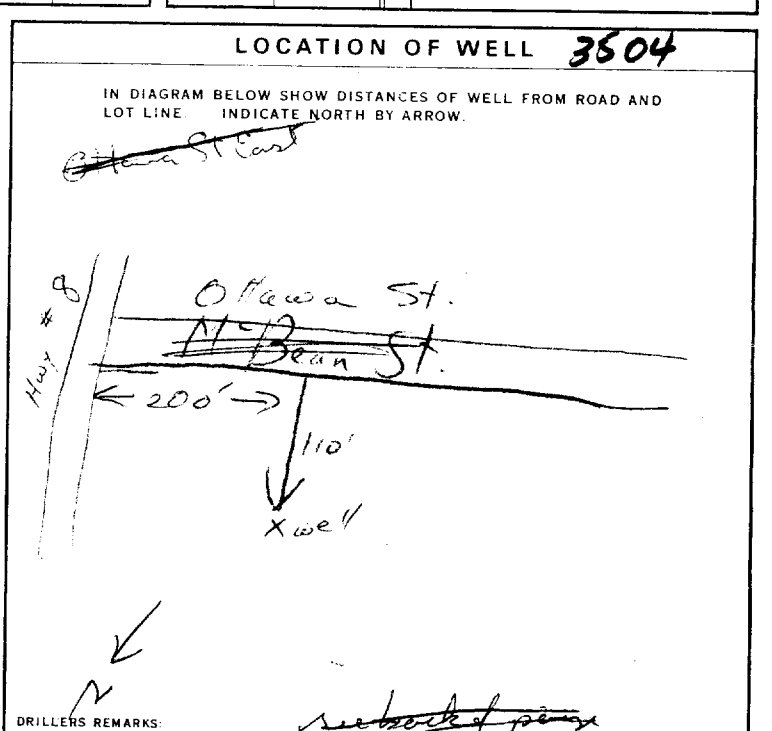
SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
	INCHES	FEET
		41-44
		80

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	0004 GPM	01 15-16 HOURS 00 17-18 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
006 19-21 FEET	030 22-24 FEET	15 MINUTES 030 30 MINUTES 030 45 MINUTES 030 60 MINUTES 030
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	030 GPM	0003 FEET
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input checked="" type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	030 FEET	0003 GPM



FINAL STATUS OF WELL 1

WATER USE 01

METHOD OF DRILLING 5

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

CONTRACTOR NAME OF WELL CONTRACTOR *Henry Mass Well Drilling* LICENSE NUMBER *3644*

ADDRESS *Box 326 Richmond Ont.*

NAME OF DRILLER OR BORER *Mari* LICENSE 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 14/1976* INSPECTOR *[Signature]*

REMARKS: *Con. III Lot 25*

P *[Signature]*

WI



Ontario

WATER WELL RECORD

3194F

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

11 1515324

MUNICIPALITY 15701 CON.

COUNTY OR DISTRICT Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Richmond CON., BLOCK, TRACT, SURVEY, ETC. Ottawa St

ADDRESS Richmond Ont 65 Ottawa St DATE COMPLETED DAY 14 MO 04 YR 76

NO. 003852 RC 4 ELEVATION 308 RC 4 BASIN CODE 26 II JUN 28, 1977 III 300 IV

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<u>grey</u>	<u>clay</u>			<u>0</u>	<u>28</u>
<u>grey</u>	<u>limestone</u>			<u>28</u>	<u>45</u>

31 0028205 0045215

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

WELL DIA. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<u>06</u>	<u>STEEL</u>	<u>1/8"</u>	<u>0</u>	<u>31</u>
	<input type="checkbox"/> GALVANIZED			
	<input type="checkbox"/> CONCRETE			
	<input type="checkbox"/> OPEN HOLE			

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	(CEMENT GROUT, LEAD PACKER, ETC.)
10-13		
18-21		
26-29		

71 PUMPING TEST METHOD

1 PUMP 2 BAILER

PUMPING RATE 0008 GPM

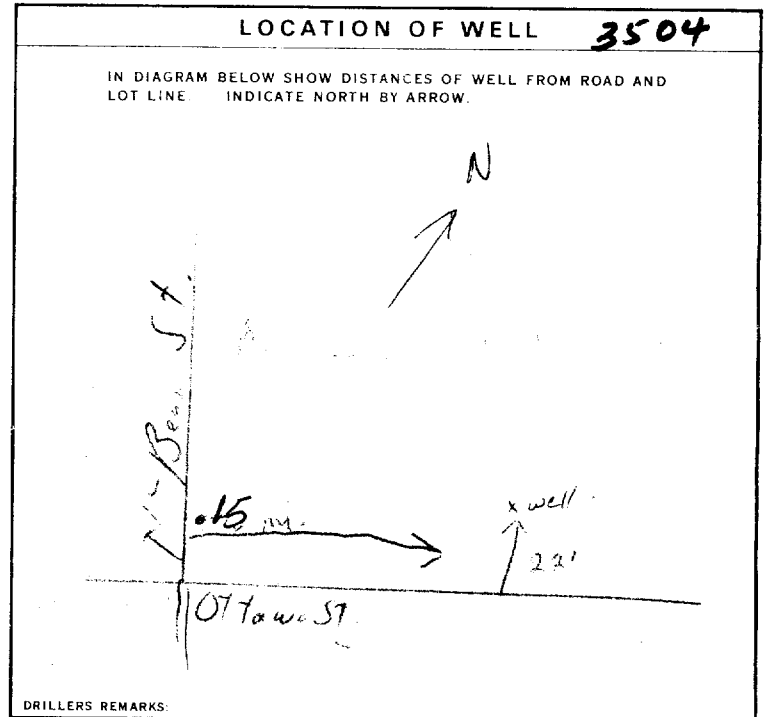
DURATION OF PUMPING 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING			
<u>008</u>	<u>030</u>	15 MINUTES <u>030</u>	30 MINUTES <u>030</u>	45 MINUTES <u>030</u>	60 MINUTES <u>030</u>

RECOMMENDED PUMP TYPE SHALLOW DEEP

RECOMMENDED PUMP SETTING 030 FEET

RECOMMENDED PUMP RATE 0005 GPM



FINAL STATUS OF WELL 1

WATER USE 01

METHOD OF DRILLING 5

CONTRACTOR Henry Mans Well Drilling LICENCE NUMBER 3644

ADDRESS Box 326 Richmond Ont

NAME OF DRILLER OR BORER [Signature] LICENCE NUMBER

SIGNATURE OF CONTRACTOR [Signature] SUBMISSION DATE DAY 18 MO 7 YR 76

OFFICE USE ONLY

DATA SOURCE 1 CONTRACTOR 3644 DATE RECEIVED 060576

DATE OF INSPECTION June 16, 1976 INSPECTOR Col Pentney

REMARKS: Con III Lot 23

P. [Signature]
WI

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

11 1516664

MUNICIPALITY: _____ LOT: 25-27
ELEVATION: _____

COUNTY OR DISTRICT: *Carleton Place*
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: *Houlbourn*
CON., BLOCK, TRACT, SURVEY ETC.: *Village Richmond*
DATE COMPLETED: _____
DAY: *15* MO: *8* YR: *78*
ADDRESS: *88 Kehoe Ottawa, Ont*

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<i>Brown</i>	<i>hardpan</i>	<i>sand + boulders</i>		<i>0</i>	<i>15</i>
<i>grey</i>	<i>hardpan</i>	<i>boulders</i>		<i>15</i>	<i>29</i>
<i>grey</i>	<i>limestone</i>		<i>broken</i>	<i>29</i>	<i>35</i>

31 _____
32 _____

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
<i>30</i>	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
<i>6 1/4</i>	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	<i>.188</i>	<i>0</i>	<i>29</i>
<i>6</i>	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		<i>29</i>	<i>35</i>

SCREEN

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

61 PLUGGING & SEALING RECORD

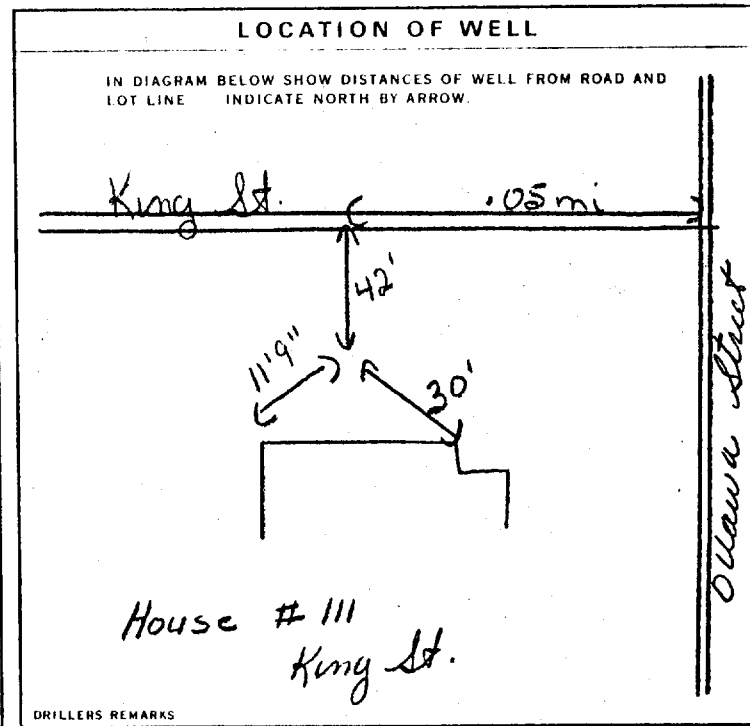
DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM: <i>10-13</i> TO: <i>14-17</i>	
FROM: <i>18-21</i> TO: <i>22-25</i>	
FROM: <i>26-29</i> TO: <i>30-33</i>	

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	<i>25</i> GPM	<i>1</i> HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING
<i>10</i> FEET	<i>25</i> FEET	15 MINUTES: <i>25</i> FEET 30 MINUTES: <i>25</i> FEET 45 MINUTES: <i>25</i> FEET 60 MINUTES: <i>25</i> FEET

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
<input checked="" type="checkbox"/> SHALLOW <input type="checkbox"/> DEEP	<i>25</i> FEET	<i>5</i> GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: *CAPITAL WATER SUPPLY LTD* LICENCE NUMBER: *1558*
ADDRESS: *Box 490, STITTSVILLE*
NAME OF DRILLER OR BORER: *S. Miller* LICENCE NUMBER: _____
SIGNATURE OF CONTRACTOR: *W. Kucera* SUBMISSION DATE: *DAY 16 MO 8 YR 78*

OFFICE USE ONLY

DATA SOURCE: _____ CONTRACTOR: _____ DATE RECEIVED: *080978*
DATE OF INSPECTION: _____ INSPECTOR: _____
REMARKS: _____



WATER WELL RECORD

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

11

1516664

MUNICIPALITY 15701

CON.

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Goulbourn CON., BLOCK, TRACT, SURVEY, ETC.: Village Richmond LOT: 19

OWNER (SURNAME FIRST): OSTENDORFER, G. L. D. ADDRESS: 208 Kehoe Ottawa, Ont DATE COMPLETED: 15 MO. 08 YR 78

ZONING: 18 EASTING: 435220 NORTHING: 5003960 ELEVATION: 40310 BASIN CODE: 426

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Brown	hardpan	sand + boulders		0	15
grey	hardpan	boulders		15	29
grey	limestone		broken	29	35

31 00156142813 002921413 003521571

32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
6.74	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	.188	0	29
06	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		29	35

SCREEN

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

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: _____

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER

PUMPING RATE: 0025 GPM

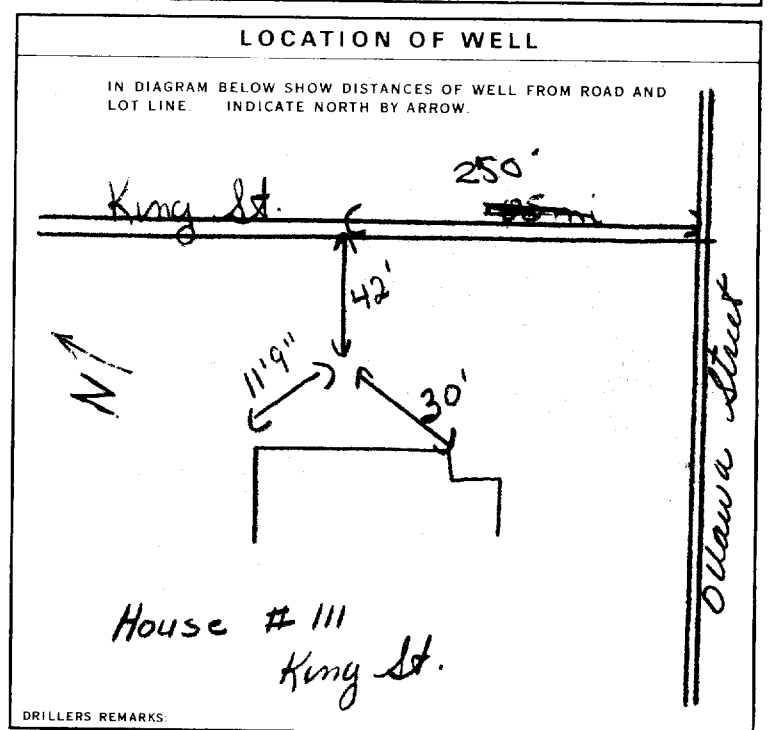
DURATION OF PUMPING: 01 HOURS 00 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
010 FEET	025 FEET	15 MINUTES: 025 FEET 30 MINUTES: 025 FEET 45 MINUTES: 025 FEET 60 MINUTES: 025 FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 025 FEET

RECOMMENDED PUMPING RATE: 0005 GPM



FINAL STATUS OF WELL: 1 WATER SUPPLY

WATER USE: 1 DOMESTIC

METHOD OF DRILLING: 5 AIR PERCUSSION

CONTRACTOR: CAPITAL WATER SUPPLY LTD, LICENCE NUMBER: 1558

NAME OF DRILLER OR BORER: S. Miller, LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: W. Kawmack, SUBMISSION DATE: DAY 16 MO 8 YR 78

OFFICE USE ONLY

DATA SOURCE: 1, CONTRACTOR: 1558, DATE RECEIVED: 080978

DATE OF INSPECTION: 12/15/79, INSPECTOR: Km J.P.P.

The Ontario Water Resources Board
WATER WELL RECORD

1516764

1 PRINT ONLY IN SPACES PROVIDED
 2 CHECK FOR CORRECT USE WHERE APPLICABLE

Cantata
 Richmond
 King St.
 7 Dell Ave. Cess. Richmond Ont. DAY 4 MO 8 YR 78
 LOT 113

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	REMARKS COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay	hardpan		0	28
grey	limestone			28	64

41 WATER RECORD

WATER FOUND AT: 60

YIELD OF WATER: 15 GPM

QUALITY: 1 FRESH, 2 SALTY, 3 MINERAL, 4 OTHER

CASING & OPEN HOLE RECORD

6 188 0 31

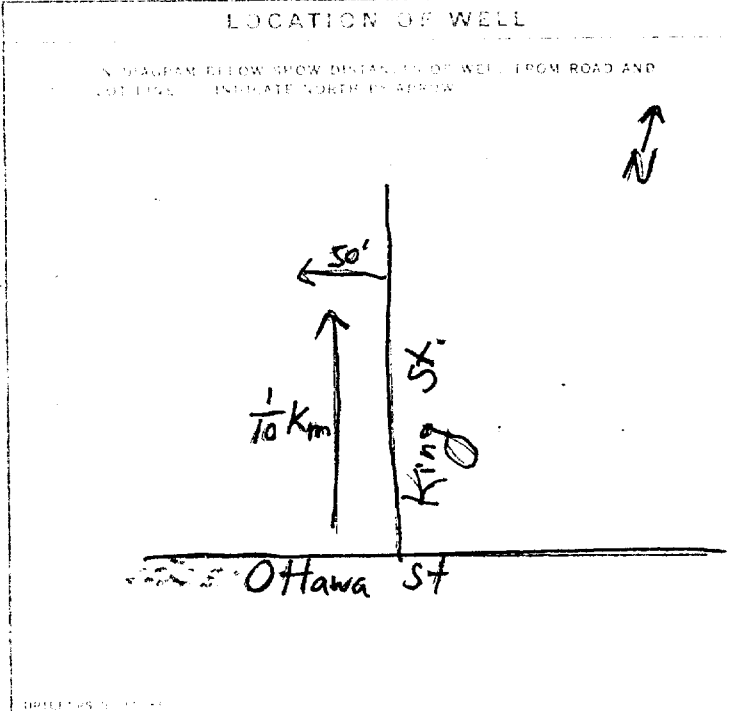
51 PLUGGING & SEALING RECORD

PUMPING TEST

15 GPM / 0

STATIC LEVEL (FEET)	WATER LEVEL (FEET)	DELIVERED PUMP RATE (GPM)
15	25	15
25	25	25
25	25	25
25	25	25
25	25	25

RECOMMENDED PUMP RATE: 30



FINAL STATUS OF WELL

1 WATER SUPPLY, 2 OBSERVATION WELL, 3 TEST WELL, 4 RECHARGE WELL

WATER USE

1 DOMESTIC, 2 STOCK, 3 IRRIGATION, 4 INDUSTRIAL, 5 OTHER

METHOD OF DRILLING

1 CASE TOOL, 2 ROTARY (CONVENTIONAL), 3 ROTARY (REVERSE), 4 ROTARY (AIR)

CONTRACTOR: Henry Mains Well Drilling 3644
 ADDRESS: Box 326, Richmond Ont.
 NAME OF DRILLER: Henry Mains
 SIGNATURE OF CONTRACTOR: Henry Mains
 DATE: 10 8 78
 OFFICE USE ONLY: 3644 271178



WATER WELL RECORD

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

11

1516764

MUNICIPALITY 15701

CON.

COUNTY OR DISTRICT

Carleton Place

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

Richmond Hill

CON., BLOCK, TRACT, SURVEY, ETC.

King St.

LOT #319

7 Bell Air Cres Richmond Hill

DATE COMPLETED

DAY 04 NO. 08 YR. 78

003980

PC 4

ELEVATION

0310

PC 4

26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay	hardpan		0	28
grey	limestone			28	64

31 002820514 0064215

32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
			FROM TO
10-11	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0-31
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

SCREEN

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

MATERIAL AND TYPE

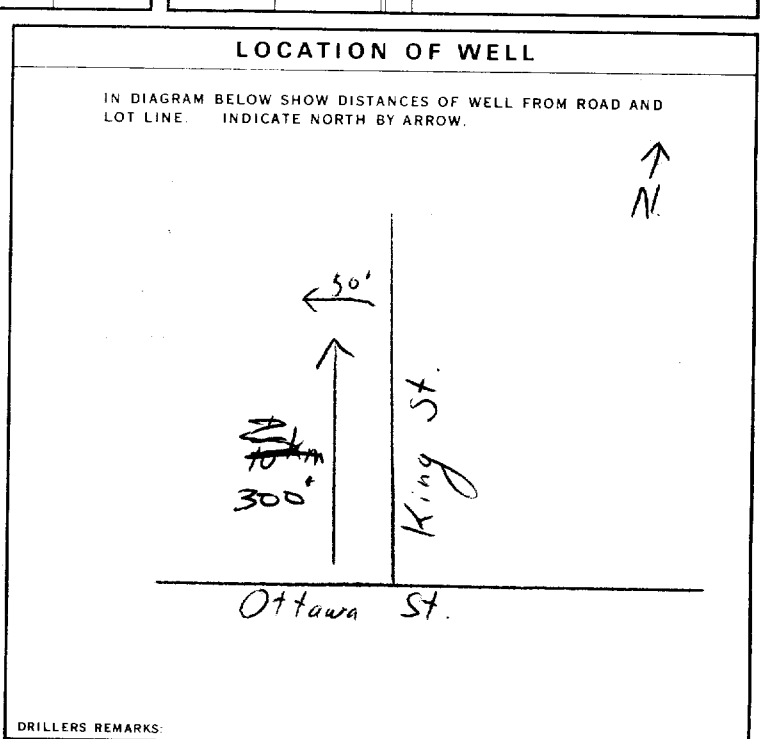
DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	0015 GPM	01 15-16 HOURS 00 17-18 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
015 FEET	025 FEET	15 MINUTES 025-28 FEET 30 MINUTES 025-31 FEET 45 MINUTES 025-34 FEET 60 MINUTES 025-37 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	030 FEET	1 <input type="checkbox"/> CLEAR 2 <input checked="" type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
1 <input checked="" type="checkbox"/> SHALLOW 2 <input type="checkbox"/> DEEP	030 FEET	0005 GPM



54 FINAL STATUS OF WELL

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

55-56 WATER USE

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

57 METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mairs Well Drilling
LICENCE NUMBER: 3644
ADDRESS: Box 326, Richmond Ont.
NAME OF DRILLER OR OPERATOR: Henry Mairs
SIGNATURE OF CONTRACTOR: [Signature]
SUBMISSION DATE: DAY 10 MO. 8 YR. 78

OFFICE USE ONLY

DATA SOURCE: 1
CONTRACTOR: 3644
DATE RECEIVED: 271178
DATE OF INSPECTION: 14/5/79
INSPECTOR: Km. J.P.P.

The Ontario Water Resources Board
WATER WELL RECORD

1516764

1 PRINT ONLY IN SPACES PROVIDED
 2 CHECK FOR CORRECT USE WHERE APPLICABLE

CONTRACTOR: *Henry Mairns Well Drilling* ADDRESS: *Box 326, Richmond Ont*
 COUNTY: *Carleton Place* TOWNSHIP: *Richmond* LOCATION: *King St. 7 Dell Ave. Cess. Richmond Ont.* LOT: *113*
 DATE COMPLETED: DAY *4* MO *8* YR *78*

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	REMARKS COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<i>grey</i>	<i>clay</i>	<i>hardpan</i>		<i>0</i>	<i>28</i>
<i>grey</i>	<i>limestone</i>			<i>28</i>	<i>64</i>

41 WATER RECORD

WATER FOUND AT: *60*

YIELD OF WATER: SURFACE SPRING WELLS

1 FRESH SALT MINERAL

2 FRESH SALT MINERAL

3 FRESH SALT MINERAL

4 FRESH SALT MINERAL

CASING & OPEN HOLE RECORD

6 CASING OPEN HOLE

MATERIAL: *188* DEPTH: *0* TO: *31*

SCREEN

SCREEN TYPE: _____ INCHES: _____ FEET: _____

51 PLUGGING & SEALING RECORD

PLUGGING MATERIAL AND TYPE: _____

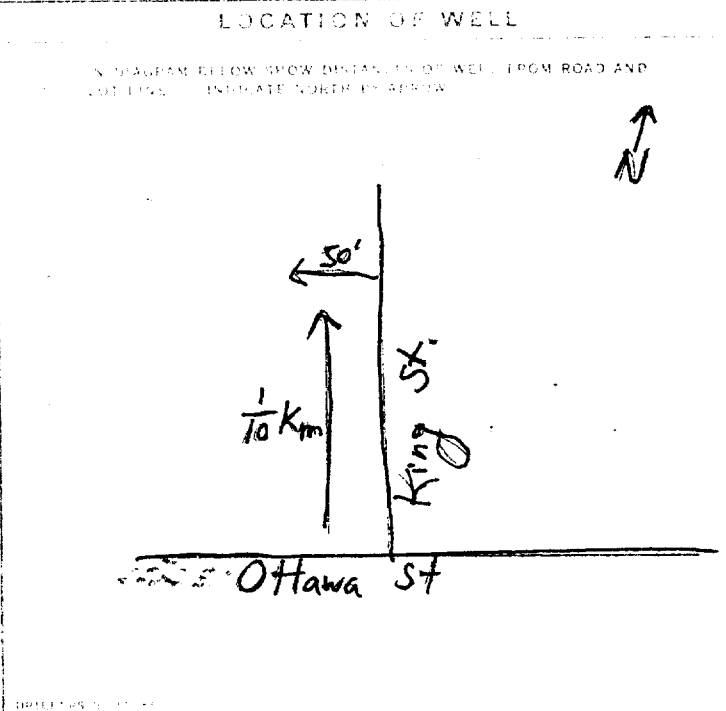
PUMPING TEST

1 PUMP RAISER

WATER LEVEL: *15 GPM / 0*

STATIC LEVEL (FEET)	WATER LEVEL (FEET)	WATER LEVEL (FEET)	WATER LEVEL (FEET)	WATER LEVEL (FEET)	WATER LEVEL (FEET)
<i>15</i>	<i>25</i>	<i>25</i>	<i>25</i>	<i>25</i>	<i>25</i>

RECOMMENDED PUMPING RATE: *30* FEET RATE: *5*



FINAL STATUS OF WELL

1 WATER SUPPLY ABANDONED - EFFICIENT SUPPLY

2 OBSERVATION WELL ABANDONED - POOR QUALITY

3 TEST WELL UNFINISHED

4 RECHARGE WELL

WATER USE

1 DOMESTIC COMMERCIAL

2 STOCK MUNICIPAL

3 IRRIGATION PUBLIC SUPPLY

4 INDUSTRIAL COOLING OR AIR CONDITIONING

5 OTHER NOT USED

METHOD OF DRILLING

1 CASE TOOL BURDEN

2 ROTARY (CONVENTIONAL) DIAMOND

3 ROTARY (REVERSE) TEST

4 ROTARY (AIR) DR

CONTRACTOR: *Henry Mairns Well Drilling 3644* ADDRESS: *Box 326, Richmond Ont*
 NAME OF DRILLER: *Henry Mairns* SIGNATURE OF CONTRACTOR: *Henry Mairns*
 DATE: *10 8 78* OFFICE USE ONLY: 3644 271178



WATER WELL RECORD

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

11

1516764

MUNICIPALITY 15701

CON.

COUNTY OR DISTRICT

Carleton Place

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

Richmond Hill

CON., BLOCK, TRACT, SURVEY, ETC.

King St.

LOT #319

7 Bell Air Cres Richmond Hill

DATE COMPLETED

DAY 04 NO. 08 YR. 78

ING 003980

PC 4

ELEVATION 0310

PC 4

26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay	hardpan		0	28
grey	limestone			28	64

31 002820514 0064215

32

41 WATER RECORD

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

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
			FROM TO
10-11	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0-31
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

SCREEN

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

MATERIAL AND TYPE

DEPTH TO TOP OF SCREEN 41-44 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	0015 GPM	01 15-16 HOURS 00 17-18 MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
015 FEET	025 FEET	15 MINUTES 025-28 FEET 30 MINUTES 025-31 FEET 45 MINUTES 025-34 FEET 60 MINUTES 025-37 FEET

IF FLOWING, GIVE RATE

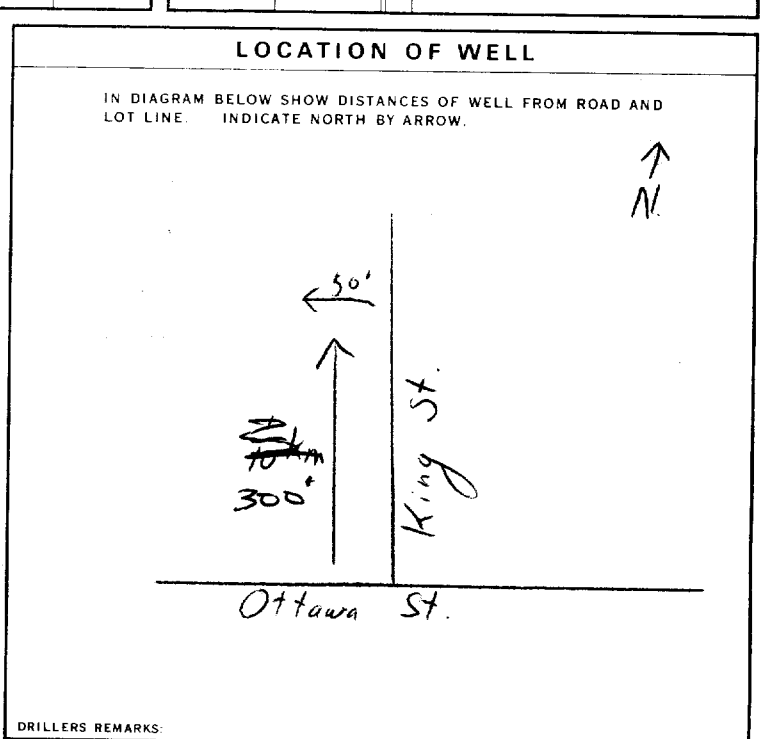
PUMP INTAKE SET AT

WATER AT END OF TEST

RECOMMENDED PUMP TYPE

RECOMMENDED PUMP SETTING 030 FEET

RECOMMENDED PUMPING RATE 0005 GPM



FINAL STATUS OF WELL

WATER USE

METHOD OF DRILLING

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mairs Well Drilling

LICENCE NUMBER: 3644

ADDRESS: Box 326, Richmond Ont.

NAME OF DRILLER OR OPERATOR: Henry Mairs

LICENCE NUMBER:

SIGNATURE OF CONTRACTOR

SUBMISSION DATE: DAY 10 MO. 8 YR. 78

OFFICE USE ONLY

DATA SOURCE: 1

CONTRACTOR: 3644

DATE RECEIVED: 271178

DATE OF INSPECTION: 14/5/79

INSPECTOR: Km. J.P.P.

REMARKS:

31648

WATER WELL RECORD

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

11 1517199 15701 CON. 024 03

Header section containing County or District (Carleton Place), Township (Goulbourn), Address (65 Ottawa St., Richmond, Ont.), Date Completed (18 MO 10 YR 79), and various identification numbers.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS). Table with columns: GENERAL COLOUR, MOST COMMON MATERIAL, OTHER MATERIALS, GENERAL DESCRIPTION, and DEPTH - FEET (FROM, TO). Entries include Clay, Limestone, and Sand & Gravel.

Scale bars for well depth measurement, ranging from 0 to 80 feet.

41 WATER RECORD. Table with columns: WATER FOUND AT - FEET, KIND OF WATER. Entries for 10-13, 15-18, 20-23, 25-28, and 30-33 feet.

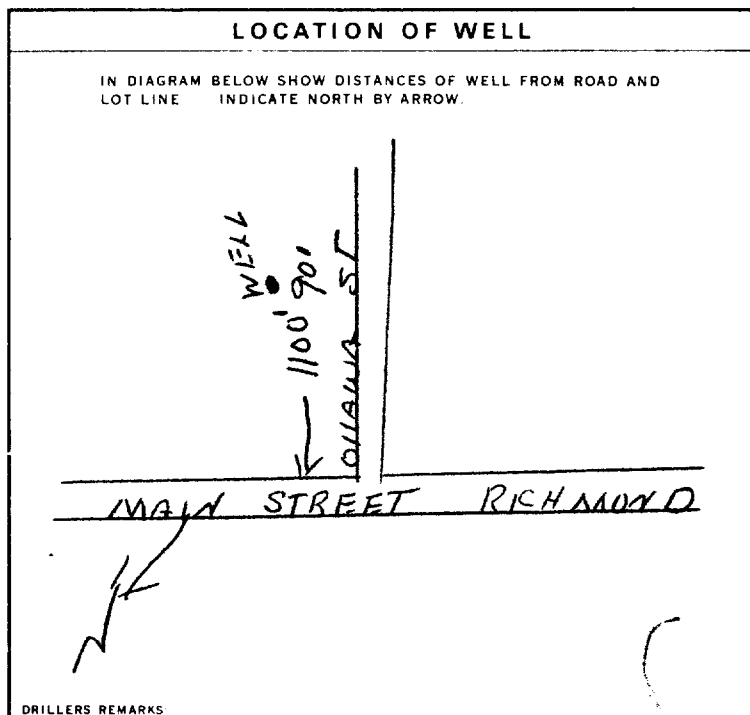
51 CASING & OPEN HOLE RECORD. Table with columns: INSIDE DIAM. INCHES, MATERIAL, WALL THICKNESS INCHES, DEPTH - FEET (FROM, TO). Entry for 10-11 feet with material STEEL and wall thickness .188.

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

61 PLUGGING & SEALING RECORD. Table with columns: DEPTH SET AT - FEET (FROM, TO), MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.).

71 PUMPING TEST. Complex form with sections for Pumping Test Method, Pumping Rate (0010 GPM), Duration of Pumping (00 HOURS, 30 MINS), Water Levels During Pumping (008 FEET), and Recommended Pump Setting (035 FEET).

Final Status of Well (1), Water Use (01), and Method of Drilling (4). Includes checkboxes for various well types and drilling methods.



CONTRACTOR. Fields for Name of Well Contractor (McLean Water Supply Ltd.), Licence Number (3504), Address (1532 Raven Ave., Ottawa, Ont.), and Signature of Contractor (A. Scharf).

OFFICE USE ONLY. Fields for Data Source (1), Contractor (3504), Date Received (15 01 80), Date of Inspection, and Inspector (H.S.).

WATER WELL RECORD

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

11 1517200 15701 CDN 102

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Goulbourn CON. BLOCK, TRACT, SURVEY, ETC: 2 LOT: 25-27

DATE COMPLETED: 10-07-79

5 Bentley Ave. Nepean, Ont. K2E 6T7

003699 4 0310 4 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	Clay			0	7
	Limestone			7	180
	Sandstone	Limestone		180	200

31 0007 09 0180 15 0200 18/5

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13 0180 200	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11 06	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	.188	0 0021
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		20-23
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

SCREEN

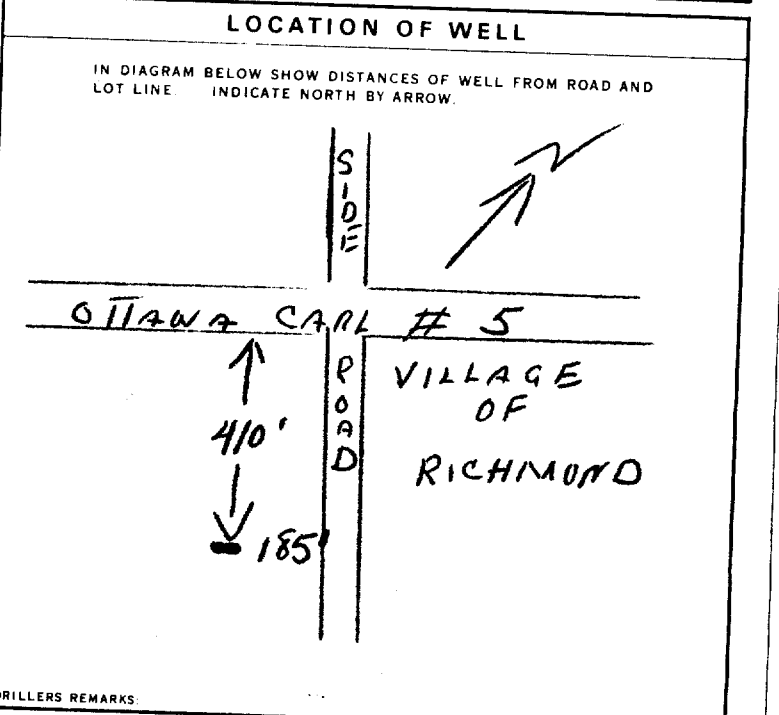
SIZE(S) OF OPENING (SLOT NO)	DIAMETER INCHES	LENGTH FEET
	34-38	39-40
MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN 41-44 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	10 PUMPING RATE: 0010 GPM	11-14 DURATION OF PUMPING: 00 HOURS 30 MINS
STATIC LEVEL: 010 FEET	WATER LEVEL END OF PUMPING: 195 FEET	WATER LEVELS DURING:
		15 MINUTES: 115 FEET
		30 MINUTES: 110 FEET
		45 MINUTES: 110 FEET
		60 MINUTES: 110 FEET
RECOMMENDED PUMP TYPE: <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING: 160 FEET	RECOMMENDED PUMPING RATE: 0010 GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

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

ADDRESS: 1532 Riven Ave., Ottawa, Ont.

NAME OF DRILLER OR BORER: A. Scharf LICENCE NUMBER:

SIGNATURE OF CONTRACTOR: A. Scharf SUBMISSION DATE: 11 MO 7 YR 79

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3504 DATE RECEIVED: 150180

DATE OF INSPECTION: INSPECTOR: [Signature]

REMARKS:

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

11 1517577 15008 RF 06

COUNTY OR DISTRICT: *Conle* TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: *Nepean* CON., BLOCK, TRACT, SURVEY, ETC.: *Conle* LOT: *003*
 WELL # *Richmond KOA 220* DATE COMPLETED: *25 08 81*
 R.C. *004199* ELEVATION *14 0310* BASIN CODE *14 26*

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
<i>grey</i>	<i>clay</i>			<i>0</i>	<i>20</i>
<i>grey</i>	<i>hardpan</i>	<i>stones</i>		<i>20</i>	<i>41</i>
<i>grey</i>	<i>limestone</i>			<i>41</i>	<i>125</i>

MOE VF-18

31 *0020205* *004121412* *0125215*
 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
<i>0/20</i>	<input checked="" type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL
	<input type="checkbox"/> FRESH <input type="checkbox"/> SALTY <input type="checkbox"/> SULPHUR <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
<i>10.11</i>	<input checked="" type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE	<i>188</i>	<i>0 to 43</i>
<i>17-18</i>	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE		<i>20-23</i>
<i>24-25</i>	<input type="checkbox"/> STEEL <input type="checkbox"/> GALVANIZED <input type="checkbox"/> CONCRETE <input type="checkbox"/> OPEN HOLE		<i>27-30</i>

SCREEN

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

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: _____

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
<i>10-13</i>	<i>14-17</i>
<i>18-21</i>	<i>22-25</i>
<i>26-28</i>	<i>30-33</i>

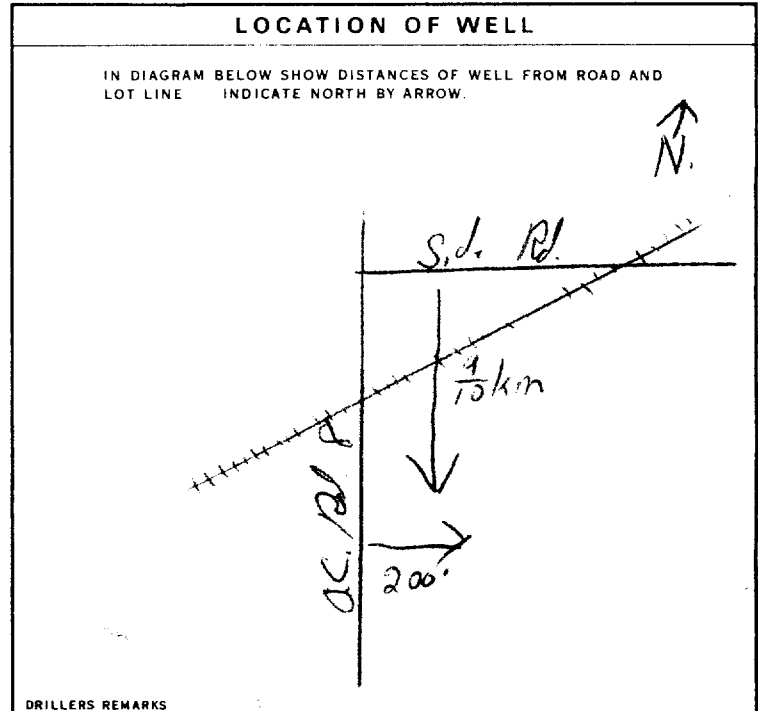
71 PUMPING TEST

PUMPING TEST METHOD: PUMP BAILER

PUMPING RATE: *000* GPM DURATION OF PUMPING: *01 00* HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
<i>015</i>	<i>060</i>	<i>060 060 060 060 060 060</i>

RECOMMENDED PUMP TYPE: SHALLOW DEEP



FINAL STATUS OF WELL: *1*

WATER USE: *12*

METHOD OF DRILLING: *2*

CONTRACTOR: *Henry Mairs Well Drilling* LICENCE NUMBER: *3644*
 ADDRESS: *Box 326, Richmond Ont.*
 NAME OF DRILLER OR BORER: *Henry Mairs* LICENCE NUMBER: _____
 SIGNATURE OF CONTRACTOR: _____ SUBMISSION DATE: *2 8 81*

OFFICE USE ONLY

DATA SOURCE: *1* CONTRACTOR: *3644* DATE RECEIVED: *210881*

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

WATER WELL RECORD

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

11 1517853 15701 CON 03

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond CON. BLOCK, TRACT, SURVEY, ETC.: Burke St. LOT: 024
OWNER (SURNAME FIRST): Rea J. E. Construction ADDRESS: Richmond Ont. KOA 220 DATE COMPLETED: DAY 27 MO 05 YR 82

ZONE: 18 EASTING: 435099 NORTHING: 5004099 RC: 4 ELEVATION: 0310 RC: 4 BASIN CODE: 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)				
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	DEPTH - FEET	
			FROM	TO
grey	clay		0	18
grey	limestone		18	105

31 0018205 0105215

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
0/00	<input checked="" type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
15-18	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
20-23	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
25-26	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL
30-33	<input type="checkbox"/> FRESH	<input type="checkbox"/> SALTY	<input type="checkbox"/> SULPHUR	<input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
06	<input checked="" type="checkbox"/> STEEL	188	0	20
17-15	<input type="checkbox"/> STEEL			20-23
24-25	<input type="checkbox"/> STEEL			27-30

SCREEN

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

61 PLUGGING & SEALING RECORD

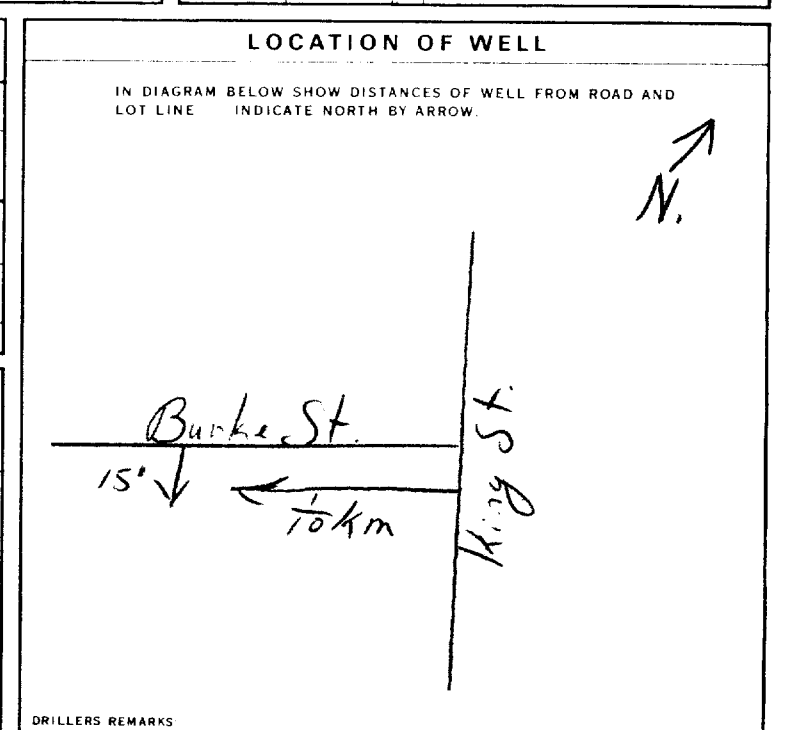
DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE GPM	DURATION OF PUMPING HOURS
<input checked="" type="checkbox"/> PUMP	0006	01 00

STATIC LEVEL FEET	WATER LEVEL END OF PUMPING FEET	WATER LEVELS DURING PUMPING
012	080	15 MINUTES: 080, 30 MINUTES: 080, 45 MINUTES: 080, 60 MINUTES: 080

RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING FEET	RECOMMENDED PUMPING RATE GPM
<input checked="" type="checkbox"/> DEEP	080	0006



FINAL STATUS OF WELL: WATER SUPPLY

WATER USE: DOMESTIC

METHOD OF DRILLING: ROTARY (CONVENTIONAL)

CONTRACTOR: Henry Mann Well Drilling LICENCE NUMBER: 3644
ADDRESS: Box 326, Richmond Ont.
NAME OF DRILLER OR BORER: H. Mann LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: [Signature] SUBMISSION DATE: DAY 27 MO 05 YR 82

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 09 07 82
DATE OF INSPECTION: INSPECTOR:
REMARKS:

WATER WELL RECORD

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

11 1518220 MUNICIPAL 15701 CON. CDN 02
 COUNTY OF DISTRICT Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Richmond CON. BLOCK, TRACT, SURVEY ETC. Ottawa St. LOT 6024
 PR#3, Richmond Ont. DATE COMPLETED DAY 19 MO 04 YR 83
 RC 03899 RC 4 ELEVATION 0310 RC 4 BASIN CODE 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay			0	3
grey	hardpan	stones		3	18
grey	limestone			18	63

MOE VF-18

31 0003205 001821412 0063215
 32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13 0045	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18 0060	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
06 04	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0 to 22
06	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		22 to 63
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		27-30

SCREEN

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

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER, ETC.)
0 10-13	22 14-17 Cement grouted
18-21	22-25
26-29	30-33

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> BAILER	0006 GPM	01 15-06 HOURS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
006	030	15 MINUTES: 030 30 MINUTES: 030 45 MINUTES: 030 60 MINUTES: 030
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	030 GPM	1 <input type="checkbox"/> CLEAR 2 <input checked="" type="checkbox"/> CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMP RATE
1 <input checked="" type="checkbox"/> SHALLOW 2 <input type="checkbox"/> DEEP	030	0005 GPM

LOCATION OF WELL

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

DRILLERS REMARKS:

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

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
 SUBMISSION DATE DAY 19 MO 4 YR 83

OFFICE USE ONLY

DATA SOURCE 1 CONTRACTOR 3644 DATE RECEIVED 06 05 83
 DATE OF INSPECTION INSPECTOR
 REMARKS

WATER WELL RECORD

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

11 1518579 15701 CON. C.O.N. 02

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond CON. BLOCK, TRACT, SURVEY, ETC.: Ottawa St. LOT: 024

OWNER (SURNAME FIRST): D.C. Construction ADDRESS: Richmond Ont. DATE COMPLETED: DAY 21 MO 09 YR 83

ZONE: 18 EASTING: 435199 NORTHING: 5003799 RC: 4 ELEVATION: 031.0 RC: 4 P.SIN CODE: 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay			0	22
grey	limestone			22	205
white	sandstone			205	225

31 0022205 0205215 0225118

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0222	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
26	1 <input checked="" type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0	24
06	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input checked="" type="checkbox"/> OPEN HOLE		24	225
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE			

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
	34-38	39-40

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: 41-44 FEET

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILER

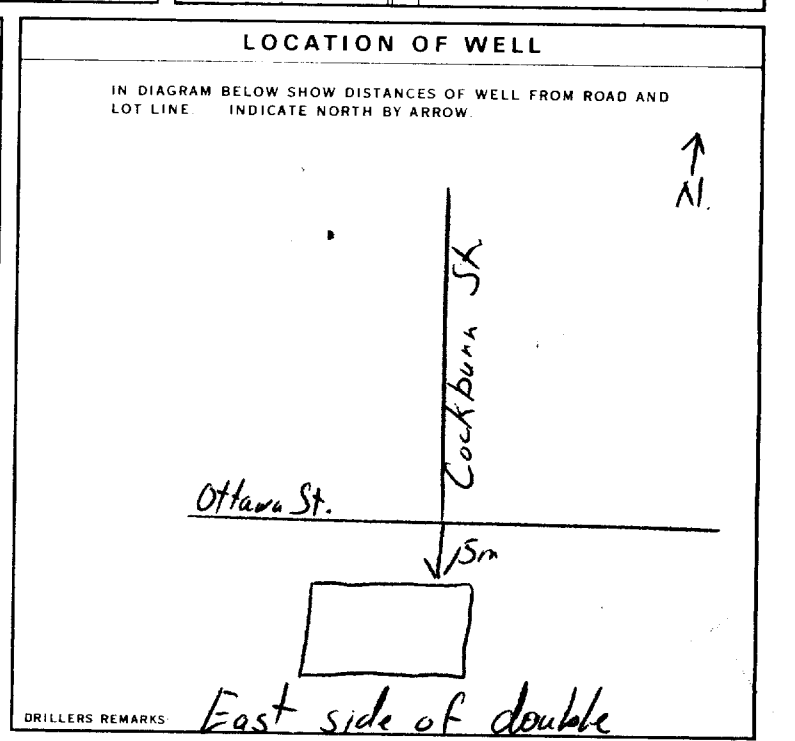
PUMPING RATE: 0030 GPM DURATION OF PUMPING: 01:00 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING			
FEET	FEET	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
010	060	060	060	060	060

IF FLOWING: GIVE RATE: _____ PUMP INTAKE SET AT: _____ FEET WATER AT END OF TEST: _____ FEET

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 060 FEET RECOMMENDED PUMPING RATE: 0010 GPM



FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

DRILLERS REMARKS: East side of double

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE: 13 10 83

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mains Well Drilling LICENCE NUMBER: 3644

ADDRESS: 326, Richmond Ont.

NAME OF DRILLER OR OPERATOR: Henry Mains LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: _____ SUBMISSION DATE: DAY 22 MO 9 YR 83



WATER WELL RECORD

3180A

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

COUNTY OR DISTRICT: Carleton Place TOWNSHIP: Huntley CON., BLOCK, TRACT, SURVEY, ETC.: Con V LOT: 014

OW: [REDACTED] ADDRESS: RR#3, Carp DATE COMPLETED: 07 Dec 71

U: 21 T: 18 M: 10 EASTING: 418280 NORTHING: 5011730 RC: 4 ELEVATION: 6385 RC: 4 BASIN CODE: 20

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)					
GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay			0	89
grey	hardpan			89	104
grey	limestone			104	128

31 0089205 0104214 0128215

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0128	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
15-18	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
20-23	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
25-28	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL
30-33	1 <input type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 <input checked="" type="checkbox"/> STEEL		0 0107
17-18	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE	188	0 107
24-25	1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE		0 128

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER INCHES	LENGTH FEET
	31-33	34-38

MATERIAL AND TYPE: _____ DEPTH TO TOP OF SCREEN: _____

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

PUMPING TEST METHOD: 1 PUMP 2 BAILEY

PUMPING RATE: 0015 GPM. DURATION OF PUMPING: 01 HOURS 00 MINS.

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING			
009	045	15 MINUTES: 030	30 MINUTES: 039	45 MINUTES: 045	60 MINUTES: 045

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: 050 FEET

RECOMMENDED PUMPING RATE: 0010 GPM.

LOCATION OF WELL

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

DRILLERS REMARKS:

FINAL STATUS OF WELL

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

WATER USE

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

METHOD OF DRILLING

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

CONTRACTOR

NAME OF WELL CONTRACTOR: Henry Mains Well Drilling LICENCE NUMBER: 3644

ADDRESS: Box 326 Richmond Ont.

NAME OF DRILLER OR BORER: Jim Purack LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: Henry Mains SUBMISSION DATE: 7 Dec 71

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 120172

DATE OF INSPECTION: _____ INSPECTOR: _____

REMARKS: _____

P, L, WI

WATER WELL RECORD

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

(11)

1518580

MUNICIP. 15701

CON. CON

02

COUNTY OR DISTRICT: Carleton TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Richmond CON. BLOCK, TRACT, SURVEY ETC: Ottawa St. LOT: 024
OWNER (SURNAME FIRST): D.C. Construction ADDRESS: Richmond Ont. DATE COMPLETED: DAY 21 MO 09 YR 83

ZONE: 18 EASTING: 435199 NORTHING: 5003799 RC: 4 ELEVATION: 0310 RC: 4 BASIN CODE: 26

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
grey	clay			0	23
grey	limestone			23	160

31 0023205 0160215
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0/55	1 <input checked="" type="checkbox"/> FRESH 3 <input type="checkbox"/> SULPHUR 2 <input type="checkbox"/> SALTY 4 <input type="checkbox"/> MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 <input checked="" type="checkbox"/> STEEL	1/8	0-25
17-18	1 <input type="checkbox"/> STEEL		25-160

61 PLUGGING & SEALING RECORD

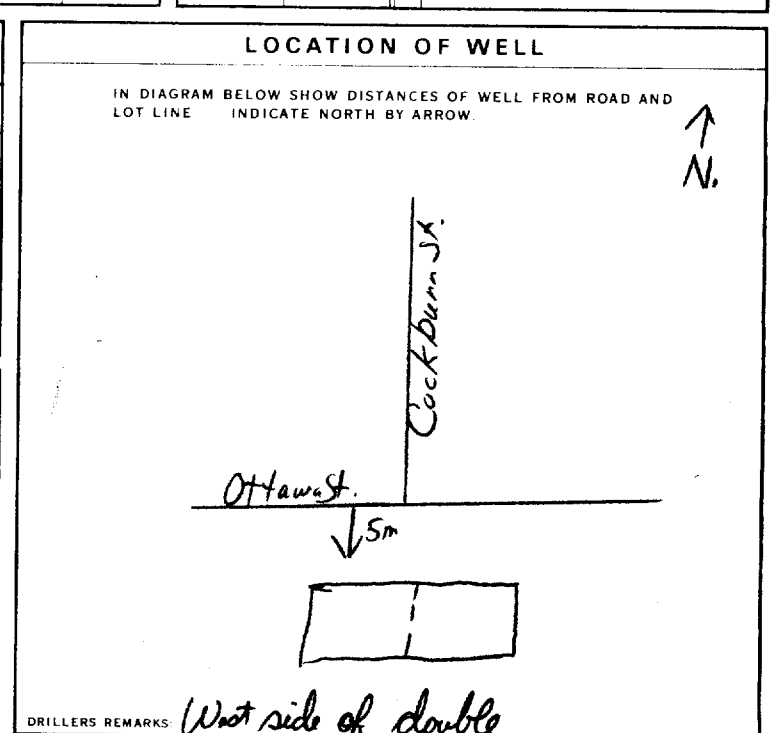
DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
10-13		
18-21		
26-29		

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 <input checked="" type="checkbox"/> PUMP	000	01:00

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING PUMPING
0/0	080	15 MINUTES: 080, 30 MINUTES: 080, 45 MINUTES: 080, 60 MINUTES: 080

RECOMMENDED PUMP TYPE: SHALLOW DEEP
RECOMMENDED PUMP SETTING: 080
RECOMMENDED PUMPING RATE: 0006



FINAL STATUS OF WELL: 1 WATER SUPPLY

WATER USE: 1 DOMESTIC

METHOD OF DRILLING: 1 CABLE TOOL

CONTRACTOR: Henry Mains Well Drilling LICENCE NUMBER: 3644
ADDRESS: Bd 326, Richmond Ont.
NAME OF DRILLER OR BORER: Henry Mains LICENCE NUMBER:
SIGNATURE OF CONTRACTOR: [Signature] SUBMISSION DATE: DAY 22 MO 9 YR 83

OFFICE USE ONLY

DATA SOURCE: 1 CONTRACTOR: 3644 DATE RECEIVED: 13 10 83
DATE OF INSPECTION: _____ INSPECTOR: _____
REMARKS: _____

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

11

1531665

Municipality **15003** Con. **CON** **03**

County or District Ottawa Carleton	Township/Borough/City/Town/Village Goulbourn	Con block tract survey, etc. 3	Lot 25
Address No Tague Construction 3326 Limebank Rd		Date completed 15 day 12 month 00 year	
Northing Gloucester, Ontario K1G 2N3		Elevation 213	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Clay	Stones	Packed	0	10
Gray	Limestone		Medium Hard	10	73

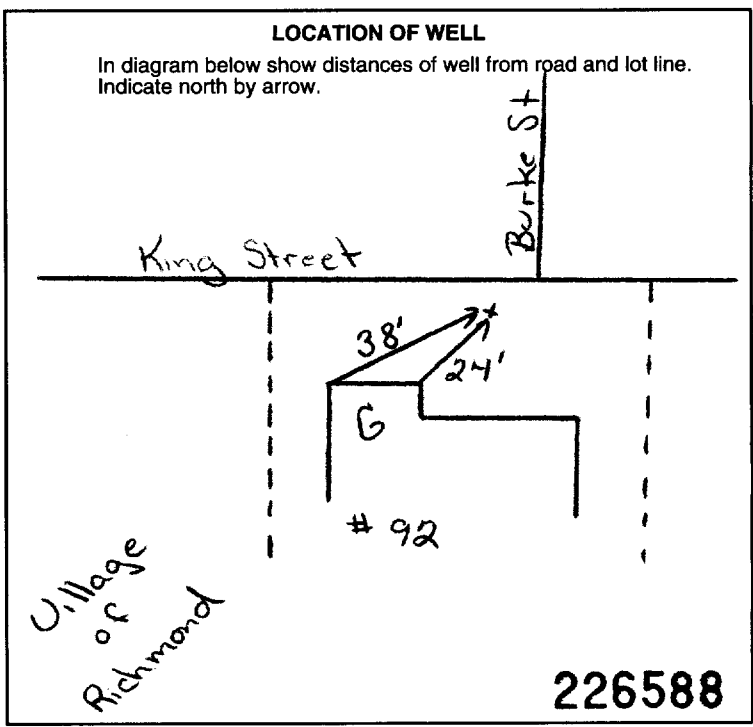
31 32

41 WATER RECORD	
Water found at - feet	Kind of water
10-13	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
15-18	NOT TESTED <input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
20-23	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
25-28	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas
30-33	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	Steel	.188	0	22.5
6	Galvanized		22.5	73
6	Open hole		22.5	73
6	Concrete		22.5	73
6	Plastic		22.5	73

61 PLUGGING & SEALING RECORD	
<input checked="" type="checkbox"/> Annular space <input type="checkbox"/> Abandonment	
Depth set at - feet	
From To Material and type (Cement grout, bentonite, etc.)	
10-13 14-17	21 0 Grouted - Cement (3)
18-21 22-25	
26-29 30-33	

71 PUMPING TEST	
Pumping test method	Pumping rate
<input checked="" type="checkbox"/> Pump <input type="checkbox"/> Bailer	15 GPM
Duration of pumping	1 Hours Mins
Static level	Water level end of pumping
19-21	22-24
10' 3"	35 feet
Water levels during	1 <input checked="" type="checkbox"/> Pumping 2 <input type="checkbox"/> Recovery
15 minutes 26-28	30 minutes 29-31
70 feet	50 feet
45 minutes 32-34	60 minutes 35-37
35 feet	35 feet
If flowing give rate	Pump intake set at
GPM	feet
 	50 feet
Recommended pump type	Recommended pump setting
<input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	50 feet
Recommended pump rate	Recommended pump rate
5 GPM	5 GPM



FINAL STATUS OF WELL		
<input checked="" type="checkbox"/> Water supply	<input type="checkbox"/> Abandoned, insufficient supply	<input type="checkbox"/> Unfinished
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, poor quality	<input type="checkbox"/> Replacement well
<input type="checkbox"/> Test hole	<input type="checkbox"/> Abandoned (Other)	
<input type="checkbox"/> Recharge well	<input type="checkbox"/> Dewatering	

WATER USE		
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not use
<input type="checkbox"/> Stock	<input type="checkbox"/> Municipal	<input type="checkbox"/> Other
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Public supply	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & air conditioning	

METHOD OF CONSTRUCTION		
<input type="checkbox"/> Cable tool	<input checked="" type="checkbox"/> Air percussion	<input type="checkbox"/> Driving
<input type="checkbox"/> Rotary (conventional)	<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Rotary (air)	<input type="checkbox"/> Jetting	

Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1558
Address Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician S. Miller	Well Technician's Licence No. T0097
Signature of Technician/Contractor <i>[Signature]</i>	Submission date day 20 mo 12 yr 00

MINISTRY USE ONLY	
Data source 1558	Date received JAN 29 2001
Date of inspection	Inspector
Remarks	CSS.ES1

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

11

1531778

Municipality 15003 Con. CON 03

County or District: Ottawa Carleton; Township/Borough/City/Town/Village: Goulbourn; Con block tract survey, etc.: 3; Lot: 26; Address: Box # 35, 6180 Ottawa Street, Richmond ON; Date completed: 16 day, 03 month, 01 year

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions). Table with columns: General colour, Most common material, Other materials, General description, Depth - feet (From, To).

31, 32

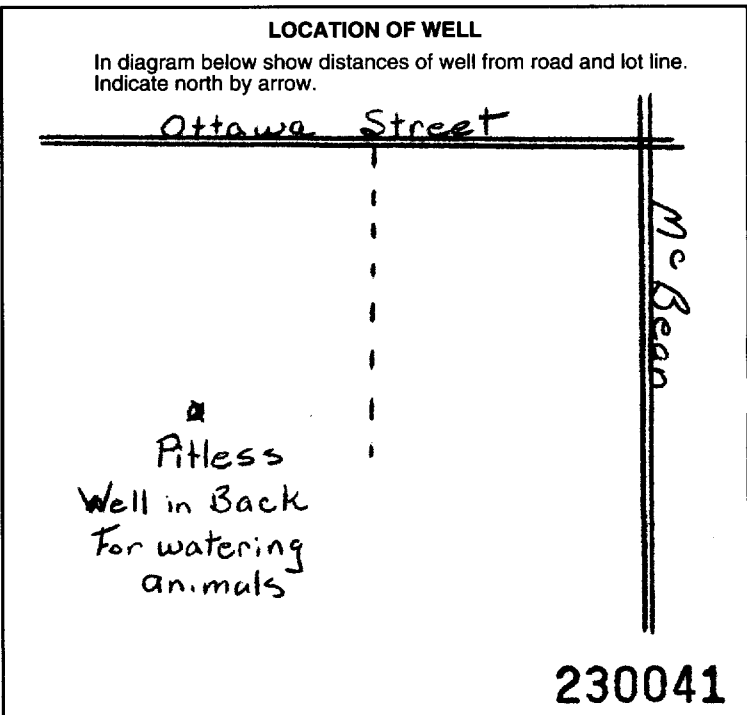
41 WATER RECORD. Table with columns: Water found at - feet, Kind of water (Fresh, Salty, Sulphur, Minerals, Gas).

51 CASING & OPEN HOLE RECORD. Table with columns: Inside diam inches, Material, Wall thickness inches, Depth - feet (From, To).

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

61 PLUGGING & SEALING RECORD. Table with columns: Depth set at - feet (From, To), Material and type (Cement grout, bentonite, etc.).

71 PUMPING TEST. Pumping test method, Pumping rate, Duration of pumping, Static level, Water level end of pumping, Water levels during pumping, Pump intake set at, Water at end of test, Recommended pump type, Recommended pump setting, Recommended pump rate.



FINAL STATUS OF WELL, WATER USE, METHOD OF CONSTRUCTION. Final status options: Water supply, Abandoned, Observation well, Test hole, Recharge well, etc. Water use options: Domestic, Stock, Irrigation, Industrial, Commercial, Municipal, Public supply, etc. Method of construction options: Cable tool, Rotary, Air percussion, etc.

Name of Well Contractor: Capital Water Supply Ltd.; Well Contractor's Licence No.: 1558; Address: Box 490, Stittsville, ON, K2s 1A6; Name of Well Technician: S. Miller; Well Technician's Licence No.: T0097; Signature of Technician/Contractor; Submission date: 16 mo 3 yr 01

MINISTRY USE ONLY. Data source: 1558; Date received: APR 26 2001; Date of inspection; Inspector; Remarks: CSS.ES1

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

11

1533079

Municipality
15003

Con.
CON

03

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 3	Lot 23
Owner's surname Maple Mountain Homes	First Name	Address P.O. Box 730 Richmond, Ontario KOA 2Z0		Date completed 21 day 8 month 02 year	

21

Zone Easting Northing RC Elevation RC Basin Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
Brown	Clay	Stones		0	12
Gray	Clay	Stones		12	26
Gray	Limestone			26	180
Gray & White	Sandstone			180	240
Note Casing was left 1 foot above ground level at time of drilling					

31

32

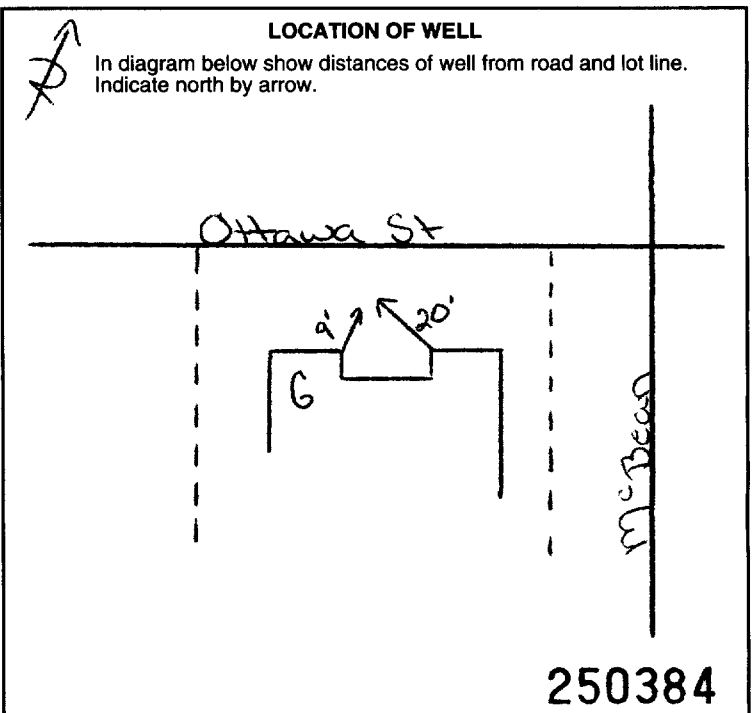
41 WATER RECORD			
Water found at - feet	Kind of water		
10-13 236	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas	14
15-18 not tested	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas	19
20-23	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas	24
25-28	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas	29
30-33	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas	34

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
6 1/4	1 <input checked="" type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	.188	0	29 ⁶
5 7/8	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		29	240
24-25	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

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

61 PLUGGING & SEALING RECORD			
<input checked="" type="checkbox"/> Annular space		<input type="checkbox"/> Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13	14-17	Grouted - Cement (4)	
18-21	22-25		
26-29	30-33		

71 PUMPING TEST			
Pumping test method 1 <input checked="" type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer	Pumping rate 20 GPM	Duration of pumping 1 Hours 17 Mins	
Static level 14' 3"	Water level end of pumping 75 feet	Water levels during <input checked="" type="checkbox"/> Pumping <input type="checkbox"/> Recovery	
	15 minutes 225 feet	30 minutes 150 feet	45 minutes 100 feet
	60 minutes 75 feet	Water at end of test <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Cloudy	
Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	Recommended pump setting 100 feet	Recommended pump rate 5 GPM	



FINAL STATUS OF WELL		
1 <input type="checkbox"/> Water supply	5 <input type="checkbox"/> Abandoned, insufficient supply	9 <input type="checkbox"/> Unfinished
2 <input type="checkbox"/> Observation well	6 <input type="checkbox"/> Abandoned, poor quality	10 <input type="checkbox"/> Replacement well
3 <input type="checkbox"/> Test hole	7 <input type="checkbox"/> Abandoned (Other)	
4 <input type="checkbox"/> Recharge well	8 <input type="checkbox"/> Dewatering	
WATER USE		
1 <input type="checkbox"/> Domestic	5 <input type="checkbox"/> Commercial	9 <input type="checkbox"/> Not use
2 <input type="checkbox"/> Stock	6 <input type="checkbox"/> Municipal	10 <input type="checkbox"/> Other
3 <input type="checkbox"/> Irrigation	7 <input type="checkbox"/> Public supply	
4 <input type="checkbox"/> Industrial	8 <input type="checkbox"/> Cooling & air conditioning	
METHOD OF CONSTRUCTION		
1 <input type="checkbox"/> Cable tool	5 <input checked="" type="checkbox"/> Air percussion	9 <input type="checkbox"/> Driving
2 <input type="checkbox"/> Rotary (conventional)	6 <input type="checkbox"/> Boring	10 <input type="checkbox"/> Digging
3 <input type="checkbox"/> Rotary (reverse)	7 <input type="checkbox"/> Diamond	11 <input type="checkbox"/> Other
4 <input checked="" type="checkbox"/> Rotary (air)	8 <input type="checkbox"/> Jetting	

Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1558
Address P.O. Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician S. Miller	Well Technician's Licence No. T0097
Signature of Technician/Contractor <i>[Signature]</i>	Submission date day 23 mo 8 yr 02

MINISTRY USE ONLY	
Data source 1558	Date received SEP 16 2002
Date of inspection	Inspector
Remarks CSS.ES2	

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

11

1533080

Municipality **15003** Con. **CON** 02

County or District Ottawa Carleton		Township/Borough/City/Town/Village Goulbourn		Con block tract survey, etc. 2	Lot 222
Owner's surname CSN Electric Ltd.	First Name	Address 5640 Manotick Main St. Manotick, Ontario			Date completed 20 day 08 month 2 year

21

Zone Easting Northing RC Elevation **RQM 15003** Code ii iii iv

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)					
General colour	Most common material	Other materials	General description	Depth - feet	
				From	To
brown cl	clay	stones	packed	0	8
grey	limestone		medium	8	125
Note: Casing was left 1 foot above ground level at time of drilling.					

31

32

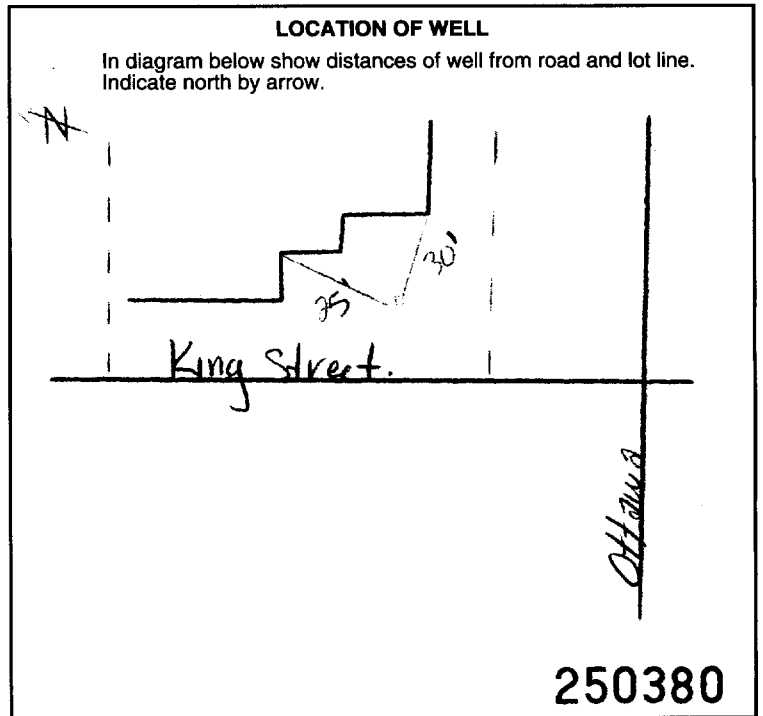
WATER RECORD			
Water found at - feet	Kind of water		
10-13 111	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas	14
15-18 not tested	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas	19
20-23	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas	24
25-28	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas	29
30-33	1 <input type="checkbox"/> Fresh 2 <input type="checkbox"/> Salty	3 <input type="checkbox"/> Sulphur 4 <input type="checkbox"/> Minerals 6 <input type="checkbox"/> Gas	34

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11 6 1/4	1 <input checked="" type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic	.188	0	13-16 21'6
17-18 5 7/8	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic		21'6	20-23 125
24-25	1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic			27-30

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

PLUGGING & SEALING RECORD			
Annular space		Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
21'8	0	grouted cement (3)	
18-21	22-25		
26-29	30-33		

PUMPING TEST	71 Pumping test method		10 Pumping rate		11-14 Duration of pumping	
	<input checked="" type="checkbox"/> Pump 2 <input type="checkbox"/> Bailer		12 GPM		1 Hours 1 Mins	
	25 Static level		Water level during		2 <input type="checkbox"/> Recovery	
	19-21 12'5 feet		15 minutes 120 feet		30 minutes 180 feet	
	22-24 50 feet		45 minutes 75 feet		60 minutes 50 feet	
38-41 If flowing give rate		38-41 Pump intake set at		42 Water at end of test		
GPM		feet		<input type="checkbox"/> Clear <input checked="" type="checkbox"/> Cloudy		
50-53 Recommended pump type		43-45 Recommended pump setting		46-49 Recommended pump rate		
<input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep		95 feet		5 GPM		



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

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

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

Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1558
Address Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician S. Miller	Well Technician's Licence No. T0097
Signature of Technician/Contractor <i>[Signature]</i>	Submission date day 22 mo 08 yr 02

MINISTRY USE ONLY	Data source 1558	58 Contractor	59-62 Date received SEP 16 2002	63-66
	Date of inspection	Inspector		
	Remarks CSS.ES2			

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Instructions for Completing Form

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

Well Owner's Information and Location of Well Information		Ministry Use Only					
		MUN		CON			LOT
First Name Hank DeKemp & Vanson Construction	Last Name	Mailing Address (Street Number/Name, RR, Lot, Concession) 2069 Woodroffe Ave					
County/District/Municipality Ottawa Carleton	Township/City/Town/Village Ottawa	Province Ontario	Postal Code K2C 3H1	Telephone Number (include area code) 613 226 6729			
Address of Well Location (County/District/Municipality) Ottawa Carleton		Township Goulbourn	Lot 24/25	Concession 3			
RR#/Street Number/Name Test Well 3, King Street	City/Town/Village Richmond	Site/Compartment/Block/Tract etc.					
GPS Reading	NAD Zone	Easting 435457	Northing 5004602	Unit Make/Model Garmin	Mode of Operation: <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged <input type="checkbox"/> Differentiated, specify		

Log of Overburden and Bedrock Materials (see instructions)					
General Colour	Most common material	Other Materials	General Description	Depth Metres	
				From	To
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			Construction Record				Test of Well Yield					
Depth From	Metres To	Diameter Centimetres	Inside diam centimetres	Material	Wall thickness centimetres	Depth From	Metres To	Pumping test method	Draw Down Time min	Water Level Metres	Recovery Time min	Water Level Metres
0	6.40	22.75						Pump intake set at - (metres)				
6.40	22.24	15.39	15.86	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	0.48	+ .45	6.40	Pumping rate - (litres/min)	1		1	
Water Record			Casing				Screen					
Water found at Metres	Kind of Water		Outside diam				Slot No.					
8.53	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Gas <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/> Other:		<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized				<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized					
12.49	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Gas <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/> Other:		<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized				<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized					
16.15-18.59	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Gas <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/> Other:		<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized				<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized					
NOT TESTED	<input type="checkbox"/> Fresh <input type="checkbox"/> Sulphur <input type="checkbox"/> Gas <input type="checkbox"/> Salty <input type="checkbox"/> Minerals <input type="checkbox"/> Other:		<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized				<input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized					
After test of well yield, water was			No Casing or Screen				Open hole					
<input checked="" type="checkbox"/> Clear and sediment free <input type="checkbox"/> Other, specify												
Chlorinated <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												

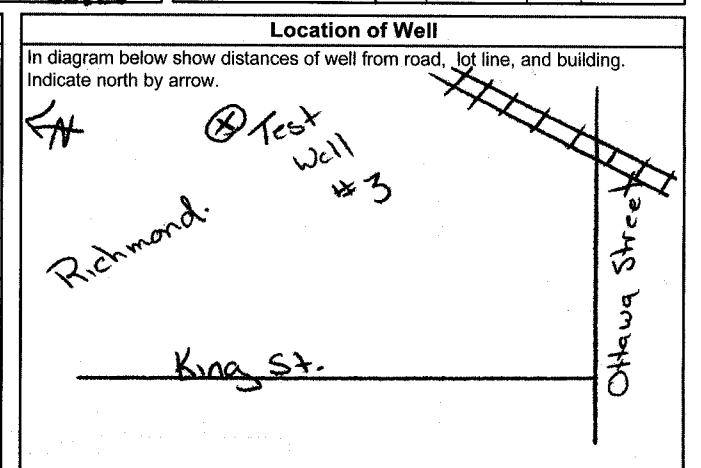
Plugging and Sealing Record			
Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.40	0	grouted: bentonite slurry	.198m3

Method of Construction			
<input type="checkbox"/> Cable Tool	<input checked="" type="checkbox"/> Rotary (air)	<input type="checkbox"/> Diamond	<input type="checkbox"/> Digging
<input type="checkbox"/> Rotary (conventional)	<input checked="" type="checkbox"/> Air percussion	<input type="checkbox"/> Jetting	<input type="checkbox"/> Other
<input type="checkbox"/> Rotary (reverse)	<input type="checkbox"/> Boring	<input type="checkbox"/> Driving	

Water Use			
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Industrial	<input type="checkbox"/> Public Supply	<input type="checkbox"/> Other
<input type="checkbox"/> Stock	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used	
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Municipal	<input type="checkbox"/> Cooling & air conditioning	

Final Status of Well	
<input checked="" type="checkbox"/> Water Supply	<input type="checkbox"/> Recharge well
<input type="checkbox"/> Observation well	<input type="checkbox"/> Abandoned, insufficient supply
<input type="checkbox"/> Test Hole	<input type="checkbox"/> Abandoned, poor quality
<input type="checkbox"/>	<input type="checkbox"/> Unfinished
<input type="checkbox"/>	<input type="checkbox"/> Abandoned, (Other)
<input type="checkbox"/>	<input type="checkbox"/> Dewatering
<input type="checkbox"/>	<input type="checkbox"/> Replacement well

Well Contractor/Technician Information	
Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1558
Business Address (street name, number, city etc.) Box 490 Stittsville, Ontario K2S 1A6	
Name of Well Technician (last name, first name) Miller, Stephen	Well Technician's Licence No. T0097
Signature of Technician/Contractor <i>[Signature]</i>	Date Submitted 2005 3 22



Audit No. Z 13768	Date Well Completed YYYY MM DD 2005 3 16
Was the well owner's information package delivered? <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Delivered YYYY MM DD 2005 3 22

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

Instructions for Completing Form

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

Ministry Use Only

Well Owner's Information and Location of Well Information

MUN		CON		LOT	
-----	--	-----	--	-----	--

Uttawa Carleton RR#/Street Number/Name: **Test Well 1, King Street**
Goulbourn City/Town/Village: **Richmond**
 Site/Compartment/Block/Tract etc.: **24/25 3**
 GPS Reading: **8 3** NAD Zone: **18** Easting: **435246** Northing: **5004428**
 Unit Make/Model: **Garmin** Mode of Operation: Undifferentiated Averaged Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth Metres	
				From	To
brown	clay	stones	packed	0	3.65
grey	limestone		medium hard	3.65	45.11

Hole Diameter

Depth From	Metres To	Diameter Centimetres
0	6.40	22.75
6.40	45.18	15.39

Water Record

Water found at **43.58** Metres Kind of Water: 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 Metres	
			From	To
15.86	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	0.48	+4.5	6.40
Casing				
15.39	<input checked="" type="checkbox"/> Open hole		6.40	45.18

Screen

Outside diam: Steel Fibreglass Plastic Concrete Galvanized Slot No.:

No Casing or Screen

Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
submersible				
Pump intake set at - (metres)	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 <input type="checkbox"/> Shallow <input type="checkbox"/> Deep	4		4	
Recommended pump depth metres	5		5	
Recommended pump rate (litres/min)	10		10	
If flowing give rate - (litres/min)	15		15	
	20		20	
	25		25	
If pumping discontinued, give reason.	30		30	
	40		40	
	50		50	
	60		60	

Plugging and Sealing Record Annular space Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.40	0	grouted: bentonite slurry	.154m3

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: **Capital Water Supply Ltd.** Well Contractor's Licence No.: **1558**
 Business Address (street name, number, city etc.): **Box 490 Strittsville, Ontario K2S 1A6**
 Name of Well Technician (last name, first name): **Miller, Stephen** Well Technician's Licence No.: **T0097**
 Signature of Technician/Contractor: *[Signature]* Date Submitted: **2005 3 22**

Location of Well

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

Audit No. **Z 13770** Date Well Completed: **2005 3 17**
 Was the well owner's information package delivered? Yes No Date Delivered: **2005 3 22**

Ministry Use Only

Data Source: Contractor **1558**
 Date Received: **MAY 18 2005** Date of Inspection: **2005 3 22**
 Remarks: Well Record Number

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 Help Desk (Toll Free) at 1-888-396-9355.
- **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	CON
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Address of Well Location (County/District/Municipality) **Ottawa - Carleton** Township **Soubourg** Lot **Plan 4R-18509** Concession **Plan 200427 Part 2**

RR#/Street Number/Name *** 67 Burke Street** City/Town/Village **Richmond** Site/Compartment/Block/Tract etc.

GPS Reading NAD **83** Zone **18** Easting **434923** Northing **5004238** Unit/Make/Model **Wegman** Mode of Operation: Undifferentiated Averaged Differentiated, specify _____

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	General Description	Depth Metres	
				From	To
	Clay			0	4.57
	Grey limestone			4.57	24.38

Hole Diameter

Depth Metres	Diameter Centimetres
From 0 To 24.38	14.91

Water Record

Water found at **17.08** Metres Kind of Water **NOT TESTED**

Fresh Sulphur Gas Salty Minerals Other: **NOT TESTED**

After test of well yield, water was **Cloudy, NOT TESTED**

Chlorinated Yes No

Construction Record

Inside diam centimetres	Material	Wall thickness centimetres	Depth From Metres	Depth To Metres
15.88	<input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized	.48	0	6.71

Screen

Outside diam Steel Fibreglass Plastic Concrete Galvanized Slot No. _____

No Casing or Screen

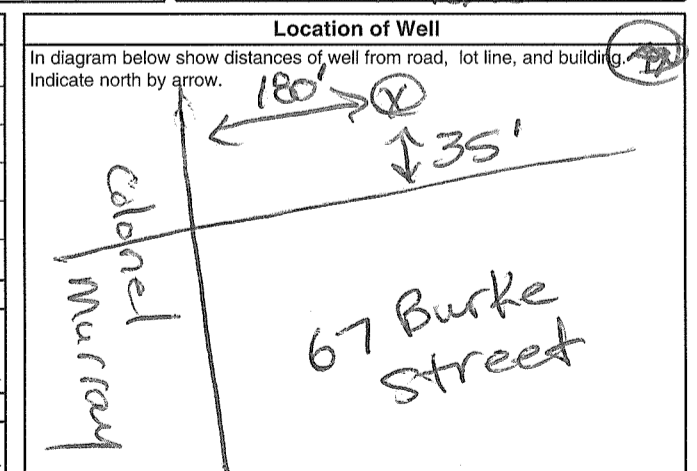
Open hole **6.10** **24.38**

Test of Well Yield

Pumping test method	Draw Down		Recovery	
	Time min	Water Level Metres	Time min	Water Level Metres
Sub Pump				
Pump intake set at (metres) 3.33	Static Level	1.70		16.48
Pumping rate - (litres/min) 91	1	4.82	1	11.80
Duration of pumping hrs + 0 min	2	6.72	2	8.90
Final water level end of pumping 16.48 metres	3	8.16	3	6.32
Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	4	9.40	4	4.53
Recommended pump depth 21.33 metres	5	10.24	5	3.40
Recommended pump rate (litres/min) 91	10	12.57	10	1.70
If flowing give rate - (litres/min)	15	3.07	15	
	20	13.56	20	
	25	14.45	25	
If pumping discontinued, give reason.	30	15.35	30	
	40	15.76	40	
	50	16.12	50	
	60	16.48	60	

Plugging and Sealing Record Annular space Abandonment

Depth set at - Metres From	To	Material and type (bentonite slurry, neat cement slurry) etc.	Volume Placed (cubic metres)
6.10	3.05	Neat Cement Slurry	.1816
3.05	0	Bentonite Slurry	.245



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 **HIR ROCK DRILLING LTD 119** Well Contractor's Licence No. **119**

Business Address (street name, number, city etc.) **RR#1 RICHMOND ONT K0A2Z0**

Name of Well Technician (last name, first name) **HOSAN DAN** Well Technician's Licence No. **T3058**

Signature of Technician/Contractor **X Hosan Dan** Date Submitted **2007 01 22**

Audit No. **Z 55591** Date Well Completed **2006 12 19**

Was the well owner's information package delivered? Yes No Date Delivered **2006 12 20**

Ministry Use Only

Data Source _____ Contractor **1119**

Date Received **FEB 12 2007** DD Date of Inspection _____ YYYY MM DD

Remarks _____ Well Record Number _____

A043482

Address of Well Location (Street Number/Name, RR) **#108 King Street** Township **Goulbourn** Lot _____ Concession _____
 County/District/Municipality **Ottawa-Carleton** City/Town/Village **Richmond** Province **Ontario** Postal Code _____
 UTM Coordinates Zone Easting Northing GPS Unit Make Model Mode of Operation: Undifferentiated Averaged
 NAD **83** **18 4352685004249** **Magellan 200** 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	Depth (Metres) To
	Sandy Clay Gravel			0	6.10
	Grey limestone			6.10	24.99

*** Plan AR-10642 Part 1-2-3-8-9-12 ***

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
7.77	0	Neat Cement Slurry	0.1816

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

Water Use
 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 _____

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 **SUBPUMP**

Pump intake set at (Metres) **18.27**

Pumping rate (Litres/min) **56.75**

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

Final water level end of pumping (Metres) **5.84**

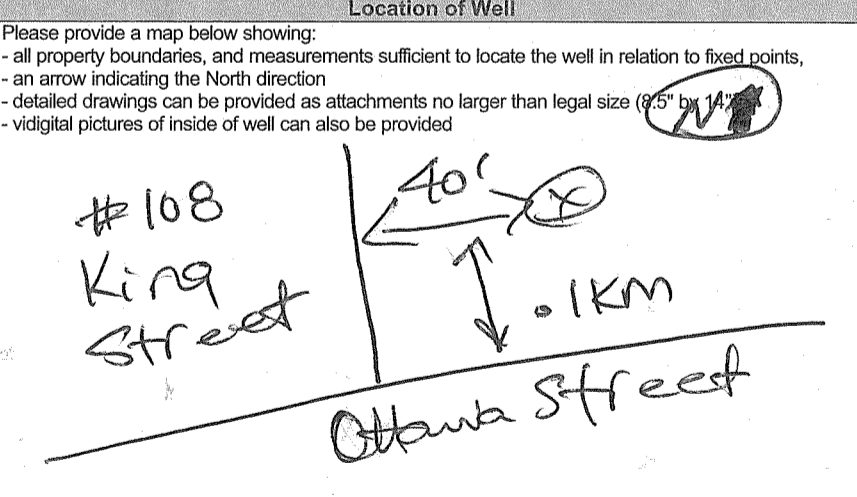
Recommended pump type Shallow Deep

Recommended pump depth **18.27** Metres

Recommended pump rate (Litres/min) **56.75**

If flowing give rate (Litres/min) _____

Draw Down		Recovery	
Time (Min)	Water Level (Metres)	Time (Min)	Water Level (Metres)
Static Level	4.87	Static Level	5.84
1	5.50	1	4.94
2	5.63	2	4.87
3	5.66	3	
4	5.69	4	
5	5.71	5	
10	5.76	10	
15	5.79	15	
20	5.82	20	
25	5.82	25	
30	5.82	30	
40	5.83	40	
50	5.83	50	
60	5.84	60	



Water Details

Water found at Depth (Metres)	Kind of Water
15.54	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
19.20	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
22.86	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals

Date Well Completed (yyyy/mm/dd) **2007-08-20** Was the well owner's information package delivered? Yes No Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd) **2007-08-21**

Well Contractor and Well Technician Information

Business Name of Well Contractor **AIR ROCK DRILLING CO LTD** Well Contractor's Licence No. **1119**
 Business Address (Street No./Name, number, RR) **Rte 1** Municipality **Richmond**
 Province **Ont** Postal Code **K0A2Z0** Business E-mail Address _____
 Bus. Telephone No. (inc. area code) **613 8382170** Name of Well Technician (Last Name, First Name) **PURCELL SHANNON**
 Well Technician's Licence No. **12102** Signature of Technician **[Signature]** Date Submitted (yyyy/mm/dd) **2007-10-10**

Casing Used Galvanized Steel Fibreglass Plastic Concrete

Screen Used Galvanized Steel Fibreglass Plastic Concrete

Casing and Well Details

Diameter of the Hole (Centimetres) **14.91**
 Depth of the Hole (Metres) **24.99**
 Wall Thickness (Metres) **4.8cm**
 Inside Diameter of the Casing (Metres) **1.588**
 Depth of the Casing (Metres) **8.38**

No Casing and Screen Used
 Open Hole **11-24.99**
 Disinfected? Yes No

Ministry Use Only

Audit No. **z60179** Well Contractor No. _____
 Date Received (yyyy/mm/dd) **OCT 15 2007** Date of Inspection (yyyy/mm/dd) _____
 Remarks _____

Well Owner's Information

604 OTTAWA STREET
 COUNTY/DISTRICT/MUNICIPALITY: OTTAWA-CARLETON
 CITY/TOWN/VILLAGE: RICHMOND
 PROVINCE: Ontario
 POSTAL CODE: K0A2Z0
 UTM COORDINATES: NAD 83 18 435 297 5004160
 GPS UNIT MAKE: MAGNUM
 MODE OF OPERATION: Undifferentiated Averaged

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

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
GREY	CLAY			0.00	3.05
"	TILL	STONES		3.05	5.18
GREY	LIMESTONE			5.18	46.36

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0.00	6.00	Grout	0.14

Results of Well Yield Testing

Check box if after test of well yield, water was:	Draw Down		Recovery	
	Time (Min)	Water Level (Metres)	Time (Min)	Water Level (Metres)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Cannot develop to sand-free state	Static Level	2.77	Static Level	
If pumping discontinued, give reason: N/A.	1	4.10	1	17.78
Pumping test method: PLUMP.	2	4.91	2	16.98
Pump intake set at (Metres): 43m (140').	3	5.80	3	16.12
Pumping rate (Litres/min): 231pm (5gpm).	4	6.91	4	15.29
Duration of pumping: 1 hrs + 0 min	5	7.22	5	14.67
Final water level end of pumping (Metres): 19.08.	10	9.61	10	12.32
Recommended pump type: <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	15	11.82	15	10.12
Recommended pump depth: 43 Metres (140')	20	13.98	20	8.37
Recommended pump rate (Litres/min): 231pm (5gpm).	25	14.56	25	7.41
If flowing give rate (Litres/min): N/A.	30	15.44	30	6.48
	40	17.12	40	4.93
	50	18.28	50	3.77
	60	19.08	60	3.29

Method of Construction

Water Use

Cable Tool
 Rotary (Conventional)
 Rotary (Reverse)
 Rotary (Air)
 Air percussion
 Other, specify _____

Diamond
 Jetting
 Driving
 Digging
 Boring

Public
 Domestic
 Livestock
 Industrial
 Other, specify _____

Commercial
 Municipal
 Test Hole
 Cooling & Air Conditioning

Not used
 Dewatering
 Monitoring

Status of Well

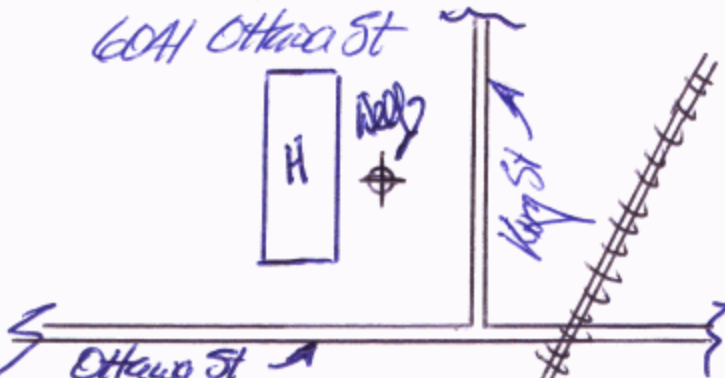
Water Supply
 Replacement Well
 Test Hole
 Recharge Well

Dewatering Well
 Abandoned, Insufficient Supply
 Abandoned, Poor Water Quality
 Abandoned, other, specify _____

Observation and/or Monitoring Hole
 Alteration (Construction)
 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")
 - digital pictures of inside of well can also be provided



Water Details

Water found at Depth (Metres)	Kind of Water
12	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
23	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
36	<input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals

Casing Used

Screen Used

Casing and Well Details

Galvanized
 Steel
 Fibreglass
 Plastic
 Concrete

Galvanized
 Steel
 Fibreglass
 Plastic
 Concrete

Diameter of the Hole (Centimetres): 114.61 (5 3/4")
 Depth of the Hole (Metres): 152'
 Wall Thickness (Metres): 6.08"

No Casing and Screen Used

Open Hole
 Disinfected? Yes No

Inside Diameter of the Casing (Metres): 64"
 Depth of the Casing (Metres): 7.63m (25')

Ministry Use Only

Audit No.: **z 77591**
 Date Received (yyyy/mm/dd): **AUG 28 2008**
 Well Contractor No.:
 Date of Inspection (yyyy/mm/dd):
 Remarks:

Date Well Completed (yyyy/mm/dd): 2008/06/13
 Was the well owner's information package delivered? Yes No
 Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd): 2008/06/13

Well Contractor and Well Technician Information

Business Name of Well Contractor: STANTON DRILLING INC
 Well Contractor's Licence No.: 4875
 Business Address (Street No./Name, number, RR): BOX 219
 Municipality: PARENTHAM
 Province: ON
 Postal Code: K0A2X0
 Business E-mail Address: stanton-drilling@cyberus.ca
 Bus. Telephone No. (inc. area code): (613) 645-6629
 Name of Well Technician (Last Name, First Name): STANTON, PETER
 Well Technician's Licence No.: 0086
 Signature of Technician: [Signature]
 Date Submitted (yyyy/mm/dd): 2008/08/25

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name Talos Custom Homes	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Rd, Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 3 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone NAD 83 18	Easting 435243	Northing 5004413	Municipal Plan and Sublot Number
			Other

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Sandy Clay	Boulders	Packed	0	6.70
Gray	Limestone		Medium	6.70	37.48

Annular Space			Volume Placed (m ³ /ft ³)
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	
8.83	0	Grouted Bentonite Slurry	.21m ³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Public
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Reverse)	<input checked="" type="checkbox"/> Domestic
<input type="checkbox"/> Boring	<input type="checkbox"/> Municipal
<input checked="" type="checkbox"/> Air percussion	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Other, specify	<input type="checkbox"/> Cooling & Air Conditioning
	<input type="checkbox"/> Not used
	<input type="checkbox"/> Dewatering
	<input type="checkbox"/> Monitoring
	<input type="checkbox"/> Industrial
	<input type="checkbox"/> Other, specify

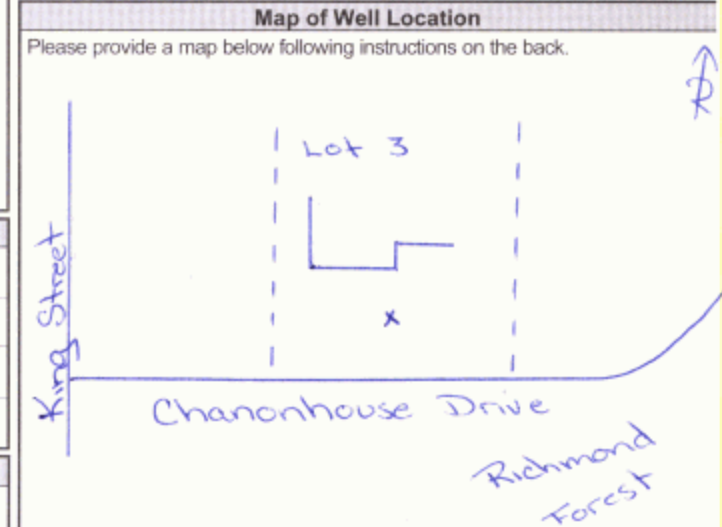
Construction Record - Casing			Status of Well		
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
15.86	Steel	.48	+	8.83	

Construction Record - Screen			Status of Well
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	

Water Details		Hole Diameter	
Water found at Depth 28.0 (4 ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From	To
35.3 (5 ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	0	8.83
		8.83	37.48
			15.23

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 	Date Submitted 20080822	

Results of Well Yield Testing			
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify			
If pumping discontinued, give reason:	Draw Down	Recovery	
	Time (min)	Water Level (m/ft)	Time (min)
Static Level	4.40		
1	5.80	1	6.28
2	6.51	2	5.19
3	6.99	3	4.74
4	7.31	4	4.62
5	7.53	5	4.59
10	7.95	10	4.53
15	8.13	15	4.50
20	8.20	20	4.48
25	8.22	25	4.47
30	8.24	30	4.46
40	8.25	40	4.45
50	8.27	50	4.44
60	8.30	60	
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) 8.30			
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			



Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20080819	Ministry Use Only Audit No. Z 84379 OCT 14 2008 Received
Date Work Completed 20080819		

Well Owner's Information

First Name Talos Custom Homes	Last Name	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name, RR) 5509 Canotek Rd. Unit 1		Municipality Ottawa	Province Ontario
Postal Code K1J 9S 8		Telephone No. (inc. area code) 613 747 3993	

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR) Lot 33 Richmond Forest		Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates NAD 83	Zone 18	Easting 435430	Northing 5004623	GPS Unit Make Garmin
Model		Mode of Operation: <input type="checkbox"/> Undifferentiated <input checked="" type="checkbox"/> Averaged <input type="checkbox"/> 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	Depth (Metres) 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	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
9.14	0	Grouted Bentonite Slurry	2.52m ³

Results of Well Yield Testing

Check box if after test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Cannot develop to sand-free state If pumping discontinued, give reason:	Draw Down		Recovery	
	Time (Min)	Water Level (Metres)	Time (Min)	Water Level (Metres)
Static Level	3.87	Static Level		
Pumping test method Submersible	1	5.13	1	4.42
Pump intake set at (Metres) 18.28	2	5.54	2	4.15
Pumping rate (Litres/min) 54.6	3	5.71	3	4.09
Duration of pumping 1 hrs + 0 min	4	5.81	4	4.05
Final water level end of pumping (Metres) 6.09	5	5.86	5	4.02
Recommended pump type <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	10	5.96	10	3.96
Recommended pump depth 15.23 Metres	15	6.01	15	3.94
Recommended pump rate (Litres/min) 45.5	20	6.03	20	3.93
If flowing give rate (Litres/min)	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

Method of Construction

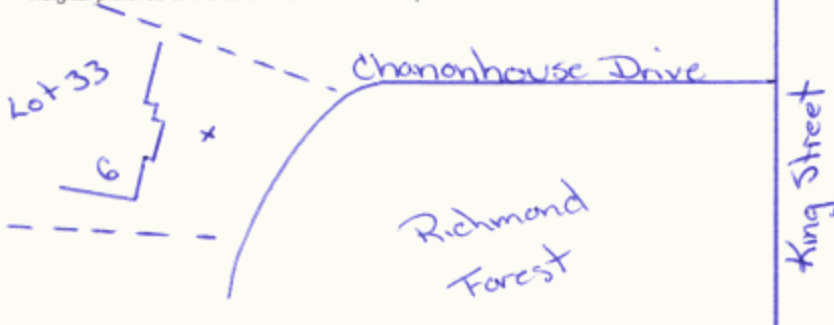
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input checked="" type="checkbox"/> Rotary (Air)	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input checked="" type="checkbox"/> Air percussion	<input type="checkbox"/> Boring	<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Other, specify _____			

Water Use
Status of Well

<input checked="" type="checkbox"/> Water Supply	<input type="checkbox"/> Dewatering Well	<input type="checkbox"/> Observation and/or Monitoring Hole
<input type="checkbox"/> Replacement Well	<input type="checkbox"/> Abandoned, Insufficient Supply	<input type="checkbox"/> Alteration (Construction)
<input type="checkbox"/> Test Hole	<input type="checkbox"/> Abandoned, Poor Water Quality	<input type="checkbox"/> Other, specify _____
<input type="checkbox"/> Recharge Well	<input type="checkbox"/> 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")
 - digital pictures of inside of well can also be provided


Water Details

Water found at Depth 27.73 Metres	Kind of Water <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals Not Tested
Water found at Depth _____ Metres	Kind of Water <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
Water found at Depth _____ Metres	Kind of Water <input type="checkbox"/> Gas <input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals

Casing Used
Screen Used
Casing and Well Details

<input type="checkbox"/> Galvanized	<input type="checkbox"/> Galvanized	Diameter of the Hole (Centimetres) 15.39
<input checked="" type="checkbox"/> Steel	<input type="checkbox"/> Steel	Depth of the Hole (Metres) 29.86
<input type="checkbox"/> Fibreglass	<input type="checkbox"/> Fibreglass	Wall Thickness (Metres) 0.48
<input type="checkbox"/> Plastic	<input type="checkbox"/> Plastic	Inside Diameter of the Casing (Metres) 15.86
<input type="checkbox"/> Concrete	<input type="checkbox"/> Concrete	Depth of the Casing (Metres) +4.45 to 9.14

No Casing and Screen Used

<input type="checkbox"/> Open Hole	Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Ministry Use Only

Audit No. z 77400	Well Contractor No.
Date Received (yyyy/mm/dd) OCT 14 2008	Date of Inspection (yyyy/mm/dd)
Remarks	

Date Well Completed (yyyy/mm/dd) 2008/7/22	Was the well owner's information package delivered? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd) 2008/7/23
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Well Contractor and Well Technician Information

Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8
Business Address (Street No./Name, number, RR) Box 490		Municipality Stittsville
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca
Bus. Telephone No. (inc. area code) 613 836 1766		Name of Well Technician (Last Name, First Name) Miller, Stephen
Well Technician's Licence No. 0 0 9 7	Signature of Technician 	Date Submitted (yyyy/mm/dd) 2008/7/30

Measurements recorded in: Metric Imperial

Page _____ of _____

Well Owner's Information

First Name Talos Custom Homes	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 9 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates NAD 83184353335004508	Zone 18	Easting 435333	Northing 5004508
Municipal Plan and Sublot Number		Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones	Sticky	0	5.48
Grat	Limestone			5.48	37.48

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used	Volume Placed	
From	(Material and Type)	(m ³ /ft ³)	
8.53	0	GROUTED Bentonite Slurry	.42m ³

Results of Well Yield Testing				
After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Static Level	4.48		
If pumping discontinued, give reason:	1	5.23	1	4.86
Pump intake set at (m/ft) 22.85	2	5.39	2	4.70
Pumping rate (l/min / GPM) 54.6	3	5.46	3	
Duration of pumping 1 hrs + min	4	5.50	4	4.62
Final water level end of pumping (m/ft) 5.69	5	5.53	5	4.61
If flowing give rate (l/min / GPM)	10	5.55	10	4.57
Recommended pump depth (m/ft) 18.28	15	5.60	15	4.54
Recommended pump rate (l/min / GPM) 45.5	20	5.62	20	4.52
Well production (l/min / GPM)	25	5.64	25	4.52
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	30	5.56	30	4.52
	40	5.67	40	4.52
	50	5.68	50	4.52
	60	5.69	60	4.52

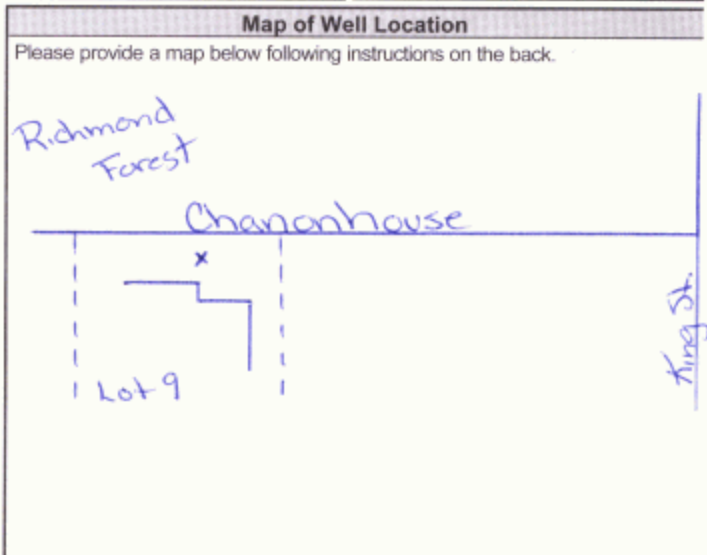
Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+4.45	8.53	

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
		From	To
35.65	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	0	15.86
		8.63	15.23

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766		Name of Well Technician (Last Name, First Name) Miller, Stephen	
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor <i>Stephen Miller</i>	Date Submitted 20080922	



Comments:

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20080917	Ministry Use Only Audit No. Z 84400 OCT 14 2008 Received
Date Work Completed 20080916		

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name Talos Custom Homes		Last Name / Organization		E-mail Address		<input type="checkbox"/> Well Constructed by Well Owner	
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1			Municipality Ottawa	Province Ontario	Postal Code K1J9J8	Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 2 - Richmond Forest		Township Goulbourn	Lot 25	Concession 3	
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond		Province Ontario	Postal Code
UTM Coordinates Zone	Easting	Northing		Municipal Plan and Sublot Number	
NAD 83	18435250	5004396			

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones	Packed	0	4.87
Gray	Limestone	Brown Layers	Medium	4.87	37.48

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
7.61	0	Grouted Bentonite Slurry	.547m ³

Results of Well Yield Testing

After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input type="checkbox"/> Other, specify _____		Static Level	4.76		
If pumping discontinued, give reason:		1	6.41	1	8.11
Pump intake set at (m/ft)		2	7.15	2	6.45
22.85		3	7.76	3	5.50
Pumping rate (l/min / GPM)		4	8.35	4	5.11
54.6		5	8.57	5	4.99
Duration of pumping		10	9.63	10	4.89
1 hrs + _____ min		15	10.08	15	4.85
Final water level end of pumping (m/ft)		20	10.26	20	4.82
10.57		25	10.34	25	4.80
If flowing give rate (l/min / GPM)		30	10.40	30	4.79
Recommended pump depth (m/ft)		40	10.50	40	4.77
22.85		50	10.54	50	
Recommended pump rate (l/min / GPM)		60	10.57	60	
45.5					
Well production (l/min / GPM)					
Disinfected?					
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

Method of Construction

<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging
<input checked="" type="checkbox"/> Air percussion	
<input type="checkbox"/> Other, specify _____	

Well Use

<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
15.86	Steel	.48	+4.45	7.61	<input checked="" type="checkbox"/> Water Supply
					<input type="checkbox"/> Replacement Well
					<input type="checkbox"/> Test Hole
					<input type="checkbox"/> Recharge Well
					<input type="checkbox"/> Dewatering Well
					<input type="checkbox"/> Observation and/or Monitoring Hole
					<input type="checkbox"/> Alteration (Construction)
					<input type="checkbox"/> Abandoned, Insufficient Supply
					<input type="checkbox"/> Abandoned, Poor Water Quality
					<input type="checkbox"/> Abandoned, other, specify _____
					<input type="checkbox"/> Other, specify _____

Construction Record - Screen

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

Water Details

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

Hole Diameter

Depth (m/ft)	Diameter (cm/in)
0	15.86
7.61	15.23

Well Contractor and Well Technician Information

Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8
Business Address (Street Number/Name) Box 490	Municipality Stittsville
Province Ontario	Postal Code K2S1A6
Business E-mail Address 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. 0 0 9 7	Signature of Technician and/or Contractor <i>[Signature]</i>
	Date Submitted 20080922

Map of Well Location

Please provide a map below following instructions on the back.

Comments:

Well owner's information package delivered	Date Package Delivered 20080917
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Work Completed 20080916

Ministry Use Only	
Audit No. Z 84401	Received
OCT 14 2008	

Well Owner's Information

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

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

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR): Lot 8 Richmond Forest | Township: Goulbourn | Lot: 25 | Concession: 3
 County/District/Municipality: Ottawa Carleton | City/Town/Village: Richmond | Province: Ontario | Postal Code: |

UTM Coordinates: Zone: NAD 83 | Easting: 18 435321 | Northing: 5004487 | GPS Unit Make: Garmin | Model: | Mode of Operation: Undifferentiated Averaged Differentiated, specify _____

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

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
Brown	Sandy Clay	Stones	Packed	0	4.57
Gray	Limestone		Medium Hard	4.57	29.86

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	Depth Set at (Metres) To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
7.77	0	Grouted Bentonite Slurry	.315m ³

Results of Well Yield Testing

Check box if after test of well yield, water was:	Draw Down		Recovery	
	Time (Min)	Water Level (Metres)	Time (Min)	Water Level (Metres)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Cannot develop to sand-free state	Static Level	3.95	Static Level	
If pumping discontinued, give reason:	1	4.94	1	4.36
Pumping test method: Submersible	2	5.22	2	4.17
Pump intake set at (Metres): 22.85	3	5.35	3	4.11
Pumping rate (Litres/min): 54.6	4	5.39	4	4.08
Duration of pumping: 1 hrs + min	5	5.43	5	4.06
Final water level end of pumping (Metres): 5.58	10	5.50	10	4.01
Recommended pump type: <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep	15	5.51	15	3.99
Recommended pump depth: 22.85 Metres	20	5.53	20	3.98
Recommended pump rate (Litres/min): 45.5	25	5.54	25	3.97
If flowing give rate (Litres/min):	30	5.54	30	3.97
	40	5.55	40	
	50	5.56	50	
	60	5.58	60	

Method of Construction

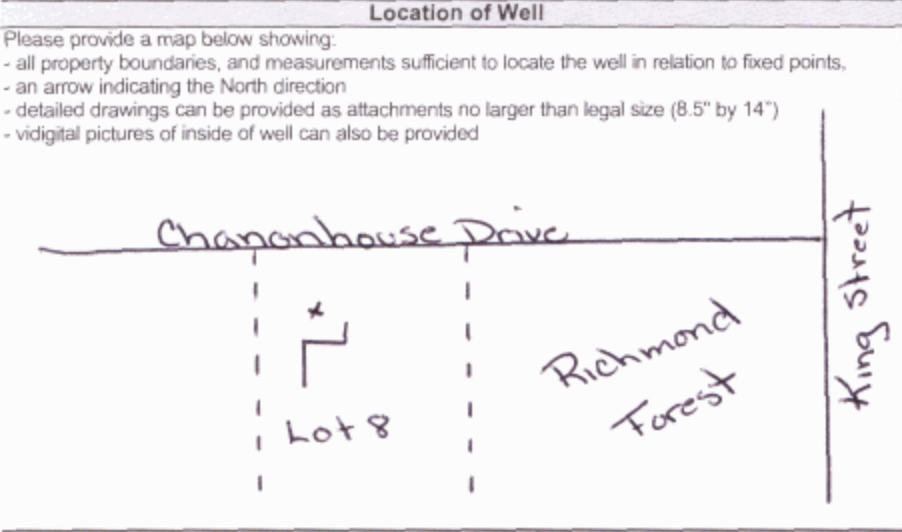
Cable Tool Diamond Rotary (Conventional) Jetting Rotary (Reverse) Driving Rotary (Air) Digging Air percussion Other, specify _____

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



Water Details

Water found at Depth	Kind of Water
12.19 Metres <input type="checkbox"/> Gas	Not Tested <input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
27.43 Metres <input type="checkbox"/> Gas	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals
Metres <input type="checkbox"/> Gas	<input type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals

Date Well Completed (yyyy/mm/dd): 2008/7/8 | Was the well owner's information package delivered? Yes No | Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd): 2008/7/9

Casing Used

Galvanized Steel Fibreglass Plastic Concrete

Screen Used

Galvanized Steel Fibreglass Plastic Concrete

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 7.77

No Casing and Screen Used

Open Hole

Disinfected? Yes No

Well Contractor and Well Technician Information

Business Name of Well Contractor: Capital Water Supply Ltd. | Well Contractor's Licence No.: 1 5 5 8
 Business Address (Street No./Name, number, RR): Box 490 | Municipality: Stittsville
 Province: Ontario | Postal Code: K2S 1A6 | Business E-mail Address: office@capitalwater.ca
 Bus. Telephone No. (inc. area code): 613 836 1766 | Name of Well Technician (Last Name, First Name): Miller, Stephen
 Well Technician's Licence No.: 0 0 9 7 | Signature of Technician: [Signature] | Date Submitted (yyyy/mm/dd): 2008/7/11

Ministry Use Only

Audit No.: **z 77389** | Well Contractor No.:
 Date Received (yyyy/mm/dd): OCT 14 2008 | Date of Inspection (yyyy/mm/dd):
 Remarks:

Well Owner's Information

First Name: Talos Custom Homes, Last Name: Talos Custom Homes, E-mail Address: [blank], Well Constructed by Well Owner: [checked], Mailing Address: 5509 Canotek Rd., Municipality: Ottawa, Province: Ontario, Postal Code: K1J 9J8, Telephone No.: 613 747 3993

Part A Construction and/or Major Alteration of a Well

Address of Well Location: Lot 6, Richmond Forest, Township: Goulbourn, Lot: 25, Concession: 3, County: Ottawa Carleton, City: Richmond, Province: Ontario, UTM Coordinates: NAD 83, Zone 18, Easting 435285, Northing 5004463, GPS Unit: Garmin, Mode of Operation: Averaged

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

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (Metres) From/To. Rows include Sandy Clay, Limestone, Stones, Packed, Medium Hard.

Annular Space/Abandonment Sealing Record

Table with 3 columns: Depth Set at (Metres) From/To, Type of Sealant Used (Material and Type), Volume Placed (Cubic Metres). Row: 7.77 to 0, Grouted Bentonite, .42m³

Results of Well Yield Testing

Check box if after test of well yield, water was: [checked] Clear and sand free. Pumping test method: Submersible. Pump intake set at: 22.85 Metres. Pumping rate: 54.6 Litres/min. Duration of pumping: 1 hrs + min. Final water level end of pumping: 7.72 Metres. Recommended pump type: Deep. Recommended pump depth: 30 Metres. Recommended pump rate: 7.70 Litres/min. If flowing give rate: 7.72 Litres/min.

Method of Construction

Water Use

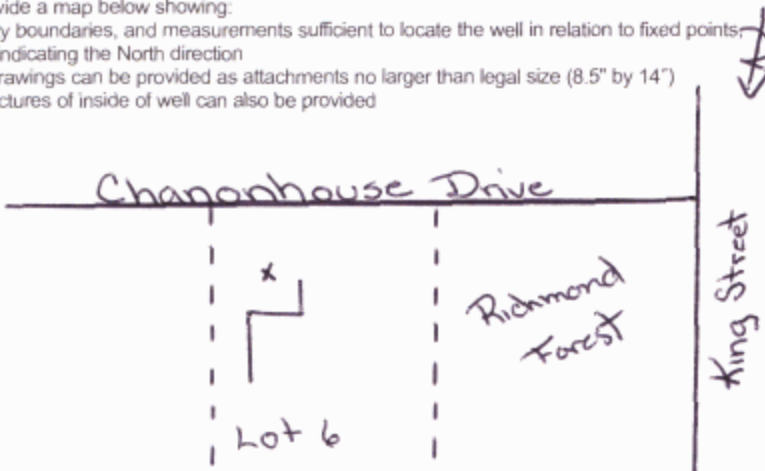
Method of Construction: [checked] Rotary (Air), [checked] Air percussion. Water Use: [checked] Domestic, [checked] Irrigation, [checked] Industrial.

Status of Well

Status of Well: [checked] Water Supply, [checked] Replacement Well, [checked] Test Hole, [checked] Recharge Well.

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"); - digital pictures of inside of well can also be provided



Water Details

Water found at Depth: 31.08 Metres. Kind of Water: Not Tested. Water found at Depth: [blank] Metres. Kind of Water: [blank]. Water found at Depth: [blank] Metres. Kind of Water: [blank].

Casing Used

Screen Used

Casing and Well Details

Casing Used: [checked] Steel. Screen Used: [checked] Steel. Casing and Well Details: Diameter of the Hole: 15.39 Centimetres, Depth of the Hole: 33.52 Metres, Wall Thickness: 0.48 Metres.

No Casing and Screen Used

No Casing and Screen Used: [checked] Open Hole. Inside Diameter of the Casing: 15.86 Metres. Depth of the Casing: +.40 to 7.77 Metres.

Ministry Use Only

Audit No.: z 77390, Well Contractor No.: [blank], Date Received: OCT 14 2008, Date of Inspection: [blank], Remarks: [blank]

Date Well Completed: 2008/7/8, Was the well owner's information package delivered?: [checked] Yes, Date the Well Record and Package Delivered to Well Owner: 2008/7/9

Well Contractor and Well Technician Information

Business Name of Well Contractor: Capital Water Supply Ltd., Well Contractor's Licence No.: 0093, Business Address: Box 490, Stittsville, Province: Ontario, Postal Code: K2S 1A6, Business E-mail Address: office@capitalwater.ca, Name of Well Technician: Miller, Stephen, Well Technician's Licence No.: 0097, Signature of Technician: [Signature], Date Submitted: 2008/7/11

Well Owner's Information

First Name Talos Custom Homes	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 25 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates	Zone 18	Easting 435371	Northing 5004501
Municipal Plan and Sublot Number		Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones		0	3.04
Gray	Clay	Sand	Loose	3.04	6.09
Gray	Limestone	Badly Broken	Fault in Rock	6.09	10.97
Gray	Limestone		Medium	10.97	45.10

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 13.10 To: 0	Grouted Bentonite Slurry	1.05m ³	

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+4.5	13.10	

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
41.75	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	From: 0 To: 13.10	15.86
		13.10	45.10

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K2S1A6	Business E-mail Address 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. 0 0 9 7		Signature of Technician and/or Contractor <i>[Signature]</i>	
		Date Submitted 20080922	

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	4.52		
Pump intake set at (m/ft) 22.85		1	6.30	1	8.23
Pumping rate (l/min / GPM) 54.6		2	7.38	2	6.70
Duration of pumping 1 hrs + 0 min		3	8.14	3	5.67
Final water level end of pumping (m/ft) 10.56		4	8.67	4	5.05
If flowing give rate (l/min / GPM)		5	9.09	5	4.80
Recommended pump depth (m/ft) 22.85		10	10.00	10	4.55
Recommended pump rate (l/min / GPM) 45.5		15	10.27	15	
Well production (l/min / GPM)		20	10.41	20	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		25	10.47	25	
		30	10.50	30	
		40	10.53	40	
		50	10.55	50	
		60	10.56	60	

Map of Well Location	
Please provide a map below following instructions on the back.	
Comments:	

Ministry Use Only	
Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20080917
Date Work Completed 20080916	Audit No. Z 84399
	Received OCT 14 2008

Well Owner's Information

First Name Talos Custom Homes	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 5 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone 18 Easting 435267 Northing 5004446	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Sandy Clay	Stones	Packed	0	5.79
Gray	Limestone		Medium	5.79	37.48

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From 7.61 To 0	Grouted Bentonite Slurry	.42m³	

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____
<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging	<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning <input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring

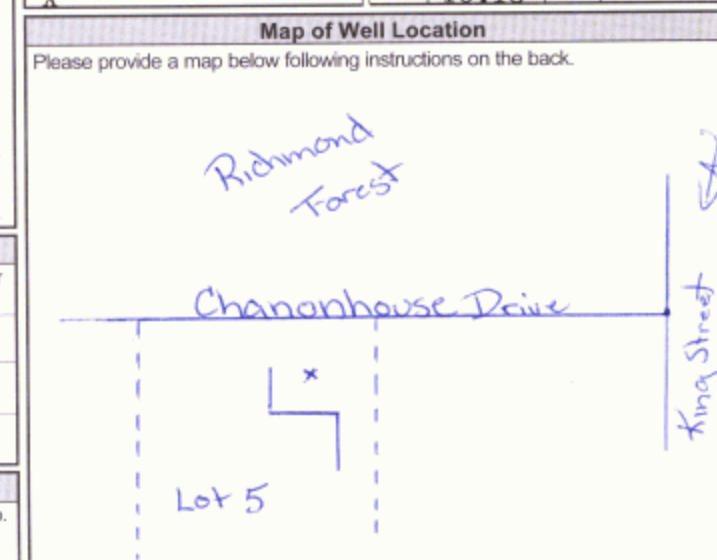
Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+ .45	7.61	

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft)	Diameter (cm/in)
36.26		From 0 To 7.61	15.86
		7.61 To 37.48	15.23

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen	Date Submitted 20080910	
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor <i>[Signature]</i>		

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	4.59		
Pump intake set at (m/ft) 30.47		1	6.20	1	7.64
Pumping rate (l/min / GPM) 54.6		2	6.97	2	6.17
Duration of pumping 1 hrs + min		3	7.52	3	5.32
Final water level end of pumping (m/ft) 10.18		4	7.89	4	4.96
If flowing give rate (l/min / GPM)		5	8.21	5	4.86
Recommended pump depth (m/ft) 22.85		10	9.15	10	4.59
Recommended pump rate (l/min / GPM) 45.5		15	9.56	15	
Well production (l/min / GPM)		20	9.79	20	
Disinfected?		25	9.83	25	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		30	9.95	30	
		40	10.01	40	
		50	10.10	50	
		60	10.18	60	



Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20080908	Ministry Use Only Audit No. Z 84390 Received OCT 14 2008
Date Work Completed 20080904		

Measurements recorded in: Metric Imperial

A068310

A 068310

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Well Owner's Information

First Name Talos Custom Homes	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 14 Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone 18 Easting 435404 Northing 5004631	Municipal Plan and Sublot Number	Other	

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

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

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

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input checked="" type="checkbox"/> Rotary (Conventional) <input type="checkbox"/> Rotary (Reverse) <input type="checkbox"/> Boring <input type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging <input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____
<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning	<input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring

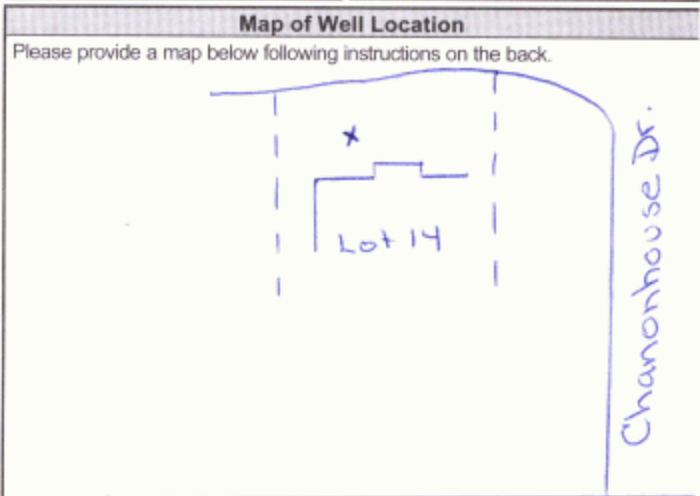
Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
42.36	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	From: 0 To: 7.77	15.86
		7.77	45.10

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor	Date Submitted 20081110	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level	3.63		
	1	5.18	1	8.37
Pump intake set at (m/ft) 30.47	2	6.13	2	5.67
	3	6.82	3	5.03
Pumping rate (l/min / GPM) 54.6	4	7.40	4	4.30
	5	8.60	5	3.45
Duration of pumping 1 hrs + min	10	9.40	10	3.65
	15	10.17	15	
Final water level end of pumping (m/ft) 11.64	20	10.79	20	
	25	11.05	25	
If flowing give rate (l/min / GPM)	30	11.18	30	
	40	11.47	40	
Recommended pump depth (m/ft) 22.85	50	11.57	50	
	60	11.64	60	
Recommended pump rate (l/min / GPM) 45.5				
	Well production (l/min / GPM)			
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				



Comments:

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20081107	Ministry Use Only Audit No. Z 84444 DEC 02 2008 Received
	Date Work Completed 20081106	

Measurements recorded in: Metric Imperial

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Well Owner's Information

First Name Talos Custom Homes	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 29 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone NAD 83 18	Easting 435428	Northing 5004553	Municipal Plan and Sublot Number Other

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
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)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 8.53 To: 0	Grouted Bentonite Slurry	.69m ³	

Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other, specify		<input type="checkbox"/> Other, specify	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
15.86	Steel	.48	+60	8.53	

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

Water Details		Hole Diameter		
Water found at Depth 42.36(m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)	
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	From To		
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	0 8.53	15.86	
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	8.53 45.10	15.07	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested			
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify			

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 	Date Submitted 2008 11 17	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) 30.47 Pumping rate (l/min / GPM) 54.6 Duration of pumping 1 hrs + 0 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	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 owner's information package delivered		Date Package Delivered		Ministry Use Only	
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2008 11 13		Audit No. Z 84445	
		Date Work Completed		DEC 02 2008	
		2008 11 12		Received	

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 1 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 83 18 43 52 16 50 04 38 4	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones	Packed	0	4.26
Gray	Limestone		Medium	4.26	47.24

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used	Volume Placed	
From	To	(Material and Type)	(m ³ /ft ³)
7.31	0	Grouted Bentonite Slurry	.46m ³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____
<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging	<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning <input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
From	To	From	To
45.41	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	0	7.31
7.31	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	7.31	47.24

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen	Date Submitted 2008 12 03	
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 		

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	3.75		
Pump intake set at (m/ft) 30.47		1	4.58	1	3.99
Pumping rate (l/min / GPM) 54.6		2	4.84	2	3.98
Duration of pumping 1 hrs + min		3	4.93	3	3.83
Final water level end of pumping (m/ft) 5.25		4	4.98	4	3.80
If flowing give rate (l/min / GPM)		5	5.01	5	3.79
Recommended pump depth (m/ft) 19.81		10	5.10	10	3.76
Recommended pump rate (l/min / GPM) 45.5		15	5.19	15	
Well production (l/min / GPM)		20	5.21	20	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		25	5.22	25	
		30	5.23	30	
		40	5.29	40	
		50	5.26	50	
		60	5.25	60	

Map of Well Location	
Please provide a map below following instructions on the back.	

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 2008 12 03	Ministry Use Only Audit No. Z 84460 FEB 12 2009 Received _____
Date Work Completed 2008 12 02		

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 10 Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone NAD 83 18	Easting 435356	Northing 5004513	Municipal Plan and Sublot Number

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones	Packed	0	5.79
Gray	Limestone		Medium	5.79	48.76

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From	To		
8.83	0	Grouted Bentonite Slurry	.43m ³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify
<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging	<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning <input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
			From	To	
15.86	Steel	.48	+ .45	8.83	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
		From	To
46.63	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	0	8.83
		8.83	48.76

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K 2 S 1 A 6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 6 1 3 8 3 6 1 7 6 6	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor	Date Submitted 2 0 0 8 1 2 0 3	

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify		Static Level	3.90		
If pumping discontinued, give reason:		1	5.10	1	5.18
Pump intake set at (m/ft) 45.71		2	5.67	2	4.29
Pumping rate (l/min / GPM) 54.6		3	5.99	3	3.98
Duration of pumping 1 hrs + 0 min		4	6.24	4	3.94
Final water level end of pumping (m/ft) 6.98		5	6.47	5	3.92
If flowing give rate (l/min / GPM)		10	6.85	10	
Recommended pump depth (m/ft) 22.85		15	6.94	15	
Recommended pump rate (l/min / GPM) 45.5		20	7	20	
Well production (l/min / GPM)		25	7.04	25	
Disinfected?		30	6.97	30	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		40	6.97	40	
		50	6.97	50	
		60	6.98	60	

Map of Well Location
Please provide a map below following instructions on the back.
Comments:

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
<input checked="" type="checkbox"/> Yes	2 0 0 8 1 2 0 3	Audit No. Z 84461
<input type="checkbox"/> No	Date Work Completed 2 0 0 8 1 2 0 2	FEB 12 2009
		Received

Measurements recorded in: Metric Imperial

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Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Rd. Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 18 Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 83 18 43 52 54 50 04 39 4	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Soil	Stones	Packed	0	5.48
Gray	Limestone		Medium	5.48	29.86

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 8.53 To: 0	Grouted Bentonite Slurry	.42m ³	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) 16.76 Pumping rate (l/min / GPM) 54.6 Duration of pumping 1 hrs + _____ min Final water level end of pumping (m/ft) 4.34 If flowing give rate (l/min / GPM)	Static Level	3.90		
	1	4.06	1	4.15
	2	4.09	2	4.10
	3	4.13	3	4.07
	4	4.16	4	4.05
	5	4.19	5	4.01
10	4.25	10	3.92	
15	4.27	15		
20	4.29	20		
25	4.32	25		
30	4.31	30		
40	4.32	40		
50	4.33	50		
60	4.34	60		
Recommended pump depth (m/ft) 16.78				
Recommended pump rate (l/min / GPM) 45.5				
Well production (l/min / GPM)				
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

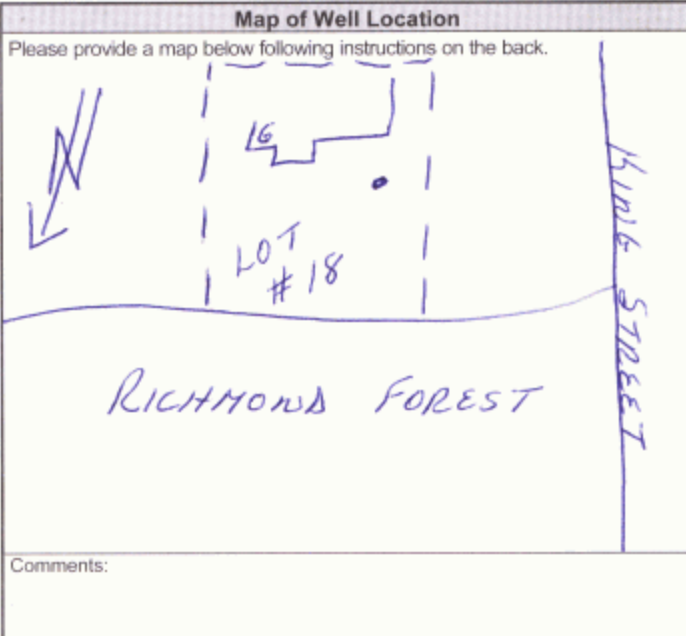
Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input checked="" type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+4.5	8.53	

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

Water Details		Hole Diameter	
Water found at Depth 27.73 (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____		From: 0 To: 8.53	15.86
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	8.53	29.86
<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____			15.55
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		
<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____			

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K2S1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 	Date Submitted 20081216	



Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20081216	Ministry Use Only Audit No. Z 84464 FEB 12 2009
Date Work Completed 20081209		

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
	Talos Custom Homes		
Mailing Address (Street Number/Name)	Municipality	Province	Postal Code
5509 Canotek Road - Unit 1	Ottawa	Ontario	K1J 9J8
		Telephone No. (inc. area code)	613 747 3993

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
Lot 22 - 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
NAD 83	18435315	5004443	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Sandy Clay	Stones	Packed	0	4.57
Gray	Limestone		Medium	4.57	47.24

Annular Space			
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 7.92 To: 0	Grouted Bentonite Slurry	.52m ³	

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging <input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+4.45	7.92	

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

Water Details		Hole Diameter		
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	From	To
44.80	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____			
		0	7.92	15.86
		7.92	47.24	15.39

Well Contractor and Well Technician Information			
Business Name of Well Contractor	Well Contractor's Licence No.		
Capital Water Supply Ltd.	1 5 5 8		
Business Address (Street Number/Name)	Municipality		
Box 490	Stittsville		
Province	Postal Code	Business E-mail Address	
Ontario	K 2 S 1 A 6	office@capitalwater.ca	
Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)		
6 1 3 8 3 6 1 7 6 6	Miller, Stephen		
Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted	
0 0 9 7		20090120	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) 45.71 Pumping rate (l/min / GPM) 36.40 Duration of pumping 1 hrs + _____ min Final water level end of pumping (m/ft) 16.39 If flowing give rate (l/min / GPM) 30.47 Recommended pump rate (l/min / GPM) 45.5 Well production (l/min / GPM) Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Static Level	4.06		
	1	5.78	1	13.10
	2	7.03	2	10.78
	3	7.83	3	9.02
	4	8.60	4	7.84
	5	9.02	5	6.88
10	12	10	4.38	
15	12.98	15	4.06	
20	14.11	20		
25	14.64	25		
30	15.20	30		
40	15.73	40		
50	16.14	50		
60	16.39	60		

Map of Well Location
Please provide a map below following instructions on the back.
Comments:

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	20090121 Date Work Completed	Audit No. Z 84473 FEB 12 2009 Received

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	<input type="checkbox"/> 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 30, Richmond Forest	Goulbourn	25	3
County/District/Municipality	City/Town/Village	Province	Postal Code
Ottawa Carleton	Richmond	Ontario	
UTM Coordinates	Municipal Plan and Sublot Number		Other
Zone: Easting Northing			
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	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)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 8.83 To: 0	Grouted Bentonite Slurry	.84m ³	

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
			From	To	
15.86	Steel	.48	+ .45	8.83	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Depth (m/ft)	Diameter (cm/in)
		From	To
43.27		0	8.83
		8.83	45.10

Well Contractor and Well Technician Information			
Business Name of Well Contractor	Well Contractor's Licence No.		
Capital Water Supply Ltd.	1 5 5 8		
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)		
613 836 1766	Miller, Stephen		
Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted	
0 0 9 7		20090306	

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	3.99		
Pump intake set at (m/ft)		1	4.74	1	4.27
30.47		2	4.90	2	4.11
Pumping rate (l/min / GPM)		3	4.94	3	4.04
54.6		4	4.98	4	4
Duration of pumping		5	5.	5	
1 hrs + min		10	5.08	10	
Final water level end of pumping (m/ft)		15	5.09	15	
5.14		20	5.11	20	
If flowing give rate (l/min / GPM)		25	5.12	25	
Recommended pump depth (m/ft)		30	5.12	30	
22.85		40	5.13	40	
Recommended pump rate (l/min / GPM)		50	5.13	50	
45.5		60	5.14	60	
Well production (l/min / GPM)					
Disinfected?					
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

Map of Well Location	
Please provide a map below following instructions on the back.	

Well owner's information package delivered	Date Package Delivered	Ministry Use Only Audit No. 2095337 APR 06 2009 Received
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	20090306	
	Date Work Completed	
	20090305	

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Rd. Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 31, Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 8 31 8 4 3 5 4 5 2 5 0 0 4 5 9 9	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
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)	Type of Sealant Used	Volume Placed	
From	(Material and Type)	(m ³ /ft ³)	
8.83	0	Grouted Bentonite Slurry	.84m ³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging <input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
			From	To	
15.86	Steel	.48	+ .45	8.83	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Depth (m/ft)	Diameter (cm/in)
		From	To
43.27		0	8.83
		8.83	45.10
			15.23

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K 2 S 1 A 6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 6 1 3 8 3 6 1 7 6 6		Name of Well Technician (Last Name, First Name) Miller, Stephen	
Well Technician's Licence No. 0 0 9 7		Date Submitted 20090306	

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	3.95		
Pump intake set at (m/ft) 30.47		1	5.30	1	5.62
Pumping rate (l/min / GPM) 54.6		2	5.84	2	4.50
Duration of pumping 1 hrs + 0 min		3	6.24	3	4.04
Final water level end of pumping (m/ft) 7.78		4	6.53	4	3.93
If flowing give rate (l/min / GPM)		5	6.77	5	
Recommended pump depth (m/ft) 22.85		10	7.17	10	
Recommended pump rate (l/min / GPM) 45.5		15	7.37	15	
Well production (l/min / GPM)		20	7.49	20	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		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.

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 2 0 0 9 0 3 0 6	Ministry Use Only Audit No. 2 0 9 5 3 3 8 APR 0 6 2009 Received
Date Work Completed 2 0 0 9 0 3 0 5		

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Rd. Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 31, Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 8 31 8 4 3 5 4 5 2 5 0 0 4 5 9 9	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
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)	Type of Sealant Used	Volume Placed	
From	(Material and Type)	(m ³ /ft ³)	
8.83	0	Grouted Bentonite Slurry	.84m ³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		
			From	To	
15.86	Steel	.48	+ .45	8.83	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Depth (m/ft)	Diameter (cm/in)
		From	To
43.27		0	8.83
		8.83	45.10
			15.23

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8		
Business Address (Street Number/Name) Box 490	Municipality Stittsville		
Province Ontario	Postal Code K 2 S 1 A 6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 6 1 3 8 3 6 1 7 6 6	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor	Date Submitted 20090306	

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	3.95		
Pump intake set at (m/ft) 30.47		1	5.30	1	5.62
Pumping rate (l/min / GPM) 54.6		2	5.84	2	4.50
Duration of pumping 1 hrs + _____ min		3	6.24	3	4.04
Final water level end of pumping (m/ft) 7.78		4	6.53	4	3.93
If flowing give rate (l/min / GPM)		5	6.77	5	
Recommended pump depth (m/ft) 22.85		10	7.17	10	
Recommended pump rate (l/min / GPM) 45.5		15	7.37	15	
Well production (l/min / GPM)		20	7.49	20	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		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.

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 2 0 0 9 0 3 0 6	Ministry Use Only Audit No. 2 0 9 5 3 3 8 APR 0 6 2009 Received
Date Work Completed 2 0 0 9 0 3 0 5		

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road - Unit 1		Municipality Ottawa	Province Ontario
		Postal Code K1J 9J8	Telephone No. (inc. area code) 613 747 3993

Well Location

Address of Well Location (Street Number/Name) Lot 26 Richmond Forest	Township Goulbourn	Lot 3	Concession 25
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 83 18 43 53 71 5004 517	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
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)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From: 8.83 To: 0	Grouted Bentonite Slurry	.42m ³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____

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

Water Details		Hole Diameter		
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft)		Diameter (cm/in)
		From	To	
43.88 (144.19)		0	8.83	15.86
		8.83	45.10	15.23

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K 2 S 1 A 6	Business E-mail Address office@capitalwater.ca	

Bus. Telephone No. (inc. area code) 6 1 3 8 3 6 1 7 6 6	Name of Well Technician (Last Name, First Name) Miller, Stephen	Date Submitted 2 0 0 9 0 3 3 0
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level	3.32		
	1	4.79	1	4.26
Pump intake set at (m/ft) 30.48	2	5.30	2	3.91
	3	5.64	3	3.46
Pumping rate (l/min / GPM) 54.6	4	5.88	4	3.41
	5	5.98	5	3.39
Duration of pumping 1 hrs + min	10	6.24	10	3.33
	15		15	
Final water level end of pumping (m/ft) 6.46	20	6.37	20	
	25		25	
If flowing give rate (l/min / GPM)	30		30	
	40	6.43	40	
Recommended pump depth (m/ft) 22.85	50	6.44	50	
	60	6.46	60	
Recommended pump rate (l/min / GPM) 45.5				
	Well production (l/min / GPM)			
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Map of Well Location

Please provide a map below following instructions on the back.

LOT # 26

CHANION HOUSE DRIVE

KING STREET

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 2 0 0 9 0 3 3 0	Ministry Use Only Audit No. 2 0 9 5 3 2 4 Received MAY 2 0 2 0 0 9
Date Work Completed 2 0 0 9 0 3 2 4		

Measurements recorded in: Metric Imperial

A068297

A 068297

Page _____ of _____

Address of Well Location (Street Number/Name) Lot 27 Chanonhouse Drive		Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond	Province Ontario	Postal Code _____
UTM Coordinates Zone	Easting	Northing	Municipal Plan and Sublot Number Other	
NAD	8 3 1 8	4 3 5 4 0 7	5 0 0 4 5 1 0	

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)					
General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	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)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 8.53 To: 0	Grouted Bentonite Slurry	.63m ³	

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

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

Water Details		Hole Diameter		
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)	
43.58 (m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	From: 0 To: 8.53	15.86	
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	8.53	45.10	15.23
(m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____			
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested			
(m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____			

Well Contractor and Well Technician Information	
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8
Business Address (Street Number/Name) Box 490	Municipality Stittsville
Province Ontario	Postal Code K 2 S 1 A 6
Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 6 1 3 8 3 6 1 7 6 6	Name of Well Technician (Last Name, First Name) Miller, Stephen
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor
	Date Submitted 2 0 0 9 0 3 3 0

Results of Well Yield Testing				
After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____				
If pumping discontinued, give reason:	Static Level	3.22		
	1	4.72	1	5.09
Pump intake set at (m/ft)	2	5.55	2	3.92
22.85	3	6.15	3	3.47
Pumping rate (l/min / GPM)	4	6.53	4	3.32
54.6	5	6.82	5	3.27
Duration of pumping	10	7.47	10	
1 hrs + _____ min	15	7.63	15	
Final water level end of pumping (m/ft)	20	7.66	20	
7.73	25	7.66	25	
If flowing give rate (l/min / GPM)	30	7.67	30	
	40	7.72	40	
Recommended pump depth (m/ft)	50	7.72	50	
22.85	60	7.73	60	
Recommended pump rate (l/min / GPM)				
45.5				
Well production (l/min / GPM)				
Disinfected?				
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Map of Well Location	
Please provide a map below following instructions on the back.	
Comments:	

Ministry Use Only	
Well owner's information package delivered	Date Package Delivered
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2 0 0 9 0 3 3 0
Date Work Completed	
2 0 0 9 0 3 2 4	
Audit No.	2 095325
Recd	MAY 20 2009

Measurements recorded in: Metric Imperial

A076798

A076798

Page _____ of _____

Address of Well Location (Street Number/Name) Lot 28 Richmond Forest		Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number
NAD	8	318	435398	5004532

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	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)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)	
From: 8.83 To: 0	Grouted Bentonite Slurry	.42m ³	

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

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

Water Details		Hole Diameter		
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)	
42.66m/ft	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	From	To	
		0	8.83	15.86
		8.83	45.10	15.07

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K2S1A6	Business E-mail Address 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

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level	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	
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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Map of Well Location	
Please provide a map below following instructions on the back.	
Comments:	

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20090324	Ministry Use Only Audit No. 2095328 MAY 20 2009 Received
Date Work Completed 20090323		

Measurements recorded in: Metric Imperial

A066513

Page _____ of _____

Address of Well Location (Street Number/Name) **(No Civic) Huntley Road** Township **Goulbourn** Lot **24** Concession **4**
 County/District/Municipality **Ottawa-Carleton** City/Town/Village **Richmond** Province **Ontario** Postal Code _____
 UTM Coordinates Zone Easting Northing Municipal Plan and Sublot Number Other

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
	- Grey Clay			0	56'
	- Grey limestone			56'	176'
	- Grey Sandstone + limestone mix			176'	240'

Annular Space

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
62' 52'	Neat Cement Slurry	9.36
52' 0"	Bentone Slurry	16.8

Method of Construction

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

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	
			From	To
6"	Steel	.188"	12'	62'
6"	Openhole		62'	240'

Status of Well

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

Construction Record - Screen

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

Water Details

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

Hole Diameter

Depth (m/ft)	Diameter (cm/in)
0' 240'	5 15/16"

Well Contractor and Well Technician Information

Business Name of Well Contractor **Air Rock Drilling Co Ltd** Well Contractor's Licence No. **1119**
 Business Address (Street Number/Name) **Rt#1** Municipality **Richmond**
 Province **ON** Postal Code **K0A2Z0** Business E-mail Address _____

Bus. Telephone No. (inc. area code) **6138382170** Name of Well Technician (Last Name, First Name) **GRAHAM RYAN**
 Well Technician's Licence No. **T3484** Signature of Technician and/or Contractor *[Signature]* Date Submitted **20060603**

Results of Well Yield Testing

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

If pumping discontinued, give reason: _____

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) **16' 8"**

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

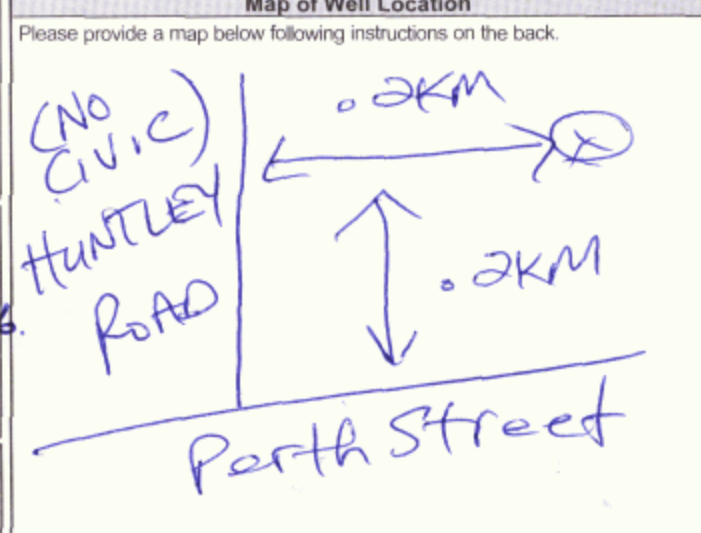
Recommended pump depth (m/ft) **(VAMP) 100'**

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

Well production (l/min / GPM) **60**

Disinfected? Yes No

Time (min)	Draw Down (m/ft)		Recovery (m/ft)	
	Water Level	Static Level	Water Level	Static Level
1	2' 3"	16' 8"	1	7'
2	9' 6"	16' 8"	2	5'
3	12'	16' 8"	3	4'
4	13' 2"	16' 8"	4	3'
5	14' 2"	16' 8"	5	2'
10	14' 8"	16' 8"	10	
15	16'	16' 8"	15	
20	16' 2"	16' 8"	20	
25	16' 8"	16' 8"	25	
30	16' 8"	16' 8"	30	
40		16' 8"	40	
50		16' 8"	50	
60		16' 8"	60	



Comments:

Well owner's information package delivered Yes No

Date Package Delivered **20090519** Date Work Completed **20090515**

Ministry Use Only

Audit No. **200582** JUN 08 2009
 Received JUN 08 2009

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Rd. - Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 19, Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 83 18 435282 5004405	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Soil	Stones		0	6.4
Gray	Limestone			6.4	23.46

Annular Space			
Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
8.83	0	Grouted Bentonite Slurry	.52m³

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input checked="" type="checkbox"/> Rotary (Reverse Air)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+4.5	8.83	

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

Water Details		Hole Diameter		
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft) From	To	Diameter (cm/in)
22.85		0	8.83	15.86
		8.83	23.46	15.55

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen		
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 	Date Submitted 20090506	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) 16.76 Pumping rate (l/min / GPM) 54.6 Duration of pumping 1 hrs + 30 min Final water level end of pumping (m/ft) 4.35 If flowing give rate (l/min / GPM) Recommended pump depth (m/ft) 16.76 Recommended pump rate (l/min / GPM) 45.5 Well production (l/min / GPM) Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Static Level	3.93		
	1	4.13	1	4.16
	2	4.18	2	4.08
	3	4.20	3	4.05
	4	4.22	4	4.03
	5	4.23	5	4
10	4.28	10	3.96	
15	4.31	15	3.93	
20	4.31	20		
25	4.32	25		
30	4.34	30		
40	4.33	40		
50	4.34	50		
60	4.34	60		

Map of Well Location	
Please provide a map below following instructions on the back.	
Comments:	

Ministry Use Only	
Audit No. 2095305	Received JUN 23 2009
Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20090506 Date Work Completed 20090506

Measurements recorded in: Metric Imperial

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road, Unit 1		Municipality Ottawa	Province Ontario
		Postal Code K1J 9J8	Telephone No. (inc. area code) 613 747 3993

Well Location

Address of Well Location (Street Number/Name) Lot 20, Richmond Forest		Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates	Zone 18	Easting 435287	Northing 5004427	Municipal Plan and Sublot Number

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones	Packed	0	6.70
Grey	Limestone	Dark Layers	Medium	6.70	25.90

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

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging <input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____
<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning	<input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+ .60	8.83	

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

Water Details		Hole Diameter	
Water found at Depth: 18.28(m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From: 0 To: 8.83	Diameter (cm/in): 15.86
Water found at Depth: 21.33(m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From: 8.83 To: 25.90	Diameter (cm/in): 15.55
Water found at Depth: 24.99(m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested		

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766		Name of Well Technician (Last Name, First Name) Miller, Stephen	
Well Technician's Licence No. 0 0 9 7		Signature of Technician and/or Contractor 	
		Date Submitted 2009 05 06	

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) 18.28 Pumping rate (l/min / GPM) 54.6 Duration of pumping 1 hrs + _____ min Final water level end of pumping (m/ft) 4.35 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Static Level	3.96		
	1	4.10	1	4.16
	2	4.15	2	4.11
	3	4.18	3	4.08
	4	4.21	4	4.06
	5	4.24	5	4.04
10	4.26	10	4.	
15	4.32	15	3.97	
20	4.33	20	3.96	
25	4.34	25		
30	4.35	30		
40	4.35	40		
50	4.36	50		
60	4.35	60		

Map of Well Location
Please provide a map below following instructions on the back.
Comments:

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2009 05 06 Date Work Completed	Audit No. 2095310 JUN 29 2009 Received



Measurements recorded in: Metric Imperial

A076823 **A076823**

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road, Unit 1		Municipality Ottawa	Province Ontario
		Postal Code K1J 9J8	Telephone No. (inc. area code) 613 747 3993

Well Location

Address of Well Location (Street Number/Name) Lot 17, Chanonhouse		Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond	Province Ontario	Postal Code
ITM Coordinates Zone	Easting	Northing	Municipal Plan and Sublot Number	
NAD 83	18	435238	5004404	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Clay	Stones		0	4.87
Gray	Limestone			4.87	29.86

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From: .92 To: 0	Grouted Bentonite Slurry	.42m³

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free	<input type="checkbox"/> Other, specify _____	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	4.08		
Pump intake set at (m/ft)		1	4.27	1	4.20
Pumping rate (l/min / GPM)		2	4.31	2	4.07
Duration of pumping		3	4.34	3	
1 hrs + min		4	4.35	4	
Final water level end of pumping (m/ft)		5	4.37	5	
4.51		10	4.41	10	
If flowing give rate (l/min / GPM)		15	4.45	15	
Recommended pump depth (m/ft)		20	4.45	20	
15.23		25	4.46	25	
Recommended pump rate (l/min / GPM)		30	4.48	30	
45.5		40	4.49	40	
Well production (l/min / GPM)		50	4.50	50	
Disinfected?		60	4.51	60	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

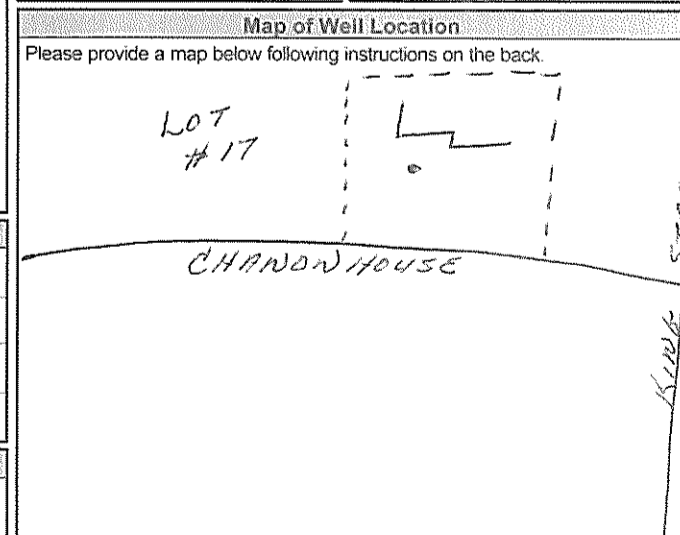
Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____	

Construction Record - Casing			Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	
			From	To
15.86	Steel	.48	+ .45	7.92

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)
		From	To
7.73 (m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	0	7.92
		7.92	29.86
			15.23

Well Contractor and Well Technician Information	
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8
Business Address (Street Number/Name) Box 490	Municipality Stittsville
Province Ontario	Postal Code K2S 1A6
Business E-mail Address office@capitalwater.ca	



Comments:

Well owner's information package delivered	Date Package Delivered 20090618	Ministry Use Only Audit No. 2095262 AUG 10 2009
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Work Completed 20090617	

Business Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen	Date Submitted 20090619
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor <i>[Signature]</i>	

Measurements recorded in: Metric Imperial

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road, Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 12, Chanonhouse	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 83 18 435390 5004542	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
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)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)	
From: 9.14 To: 0	Grouted Bentonite Slurry	.63m³	

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input checked="" type="checkbox"/> Rotary (Reverse) Air <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify _____	<input type="checkbox"/> Public <input type="checkbox"/> Commercial <input type="checkbox"/> Not used <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify _____

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

Water Details		Hole Diameter	
Water found at Depth: 50.59m/ft	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From: 0 To: 9.14	Diameter (cm/in): 15.86
Water found at Depth: (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From: 9.14 To: 51.81	Diameter (cm/in): 15.23
Water found at Depth: (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8	Business Address (Street Number/Name) Box 490	Municipality Stittsville
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca	
Business Telephone No. (inc. area code) 613 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen	Date Submitted 20090619	
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor 		

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) 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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	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:	

Ministry Use Only	
Audit No. 2095261	Received AUG 10 2009
Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered 20090618 Date Work Completed 20090617

Measurements recorded in: Metric Imperial

Page _____ of _____

Well Owner's Information

First Name: _____ Last Name / Organization: **Talos Custom Homes** E-mail Address: _____ Well Constructed by Well Owner

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

Well Location

Address of Well Location (Street Number/Name): **Lot 24, Richmond Forest** Township: **Goulbourn** Lot: **25** Concession: **3**

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

UTM Coordinates Zone: **18** Easting: **435348** Northing: **5004486** Municipal Plan and Sublot Number: _____ Other: _____

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Soil	Stones	Packed	0	6.09
Gray	Limestone		Layered & Broken	6.09	7.61
Gray	Limestone		Medium	7.61	25.90
Gray	Limestone		Broken Layers	25.90	29.86

Annular Space

Depth Set at (m/ft)	Type of Sealant Used	Volume Placed
From To	(Material and Type)	(m ³ /ft ³)
9.14 0	Grouted Bentonite Slurry	.52m ³

Results of Well Yield Testing

After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free	<input type="checkbox"/> Other, specify _____	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: _____		Static Level	4.09		
Pump intake set at (m/ft): 22.85		1	5.33	1	5.06
Pumping rate (l/min / GPM): 54.6		2	5.80	2	4.53
Duration of pumping: 1 hrs + _____ min		3	5.93	3	4.34
Final water level end of pumping (m/ft): 6.60		4	6.19	4	4.25
If flowing give rate (l/min / GPM): _____		5	6.27	5	4.19
Recommended pump depth (m/ft): 22.85		10	6.47	10	4.10
Recommended pump rate (l/min / GPM): 45.5		15	6.52	15	
Well production (l/min / GPM): _____		20	6.54	20	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		25	6.55	25	
		30	6.57	30	
		40	6.59	40	
		50	6.60	50	
		60	6.60	60	

Method of Construction

Cable Tool Diamond Rotary (Conventional) Jetting Rotary (Reverse) Air 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)		Status of Well
			From	To	
15.86	Steel	.48	+4.5	9.14	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____

Construction Record - Screen

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

Water Details

Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Hole Diameter	
		Depth (m/ft)	Diameter (cm/in)
25.90		0 9.14	15.86
		9.14 29.86	15.23

Well Contractor and Well Technician Information

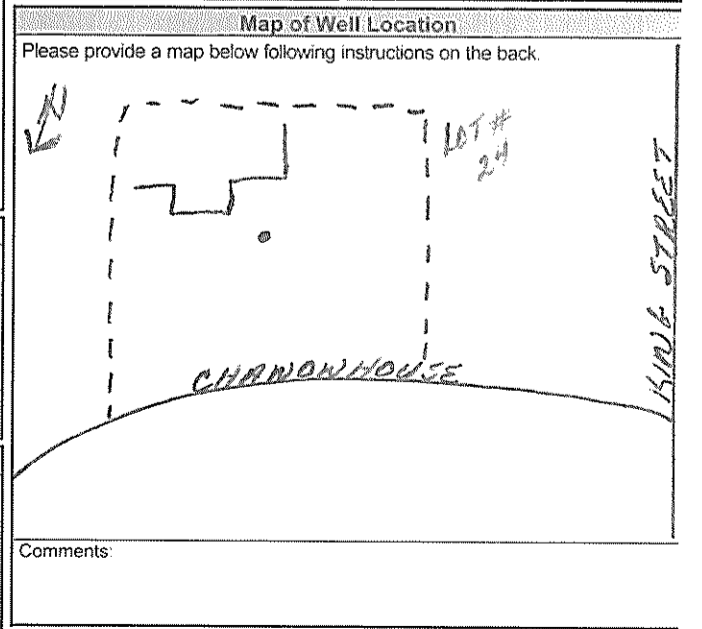
Business Name of Well Contractor: **Capital Water Supply Ltd.** Well Contractor's Licence No.: **1 5 5 8**

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

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

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

Well Technician's Licence No.: **0 0 9 7** Signature of Technician and/or Contractor: _____ Date Submitted: **20090612**



Well owner's information package delivered: Yes No

Date Package Delivered: **20090612**

Date Work Completed: **20090610**

Ministry Use Only

Audit No.: **2095268**

Received: **AUG 10 2009**



Measurements recorded in: Metric Imperial

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A076819

Page _____ of _____

Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road, Unit 1		Municipality Ottawa	Province Ontario
		Postal Code K1J 9J8	Telephone No. (inc. area code) 613 747 3993

Well Location

Address of Well Location (Street Number/Name) Lot 23, Richmond Forest		Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton		City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates	Zone 18	Easting 435344	Northing 5004478	Municipal Plan and Sublot Number
			Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Brown	Soil	Stones	Packed	0	6.40
Gray	Limestone		Layered & Broken	6.40	7.90
Gray	Limestone		Medium	7.90	45.10

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From	To	
0.44	0 Grouted Bentonite Slurry	.63m ³

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input type="checkbox"/> Other, specify		Static Level			
If pumping discontinued, give reason:		4.08			
Pump intake set at (m/ft)		1	5.93	1	18.15
30.47		2	7.38	2	16.05
Pumping rate (l/min / GPM)		3	8.68	3	14.34
54.6		4	9.77	4	12.59
Duration of pumping		5	10.50	5	11.07
1 hrs + min		10	14.17	10	6.07
Final water level end of pumping (m/ft)		15	16.24	15	4.31
20.91		20	17.47	20	4.07
If flowing give rate (l/min / GPM)		25	18.53	25	
Recommended pump depth (m/ft)		30	19.27	30	
30.47		40	20.25	40	
Recommended pump rate (l/min / GPM)		50	20.55	50	
45.5		60	20.91	60	
Well production (l/min / GPM)					
Disinfected?					
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

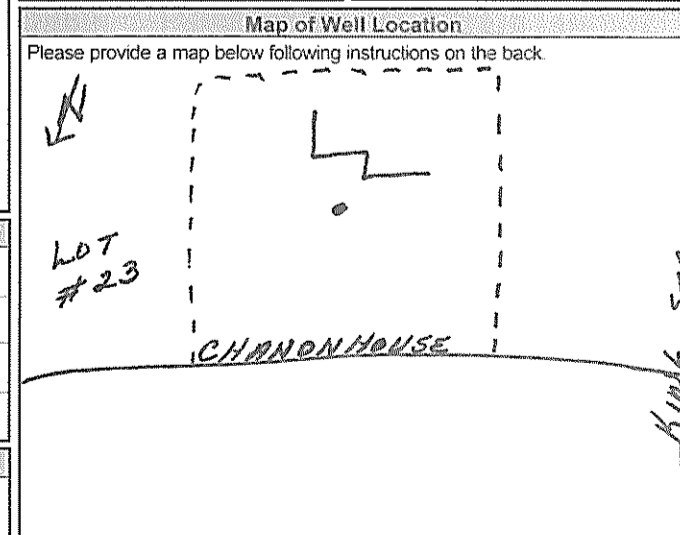
Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify		<input type="checkbox"/> Other, specify		

Construction Record - Casing			Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)	
			From	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	To

Water Details		Hole Diameter		
Water found at Depth	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft)	Diameter (cm/in)	
From	To	From	To	
35.05(m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	0	9.44	15.86
43.27(m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	9.44	45.10	15.23
(m/ft)	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify			

Well Contractor and Well Technician Information	
Business Name of Well Contractor Capital Water Supply Ltd.	Well Contractor's Licence No. 1 5 5 8
Business Address (Street Number/Name) 303 490	Municipality Stittsville
Province Ontario	Postal Code K2S 1A6
Business E-mail Address office@capitalwater.ca	
Business Telephone No. (inc. area code) 513 836 1766	Name of Well Technician (Last Name, First Name) Miller, Stephen
Well Technician's Licence No. 0 0 9 7	Signature of Technician and/or Contractor <i>[Signature]</i>
	Date Submitted 2009 06 15



Comments:

Well owner's information package delivered	Date Package Delivered 2 0 0 9 0 6 1 2	Ministry Use Only Audit No. 2 0 9 5 2 6 6 AUG 10 2009
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Work Completed 2 0 0 9 0 6 1 0	
Received		



Measurements recorded in: Metric Imperial

Well Owner's Information

First Name, Last Name / Organization, E-mail Address, Mailing Address (Street Number/Name), Municipality, Province, Postal Code, Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name), Township, Lot, Concession, County/District/Municipality, City/Town/Village, Province, Postal Code, UTM Coordinates, Zone, Easting, Northing, Municipal Plan and Sublot Number, Other

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

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To

Annular Space table with columns: Depth Set at (m/ft) From, To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³)

Method of Construction and Well Use sections with checkboxes for Cable Tool, Rotary, Boring, etc.

Construction Record - Casing table with columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From, To, Status of Well

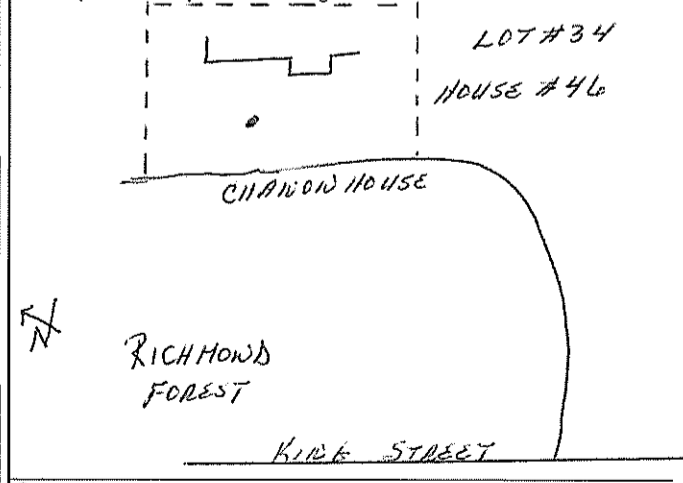
Construction Record - Screen table with columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From, To

Water Details and Hole Diameter tables with columns for depth, kind of water, and diameter

Well Contractor and Well Technician Information section with fields for Business Name, Licence No., Address, etc.

Results of Well Yield Testing table with columns: Draw Down, Recovery, Time (min), Water Level (m/ft)

Map of Well Location



Comments field

Bottom section containing Well owner's information package delivered, Date Package Delivered, Date Work Completed, and Ministry Use Only fields (Audit No., Received date)



Well Owner's Information

First Name, Last Name / Organization (Talos Custom Homes), E-mail Address, Mailing Address (5509 Canotek Road, unit 1), Municipality (Ottawa), Province (Ontario), Postal Code (K1J 9J8), Telephone No. (613 747 3993)

Well Location

Address of Well Location (Lot 16 Richmond Forest), Township (Goulbourn), Lot (25), Concession (3), County/District/Municipality (Ottawa Carleton), City/Town/Village (Richmond), Province (Ontario), UTM Coordinates (NAD 83, Zone 18, Easting 435239, Northing 5004376)

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

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To. Rows include Sand, Clay, Limestone, and various descriptions like Packed and Layered.

Annular Space table with columns: Depth Set at (m/ft) From, To; Type of Sealant Used (Grouted Bentonite Slurry); Volume Placed (.42m³)

Method of Construction (Air percussion checked) and Well Use (Domestic checked) sections.

Construction Record - Casing table with columns: Inside Diameter (15.86), Open Hole OR Material (Steel), Wall Thickness (.48), Depth (From +.45, To 8.83), Status of Well (Water Supply checked)

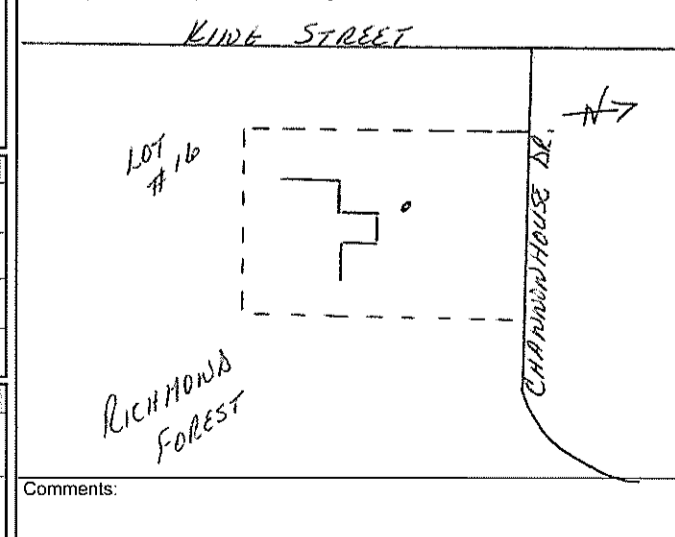
Construction Record - Screen table with columns: Outside Diameter, Material, Slot No., Depth (From, To), Status of Well

Water Details and Hole Diameter tables. Water found at depths 24.38 and 43.27 m/ft. Hole diameters at 0-8.83 m/ft (15.86 cm) and 8.83-45.10 m/ft (15.07 cm).

Well Contractor and Well Technician Information. Business Name: Capital Water Supply Ltd. Well Contractor's Licence No: 1558. Business Address: Box 490, Stittsville. Business E-mail: office@capitalwater.ca. Well Technician: Miller, Stephen. Well Technician's Licence No: 0097. Date Submitted: 2009/10/30.

Results of Well Yield Testing table. Columns: Draw Down (Time, Water Level), Recovery (Time, Water Level). Includes pumping rate (54.6 l/min / GPM), duration (1 hr), and final water level (4.54 m/ft).

Map of Well Location



Comments section and Ministry Use Only section. Audit No: 2101752. Received: FEB 16 2010.



Well Owner's Information

First Name	Last Name / Organization Talos Custom Homes	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
Mailing Address (Street Number/Name) 5509 Canotek Road, Unit 1	Municipality Ottawa	Province Ontario	Postal Code K1J 9J8
		Telephone No. (inc. area code) 613 747 3993	

Well Location

Address of Well Location (Street Number/Name) Lot 15 - Richmond Forest	Township Goulbourn	Lot 25	Concession 3
County/District/Municipality Ottawa Carleton	City/Town/Village Richmond	Province Ontario	Postal Code
UTM Coordinates Zone Easting Northing NAD 83 18 435389 5004607	Municipal Plan and Sublot Number	Other	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
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)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)	
From To 7.31 0	Grouted Bentonite Slurry	.63m³	

Results of Well Yield Testing					
After test of well yield, water was:		Draw Down		Recovery	
<input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____		Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:		Static Level	3.80		
Pump intake set at (m/ft) 30.47		1	4.14	1	3.86
Pumping rate (l/min / GPM) 54.6		2	4.18	2	3.82
Duration of pumping 1 hrs + min		3	4.19	3	
Final water level end of pumping (m/ft) 4.25		4	4.20	4	
If flowing give rate (l/min / GPM)		5	4.21	5	
Recommended pump depth (m/ft) 22.85		10	4.24	10	
Recommended pump rate (l/min / GPM) 45.5		15	4.24	15	
Well production (l/min / GPM)		20	4.24	20	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		25	4.23	25	
		30	4.24	30	
		40	4.24	40	
		50	4.23	50	
		60	4.24	60	

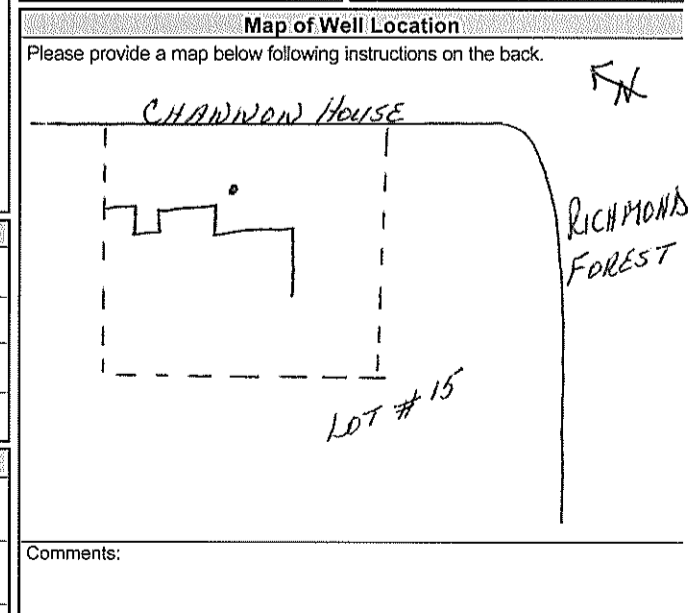
Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input checked="" type="checkbox"/> Rotary (Reverse) Air	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning
<input checked="" type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	Steel	.48	+ .45	7.31	

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

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Depth (m/ft)	Diameter (cm/in)
43.58		From To 0 7.31	15.86
		7.31 45.10	15.07

Well Contractor and Well Technician Information			
Business Name of Well Contractor Capital Water Supply Ltd.		Well Contractor's Licence No. 1 5 5 8	
Business Address (Street Number/Name) Box 490		Municipality Stittsville	
Province Ontario	Postal Code K2S 1A6	Business E-mail Address office@capitalwater.ca	
Bus. Telephone No. (inc. area code) 613 836 1766		Name of Well Technician (Last Name, First Name) Miller, Stephen	
Well Technician's Licence No. 0 0 9 7		Date Submitted 2009/03/0	



Well owner's information package delivered		Date Package Delivered		Ministry Use Only	
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	2 0 0 9 1 0 3 0		Audit No. Z101753	
		Date Work Completed 2 0 0 9 1 0 2 8		FEB 16 2010	
				Received	



Measurements recorded in: Metric Imperial

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A076840

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Well Owner's Information

First Name, Last Name / Organization, E-mail Address, Well Constructed by Well Owner

Mailing Address (Street Number/Name), Municipality, Province, Postal Code, Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name), Township, Lot, Concession

County/District/Municipality, City/Town/Village, Province, Postal Code

UTM Coordinates, Zone, Easting, Northing, Municipal Plan and Sublot Number, Other

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

Table with columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From, To

Annular Space table with columns: Depth Set at (m/ft) From, To, Type of Sealant Used, Volume Placed (m³/ft³)

Method of Construction, Well Use

Construction Record - Casing table with columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From, To, Status of Well

Construction Record - Screen table with columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From, To, Status of Well

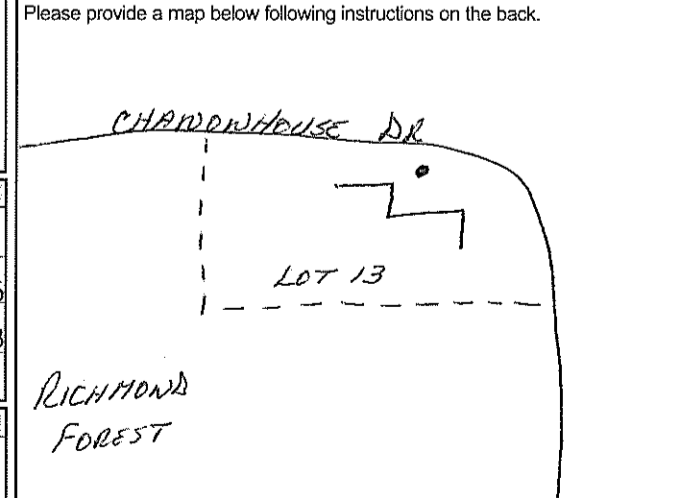
Water Details and Hole Diameter tables

Well Contractor and Well Technician Information

Well Contractor and Well Technician Information (continued)

Results of Well Yield Testing table with columns: Draw Down, Recovery, Time (min), Water Level (m/ft)

Map of Well Location



Comments:

Well owner's information package delivered, Date Package Delivered, Date Work Completed, Ministry Use Only



Measurements recorded in: Metric Imperial

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Well Owner's Information

First Name, Last Name / Organization (Talos Custom Homes), E-mail Address, Well Constructed by Well Owner

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

Well Location

Address of Well Location (Street Number/Name): Lot 21, Chanonhouse Drive; Township: Goulbourn; Lot: 3; Concession: 25; City/Town/Village: Richmond; Province: Ontario; Postal Code: ; UTM Coordinates: NAD 83 18 435312 5004439

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

Table with 5 columns: General Colour, Most Common Material, Other Materials, General Description, Depth (m/ft) From/To. Rows include Soil/Stones/Packed and Limestone/Medium.

Annular Space

Table with 4 columns: Depth Set at (m/ft) From/To, Type of Sealant Used (Material and Type), Volume Placed (m³/ft³), General Description. Row: 7.92 to 0, Grouted Bentonite Slurry, .63m³.

Results of Well Yield Testing

Table with 4 columns: Time (min), Water Level (m/ft), Time (min), Water Level (m/ft). Includes draw down and recovery data for various depths.

Method of Construction

Well Use

Checkboxes for Cable Tool, Rotary, Boring, Air percussion, Diamond, Jetting, Driving, Digging, Public, Commercial, Domestic, Municipal, Test Hole, Cooling & Air Conditioning, Not used, Dewatering, Monitoring, Irrigation, Industrial, Other.

Construction Record - Casing

Status of Well

Table with 5 columns: Inside Diameter (cm/in), Open Hole OR Material, Wall Thickness (cm/in), Depth (m/ft) From/To, Status of Well. Row: 15.86, Steel, .48, +.45 to 7.92.

Construction Record - Screen

Table with 5 columns: Outside Diameter (cm/in), Material, Slot No., Depth (m/ft) From/To, Status of Well.

Water Details

Hole Diameter

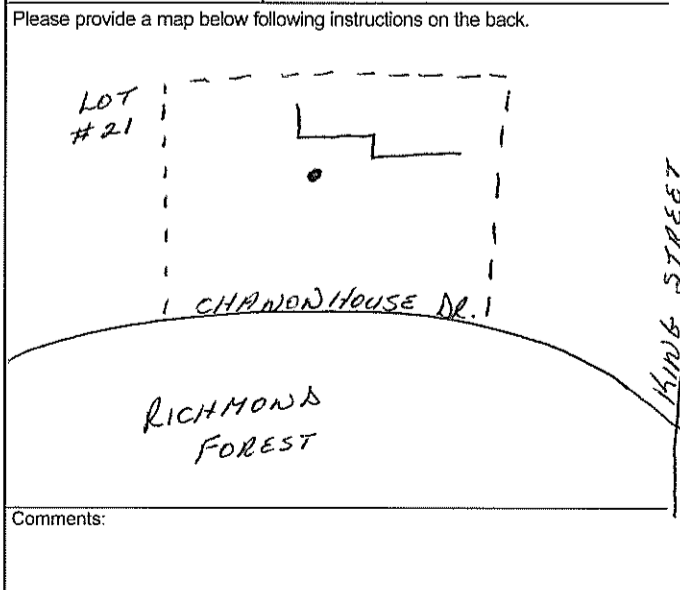
Table with 4 columns: Water found at Depth (m/ft), Kind of Water, Depth (m/ft) From/To, Diameter (cm/in). Rows for depths 27.43, 43.27, and 7.92.

Well Contractor and Well Technician Information

Business Name of Well Contractor: Capital Water Supply Ltd.; Well Contractor's Licence No.: 1558; Municipality: Stittsville.

Name of Well Technician: Miller, Stephen; Signature; Date Submitted: 20090610.

Map of Well Location



Well owner's information package delivered: Yes; Date Package Delivered: 20090609; Date Work Completed: 20090608; Ministry Use Only: Audit No. 2095270, FEB 16 2010.

Measurements recorded in: Metric Imperial

Page 1 of 1

Well Owner's Information

Address of Well Location (Street Number/Name) **3617 McBEAN ST** Township **GOULBOURN**

County/District/Municipality **OTTAWA CARLETON** City/Town/Village **RICHMOND** Province **Ontario** Postal Code **K0A2Z0**

UTM Coordinates Zone Easting Northing **NAD 83 18 434943 5004180** Municipal Plan and Sublot Number _____ Other _____

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
GREY	CLAY	STONES	PACKED	0	1.5

Annular Space		
Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From: 0.05 To: 1.45	BENTONITE	0.36 m ³

Results of Well Yield Testing				
After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____				
If pumping discontinued, give reason:	Static Level			
	1		1	
Pump intake set at (m/ft)	2		2	
Pumping rate (l/min / GPM)	3		3	
	4		4	
Duration of pumping _____ hrs + _____ min	5		5	
Final water level end of pumping (m/ft)	10		10	
	15		15	
If flowing give rate (l/min / GPM)	20		20	
	25		25	
Recommended pump depth (m/ft)	30		30	
	40		40	
Recommended pump rate (l/min / GPM)	50		50	
	60		60	
Well production (l/min / GPM)				
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Municipal
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	<input type="checkbox"/> Cooling & Air Conditioning
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____	

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input checked="" type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
15.86	STEEL	0.48	1.3	1.4	
10.0	STEEL	0.48	1.4	UNKNOWN	

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

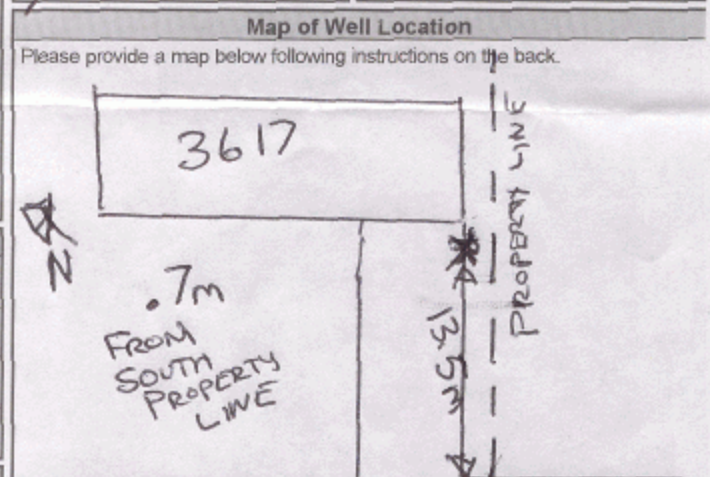
Water Details		Hole Diameter	
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From To	Diameter (cm/in)

Well Contractor and Well Technician Information

Business Name of Well Contractor: **H.O. WRIGHT & SONS LTD** Well Contractor's Licence No.: **6357**

Business Address (Street Number/Name): **2383 CHURCH ST NORTH** Municipality: **Gower**

Province: **ON** Postal Code: **K0A2T0** Business E-mail Address: _____



Business Telephone No. (inc. area code): **613 489 3372** Name of Well Technician (Last Name, First Name): **WILSON, SCOTT**

Well Technician's Licence No.: **1444** Signature of Technician and/or Contractor: *Scott Wilson* Date Submitted: **2010/11/29**

Comments: **WELL EXTENSION TO ABOVE GRADE**

Well owner's information package delivered <input type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered: 2010/11/29	Ministry Use Only
	Date Work Completed: 2010/11/29	Audit No. Z123102
		Received DEC 08 2010

Well Owner's Information

Address of Well Location (Street Number/Name) **3619 McBEAN ST** Township **GOULBOURN**
 County/District/Municipality **OTTAWA CARLETON** City/Town/Village **RICHMOND** Province **Ontario** Postal Code **K0A 2Z0**
 UTM Coordinates Zone Easting Northing **18 43 47 45 50041 77** Municipal Plan and Sublot Number **Other**

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
GREY	CLAY	STONES	PACKED	0	1.3

Annular Space

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
From: .05 To: 1.3	BENTONITE	.25 m³

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input type="checkbox"/> Rotary (Reverse) <input type="checkbox"/> Boring <input type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Irrigation <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input checked="" type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify <input type="checkbox"/> Other, specify
			From	To	
15.86	STEEL	.48	45	1.3	
12.7	STEEL	.48	1.3	UNKM	

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

Water Details		Hole Diameter	
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From To	Diameter (cm/in)
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		

Well Contractor and Well Technician Information

Business Name of Well Contractor: **H.O. WRIGHT & SONS LTD** Well Contractor's Licence No.: **631517**
 Business Address (Street Number/Name): **2383 CHURCH ST** Municipality: **NORTH GOWER**
 Province: **ON** Postal Code: **K0A 2T0** Business E-mail Address:

Bus. Telephone No. (inc. area code): **613 489 3372** Name of Well Technician (Last Name, First Name): **PRATT GEORGE**
 Well Technician's Licence No.: **1445** Signature of Technician and/or Contractor: *George Pratt* Date Submitted: **2010/11/29**

Results of Well Yield Testing

After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason: Pump intake set at (m/ft) Pumping rate (l/min / GPM) Duration of pumping hrs + min Final water level end of pumping (m/ft) If flowing give rate (l/min / GPM) Recommended pump depth (m/ft) Recommended pump rate (l/min / GPM) Well production (l/min / GPM) Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Static Level			
	1		1	
	2		2	
	3		3	
	4		4	
	5		5	
10		10		
15		15		
20		20		
25		25		
30		30		
40		40		
50		50		
60		60		

Map of Well Location

Please provide a map below following instructions on the back.

Comments: **WELL CASING EXTENSION TO ABOVE GRADE**

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
<input type="checkbox"/> Yes <input type="checkbox"/> No	Y Y Y M M D D 2010 11 29	Audit No. 2123103 Received DEC 08 2010

Measurements recorded in: Metric Imperial

Address of Well Location (Street Number/Name) **86 Cockburn St** Township _____ Lot _____ Concession _____
 County/District/Municipality **OTTAWA** City/Town/Village **RICHMOND** Province **Ontario** Postal Code **K0A 2Z0**
 UTM Coordinates Zone Easting Northing Municipal Plan and Sublot Number Other

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
* RAISE WELL CASING ABOVE GROUND, AS PER CODE REQUIREMENTS, WHILE DOING PUMP WORK AND INSTALL VERMON PROOF WELL CAP.					
* PUMP TEST NOT PERFORMED DURING REPAIR. REFER TO ORIGINAL WELL RECORD FOR THIS INFORMATION					

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)
N/A			

Method of Construction

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

Construction Record - Casing

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

Construction Record - Screen

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

Water Details

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

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
N/A		

Well Contractor and Well Technician Information

Business Name of Well Contractor: **C+N ELECTRIC LTD** Well Contractor's Licence No.: **6364**
 Business Address (Street Number/Name): **5640 MANOTICK MAW ST.** Municipality: **OTTAWA**
 Province: **ON** Postal Code: **K4M1B3** Business E-mail Address: _____
 Bus. Telephone No. (inc. area code): **6136923284** Name of Well Technician (Last Name, First Name): **FORREST, LESLIE**
 Well Technician's Licence No.: **2876** Signature of Technician and/or Contractor: _____ Date Submitted: **20110204**

Results of Well Yield Testing

After test of well yield, water was:	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
<input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____				
If pumping discontinued, give reason:	Static Level			
	1		1	
Pump intake set at (m/ft)	2		2	
Pumping rate (l/min / GPM)	3		3	
	4		4	
Duration of pumping _____ hrs + _____ min	5		5	
Final water level end of pumping (m/ft)	10		10	
If flowing give rate (l/min / GPM)	15		15	
	20		20	
Recommended pump depth (m/ft)	25		25	
Recommended pump rate (l/min / GPM)	30		30	
Well production (l/min / GPM)	40		40	
	50		50	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	60		60	

Map of Well Location

Please provide a map below following instructions on the back.

Comments:

Measurements recorded in: Metric Imperial

Address of Well Location (Street Number/Name) 91 King St			Township		Lot	Concession	
County/District/Municipality Ottawa carleton			City/Town/Village Richmond		Province Ontario		Postal Code
UTM Coordinates	Zone	Easting	Northing		Municipal Plan and Sublot Number		Other
NAD	83	184351325	004347				

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From To
	* Raise well casing above ground, as per code requirements, while doing pump work and installing Vermon Proof well cap.			

Annular Space

Depth Set at (m/ft) From To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
N/A		

Results of Well Yield Testing

After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level			
	1		1	
	Pump intake set at (m/ft)	2		2
	Pumping rate (l/min / GPM)	3		3
	4		4	
	5		5	
Duration of pumping hrs + min				
Final water level end of pumping (m/ft)	10		10	
If flowing give rate (l/min / GPM)	15		15	
20		20		
Recommended pump depth (m/ft)	25		25	
Recommended pump rate (l/min / GPM)	30		30	
Well production (l/min / GPM)	40		40	
50		50		
60		60		
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Method of Construction		Well Use	
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial
<input type="checkbox"/> Rotary (Conventional)	<input checked="" type="checkbox"/> Jetting	<input type="checkbox"/> Domestic	<input type="checkbox"/> Municipal
<input type="checkbox"/> Rotary (Reverse)	<input checked="" type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole
<input type="checkbox"/> Boring	<input type="checkbox"/> Rigging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial	
<input type="checkbox"/> Other, specify		<input type="checkbox"/> Other, specify	

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

Construction Record - Screen			
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From To
N/A			

Water Details		Hole Diameter	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	Depth (m/ft) From To	Diameter (cm/in)
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	N/A	
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested		
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify		
Water found at Depth (m/ft)	Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested		
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify		

Well Contractor and Well Technician Information

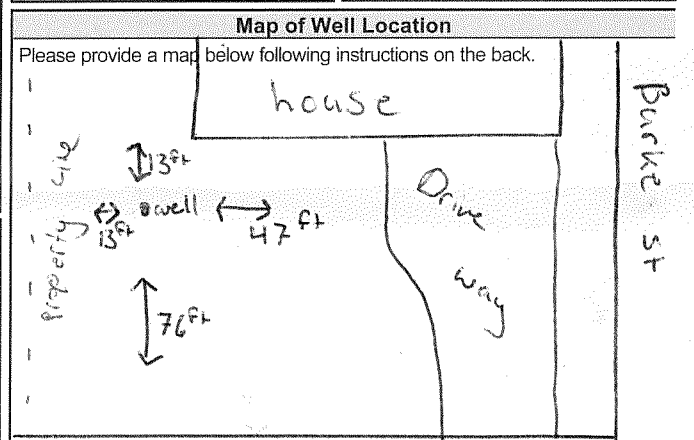
Business Name of Well Contractor: _____ Well Contractor's Licence No.: 63164

Business Address (Street Number/Name): 5640 Manotick Main St Municipality: Ottawa

Province: Ont Postal Code: K4M1B3 Business E-mail Address: _____

Bus. Telephone No. (inc. area code): 6136923284 Name of Well Technician (Last Name, First Name): Sadler Ron

Well Technician's Licence No.: T637 Signature of Technician and/or Contractor: [Signature] Date Submitted: [Date]



Comments: king st

Well owner's information package delivered <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date Package Delivered Y Y Y Y M M D D 20121213	Ministry Use Only Audit No.: Z109063 JAN 04 2013
---	---	---

Measurements recorded in: Metric Imperial

Tag #: A 236124

Address of Well Location (Street Number/Name) 102 KWO STREET		Township	Lot	Concession
County/District/Municipality		City/Town/Village RICHMOND	Province Ontario	Postal Code K0A2Z0
UTM Coordinates Zone	Easting	Northing	Municipal Plan and Sublot Number	
NAD 8 3	180435213	5004323	Other	

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)				
General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From To
	MAINTENANCE ONLY;			
	NO EXISTING AB			

Annular Space		
Depth Set at (m/ft) From To	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)

Results of Well Yield Testing				
After test of well yield, water was: <input type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify _____	Draw Down		Recovery	
	Time (min)	Water Level (m/ft)	Time (min)	Water Level (m/ft)
If pumping discontinued, give reason:	Static Level	11'		
	1		1	
Pump intake set at (m/ft)	2		2	
Pumping rate (l/min / GPM)	3		3	
	4		4	
Duration of pumping ____ hrs + ____ min	5		5	
	10		10	
Final water level end of pumping (m/ft)	15		15	
	20		20	
If flowing give rate (l/min / GPM)	25		25	
	30		30	
Recommended pump depth (m/ft)	40		40	
	50		50	
Recommended pump rate (l/min / GPM)	60		60	
Well production (l/min / GPM)				
Disinfected?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			

Method of Construction		Well Use		
<input type="checkbox"/> Cable Tool	<input type="checkbox"/> Diamond	<input type="checkbox"/> Public	<input type="checkbox"/> Commercial	<input type="checkbox"/> Not used
<input type="checkbox"/> Rotary (Conventional)	<input type="checkbox"/> Jetting	<input checked="" type="checkbox"/> Domestic	<input type="checkbox"/> Municipal	<input type="checkbox"/> Dewatering
<input type="checkbox"/> Rotary (Reverse)	<input type="checkbox"/> Driving	<input type="checkbox"/> Livestock	<input type="checkbox"/> Test Hole	<input type="checkbox"/> Monitoring
<input type="checkbox"/> Boring	<input type="checkbox"/> Digging	<input type="checkbox"/> Irrigation	<input type="checkbox"/> Cooling & Air Conditioning	
<input type="checkbox"/> Air percussion		<input type="checkbox"/> Industrial		
<input type="checkbox"/> Other, specify _____		<input type="checkbox"/> Other, specify _____		

Construction Record - Casing				Status of Well	
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____
			From	To	
6 1/4"	STEEL	3/16"	+1'		

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

Water Details		Hole Diameter	
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested	Depth (m/ft) From To	Diameter (cm/in)
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		
Water found at Depth (m/ft) <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	Kind of Water: <input type="checkbox"/> Fresh <input type="checkbox"/> Untested		

Well Contractor and Well Technician Information			
Business Name of Well Contractor THE PUMP HOUSE		Well Contractor's Licence No. 6378	
Business Address (Street Number/Name) 838 CLYDE AVENUE		Municipality OTTAWA	
Province ONT	Postal Code K1Z5A2	Business E-mail Address INFO@THEPUMPHOUSE.CA	

Bus. Telephone No. (inc. area code) 6137224226	Name of Well Technician (Last Name, First Name) MCINTYRE, DJ	Well Contractor's Licence No. 6378	Date Submitted 20180605
Well Technician's Licence No. 3853	Signature of Technician and/or Contractor <i>[Signature]</i>		

Map of Well Location
Please provide a map below following instructions on the back.
Comments: DEPTH 105' TOC

Well owner's information package delivered		Ministry Use Only	
Date Package Delivered 20180605	Date Work Completed 20180605	Audit No. 2271821	Received JUN 14 2018
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		

ATTACHMENT V
Soil Laboratory Analysis



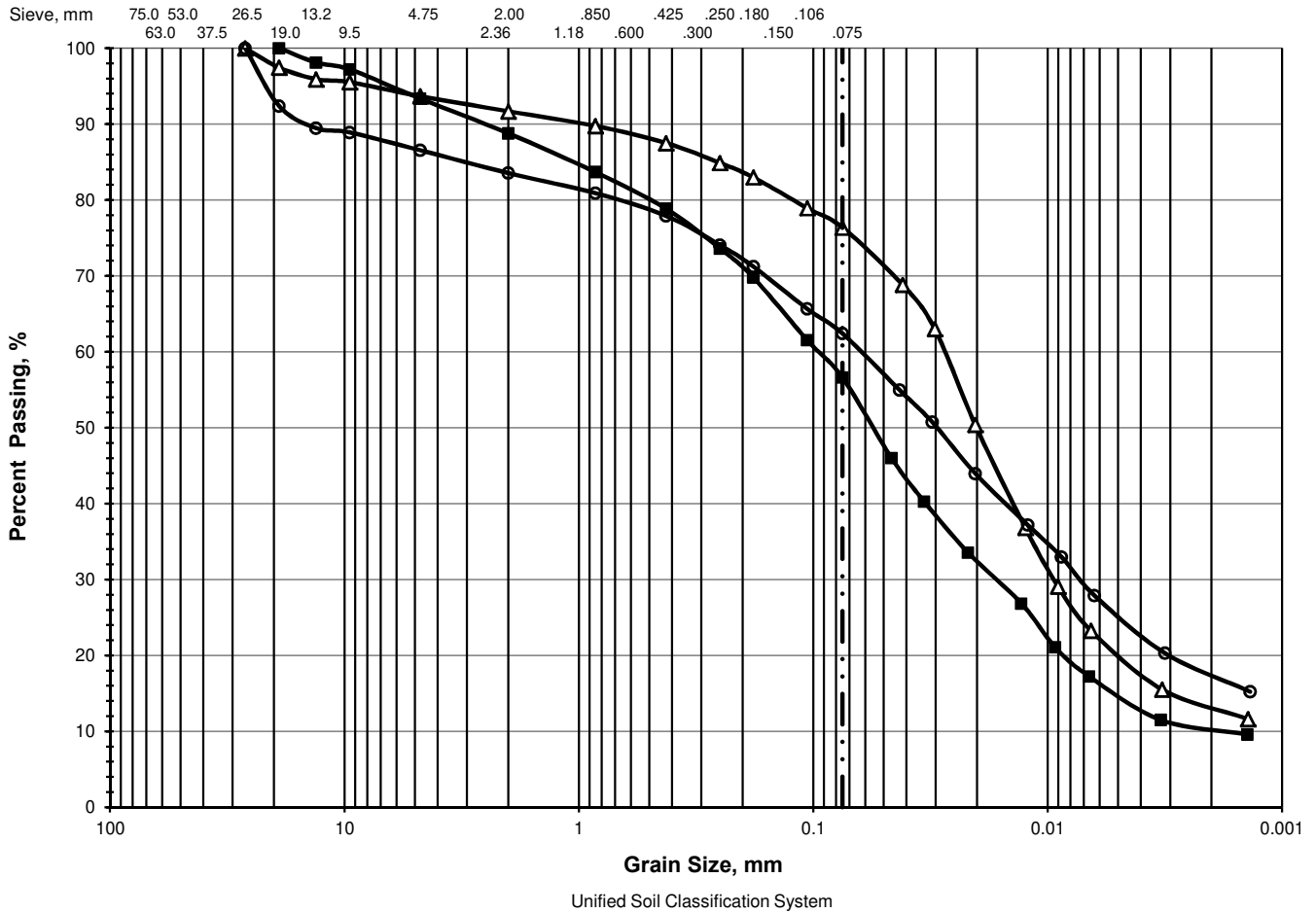
LRL Associates Ltd.

PARTICLE SIZE ANALYSIS

ASTM D 422 / LS-702

Client: Al Roberts
Project: Hydrogeological Assessment
Location: 5969 Ottawa Street, Ottawa, ON

File No.: 210341
Report No.: 1
Date: July 20, 2021



> 75 mm	% GRAVEL		% SAND			% FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
△	0.0	2.2	2.0	4.2	11.1	63.5	12.9
■	0.0	0.0	4.6	9.9	22.2	46.4	10.2
○	0.0	6.6	3.0	5.6	15.5	45.5	17.0

Location	Sample	Depth, m	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
△	TP 1	3	0.9 - 1.8	0.0279	0.0201	0.0094	0.0030		
■	TP 2	4	1.8 - 2.7	0.0964	0.0571	0.0171	0.0053	1.7	53.6
○	TP 3	3	1.8 - 2.7	0.0646	0.0299	0.0073			



ATTACHMENT VI
Survey Plan

METRIC
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

NOTES
BEARINGS HEREON ARE GRID, DERIVED FROM THE BEARING OF N47°26'E AS SHOWN FOR THE NORTHWESTERLY LIMIT OF OTTAWA STREET ON PLAN 4R-7050.

- S.I.B. DENOTES 0.025 SQ., 1.2 LONG, STANDARD IRON BAR
- S.S.I.B. DENOTES 0.025 SQ., 0.6 LONG, SHORT STANDARD IRON BAR
- I.B. DENOTES 0.016 SQ., 0.6 LONG, IRON BAR
- R.I.B. DENOTES ROUND IRON BAR
- DENOTES SURVEY MONUMENT FOUND
- DENOTES SURVEY MONUMENT PLANTED
- WT. DENOTES WITNESS
- S.U. DENOTES SOURCE UNKNOWN
- 725 DENOTES ARNETT, KENNEDY, RIDDELL & JASON SURVEYING LTD.
- 1050 DENOTES D.R. BARCHAM, O.L.S.
- P1 DENOTES PLAN 4R-7050
- M DENOTES MEASURED
- S DENOTES SET
- E.O.A. DENOTES EDGE OF ASPHALT
- E.O.G. DENOTES EDGE OF GRAVEL
- T.O.B. DENOTES TOP OF BANK
- C.S.P. DENOTES CORRUGATED STEEL PIPE
- N.T.S. DENOTES NOT TO SCALE

ELEVATION NOTES

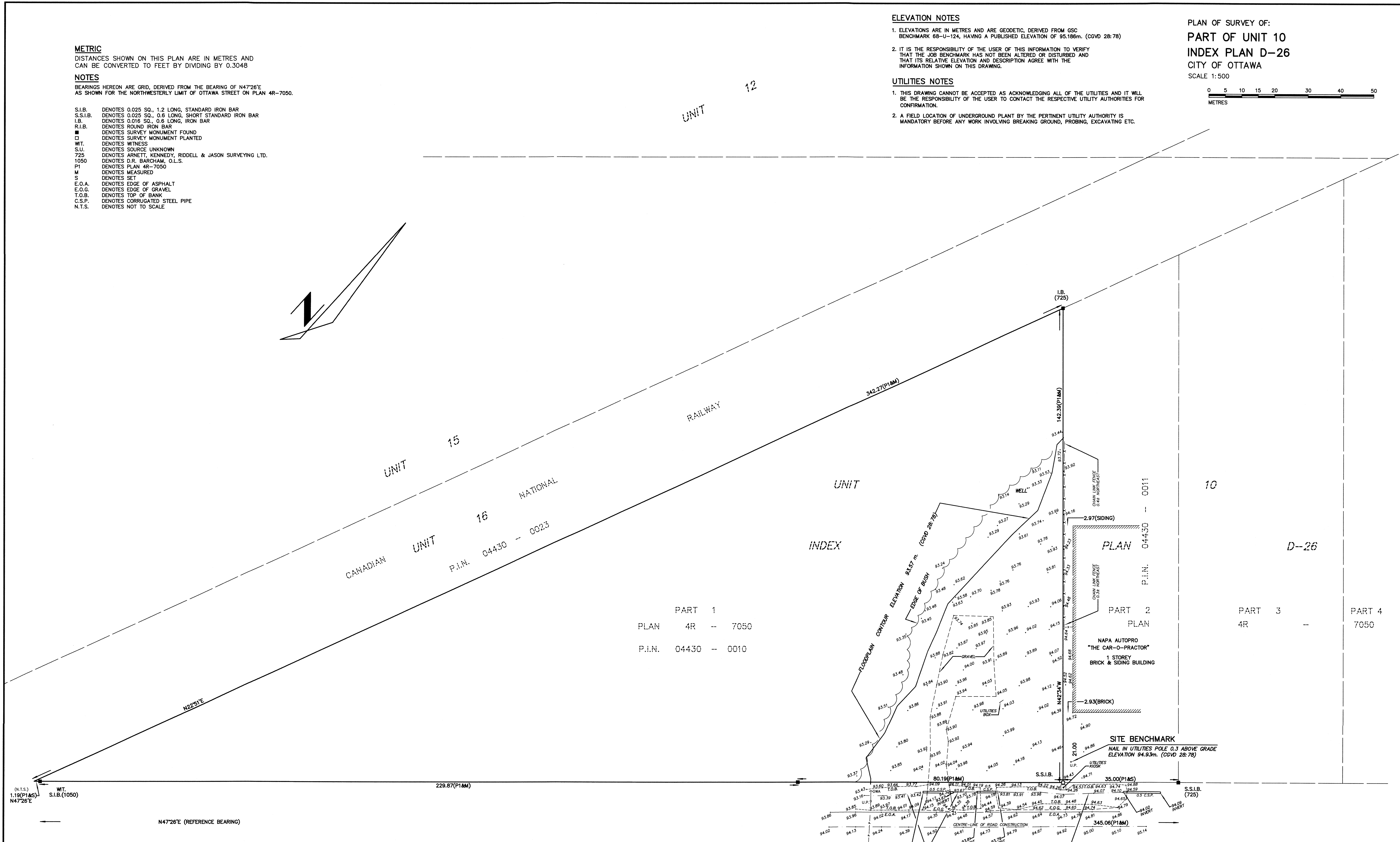
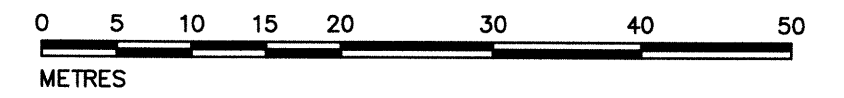
1. ELEVATIONS ARE IN METRES AND ARE GEODETIC, DERIVED FROM GSC BENCHMARK 88-U-124, HAVING A PUBLISHED ELEVATION OF 95.186m. (CGVD 28:78)

2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREE WITH THE INFORMATION SHOWN ON THIS DRAWING.

UTILITIES NOTES

- 1. THIS DRAWING CANNOT BE ACCEPTED AS ACKNOWLEDGING ALL OF THE UTILITIES AND IT WILL BE THE RESPONSIBILITY OF THE USER TO CONTACT THE RESPECTIVE UTILITY AUTHORITIES FOR CONFIRMATION.
- 2. A FIELD LOCATION OF UNDERGROUND PLANT BY THE PERTINENT UTILITY AUTHORITY IS MANDATORY BEFORE ANY WORK INVOLVING BREAKING GROUND, PROBING, EXCAVATING ETC.

PLAN OF SURVEY OF:
PART OF UNIT 10
INDEX PLAN D-26
CITY OF OTTAWA
SCALE 1:500

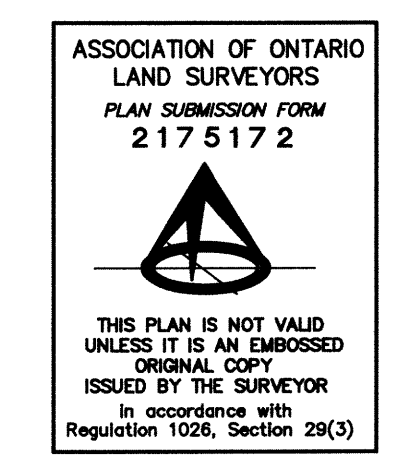


PART 1
PLAN 4R -- 7050
P.I.N. 04430 -- 0010

PART 2
PLAN 4R -- 7050
P.I.N. 04430 -- 0011

SURVEYOR'S CERTIFICATE
I CERTIFY THAT:
(1) THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM;
(2) THE SURVEY WAS COMPLETED ON THE 5th DAY OF JULY, 2021.

JULY 19, 2021
DATE
J.P. SHIPMAN
ONTARIO LAND SURVEYOR



H.A.KEN SHIPMAN SURVEYING LTD.
P.O. BOX 53, NORTH GOWER, ONT. K0A 2T0
REF No.: GLB-549
FILE No.: 20-12471 B

(N.T.S.) WT. 1.19(P1&S) S.I.B.(1050) N47°26'E (REFERENCE BEARING)

INDEX PLAN D-24

OTTAWA STREET
P.I.N. 04430 -- 0297

ATTACHMENT VIII
Aquifer Test Analysis – Printout



LRL Associates Ltd.
5430 Canotek Road
Ottawa, ON

Pumping Test - Water Level Data

Project: 5969 Ottawa Street Hydrogeological Assessment

Number: 210341

Client: Al Roberts

Location: 5969 Ottawa Street, Richmond, ON	Pumping Test: 6-Hr Pump Test	Pumping Well: Well 1
Test Conducted by: AK	Test Date: 2021-08-11	Discharge: variable, average rate 0.666 [l/s]
Observation Well: Well 1	Static Water Level [m]: 2.96	Radial Distance to PW [m]: -

	Time [min]	Water Level [m]	Drawdown [m]
1	0	2.96	0.00
2	0.5	3.47	0.51
3	1	3.83	0.87
4	1.5	4.20	1.24
5	2	4.39	1.43
6	2.5	4.52	1.56
7	3	4.73	1.77
8	3.5	4.76	1.80
9	4	4.79	1.83
10	4.5	4.81	1.85
11	5	4.84	1.88
12	6	4.87	1.91
13	7	4.89	1.93
14	8	4.91	1.95
15	9	4.93	1.97
16	10	4.94	1.98
17	20	4.99	2.03
18	30	5.05	2.09
19	60	5.07	2.11
20	90	5.08	2.12
21	120	5.11	2.15
22	150	5.11	2.15
23	180	5.11	2.15
24	240	5.12	2.16
25	300	5.13	2.17
26	360	5.13	2.17
27	382	5.13	2.17
28	382.5	4.43	1.47
29	383	3.92	0.96
30	383.5	3.67	0.71
31	384	3.45	0.49
32	384.5	3.34	0.38
33	385	3.31	0.35
34	385.5	3.30	0.34
35	386	3.28	0.32
36	386.5	3.26	0.30
37	387	3.25	0.29
38	388	3.24	0.28
39	389	3.23	0.27
40	390	3.21	0.25
41	391	3.20	0.24
42	392	3.19	0.23
43	402	3.12	0.16
44	412	3.09	0.13
45	442	3.05	0.09



LRL Associates Ltd.
5430 Canotek Road
Ottawa, ON

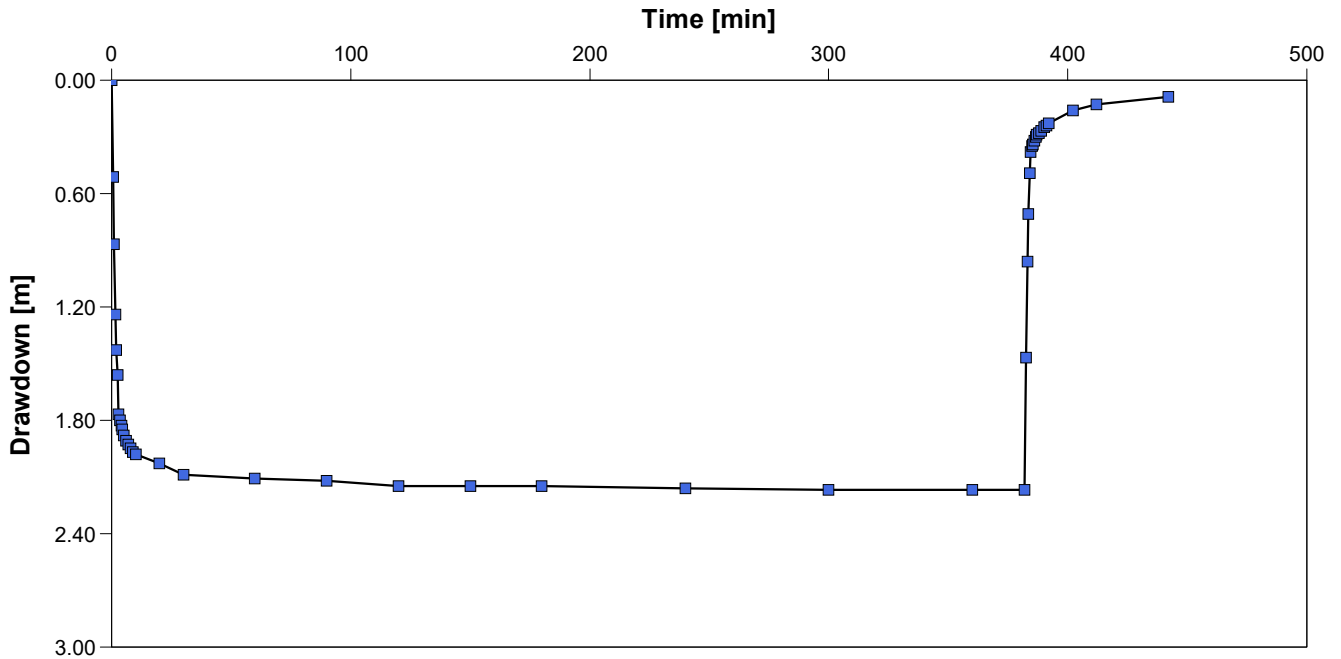
Pumping Test Analysis Report

Project: 5969 Ottawa Street Hydrogeological Assessment

Number: 210341

Client: Al Roberts

Location: 5969 Ottawa Street, Richmond, ON	Pumping Test: 6-Hr Pump Test	Pumping Well: Well 1
Test Conducted by: AK		Test Date: 2021-08-11
Analysis Performed by: AW	Time-Drawdown	Analysis Date: 2021-09-13
Aquifer Thickness:	Discharge: variable, average rate 0.666 [l/s]	





LRL Associates Ltd.
5430 Canotek Road
Ottawa, ON

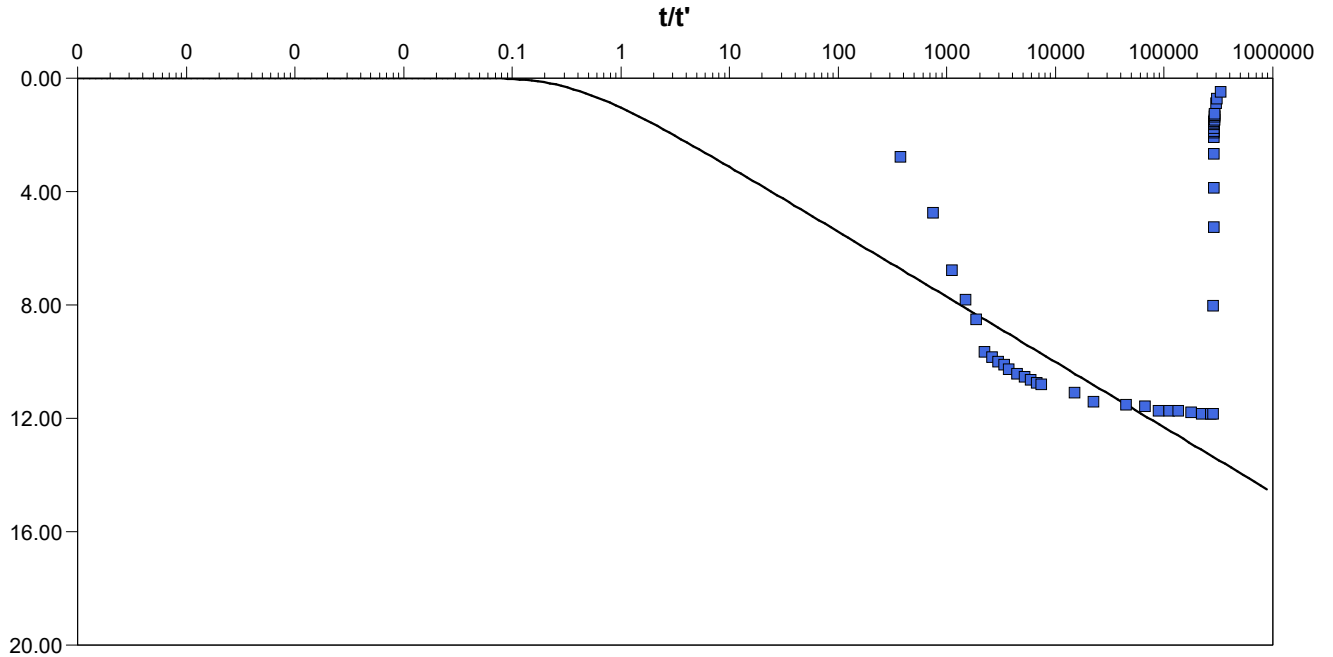
Pumping Test Analysis Report

Project: 5969 Ottawa Street Hydrogeological Assessment

Number: 210341

Client: Al Roberts

Location: 5969 Ottawa Street, Richmond, ON	Pumping Test: 6-Hr Pump Test	Pumping Well: Well 1
Test Conducted by: AK		Test Date: 2021-08-11
Analysis Performed by: AW	Theis	Analysis Date: 2021-09-13
Aquifer Thickness:	Discharge: variable, average rate 0.666 [l/s]	



Calculation using Theis

Observation Well	Transmissivity [m ² /d]	Storage coefficient	Radial Distance to PW [m]
Well 1	2.50×10^1	4.39×10^{-3}	0.07



LRL Associates Ltd.
5430 Canotek Road
Ottawa, ON

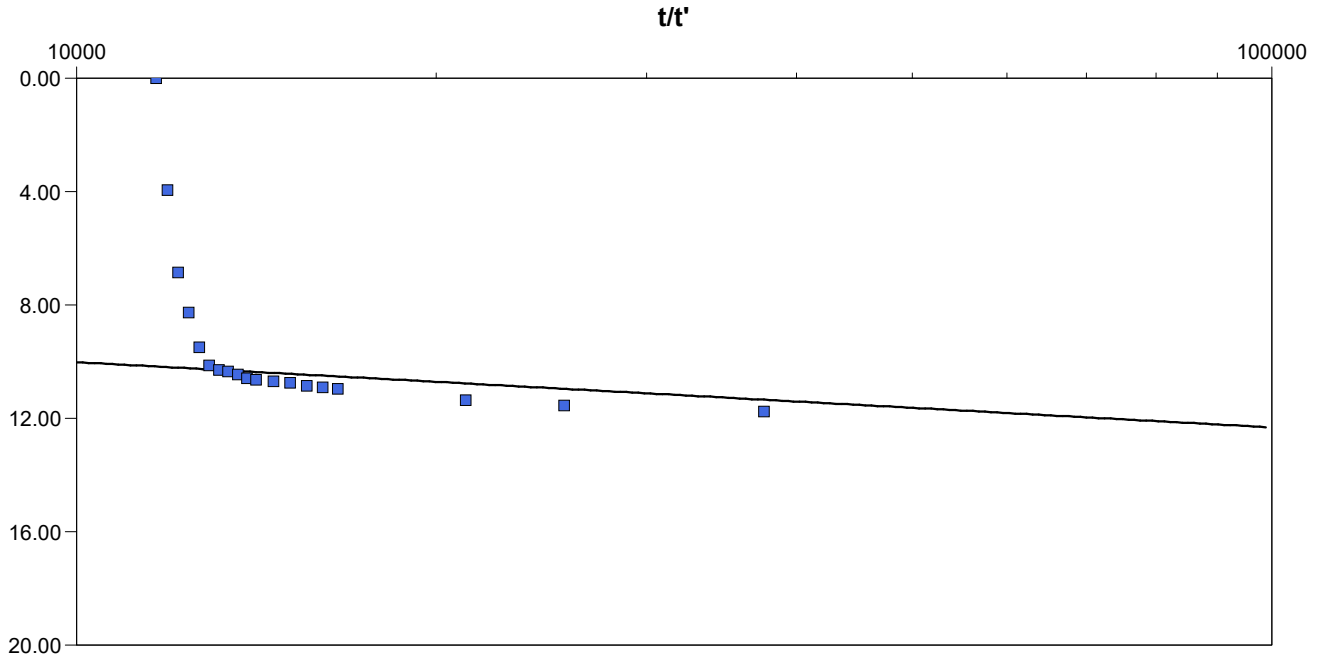
Pumping Test Analysis Report

Project: 5969 Ottawa Street Hydrogeological Assessment

Number: 210341

Client: Al Roberts

Location: 5969 Ottawa Street, Richmond, ON		Pumping Test: 6-Hr Pump Test	Pumping Well: Well 1
Test Conducted by: AK		Test Date: 2021-08-11	
Analysis Performed by:	Agarwal + Theis	Analysis Date: 2021-09-13	
Aquifer Thickness:	Discharge: variable, average rate 0.666 [l/s]		



Calculation using AGARWAL + Theis

Observation Well	Transmissivity [m ² /d]	Storage coefficient	Radial Distance to PW [m]
Well 1	2.59×10^1	6.00×10^{-3}	0.07



LRL Associates Ltd.
5430 Canotek Road
Ottawa, ON

Pumping Test Analysis Report

Project: 5969 Ottawa Street Hydrogeological Assessment

Number: 210341

Client: Al Roberts

Location: 5969 Ottawa Street, Richmond, ON		Pumping Test: 6-Hr Pump Test		Pumping Well: Well 1			
Test Conducted by: AK				Test Date: 2021-08-11			
Aquifer Thickness:			Discharge: variable, average rate 0.666 [l/s]				
	Analysis Name	Analysis Performed by	Analysis Date	Method name	Well	T [m ² /d]	S
1	Theis	AW	2021-09-13	Theis	Well 1	2.50 × 10 ¹	4.39 × 10 ⁻³
2	Agarwal + Theis		2021-09-13	AGARWAL + Theis	Well 1	2.59 × 10 ¹	6.00 × 10 ⁻³



LRL Associates Ltd.
5430 Canotek Road
Ottawa, Ontario

LRL

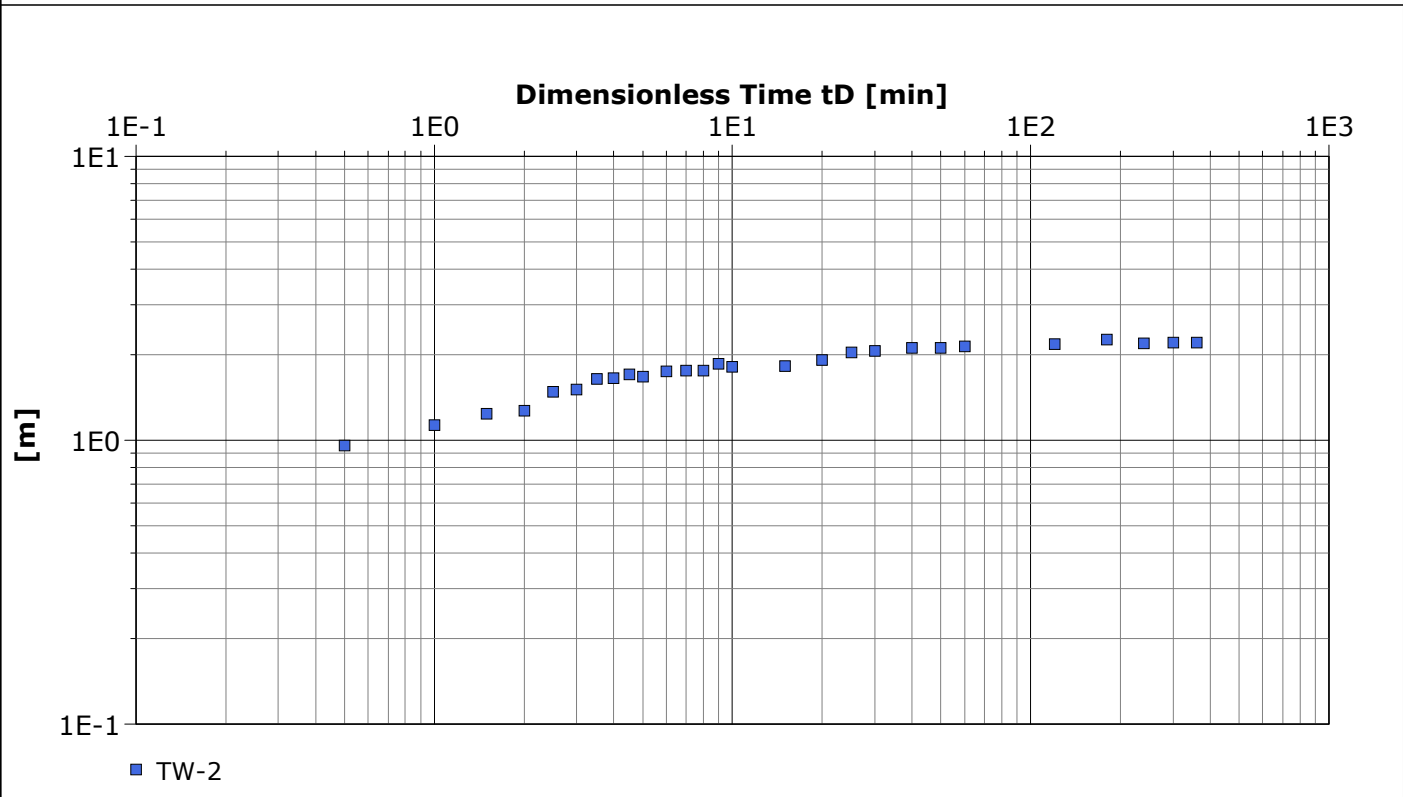
Pumping Test Analysis Report

Project: Hydrogeological Assessment

Number: 210341

Client: A. Roberts

Location: 5969 Ottawa Street, Richmond	Pumping Test: TW-2	Pumping Well: TW-2, TW-2R
Test Conducted by: LRL		Test Date: 2023-07-27
Analysis Performed by:	Drawdown New 1	Analysis Date: 2023-07-27
Aquifer Thickness: 1.80 m		



Calculation using Theis with Jacob Correction

Observation Well	Transmissivity [m ² /d]	Hydraulic Conductivity [m/d]	Storage coefficient
TW-2	1.41×10^4	7.86×10^3	1.00×10^{-4}

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LRL Associates Ltd.
5430 Canotek Road
Ottawa, Ontario

LRL

Pumping Test Analysis Report

Project: Hydrogeological Assessment

Number: 210341

Client: A. Roberts

Location: 5969 Ottawa Street, Richmond

Pumping Test: TW-2

Pumping Well: TW-2, TW-2R

Test Conducted by: LRL

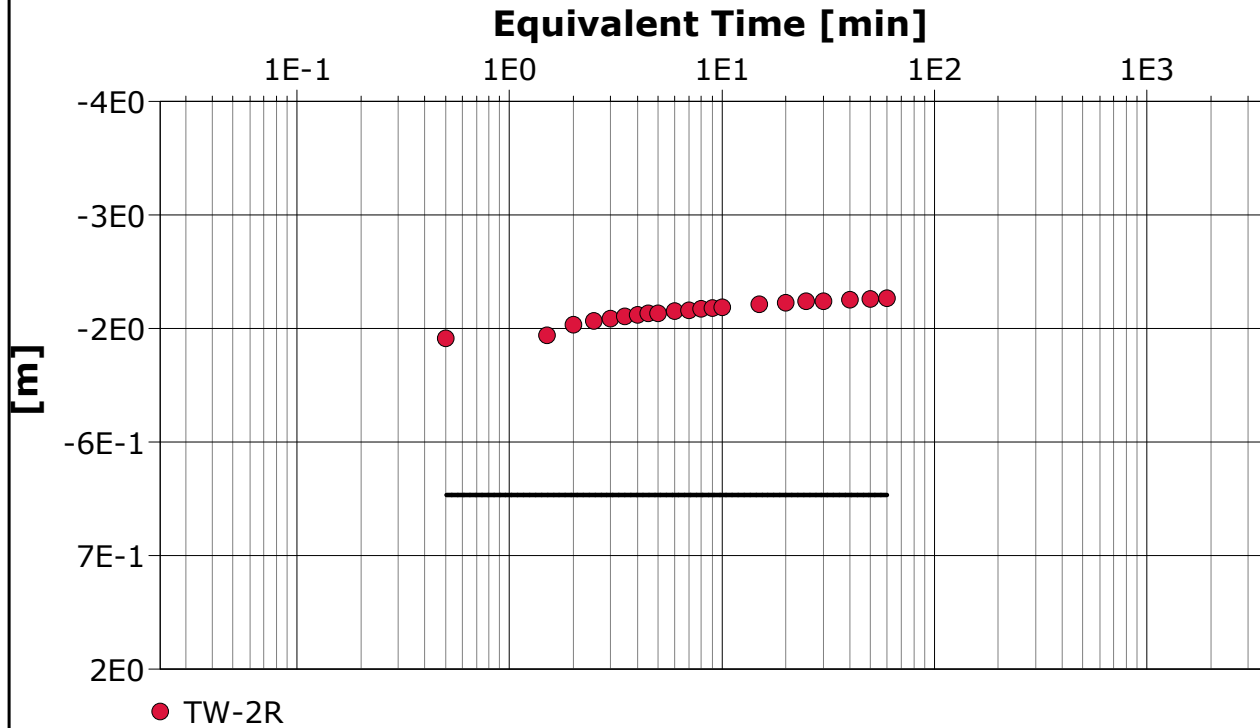
Test Date: 2023-07-27

Analysis Performed by:

Recovery New 1

Analysis Date: 2023-07-27

Aquifer Thickness: 1.80 m



Calculation using Agarwal skin

Observation Well	Transmissivity [m ² /d]	Hydraulic Conductivity [m/d]	Skin factor
TW-2R	8.64×10^5	4.80×10^5	-5.00×10^0

ATTACHMENT IX
Moisture Surplus – Ottawa

Ottawa 50mm WBNRMSD.txt
 Ottawa Airport, ON WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 50 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 30 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	27	83	50	299
28- 2	-8.8	57	12	18	1	1	0	29	110	50	356
31- 3	-2.7	66	32	80	5	5	0	107	64	50	422
30- 4	5.9	72	67	69	32	32	0	104	0	50	494
31- 5	13.0	74	74	0	80	79	-1	13	0	32	568
30- 6	18.3	82	82	0	116	97	-19	4	0	14	651
31- 7	20.8	89	89	0	135	94	-41	3	0	5	740
31- 8	19.5	87	87	0	117	83	-34	1	0	9	827
30- 9	14.6	84	84	0	75	66	-9	7	0	20	912
31-10	8.1	77	76	0	36	35	-1	24	0	37	77
30-11	1.3	80	63	8	10	10	0	50	9	49	157
31-12	-7.0	78	26	15	1	1	0	38	47	50	236
AVE	5.9 TTL	911	705	205	608	503	-105	407			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	31	43	0	55
28- 2	2.6	29	15	27	1	1	0	37	59	0	59
31- 3	2.3	28	22	47	4	4	0	53	83	0	65
30- 4	1.7	31	31	84	8	8	0	84	0	2	74
31- 5	1.9	32	32	0	12	11	5	21	0	19	85
30- 6	1.2	38	38	0	9	26	26	17	0	19	93
31- 7	1.2	42	42	0	8	30	31	12	0	14	93
31- 8	1.3	39	39	0	8	30	32	5	0	16	107
30- 9	1.5	38	38	0	8	14	13	20	0	21	110
31-10	1.4	37	37	2	7	7	3	27	0	19	37
30-11	1.7	27	28	9	4	4	0	30	13	6	45
31-12	3.0	30	22	14	1	1	0	29	34	0	56

Ottawa 75mm WBNRMSD.txt
 Ottawa Airport, ON WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 75 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 45 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	27	83	75	299
28- 2	-8.8	57	12	18	1	1	0	29	110	75	356
31- 3	-2.7	66	32	80	5	5	0	107	64	75	422
30- 4	5.9	72	67	69	32	32	0	104	0	75	494
31- 5	13.0	74	74	0	80	80	0	13	0	56	568
30- 6	18.3	82	82	0	116	107	-10	4	0	28	651
31- 7	20.8	89	89	0	135	104	-32	2	0	10	740
31- 8	19.5	87	87	0	117	85	-32	1	0	12	827
30- 9	14.6	84	84	0	75	66	-9	4	0	26	912
31-10	8.1	77	76	0	36	35	-1	15	0	52	77
30-11	1.3	80	63	8	10	10	0	42	9	71	157
31-12	-7.0	78	26	15	1	1	0	36	47	75	236
AVE	5.9 TTL	911	705	205	608	526	-84	384			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	30	43	0	55
28- 2	2.6	29	15	27	1	1	0	37	59	0	59
31- 3	2.3	28	22	47	4	4	0	53	83	0	65
30- 4	1.7	31	31	84	8	8	0	84	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	19	19	17	0	28	93
31- 7	1.2	42	42	0	8	28	30	11	0	22	93
31- 8	1.3	39	39	0	8	29	31	5	0	23	107
30- 9	1.5	38	38	0	8	14	14	17	0	29	110
31-10	1.4	37	37	2	7	7	2	23	0	28	37
30-11	1.7	27	28	9	4	4	0	33	13	11	45
31-12	3.0	30	22	14	1	1	0	30	34	3	56

Ottawa Airport, ON Ottawa_100mm_VBNRMSD.txt
 WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 100 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 60 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	25	83	99	299
28- 2	-8.8	57	12	18	1	1	0	28	110	99	356
31- 3	-2.7	66	32	80	5	5	0	106	64	100	422
30- 4	5.9	72	67	69	32	32	0	104	0	100	494
31- 5	13.0	74	74	0	80	80	0	13	0	81	568
30- 6	18.3	82	82	0	116	112	-4	4	0	47	651
31- 7	20.8	89	89	0	135	115	-21	2	0	19	740
31- 8	19.5	87	87	0	117	88	-29	1	0	18	827
30- 9	14.6	84	84	0	75	66	-8	3	0	32	912
31-10	8.1	77	76	0	36	35	-1	10	0	63	77
30-11	1.3	80	63	8	10	10	0	34	9	91	157
31-12	-7.0	78	26	15	1	1	0	33	47	97	236
AVE	5.9 TTL	911	705	205	608	545	-63	363			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	30	43	5	55
28- 2	2.6	29	15	27	1	1	0	37	59	3	59
31- 3	2.3	28	22	47	4	4	0	53	83	0	65
30- 4	1.7	31	31	84	8	8	0	84	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	12	11	17	0	34	93
31- 7	1.2	42	42	0	8	25	26	11	0	30	93
31- 8	1.3	39	39	0	8	29	30	5	0	30	107
30- 9	1.5	38	38	0	8	14	13	15	0	35	110
31-10	1.4	37	37	2	7	6	2	21	0	36	37
30-11	1.7	27	28	9	4	4	0	34	13	19	45
31-12	3.0	30	22	14	1	1	0	30	34	8	56

Ottawa Airport, ON Ottawa_125mm_VBNRMSD.txt WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 125 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 75 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	24	83	122	299
28- 2	-8.8	57	12	18	1	1	0	28	110	123	356
31- 3	-2.7	66	32	80	5	5	0	105	64	125	422
30- 4	5.9	72	67	69	32	32	0	104	0	125	494
31- 5	13.0	74	74	0	80	80	0	13	0	106	568
30- 6	18.3	82	82	0	116	115	-1	4	0	69	651
31- 7	20.8	89	89	0	135	122	-13	2	0	33	740
31- 8	19.5	87	87	0	117	92	-25	1	0	28	827
30- 9	14.6	84	84	0	75	67	-7	3	0	41	912
31-10	8.1	77	76	0	36	35	-1	9	0	74	77
30-11	1.3	80	63	8	10	10	0	27	9	108	157
31-12	-7.0	78	26	15	1	1	0	29	47	119	236
AVE	5.9 TTL	911	705	205	608	560	-47	349			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	31	43	10	55
28- 2	2.6	29	15	27	1	1	0	37	59	8	59
31- 3	2.3	28	22	47	4	4	0	54	83	0	65
30- 4	1.7	31	31	84	8	8	0	84	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	4	17	0	39	93
31- 7	1.2	42	42	0	8	21	23	11	0	37	93
31- 8	1.3	39	39	0	8	26	28	5	0	38	107
30- 9	1.5	38	38	0	8	13	11	14	0	42	110
31-10	1.4	37	37	2	7	6	2	20	0	42	37
30-11	1.7	27	28	9	4	4	0	32	13	25	45
31-12	3.0	30	22	14	1	1	0	30	34	14	56

Ottawa Airport, ON Ottawa_150mm_VBNRMSD.txt WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 150 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 90 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	23	83	144	299
28- 2	-8.8	57	12	18	1	1	0	26	110	146	356
31- 3	-2.7	66	32	80	5	5	0	103	64	150	422
30- 4	5.9	72	67	69	32	32	0	104	0	150	494
31- 5	13.0	74	74	0	80	80	0	13	0	131	568
30- 6	18.3	82	82	0	116	116	0	4	0	93	651
31- 7	20.8	89	89	0	135	127	-8	2	0	52	740
31- 8	19.5	87	87	0	117	97	-19	1	0	41	827
30- 9	14.6	84	84	0	75	68	-6	3	0	54	912
31-10	8.1	77	76	0	36	36	-1	8	0	88	77
30-11	1.3	80	63	8	10	10	0	23	9	126	157
31-12	-7.0	78	26	15	1	1	0	26	47	140	236
AVE	5.9 TTL	911	705	205	608	573	-34	336			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	31	43	15	55
28- 2	2.6	29	15	27	1	1	0	37	59	12	59
31- 3	2.3	28	22	47	4	4	0	54	83	0	65
30- 4	1.7	31	31	84	8	8	0	84	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	8	1	17	0	41	93
31- 7	1.2	42	42	0	8	18	18	11	0	42	93
31- 8	1.3	39	39	0	8	22	23	5	0	44	107
30- 9	1.5	38	38	0	8	12	10	14	0	49	110
31-10	1.4	37	37	2	7	6	2	19	0	47	37
30-11	1.7	27	28	9	4	4	0	30	13	31	45
31-12	3.0	30	22	14	1	1	0	29	34	20	56

Ottawa Airport, ON Ottawa_200mm_VBNRMSD.txt
 WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 200 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 120 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	21	83	187	299
28- 2	-8.8	57	12	18	1	1	0	24	110	191	356
31- 3	-2.7	66	32	80	5	5	0	99	64	199	422
30- 4	5.9	72	67	69	32	32	0	103	0	200	494
31- 5	13.0	74	74	0	80	80	0	13	0	181	568
30- 6	18.3	82	82	0	116	116	0	4	0	143	651
31- 7	20.8	89	89	0	135	132	-3	2	0	97	740
31- 8	19.5	87	87	0	117	106	-11	1	0	78	827
30- 9	14.6	84	84	0	75	70	-4	3	0	89	912
31-10	8.1	77	76	0	36	36	0	7	0	123	77
30-11	1.3	80	63	8	10	10	0	19	9	164	157
31-12	-7.0	78	26	15	1	1	0	22	47	182	236
AVE	5.9 TTL	911	705	205	608	589	-18	318			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	30	43	24	55
28- 2	2.6	29	15	27	1	1	0	36	59	20	59
31- 3	2.3	28	22	47	4	4	0	55	83	4	65
30- 4	1.7	31	31	84	8	8	0	83	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	11	10	11	0	48	93
31- 8	1.3	39	39	0	8	16	16	5	0	54	107
30- 9	1.5	38	38	0	8	10	8	14	0	59	110
31-10	1.4	37	37	2	7	6	1	19	0	55	37
30-11	1.7	27	28	9	4	4	0	29	13	41	45
31-12	3.0	30	22	14	1	1	0	28	34	29	56

Ottawa Airport, ON Ottawa_225mm_VBNRMSD.txt WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 225 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 135 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	21	83	209	299
28- 2	-8.8	57	12	18	1	1	0	24	110	214	356
31- 3	-2.7	66	32	80	5	5	0	97	64	224	422
30- 4	5.9	72	67	69	32	32	0	103	0	225	494
31- 5	13.0	74	74	0	80	80	0	13	0	206	568
30- 6	18.3	82	82	0	116	116	0	4	0	168	651
31- 7	20.8	89	89	0	135	133	-2	2	0	121	740
31- 8	19.5	87	87	0	117	109	-8	1	0	99	827
30- 9	14.6	84	84	0	75	71	-4	3	0	109	912
31-10	8.1	77	76	0	36	36	0	7	0	143	77
30-11	1.3	80	63	8	10	10	0	18	9	185	157
31-12	-7.0	78	26	15	1	1	0	21	47	204	236
AVE	5.9 TTL	911	705	205	608	594	-14	314			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	30	43	28	55
28- 2	2.6	29	15	27	1	1	0	36	59	24	59
31- 3	2.3	28	22	47	4	4	0	56	83	7	65
30- 4	1.7	31	31	84	8	8	0	82	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	10	7	11	0	49	93
31- 8	1.3	39	39	0	8	14	13	5	0	58	107
30- 9	1.5	38	38	0	8	10	7	14	0	63	110
31-10	1.4	37	37	2	7	6	1	19	0	58	37
30-11	1.7	27	28	9	4	4	0	29	13	44	45
31-12	3.0	30	22	14	1	1	0	28	34	33	56

Ottawa Airport, ON Ottawa_250mm_VBNRMSD.txt WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 250 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 150 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	20	83	232	299
28- 2	-8.8	57	12	18	1	1	0	23	110	238	356
31- 3	-2.7	66	32	80	5	5	0	96	64	248	422
30- 4	5.9	72	67	69	32	32	0	102	0	250	494
31- 5	13.0	74	74	0	80	80	0	13	0	231	568
30- 6	18.3	82	82	0	116	116	0	4	0	193	651
31- 7	20.8	89	89	0	135	134	-1	2	0	145	740
31- 8	19.5	87	87	0	117	111	-6	1	0	121	827
30- 9	14.6	84	84	0	75	72	-3	3	0	130	912
31-10	8.1	77	76	0	36	36	0	7	0	164	77
30-11	1.3	80	63	8	10	10	0	18	9	207	157
31-12	-7.0	78	26	15	1	1	0	20	47	226	236
AVE	5.9 TTL	911	705	205	608	598	-10	309			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	29	43	32	55
28- 2	2.6	29	15	27	1	1	0	36	59	27	59
31- 3	2.3	28	22	47	4	4	0	56	83	9	65
30- 4	1.7	31	31	84	8	8	0	82	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	9	5	11	0	50	93
31- 8	1.3	39	39	0	8	12	11	5	0	61	107
30- 9	1.5	38	38	0	8	9	6	14	0	66	110
31-10	1.4	37	37	2	7	7	1	19	0	61	37
30-11	1.7	27	28	9	4	4	0	29	13	47	45
31-12	3.0	30	22	14	1	1	0	28	34	36	56

Ottawa 265mm VBNRMSD.txt
 Ottawa Airport, ON WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 265 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 159 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	20	83	246	299
28- 2	-8.8	57	12	18	1	1	0	23	110	252	356
31- 3	-2.7	66	32	80	5	5	0	96	64	263	422
30- 4	5.9	72	67	69	32	32	0	102	0	265	494
31- 5	13.0	74	74	0	80	80	0	13	0	246	568
30- 6	18.3	82	82	0	116	116	0	4	0	208	651
31- 7	20.8	89	89	0	135	134	-1	2	0	160	740
31- 8	19.5	87	87	0	117	112	-5	1	0	135	827
30- 9	14.6	84	84	0	75	72	-3	3	0	144	912
31-10	8.1	77	76	0	36	36	0	7	0	177	77
30-11	1.3	80	63	8	10	10	0	18	9	221	157
31-12	-7.0	78	26	15	1	1	0	20	47	240	236
AVE	5.9 TTL	911	705	205	608	599	-9	309			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	29	43	34	55
28- 2	2.6	29	15	27	1	1	0	36	59	29	59
31- 3	2.3	28	22	47	4	4	0	56	83	10	65
30- 4	1.7	31	31	84	8	8	0	82	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	8	4	11	0	51	93
31- 8	1.3	39	39	0	8	11	10	5	0	62	107
30- 9	1.5	38	38	0	8	9	5	14	0	68	110
31-10	1.4	37	37	2	7	7	1	19	0	62	37
30-11	1.7	27	28	9	4	4	0	29	13	49	45
31-12	3.0	30	22	14	1	1	0	28	34	38	56

Ottawa Airport, ON Ottawa_275mm_VBNRMSD.txt WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 275 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 165 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	19	83	255	299
28- 2	-8.8	57	12	18	1	1	0	23	110	261	356
31- 3	-2.7	66	32	80	5	5	0	96	64	272	422
30- 4	5.9	72	67	69	32	32	0	101	0	275	494
31- 5	13.0	74	74	0	80	80	0	13	0	256	568
30- 6	18.3	82	82	0	116	116	0	4	0	218	651
31- 7	20.8	89	89	0	135	135	-1	2	0	170	740
31- 8	19.5	87	87	0	117	113	-4	1	0	144	827
30- 9	14.6	84	84	0	75	72	-2	3	0	153	912
31-10	8.1	77	76	0	36	36	0	7	0	186	77
30-11	1.3	80	63	8	10	10	0	18	9	230	157
31-12	-7.0	78	26	15	1	1	0	20	47	249	236
AVE	5.9 TTL	911	705	205	608	601	-7	307			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	29	43	35	55
28- 2	2.6	29	15	27	1	1	0	36	59	30	59
31- 3	2.3	28	22	47	4	4	0	56	83	11	65
30- 4	1.7	31	31	84	8	8	0	81	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	8	3	11	0	51	93
31- 8	1.3	39	39	0	8	11	9	5	0	63	107
30- 9	1.5	38	38	0	8	9	5	14	0	69	110
31-10	1.4	37	37	2	7	7	1	19	0	63	37
30-11	1.7	27	28	9	4	4	0	29	13	50	45
31-12	3.0	30	22	14	1	1	0	28	34	39	56

Ottawa Airport, ON Ottawa_280mm_VBNRMSD.txt WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 280 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 168 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	19	83	260	299
28- 2	-8.8	57	12	18	1	1	0	23	110	266	356
31- 3	-2.7	66	32	80	5	5	0	95	64	277	422
30- 4	5.9	72	67	69	32	32	0	101	0	280	494
31- 5	13.0	74	74	0	80	80	0	13	0	261	568
30- 6	18.3	82	82	0	116	116	0	4	0	223	651
31- 7	20.8	89	89	0	135	135	-1	2	0	175	740
31- 8	19.5	87	87	0	117	113	-4	1	0	148	827
30- 9	14.6	84	84	0	75	72	-2	3	0	157	912
31-10	8.1	77	76	0	36	36	0	7	0	191	77
30-11	1.3	80	63	8	10	10	0	18	9	234	157
31-12	-7.0	78	26	15	1	1	0	20	47	254	236
AVE	5.9 TTL	911	705	205	608	601	-7	306			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	29	43	35	55
28- 2	2.6	29	15	27	1	1	0	36	59	31	59
31- 3	2.3	28	22	47	4	4	0	56	83	12	65
30- 4	1.7	31	31	84	8	8	0	81	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	8	3	11	0	52	93
31- 8	1.3	39	39	0	8	10	9	5	0	64	107
30- 9	1.5	38	38	0	8	9	5	14	0	69	110
31-10	1.4	37	37	2	7	7	1	19	0	64	37
30-11	1.7	27	28	9	4	4	0	29	13	50	45
31-12	3.0	30	22	14	1	1	0	28	34	39	56

Ottawa 300mm VBNRMSD.txt
 Ottawa Airport, ON WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 300 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 180 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	19	83	279	299
28- 2	-8.8	57	12	18	1	1	0	23	110	285	356
31- 3	-2.7	66	32	80	5	5	0	95	64	297	422
30- 4	5.9	72	67	69	32	32	0	101	0	300	494
31- 5	13.0	74	74	0	80	80	0	13	0	281	568
30- 6	18.3	82	82	0	116	116	0	4	0	243	651
31- 7	20.8	89	89	0	135	135	0	2	0	194	740
31- 8	19.5	87	87	0	117	114	-3	1	0	167	827
30- 9	14.6	84	84	0	75	73	-2	3	0	176	912
31-10	8.1	77	76	0	36	36	0	7	0	209	77
30-11	1.3	80	63	8	10	10	0	18	9	252	157
31-12	-7.0	78	26	15	1	1	0	20	47	272	236
AVE	5.9 TTL	911	705	205	608	603	-5	306			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	29	43	37	55
28- 2	2.6	29	15	27	1	1	0	36	59	33	59
31- 3	2.3	28	22	47	4	4	0	57	83	13	65
30- 4	1.7	31	31	84	8	8	0	81	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	8	2	11	0	52	93
31- 8	1.3	39	39	0	8	10	8	5	0	65	107
30- 9	1.5	38	38	0	8	9	5	14	0	71	110
31-10	1.4	37	37	2	7	7	1	19	0	65	37
30-11	1.7	27	28	9	4	4	0	29	13	52	45
31-12	3.0	30	22	14	1	1	0	28	34	41	56

Ottawa Airport, ON Ottawa_400mm_VBNRMSD.txt
 WATER BUDGET MEANS FOR THE PERIOD 1950-2010 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 400 MM HEAT INDEX... 36.41
 LONG.. 75.67 LOWER ZONE..... 240 MM A..... 1.075

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	-10.6	64	13	15	0	0	0	19	83	375	299
28- 2	-8.8	57	12	18	1	1	0	22	110	382	356
31- 3	-2.7	66	32	80	5	5	0	94	64	395	422
30- 4	5.9	72	67	69	32	32	0	99	0	400	494
31- 5	13.0	74	74	0	80	80	0	13	0	381	568
30- 6	18.3	82	82	0	116	116	0	4	0	343	651
31- 7	20.8	89	89	0	135	135	0	2	0	294	740
31- 8	19.5	87	87	0	117	116	-1	1	0	265	827
30- 9	14.6	84	84	0	75	74	-1	3	0	272	912
31-10	8.1	77	76	0	36	36	0	7	0	305	77
30-11	1.3	80	63	8	10	10	0	18	9	349	157
31-12	-7.0	78	26	15	1	1	0	19	47	369	236
AVE	5.9 TTL	911	705	205	608	606	-2	301			

Ottawa Airport, ON STANDARD DEVIATIONS FOR THE PERIOD 1950-2010 DC20492

DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACCP
31- 1	3.0	26	16	18	1	1	0	29	43	44	55
28- 2	2.6	29	15	27	1	1	0	36	59	39	59
31- 3	2.3	28	22	47	4	4	0	57	83	20	65
30- 4	1.7	31	31	84	8	8	0	80	0	2	74
31- 5	1.9	32	32	0	12	12	0	21	0	22	85
30- 6	1.2	38	38	0	9	9	0	17	0	41	93
31- 7	1.2	42	42	0	8	8	0	11	0	53	93
31- 8	1.3	39	39	0	8	8	4	5	0	69	107
30- 9	1.5	38	38	0	8	8	2	14	0	76	110
31-10	1.4	37	37	2	7	7	0	19	0	69	37
30-11	1.7	27	28	9	4	4	0	29	13	57	45
31-12	3.0	30	22	14	1	1	0	28	34	46	56

ATTACHMENT X
Septic System Specifications



HYDRO-KINETIC[®] GREEN WASTEWATER TREATMENT SYSTEM

WITH SERVICE PRO[®] CONTROL CENTER

SPECIFICATIONS

GENERAL SPECIFICATIONS

The contractor shall furnish and install one complete Hydro-Kinetic Green wastewater treatment system with all necessary parts and equipment as described in the following specifications. Treatment of the domestic wastewater shall be accomplished by the extended aeration process with non-mechanical flow equalization, pretreatment of the influent and filtration of the final effluent. The treatment system shall provide primary, secondary and tertiary treatment of the wastewater flow, denitrification, and if required, chlorination/dechlorination or ultraviolet disinfection of the effluent prior to discharge. All treatment processes shall be contained within tankage which shall be manufactured using high density polyethylene resin. The wastewater treatment system shall be a Hydro-Kinetic Green as manufactured by Norweco, Inc., Norwalk, Ohio, USA.



The wastewater treatment system shall include high density polyethylene tankage providing separate pretreatment, anoxic, aeration, clarification and final filtration chambers. The tankage shall be furnished with a Schedule 40 PVC inlet hub, submerged transfer ports, access risers with removable covers, molded plastic vent assembly, molded receiving flange and Schedule 40 PVC outlet hub. Principal items of electro-mechanical equipment supplied with the Hydro-Kinetic Green system shall be an air pump, recirculation pump, UL Listed Service Pro Model 801P electrical control center with MCD technology, flow equalization device and Hydro-Kinetic Bio-Film Reactor for final filtration of system effluent.

SPECIFICATIONS

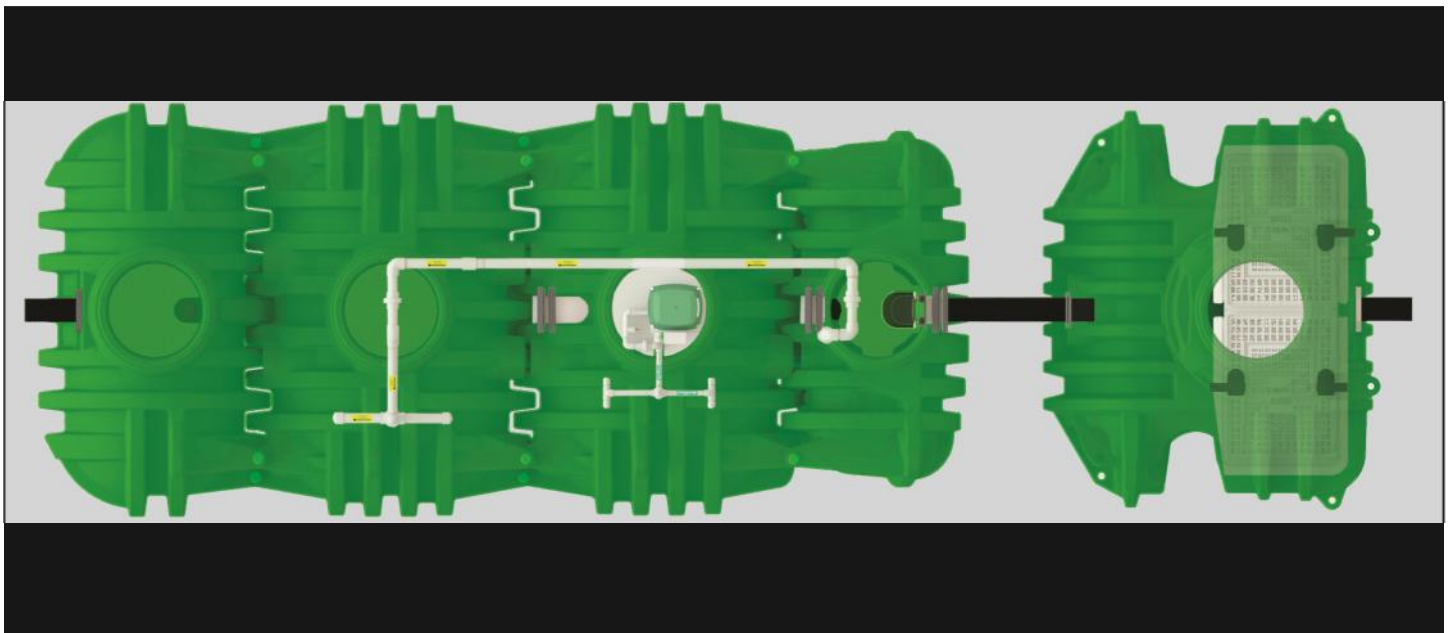
HYDRO-KINETIC®

OPERATING CONDITIONS

Total holding capacity of the system shall provide a minimum of 85 hour retention of the daily flow. The pretreatment chamber shall provide at least 18 hour retention, the anoxic chamber shall provide at least 24 hour retention, the extended aeration chamber shall provide at least 24 hour retention, the clarification chamber shall provide at least 7 hour retention and the Hydro-Kinetic Bio-Film Reactor shall provide at least 12 hour retention of the daily flow. The non-mechanical flow equalization device shall increase individual chamber and total system retention time in direct proportion to loading. Design of the system shall include a compartmented tank and non-mechanical flow equalization device to insure successful treatment performance without upset even when the significant runoff period is six hours. Hydraulic design considerations of the system and flow equalization device shall be such that intermittent peak flow factors as high as four shall not upset hydraulic reliability within the system. Capability of the system to perform as outlined, when built by an approved manufacturer, shall be certified by an independent testing laboratory and approved for use by the local governing regulatory agency.

PRETREATMENT CHAMBER

The pretreatment chamber shall be an integral part of the wastewater treatment system. All domestic wastewater shall be preconditioned and flow equalized while passing through the pretreatment chamber prior to being introduced to the anoxic chamber. The outlet of the pretreatment chamber shall be equipped with a discharge tee that extends vertically into the liquid so that only the preconditioned flow from the center area of the chamber is displaced to the anoxic chamber. The discharge tee and transfer port shall be of adequate size to handle a peak flow factor of four without restricting the outlet and disturbing hydraulic displacement to the anoxic chamber. A removable inspection cover shall be incorporated into the top of the pretreatment chamber to allow tank and transfer tee inspection.



ANOXIC CHAMBER

The anoxic chamber shall provide in excess of 24 hour retention of the equalized daily flow. In the anoxic chamber, low oxygen levels shall compel facultative heterotrophic bacteria to use nitrate-bound oxygen in their respiratory process. Nitrified liquid from the clarifier shall enter the chamber in measured doses and nitrogen compounds shall be converted to harmless nitrogen gas which shall escape into the atmosphere. Overall design of the chamber shall insure that effective mixing and suspension of the biomass is maintained in an anoxic condition to insure consistent biological denitrification. Systems that have not been performance certified to reduce Total Nitrogen (TN) more than 50% shall not be considered for this application.

AERATION CHAMBER

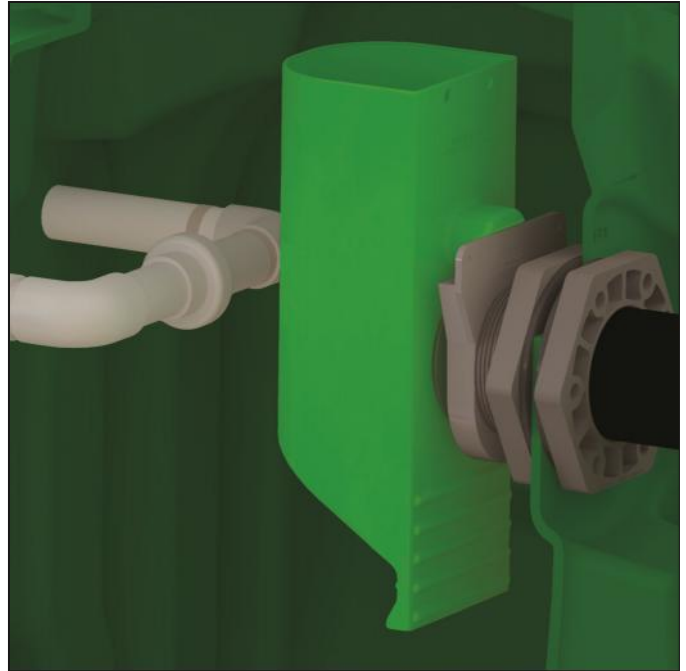
The extended aeration chamber shall provide in excess of 24 hour retention of the equalized daily flow. The chamber shall be of sufficient size to provide a minimum of 80 cubic feet of tank capacity per pound of applied BOD. The aeration chamber shall be an integral part of the system flow path and configured to insure effective mixing of microorganisms, wastewater and fresh air. No area of the chamber shall be isolated from process mixing, thereby eliminating dead or quiescent areas of the treatment chamber which are detrimental to the treatment process. Influent into the aeration chamber shall be preconditioned, equalized flow from the anoxic chamber.

FINAL CLARIFICATION CHAMBER

The final clarification chamber shall consist of 5 functionally independent zones operating together to provide satisfactory settling and clarification of the equalized flow. An inlet zone shall be provided and shall dissipate transfer turbulence at the flow inlet of the clarifier. Liquid is then displaced into the hopper zone of the clarifier. In this zone, settling by gravity takes place. Three of the four sidewalls are slanted to form a hopper which directs all settled material back to the settled sludge zone. A recirculation pump in the settled sludge zone shall transfer a portion of the wastewater back to the anoxic chamber. Clarified liquid from the hopper zone shall be displaced into the final settling zone to provide additional clarification of the liquid. The liquid is finally displaced to the outlet zone where the treated effluent shall pass through the flow equalization device and be discharged from the final clarification chamber.

FLOW EQUALIZATION DEVICE

The system shall include a non-mechanical, demand use, flow equalization device. The device shall be installed with the design flow equalization port located below the normal liquid level of the clarifier. If intermittent flow rates exceed the capacity of the design flow port, flow shall be held upstream until the intermittent flow dissipates. If the intermittent flow continues to increase, the liquid level may reach a sustained flow equalization port. With both ports in use, flow through the system increases while continuing to provide flow equalization to upstream and downstream processes. A peak flow equalization port is supplied but should not be required in a properly sized system. The device shall control normal residential flow rates and reduce typical residential flow surges. The flow equalization rate shall be dependent upon the specific loading pattern and the duration of flow surges. At the 600 GPD (gallons per day) NSF Standard 40/245 design loading schedule, minimum performance of the device shall equalize daily flow an average of 50%.



HYDRO-KINETIC BIO-FILM REACTOR II

Significant reduction of organic matter shall occur in the treatment system prior to the Hydro-Kinetic Bio-Film Reactor. The Bio-Film Reactor shall provide final treatment of the effluent to a near pristine state. Flow equalized liquid from the clarifier shall enter the influent chamber, travel down and be evenly distributed beneath the Reactor Elements. The effects of gravity shall cause solids to settle to the bottom of the tank. As liquid travels up through the proprietary attached growth media, further reduction of organic matter shall take place. Additional settling and consolidation of solids shall take place downstream of the filter media. After passing through the filtration media for final polishing, the highly treated liquid shall flow into the final effluent zone before exiting the Bio-Film Reactor through the outlet tee.

GREEN

SERVICE PRO® MODEL 801P ELECTRICAL CONTROL CENTER

The Model 801P control center with MCD technology shall provide Monitoring, Compliance and Diagnostic functions for the treatment system. The pre-wired controls shall be mounted in a lockable NEMA rated enclosure designed specifically for outdoor use. The control center shall be a UL Listed assembly and shall include a time clock, alarm light, reset button, power switch, power light, phone/network light, recirculation pump light, air pump light, high water light and auxiliary alarm light. A pre-programmed time clock shall control the recirculation pump to insure that approximately 400% of the average daily flow is returned to the anoxic chamber. The control center shall monitor recirculation pump current, air pump operation, high water and auxiliary alarm circuitry. In the event of an alarm from the air pump or auxiliary input, the audible and visual alarms shall activate and the optional telemetry system shall report the condition. If abnormal operation of the recirculation pump is detected, a diagnostic sequence shall begin and the visual alarm shall activate. After a factory programmed recovery interval, an automatic restart attempt shall be initiated. If normal pump operation does not resume during 24 programmed recovery and restart cycles, the audible alarm shall activate and the optional telemetry system shall report the condition to the Service Pro monitoring center.



SERVICE PRO[®] MONITORING CENTER

The Service Pro monitoring center shall include a 256 bit encrypted password protected website for interface with the monitoring center database. Access to the secure website shall be obtained through a unique user name and password that provides tiered access to data from monitored treatment systems. Access level tiers shall include dealers, service providers, regulatory agencies and individual system owners. Dealers and service providers shall be able to create accounts, enter serial numbers for system equipment, maintain service records and grant regulatory agencies access to the information. The monitoring center shall have the capability to schedule future service inspections and provide notification. Individual system owners shall be able to view information regarding their own systems, as well as download instructional information. Integrity of stored data shall be maintained through the use of multiple servers operating in geographically isolated locations.



MODEL AT 1500 ULTRAVIOLET DISINFECTION SYSTEM (Optional)

The Hydro-Kinetic Green system shall be furnished complete with a Model AT 1500 ultraviolet disinfection system. The AT 1500 system shall incorporate a turbulence inducer and dual-pass design to insure bacteria receive maximum exposure to the ultraviolet light source. The ultraviolet disinfection system shall be UL Listed under Standard 979 as a residential treatment device and shall include a disinfection chamber, turbulence inducer, extension riser, quartz tube with Teflon cover, ultraviolet bulb and controls. An interlock switch shall be furnished to automatically disable the ultraviolet light source when the disinfection chamber is accessed. Ultraviolet disinfection systems without a residential UL Listing have not demonstrated compliance with international electrical standards for safety and reliability and shall not be considered for this application.

SPECIFICATIONS

CERTIFIED PERFORMANCE

The wastewater treatment system shall be certified to operate for 12 consecutive months at the rated daily capacity without routine service. This performance shall be demonstrated by a continuous 12 month evaluation performed by an independent ANSI accredited, third-party testing facility. The evaluation shall consist of 2 consecutive ANSI/NSF Standard 40 and 245 evaluations, including the stress sequences, with no maintenance allowed in between. The system shall also be certified by a SCC accredited, third-party testing facility to BNQ Standards CAN/BNQ 3680-600 and NQ 3680-910. For the entire certification protocol, the system shall achieve a total test average of less than 5 mg/L Biochemical Oxygen Demand (CBOD), less than 5 mg/L Total Suspended Solids (TSS), and greater than 50% reduction of Total Nitrogen (TN) in the effluent. Systems unable to meet these effluent quality parameters for at least 12 months of continuous testing by independent ANSI and SCC accredited, third-party testing facilities without service do not provide the desired level of effluent quality or service frequency, and shall not be considered for this application.



AIR PUMP

The air pump shall be configured to allow remote mounting or installation within the mounting riser above the aeration chamber. When installed in the access riser, fresh air shall be supplied through a vented, injection molded, heavy duty, glass-filled polypropylene access cover above the air pump. Fresh air shall enter the air pump through a filter located under the housing cover and be introduced below the liquid surface through a prefabricated diffuser assembly. Only the plastic diffuser assembly and the air piping shall be installed in contact with the liquid. The air pump shall be wired for 115 volt, single phase, 60 cycle operation. The air pump shall include impact-resistant rubber diaphragms and valves which prolong operational life. The



unique design and construction shall provide easy maintenance, excellent cooling and quiet operation. The air pump shall continue aerating and mixing the aeration chamber even during high water conditions. Treatment systems that interrupt air delivery during high water conditions disrupt biological activity and shall not be considered for this application.

RECIRCULATION PUMP

The submersible recirculation pump shall be wired for 115 volt, single phase, 60 cycle operation and shall be installed in the clarification chamber. Operation of the submersible recirculation pump shall be controlled by the Service Pro control center. The pump shall periodically recirculate nitrified liquid from the clarification chamber to the anoxic chamber. The pump shall be designed to be non-overloading throughout the entire pump curve and shall draw less than 8 full load amps. The pump motor shall contain moisture resistant windings and shall be securely mounted inside an oil-filled, watertight housing for maximum pump life. The stator housing and casing shall be of high grade cast iron, stainless steel or thermoplastic construction.

BLUE CRYSTAL[®] CHLORINATION SYSTEM (Optional)

The Hydro-Kinetic Green system shall be furnished complete with a tablet feeder and a six month supply of Blue Crystal disinfecting tablets. Blue Crystal tablets shall be specifically formulated for consistent chlorine dosage and effluent disinfection to the sustained, variable and intermittent flows that are typical of domestic wastewater treatment systems. The tablets shall be manufactured from pure calcium hypochlorite and contain a minimum of 70% available chlorine. Each tablet shall be 2⁵/₈" diameter, compressed to a 1" thickness, weigh approximately 5 ounces and be white in color with blue crystals for easy identification. The tablets shall dissolve in direct proportion to the flow rate, releasing controlled amounts of chlorine.

BIO-MAX[®] DECHLORINATION SYSTEM (Optional)

The Hydro-Kinetic Green system shall be furnished complete with a tablet feeder and a six month supply of Bio-Max dechlorination tablets. The dechlorination tablets shall contain 92% sodium sulfite as the active ingredient and shall be specially formulated to chemically neutralize both free and combined chlorine. Each tablet shall be 2⁵/₈" diameter, compressed to a 1³/₁₆" thickness, weigh approximately 5 ounces and be green in color for easy identification. The tablets shall dissolve slowly, releasing controlled amounts of chemical for the instantaneous removal of residual chlorine from the system effluent.

LIMITED WARRANTY

The wastewater treatment system shall be covered by a two year limited warranty. The air pump, recirculation pump, Service Pro Model 801P control center and any other Hydro-Kinetic components purchased from the manufacturer shall be warranted to be free from defects in material and workmanship, under normal use and service, for a period of two years from the date of purchase. A warranty registration card shall be attached to the system before shipment from the factory. A means to register the wastewater treatment system for warranty protection via the internet shall be provided by the manufacturer for the convenience of the dealer, customer and regulatory agency. The dealer shall provide details of the limited warranty to the regulatory agency, contractor and customer as required.

EQUIPMENT MANUFACTURER

The equipment specified herein shall be the product of a manufacturer having a minimum of seven years experience in the construction of prefabricated wastewater treatment equipment and systems. Bids shall be prepared on the basis of the equipment and material specified herein for purposes of determining the low bid. This is not done, however, to eliminate other products or equipment of equal quality and efficiency. If equipment is to be substituted, approval of such substitution must be made prior to execution of any order. It is assumed that substitution will result in a reduction of cost to the contractor and that if accepted, these savings will be passed along by a reduction in the base bid.

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