



Kollaard Associates

Engineers

210 Prescott Street

P.O. Box 189

Kemptville, Ontario K0G 1J0

Civil • Geotechnical •
Structural • Environmental •
Hydrogeology •

(613) 860-0923

FAX: (613) 258-0475

REPORT ON

**HYDROGEOLOGICAL AND TERRAIN STUDY
PROPOSED INDUSTRIAL DEVELOPMENT
6622 BANK STREET
CITY OF OTTAWA, ONTARIO**

Submitted to:

CAMM Warehousing and Rentals Inc.
6622 Bank Street
Greely, Ontario
K0A 2P0

DATE May 28, 2024

DISTRIBUTION

1 digital copy CAMM Warehousing and Rentals Inc.
1 copy Kollaard Associates Inc.

230156



Table of Contents

1.0 Groundwater Supply Evaluation 2
 1.1 Water Quantity..... 2
 A. Water Demand..... 2
 B. Pumping Test..... 3
 1.2 Well Interference 4
 1.3 Water Quality..... 6
 A. Hardness 6
 B. Total Dissolved Solids..... 6
 C. Sodium 7
 2.0 Terrain Study..... 7
 2.1 Groundwater Impact Assessment..... 7
 2.2 Sewage Design Considerations..... 9
 3.0 Wellhead Protection 9
 4.0 Conclusions..... 10

Attachments:

- Record of Boreholes and Borehole Locations Plan
- Figure 1 - Key Plan
- Figure 2 - Site Plan
- Table I - Field Water Quality
- Table II - Summary of Water Chemistry and Bacteria
- Attachment A - Certificate of Well Compliance and Area Well Records and Map
- Attachment B - Pumping Test Data
- Attachment C - Well Water Laboratory Test Results and LSI/RSI
- Attachment D - Nitrate Dilution Calculations and Climate Data for infiltration
- Attachment E -Site Plan (provided by Kollaard Associates)
- Attachment F -Hydrometer Analysis of Glacial Till Sample



Kollaard Associates

Engineers

210 Prescott Street

P.O. Box 189

Kemptville, Ontario K0G 1J0

Civil • Geotechnical •
Structural • Environmental •
Hydrogeology •

(613) 860-0923

FAX: (613) 258-0475

May 28, 2024

230156

CAMM Warehousing and Rentals Inc.
6622 Bank Street
Greely, Ontario
K0A 2P0

RE: HYDROGEOLOGICAL STUDY
PROPOSED EXPANSION TO EXISTING INDUSTRIAL DEVELOPMENT
6622 BANK STREET
OSGOODE WARD
CITY OF OTTAWA, ONTARIO

Dear Sir:

Kollaard Associates Inc. was retained by CAMM Warehousing and Rentals Inc. of Ottawa, Ontario, to supplement an existing hydrogeological and terrain study for a proposed expansion to the existing industrial development at 6622 Bank Street, in the City of Ottawa, Ontario.

This report is an update to a previous Hydrogeological study completed by Kollaard Associates (170035 – Hydrogeological Study, dated June 22, 2017). The report presents the results of an evaluation of the water quality and quantity for the well that will supply water for the existing industrial warehouse building and two proposed industrial buildings. The purpose of this report is to update the existing information from the previous study in accordance with the policies in the *City of Ottawa Hydrogeological and Terrain Guidelines, 2021*. It is understood that it is being proposed to construct two industrial buildings; each warehouse building on the existing ~6.0 hectare (~14.9 acre) property. The proposed buildings are to consist of single storey structures with warehouse and office space.

The well in question was constructed by Olympic Drilling Company Ltd. of Metcalfe, Ontario on May 30, 2017. A Ministry of the Environment, Conservation and Parks (MECP) Well Record for the subject well (TW1) and a Compliance Certificate are provided as Attachment A. This well was drilled for the purposes of the original report and to service the proposed development.



1.0 Groundwater Supply Evaluation

The surrounding area of the subject site has had minimal development since 2017. The property to the northeast (6571 Bank St) has developed from a single family dwelling to a storage yard with a single building on site. The lot immediately south (6638 Bank St) has been developed into a storage yard with a single building on site (AIM Recycling and Auto Parts). The remaining development in the area consists of a mixture of residential, commercial and industrial development, which was present prior to 2017. The pumping test carried out in 2017 was done at a high rate of 83 Litres per Minute and the drawdown was 0.12 metres over 6 hours with 92% water level recovery within 15 minutes after the test. The transmissivity of the aquifer is very high in this area (199 m²/day). All area wells are at least 30 metres in depth and many are greater than 60 metres in depth. Therefore, the previous evaluation of water quantity is considered valid.

The 2017 report is supplemented with the following:

- The water quality was updated by obtaining a water sample from the existing supply well that was tested for the subdivision parameters, including trace metals, and Petroleum Hydrocarbons F1-F4 and volatile organic compounds (VOCs) to be in compliance with the 2021 updated water testing parameters for SPC.
- A groundwater impact assessment was carried out using the total sewage design flow for the site and sewage system design information is provided.

A pumping test was carried out at the well, TW1, by a member of our engineering staff on June 8, 2017. The testing consisted of a 6 hour duration constant discharge rate pumping test. During the pumping test, water level measurements were made both manually and using a pressure transducer to monitor the drawdown of the water level in the well in response to pumping. Groundwater samples were collected from TW1 at about hour 3 and at hour 6 of the pumping test to characterize groundwater quality. After the pumping period, the pump was shut off and the recovery of the water level in the well was monitored for a period of time.

1.1 Water Quantity

A. Water Demand

The water demand is calculated using the information from the sewage system daily design flow and peaking factors available in the City of Ottawa Water Distribution Guidelines, 2010. The sewage design flows are provided below, based on the sewage design information (provided by client).

Daily sewage design flow:

The daily sewage design flow is equal to a maximum daily demand for the site. The site is to be developed as follows, with the corresponding sewage design flows as provided by the sewage design consultant (Kollaard Associates Inc).

Water Demand

Existing Building

Office: The greater of 8 employees x 75 L/day = 600 L/day OR



Warehouse: 192.1 m² Office Space x 75 L/day per 9.3 m² = 1,550 L/day
5 loading bays x 150 L/day = 750 L/day
1 water closet x 150 L/day = 950 L/day

Proposed Industrial Buildings

Office: The greater of 8 employees x 75 L/day = 600 L/day OR
105 m² Office Space x 75 L/day per 9.3 m² = 900 L/day
Warehouse: 9 loading bays x 150 L/day = 1,350 L/day
1 water closet x 150 L/day = 950 L/day

TOTAL DAILY SEWAGE DESIGN FLOW = 6,450 L/day

Since sewage system design is based on the maximum expected daily use, it is equivalent to the Maximum Daily Demand (MDD). The MDD is based on an eight hour operation schedule (i.e. full day occurs over an eight hour period and not over 24 hours).

City of Ottawa calculates the Maximum Hour Demand (MHD) for a commercial or industrial demand to be 1.8 x MDD

MDD = 6,450 litres / day x 1 day / 8 hours x 1 hour / 60 minutes
= 13.4 litres / minute
MHD = 1.8 x MDD
= 1.8 x 13.0 litres / minute
= 24.2 litres / minute

The predicted peak water hourly demand of 24.2 L/min is used.

The Maximum Hourly Demand (MHD) for the site based on its proposed use is expected to be about ~24.2 litres/minute, compared to the pumping test rate which was 83.1 litres/minute. This indicates that the pumping rate used for the test was appropriate as the peak water demand rate was met for the test. The MDD is 6,450 L/day. The test was carried out for 6 hours at the above noted rate and some ~29,900 Litres of water were removed from the well in that time. As such, the amount of water taking in six hours exceeds the expected daily water taking for the full development.

B. Pumping Test

A pumping test was carried out on June 8, 2017, at the existing well on the property.

The well was pumped for six hours at a pumping rate of about 83 litres per minute. Over the course of the pumping test, the water level in the well dropped some 0.12 metres. At the end of the pumping test, about 92 percent recovery of the total drawdown in the static water level occurred within 15 minutes (water level was at 9.37 metres from top of casing). The D-5-5 Guideline recommends monitoring recovery for at least 24 hours or until 95% recovery has occurred. After 24 hours, the water level was measured and was found to have dropped (9.43 metres from top of casing). The water level was measured again after almost four days and the water level was even lower (9.85 metres from top of casing). It is considered that the water levels in the well at the time of the pumping test were dropping due to the climatic conditions that preceded the test. Confined bedrock aquifers are more likely to have fluctuations in water levels due to recharge events in spring due to water storage occurring only in fractures and as a result, water levels can rise



dramatically in response to recharge events. In this case, there had been a significant amount of rain in the month of May (177 mm) and in early June prior to the pumping test (29 mm). From the day before the test (June 7) to the end of monitoring (June 12), there were no rainfall events recorded at the Ottawa Airport (climate data reviewed for this study). It is considered that the water levels were declining in response to a previous rise in water level due to recharge. It is considered that the water level in the well did recover sufficiently after the pumping test (92% in 15 minutes) and there are no concerns with the long term availability of the water supply at this well.

The pumping test drawdown and recovery data and plots for TW1 are provided as Attachment B. The drawdown and recovery data provided were measured with reference to the top of the well casing at the test well location.

The pumping test data for the test well was analyzed using the method of Cooper and Jacob (1946). Although the assumptions on which these equations are based are not strictly met, this method provides a reasonable estimate of the aquifer transmissivity.

Transmissivity was calculated using the following relationship:

$$T = \frac{2.3Q}{4\pi ds}$$

where Q is the pump rate, m³/day

ds is the change in drawdown over one time log cycle, m

T is the transmissivity, m²/day

Based on the pumping test drawdown data the transmissivity of the aquifer is estimated to be about 199.1 m²/day. Based on the recovery data the aquifer transmissivity is estimated to be about 10,426 m²/day. It should be noted that the well production rate is very high (360 litres per minute/80 igpm, according to the well record). As a result, the transmissivity estimates may not be accurate as the flow rate used for the test was not sufficient to achieve a high drawdown (i.e. > about 30 cm, where only 12 cm was achieved). However, the flow rate was enough to demonstrate that the water supply from this well is adequate for the proposed domestic use associated with the proposed industrial development. The proposed development does not use water for industrial uses (ie. no process water). As such, the only water use is for domestic use.

1.2 Well Interference

A review of sixteen area well records was carried out. The area well records are provided as Attachment A along with a map showing their approximate locations. The wells were indicated to be between about 8.5 and 70 metres in depth. Half of the well records indicate that limestone was encountered during drilling, the other half indicated limestone and sandstone was encountered. Based on reported test pumping rates of between 6 and 113 litres per minute (excluding one record indicating 200 GPM), corresponding specific yields of 4 to 2,481 litres per minute per metre of drawdown were calculated, based on drawdowns reported on the well records.

In order to determine water quantity, information from area well records was obtained. The following chart provides water quantity data using information reported on the well records.

The following is noted. Many of the existing property owners including the subject site were subject to a Settlement Agreement with Cornwall Gravel Company Ltd. in 2011, which required all new



wells to be at least 220 feet (67 metres). Many existing wells were deepened at that time, as a result of Cornwall quarry activities causing shallow wells (typically less than 30 metres depth) to go dry. As such, the well record search may not be accurate for some wells that have been subsequently deepened.

| Well No. | Well Depth (m) | Drawdown (m) | Available Drawdown (m) | Yield Test | | |
|----------|----------------|--------------|------------------------|------------|-------------------|-----------------------|
| | | | | Test rate | Specific Capacity | Spec. Cap. |
| | | | | (L/min) | (L/min*m) | (m ² /day) |
| 1517028 | 14.34 | 2.44 | 4.58 | 45.4 | 18.6 | 26.8 |
| A186997 | 67.10 | 0.03 | 21.96 | 75.7 | 2482.0 | 3574.0 |
| A128080 | 70.15 | 0.03 | 58.22 | 75.7 | 2482.0 | 3574.0 |
| 1515392 | 8.54 | 2.14 | 3.97 | 75.7 | 35.5 | 51.1 |
| 1507372 | 14.34 | - | - | 18.9 | - | - |
| 1507377 | 20.74 | - | 18.30 | 6.3 | - | - |
| 1513850 | 15.86 | 0.00 | 7.93 | 37.9 | - | - |
| A135283 | 70.15 | 0.06 | 59.23 | 75.7 | 1241.0 | 1787.0 |
| A128031 | 70.15 | 0.31 | 58.71 | 75.7 | 248.2 | 357.4 |
| A021623 | 26.60 | 3.00 | 19.40 | 44.0 | 14.7 | 21.1 |
| A006908 | 57.91 | 5.46 | 22.15 | 54.6 | 10.0 | 14.4 |
| 1532268 | 61.00 | 25.32 | 25.32 | 94.6 | 3.7 | 5.4 |
| 1532951 | 61.00 | 53.38 | 53.38 | 757.0 | 14.2 | 20.4 |
| 1507373 | 18.30 | 0.61 | 8.24 | 113.6 | 186.1 | 268.1 |
| 1507374 | 18.61 | 0.61 | 11.29 | 113.6 | 186.1 | 268.1 |
| A093655 | 63.44 | 0.08 | 52.31 | 75.7 | 992.8 | 1429.6 |

Based on the information from area well records, the specific capacities for area wells are in the range of 5.4 to 3,574 m²/day for wells drilled between 8.5 and 70 metres deep. Transmissivity values are classified based on the amount of yield for water supply users. One classification (Kransy, Vol. 31, No. 2 – 1993 Ground Water) classifies specific capacity ranges between 1 and 1,000 m²/day as low to high transmissivity, which is sufficient for groundwater supply for private consumption and local water supply.

The pumping rates used for most of the existing wells were between 37.9 and 113.6 litres per minute. The well record provided for the well at 6622 Bank Street indicates it was drilled in 2017. The specific capacity of that well based on a one hour yield test is 206.8 litres per minute per metre, at a flow rate of 37.9 litres per minute. The well for the subject site is similar depth to the area wells receiving from the sandstone underlying the limestone. However, it has a similar production rate as the existing area wells.

Available drawdown in the offsite wells, using their recommended pump depths and the static water level reported on the well records, indicates that available drawdown in the area wells is between 4.0 and 59.2 metres. There is sufficient available drawdown in existing wells, such that the addition of a commercial well is not expected to affect water supply in offsite wells. Given that the casing is 12.2 metres deep, the water supply well is isolated from any other offsite wells that are less than



12.2 metres deep. This provides additional assurance that the pumping of this well will be unlikely to cause well interference with most area wells.

1.3 Water Quality

To determine the water quality of the groundwater supply, groundwater samples were obtained from the test well during the pumping test as well as additional samples collected on May 1, 2024 and prepared/preserved in the field using appropriate techniques and submitted to Eurofins Environmental Testing in Ottawa, Ontario for the chemical, physical and bacteriological analyses listed in the MECP guideline entitled Procedure D-5-5, Technical Guideline for Private Wells: Water Supply Assessment, August 1996. For site plan control, additional testing for trace metals and VOCs is required. Due to onsite and offsite uses of heavy equipment PHC F1-F4 were also included. Samples that were tested for trace metals were field filtered using a 0.45 um filter prior to being placed into the laboratory supplied bottles complete with appropriate preservative to maintain sample integrity during transport. The VOC and PHC analyses were carried out by ALS Canada Ltd. The method of obtaining a water sample for VOC testing including ensuring that the water in the discharge hose was in laminar flow and the water was carefully allow to trickle down the laboratory supplied sample bottles rather than splashing to avoid aerating the water sample before storing it in a sealed bottle with no headspace.

The temperature, conductivity, pH, total dissolved solids, turbidity and residual chlorine levels of the groundwater were measured at periodic intervals during the pumping test. The results of the chemical, physical, bacteriological, and PHC and volatile organic compounds (VOCs) analyses and the field water quality of the water samples and the updated water quality compared to 2017 from the test well are provided as Attachment C, Table I, and Table II, respectively.

The water quality as determined from the results of the analyses is acceptable. The water meets all the Ontario Drinking Water Standards, Objectives and Guidelines (ODWSOG) health and aesthetic parameters tested for at the test well except for aesthetic objectives for hardness and total dissolved solids. Sodium is above the 20 mg/l medical advisory limit for those on sodium restricted diets. Based on water quality results there are no changes since 2017 to water quality and no detectible presence of any VOCs or hydrocarbons, trace metals are within allowable limits.

A. Hardness

The water is considered to be hard by water treatment standards. Water with hardness above 80 to 100 milligrams per litre as CaCO_3 is often softened for domestic use. The hardness at the well is 318 milligrams per litre. Water softening by conventional sodium ion exchange may introduce relatively high concentrations of sodium into the drinking water, which may contribute a significant percentage to the daily sodium intake for a consumer on a sodium restricted diet. Where ion exchange water softeners are used, a separate unsoftened water supply could be used for drinking and culinary purposes.

B. Total Dissolved Solids

The total dissolved solids (TDS) were measured at 683 milligrams per litre, for the water sample obtained May 1, 2024, above the ODWSOG of 500 milligrams per litre. The Ryznar Stability Indices (RSI) and Langelier Saturation Indices (LSI) were calculated for the sample obtained May 1, 2024 and gave RSI values of 6.75 and LSI of 0.52, indicating that the water has a small potential for scale formation. The effect of elevated TDS levels on drinking water palatability also depends on



the individual components, which are principally chlorides, sulphates, calcium, magnesium and bicarbonates. Depending on which parameters are elevated, TDS exceedances can include hardness, taste, mineral deposition or corrosion. In this case, the test well water samples had a higher level of hardness (i.e. calcium carbonates) (318 mg/l) and presence of sodium and chlorides. The sodium and chlorides were within their aesthetic objectives. It is considered that the elevated TDS levels do not significantly impact water palatability as the individual parameters that contribute to the elevated TDS levels are within the aesthetic objectives.

C. Sodium

The sodium level in the water is about 117 mg/l. The MOECC D-5-5 Guideline states that *“the local Medical Officer of Health should be notified when the sodium concentration exceeds 20 mg/l so that this information may be communicated to local physicians for their use with patients on sodium restricted diets.”* The sodium levels were well within the aesthetic objective of 200 mg/l.

2.0 Terrain Study

Soils information was obtained from geotechnical boreholes put down at the subject site, which are appended to this report and the Site Plan, Figure 2 provides the locations of the boreholes. The field work for the geotechnical investigation was carried out on May 1, 2024, at which time four boreholes were put down at the site, identified as BH1 to BH4. All boreholes encountered about 0.9 to 2.4 metres of fill material, consisting of either asphalt, crushed gravel, yellow brown sand, trace clay and organics, overlying glacial till to depths of 2.1 to 3.3 metres. Where encountered, water was observed at about 1.1 and 3.2 metres below the ground surface. Two hydrometer analyses were carried out on samples of the glacial till material that was encountered across the site. The results of the hydrometer (Attachment F) indicate that the soil at a depth of 2.3 to 2.9 metres below ground surface has roughly 80% silt and clay sized particles. This is considered to be a fine grained soil which has low permeability. The second sample indicated that the soil at a depth of 3.0 to 3.6 metres below ground surface has roughly 60% sand and gravel sized particles. This is considered to be a medium grained soil which has moderate permeability. As all 4 boreholes encountered the glacial till layer at thicknesses ranging from 0.9 to 2.4 metres, below the fill and topsoil, it is considered that the glacial till deposit at the site and the upper bedrock are the receiving aquifer.

2.1 Groundwater Impact Assessment

The existing septic system for the industrial building at 6622 Bank St was designed by Kollaard Associates (File Number: 170035 – June 6, 2017). The system consists of a fully raised conventional system located in the front of the existing building. The system was designed with a daily sewage flow of 3,250 L/day.

The most probable groundwater receiver for sewage effluent is the glacial till and upper bedrock at the site. To obtain a general indication as to the potential impact of septic effluent on the properties adjoining the proposed development, a nitrate dilution model was used. For this case, as the site is considered to be an industrial use, the daily effluent loading is based on the sewage system design flows. The resulting nitrate dilution calculations are provided as Attachment E, along with the Climate Data used for the calculation.

The sewage design flow calculations were provided by the sewage system designer and are as follows;



Existing Building

Office: The greater of 8 employees x 75 L/day = 600 L/day OR
192.1 m² Office Space x 75 L/day per 9.3 m² = 1,550 L/day
Warehouse: 5 loading bays x 150 L/day = 750 L/day
1 water closet x 950 L/day = 950 L/day

Proposed Commercial Buildings

Office: The greater of 8 employees x 75 L/day = 600 L/day OR
105 m² Office Space x 75 L/day per 9.3 m² = 900 L/day
Warehouse: 9 loading bays x 150 L/day = 1,350 L/day
1 water closet x 950 L/day = 950 L/day

TOTAL DAILY SEWAGE DESIGN FLOW = 6,450 L/day

Other infiltration factors that were used in the above noted calculations are provided below.

Infiltration is based on moisture surplus and incorporates factors including soils, topography, soil cover and impervious areas (infiltration reduction factors). For this calculation, the background nitrate was assumed to be 0.0 mg/L.

The following provides the basis whereby the infiltration reduction factors for the site were chosen for the dilution calculations.

Topographic, soil and land cover infiltration factors were selected from *Table 2* of the MOE *Hydrological Technical Information Requirements for Land Development Applications*. The following is a discussion of each of the infiltration reduction factors chosen for the site.

The site is characterized by a combination of flat and rolling terrain, based on a topographical survey of the site and the post-development conditions indicate that slope is generally less than 2 metres per kilometre. The topography factor that applies to the site is 0.15.

The type of land cover observed at the site at the time of site visits and by use of satellite imagery consists mostly of cultivated lands, with some mature trees on the west portion of the site. The post-development conditions provided in the Grading Plan (230156-GR) show that the treed area is to remain post-construction (grades to remain as is). The land cover infiltration factor of 0.10 was selected, which corresponds to cultivated land and does not include any trees or post-development re-vegetation.

A soil infiltration factor of 0.20 was chosen as the site is indicated to be underlain by sandy fill followed by the native glacial till soils. The soils range from coarse (greater than 50% sand content) to fine textured silt (less than 50% coarse textured). The glacial till has some 80% silt and clay sized particles while the overlying sand fill is coarse grained. The soil infiltration value that was used corresponds to combinations of clay and loam (glacial till), based on the expected lower permeability of the underlying soils encountered across the site.

In order to determine water surplus estimates for the site area, Environment Canada published values for Ottawa International Airport obtained for the years 1939 to 2021 was used. The expected moisture surplus or net potential infiltration for the site area was estimated 379 millimetres, for the sand to silt type soils that are expected for the site.



Hard Surfaced Area post-development was calculated as follows. The areas of the roofs of the buildings at the site occupy an area of some 6972 square metres and are not available for infiltration. The parking area consists of asphaltic concrete surfaced areas of about 3015 square metres. For asphalt, the runoff coefficient is 0.9. The gravel surfaced area occupies some 25,800 square metres with a corresponding runoff coefficient of 0.6. The Net Infiltration Area (NIA) for the site was calculated as 34,723.0 square metres. There will also be additional infiltration promoted through the stormwater retention area that is not included, making the NIA calculation conservative.

The sewage system that is proposed to service the new buildings development is a tertiary treatment system that is expected to reduce nitrates to 20 mg/L (50% denitrification).

The nitrate impact calculation, using a predicted combined actual sewage flow of a 6,450 L/day (3,250 L/day existing system, and 3,200 L/day proposed development) and associated effluent quality of a conventional and tertiary system (40 mg/L for conventional, and 20 mg/L for tertiary) as total nitrogen indicates that the expected concentration of nitrate at the down gradient property boundary is some 8.6 mg/L, which is within the predicted impact of 10 mg/L.

Based on the above noted information, the expected impact at the down gradient property boundary of the site is expected to be within the allowable limits of the MOE, incorporating the sewage design considerations as discussed in the following section.

2.2 Sewage Design Considerations

The sewage design for the proposed expansion is a tertiary system capable of achieving at least 50% nitrogen removal through denitrification. The sewage system design was outlined by Kollaard (Service Feasibility Report, April 29, 2024) to consist of a class 4 sewage system with a level IV treatment unit, including a buried trench disposal field and Waterloo Biofilter. The proposed tertiary sewage bed is located in the south portion of the site. The proposed location of the sewage system is shown on the Site Plan prepared by Kollaard Associates Inc (Attachment E).

The size of the septic envelopes are a function of the percolation time of the native soil in the vicinity of the septic envelope and/or the fill used for construction of a septic bed and the daily effluent loading to the septic bed. The sewage design for the proposed development (prepared by Kollaard Associates) is indicated to consist of a Waterloo Biofilter capable of achieving 50% nitrogen removal through denitrification.

It is the responsibility of the owner to ensure that the sewage system is maintained indefinitely as is required by the City of Ottawa and the Ottawa Septic System Office (OSSO) for denitrification systems, including:

- A maintenance contract between the owner and a maintenance provider; and
- Owner to contact OSSO regarding additional fees for monitoring and reporting requirements of the treatment system.

3.0 Wellhead Protection

The existing well casing is over 100 metres from the proposed future buildings, the following is required to protect the integrity of the well casing:



- The supply well is located within the northeast portion of the site, outside of and away from any proposed buildings or construction areas; and
- The well is situated at least 30 metres away from potential contaminant sources, including the sewage leaching bed and snow storage areas and current and proposed stormwater retention ponds; and

As the existing well is outside the area of proposed development it is expected that the grading around the wellhead will not be altered. The following is recommended as best practices to comply with well siting requirements and be in accordance with the Ontario Regulation 903 and is considered to be already met by the existing well siting which will not be altered as part of the new building phase:

- The well casing extends to greater than 400 millimetres above final finished grades around the well; and
- The ground surface at the well is graded such that the well is the highest point on the ground surface within 3 metres radially from the exterior of the well casing and shall ensure that water does not collect or pond near the well head.
- The existing sewage system leaching bed is constructed a minimum of 15 metres from the existing well location and the proposed sewage system is well over 50 metres from the existing well;
- The stormwater management pond is located some 25 to 30 metres from the wellhead. A minimum separation distance of 15 metres shall be maintained as stormwater ponds are considered a source of contaminants to the wellhead.
- All possible contaminant sources shall be kept a minimum distance of 15 metres from the well. Possible contaminant sources include; chemical storage, garage and related chemicals, such as antifreeze, gasoline, oils, vehicle/boat/equipment storage, sewer lines, septic systems, animal enclosures, manure or compost piles. If liquid chemicals, such as antifreeze, oil and gasoline/diesel, and their waste products, are to be stored at the site, they should be stored in containers approved for that purpose. The container(s) should be labelled with their contents. Secondary containment should be installed around all bulk liquid chemical or waste storage containers, to collect and contain leaks and spills from the tank and all connections;
- The use of curbs between the parking spaces and the landscaped area are generally sufficient to ensure well is physically protected from the access roadway. With these measures in place, it is considered that an adequate amount of wellhead protection is going to be in place to protect the water supply for the proposed light industrial use of the property.
- The well location is also appropriate for access in case of repairs and well maintenance and is located within a landscaped area.

Recommendations for well maintenance include; inspect wellhead annually to ensure that the casing is structurally sound, verify well cap is sealed and that surface water is not pooling around wellhead. The well is located such that it is easily accessible for maintenance/repairs. A lock on the well cap is useful to prevent vandalism.

4.0 Conclusions

Based on the results of this evaluation it is considered that the well in question is capable of supplying water of adequate quantity and quality for the proposed development with suitable treatment and wellhead protection as indicated above.



The sewage impact from the proposed development is within allowable limits of 10 mg/L as nitrate, using denitrification of at least 50% through the use of the Waterloo Biofilter sewage system. The current design flow is some 6,450 L/day which results in a predicted down gradient property boundary of 8.6 mg/L as nitrate, considering the impact of the existing conventional system and the proposed tertiary system with denitrification. Based on the on the above noted information, the predicted sewage impact on the down gradient properties is within the allowable limits.

We trust this report provides sufficient information for your purposes. If you have any questions concerning this report, please do not hesitate to contact our office.

Yours truly,
Kollaard Associates Inc.

Isaac Bacon, P.Eng.



Colleen Vermeersch, P. Eng.

KEY PLAN

FIGURE 1



NOT TO SCALE





Kollaard Associates
Engineers

Project No. 230156

Date May 2024

DRAWING NUMBER:
SITE PLAN, FIGURE 2

LEGEND:

-  TW1 APPROXIMATE TEST WELL LOCATION
-  BH1 APPROXIMATE BOREHOLE LOCATION

REFERENCE: PLAN SUPPLIED BY COSINE

SPECIAL NOTE: THIS DRAWING TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING REPORT.

| REV. | NAME | DATE | DESCRIPTION |
|------|------|------|-------------|
| | | | |



PO. BOX 189, 210, PRESCOTT ST (613) 860-0923
 KEMPVILLE ONTARIO info@kollaard.ca
 K0G 1J0 FAX (613) 258-0475
<http://www.kollaard.ca>

CLIENT:
CAMM WAREHOUSING AND RENTALS INC.

PROJECT:
HYDROGEOLOGICAL INVESTIGATION FOR PROPOSED WAREHOUSE BUILDINGS

LOCATION:
6622 BANK STREET
CITY OF OTTAWA, ONTARIO

DESIGNED BY: DATE: APRIL 8, 2024
 DRAWN BY: DT SCALE: N.T.S.
 KOLLAARD FILE NUMBER: 230156



© COPYRIGHT 2024
 KOLLAARD ASSOCIATES INCORPORATED

TABLE I
FIELD WATER QUALITY MEASUREMENTS
FOR TEST WELL

| | Time Since Pumping Test Started (min) | Temp. (°C) | pH | Turbidity (NTU) | Total Dissolved Solids (ppm) | Conductivity (µS) | Free chlorine (ppm) |
|------|--|---------------|-----|--------------------|------------------------------------|----------------------|------------------------|
| TW 1 | 60 | 10.9 | 7.9 | 0.0 | 502 | 1001 | - |
| | 120 | 10.6 | 7.4 | 0.0 | 498 | 1008 | - |
| | 180 | 10.6 | 7.5 | 0.0 | 505 | 1035 | 0.0 |
| | 240 | 10.6 | 7.5 | 0.1 | 500 | 997 | - |
| | 300 | 10.6 | 7.5 | 0.0 | 496 | 992 | - |
| | 360 | 11.4 | 7.3 | 0.0 | 496 | 996 | 0.0 |

TABLE II
SUMMARY OF WATER CHEMISTRY FOR TW1

| Parameter | Guideline | 6622 Bank St TW1-3Hr (June 8, 2017) | 6622 Bank St TW1-6Hr (June 8, 2017) | 6622 Bank St TW1 (May 1, 2024) |
|-------------------------------------|-----------------|---|---|--------------------------------------|
| Anions | | | | |
| Chloride [mg/l] | AO/MCCRT 250 | 129 | 126 | 104 |
| Nitrate [mg/l] | MAC 10.0 | <0.10 | <0.10 | <0.5 |
| Nitrite [mg/l] | MAC 1.0 | <0.10 | <0.10 | <0.5 |
| Sulphate [mg/l] | AO 500 | 126 | 124 | 113 |
| Calculations | | | | |
| Hardness [mg/l] | OG 100 | 429 | 427 | 318 |
| Ion Balance | | 0.91 | 0.92 | 1.01 |
| General Chemistry | | | | |
| Alkalinity [mg/l] | OG 500 | 313 | 299 | 307 |
| Colour (True) [TCU] | AO 5 MCCRT 7 | 2 | 2 | <2 |
| Conductivity [uS/cm] | | 1110 | 1100 | 1050 |
| DOC [mg/l] | AO 5 | 1.7 | 1.9 | 1.8 |
| Fluoride [mg/l] | MAC 1.5 | 0.18 | 0.19 | 0.24 |
| pH | | 7.95 | 7.96 | 7.80 |
| Hydrogen Sulphide [mg/l] | AO 0.05 | <0.02 | <0.02 | <0.01 |
| Tannin & Ligin [mg/l] | | <0.1 | <0.1 | 0.4 |
| Turbidity [NTU] | AO 5.0 | 1.6 | 1.2 | 0.3 |
| General Chemistry | | | | |
| Calcium [mg/l] | | 96 | 95 | 54 |
| Magnesium [mg/l] | | 46 | 46 | 45 |
| Potassium [mg/l] | | 6 | 6 | 6 |
| Sodium [mg/l] | AO 200 | 62 | 57 | 117 |

TABLE IV (Continued)

SUMMARY OF WATER CHEMISTRY FOR TW1

| Parameter | Guideline | 6622 Bank St TW1-3Hr (June 8, 2017) | 6622 Bank St TW1-6Hr (June 8, 2017) | 6622 Bank St TW1 (May 1, 2024) |
|-----------------------------|------------|---|---|--------------------------------------|
| Metals | | | | |
| Aluminum [mg/l] | OG 0.1 | | | <0.01 |
| Antimony [mg/l] | IMAC 0.006 | | | <0.0005 |
| Arsenic [mg/l] | IMAC 0.01 | | | <0.001 |
| Barium [mg/l] | MAC 1.0 | | | 0.118 |
| Beryllium [mg/l] | | | | <0.0005 |
| Boron [mg/l] | IMAC 5.0 | | | 0.17 |
| Cadmium [mg/l] | MAC 0.005 | | | <0.0001 |
| Chromium [mg/l] | MAC 0.05 | | | <0.001 |
| Cobalt [mg/l] | *0.0038 | | | <0.0002 |
| Copper [mg/l] | AO 1.0 | | | 0.057 |
| Iron [mg/l] | AO 0.3 | | | <0.03 |
| Lead [mg/l] | MAC 0.010 | | | <0.001 |
| Manganese [mg/l] | MAC 0.05 | | | 0.04 |
| Mercury [mg/l] | MAC 0.001 | | | <0.0001 |
| Molybdenum [mg/l] | | | | <0.005 |
| Nickel [mg/l] | MAC 0.010 | | | 0.006 |
| Selenium [mg/l] | MAC 0.05 | | | <0.001 |
| Silver [mg/l] | | | | <0.0001 |
| Strontium [mg/l] | ** 7.0 | | | 1.49 |
| Thallium [mg/l] | | | | <0.0001 |
| Uranium [mg/l] | MAC 0.02 | | | <0.001 |
| Vanadium [mg/l] | *0.0062 | | | <0.001 |
| Zinc [mg/l] | AO 5.0 | | | 0.07 |

TABLE II (Continued)

SUMMARY OF WATER CHEMISTRY FOR TW1

| Parameter | Guideline | 6622 Bank St TW1-3Hr (June 8, 2017) | 6622 Bank St TW1-6Hr (June 8, 2017) | 6622 Bank St TW1 (May 1, 2024) |
|-----------------------------------|-----------|---|---|--------------------------------------|
| Nutrients, Phenols, Solids | | | | |
| Ammonia [mg/l] | | 0.14 | 0.15 | 0.129 |
| TKN [mg/l] | | 0.3 | 0.3 | 0.200 |
| Phenols [mg/l] | | <0.001 | <0.001 | <0.001 |
| TDS [mg/l] | AO 500 | 722 | 715 | 683 |

SUMMARY OF WATER BACTERIA FOR TW1

| Parameter | Guideline | 6622 Bank St TW1-3Hr (June 8, 2017) | 6622 Bank St TW1-6Hr (June 8, 2017) | 6622 Bank St TW1 (May 1, 2024) |
|--|-----------|---|---|--------------------------------------|
| Nutrients, Phenols, Solids | | | | |
| Escherichia Coli [ct/100ml] | MAC 0 | 0 | 0 | 0 |
| Faecal Coliforms [ct/100ml] | | 0 | 0 | NA |
| Heterotrophic Plate Count [ct/100ml] [ct/1ml] | OG <500 | 26 | 0 | 2 |
| Total Coliforms [ct/100ml] | MAC 0 | 1* | 0 | 0 |

Guideline refers to Ontario Drinking Water Standards, Objectives and Guidelines except where noted

* O. Reg 153/04 standard Table 2 for potable groundwater

** Health Canada health related maximum



ATTACHMENT A

MOE WELL RECORD FOR TW1, CERTIFICATE OF COMPLIANCE
PROVIDED BY WELL DRILLER
AND AREA WELL RECORDS AND MAP



Certificate of Well Compliance

Wayne Renwick DO HEREBY CERTIFY that I am licensed to drill wells in the Province of Ontario, and that I have supervised the drilling of a well on the property of Camm Warehousing and Rentals Ltd. (Name of Landowner), located at 6622 Bank Street (Legal Description, Lot/Plan #) in the City of Ottawa (Geographic Township of Osgoode).

Lot 13, Concession 6, Plan # 4R-25595, S/L# Parts 1, 2 and 3
CERTIFY FURTHER that, I am aware of the well drilling requirements, guidelines, recommendations and regulations of the Ministry of the Environment governing well installations in the Province of Ontario, and the standards specified in any subdivision agreement and hydrogeological report applicable to the site and City Standards.

AND DO HEREBY CERTIFY THAT the said well has been drilled, cased, grouted (cement or bentonite) as applicable and constructed in strict conformity with the standards required.

Signed this 20 day of June 2017
Wayne Renwick
Well Driller/Company

Olympic Drilling Co Ltd

The Engineer on behalf of the landowner set out above Certifies that he/she has inspected the well and it was constructed in accordance with the specifications in O.Reg.903, this report and the Hydrogeological Report with regards to casing length and grouting requirements.

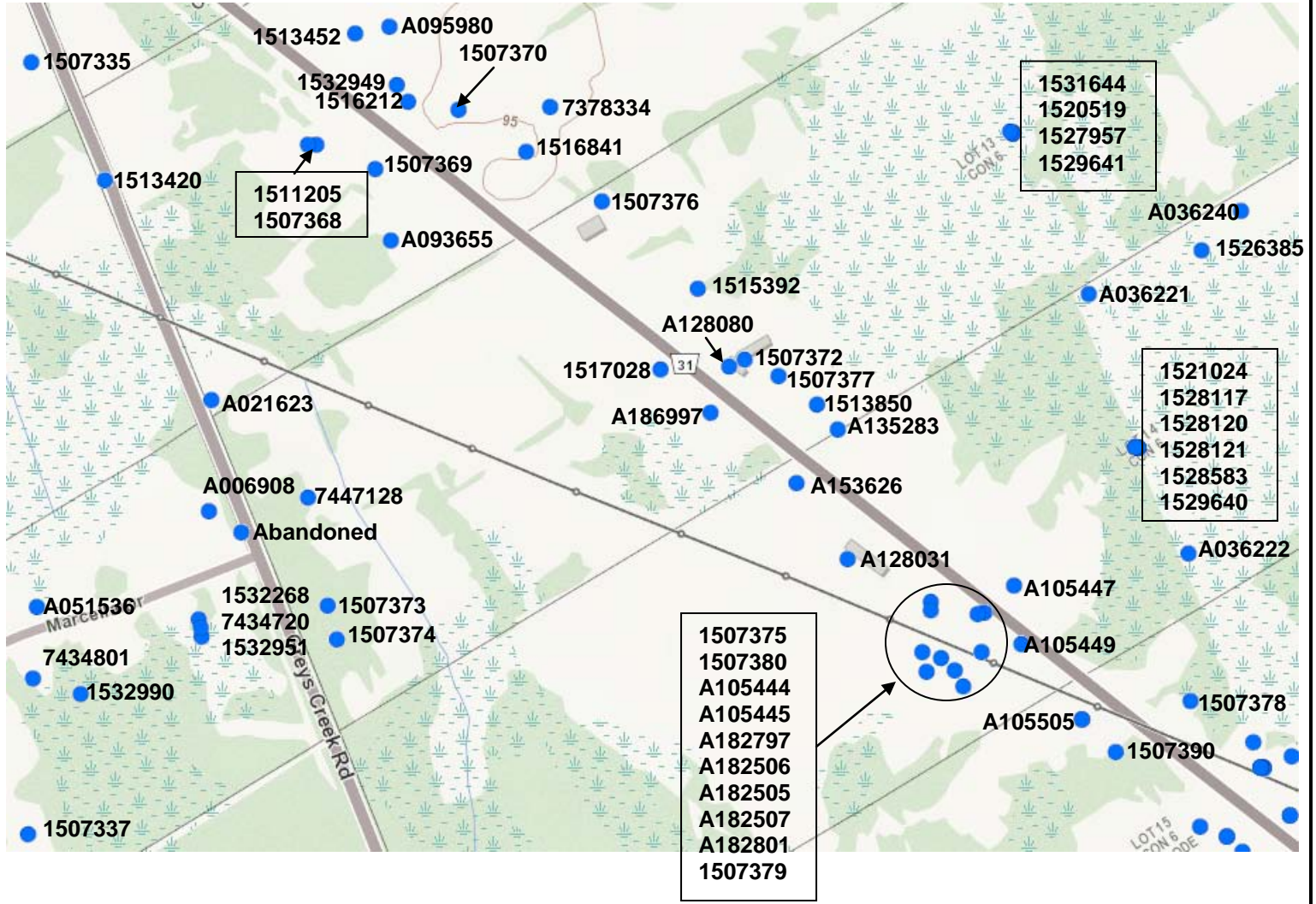
Signed this 21st day of June, 2017
[Signature]
Engineer

Table IV: Summary of Well Record Information

| Well No | Soil Depth m | Soil Desc. | Bedrock desc. | Casing Depth m | Total Depth m | Water Desc. | Yield Test | | | |
|---------|-----------------|-------------------|-------------------------|-------------------|------------------|----------------|--------------------|-------------------|------------------------------|-----------------------------------|
| | | | | | | | Test rate L/min | Static Level m | Specific Capacity L/min*m | Spec. Cap. m ² /day |
| 1517028 | 3.05 | Stone | Limestone | 6.71 | 14.34 | Fresh | 45.4 | 3.05 | 18.6 | 26.8 |
| A186997 | 4.88 | Sand and gravel | Limestone and Sandstone | 12.20 | 67.10 | Not Tested | 75.7 | 8.54 | 2482.0 | 3574.0 |
| A128080 | 4.88 | Sand and gravel | Limestone and Sandstone | 60.39 | 70.15 | Not Tested | 75.7 | 8.88 | 2482.0 | 3574.0 |
| 1515392 | 1.22 | Shale | Limestone | 6.71 | 8.54 | Fresh | 75.7 | 2.14 | 35.5 | 51.1 |
| 1507372 | 4.88 | Till | Limestone | 5.49 | 14.34 | Fresh | 18.9 | 2.44 | - | - |
| 1507377 | 3.66 | Stone | Limestone | 4.58 | 20.74 | Fresh | 6.3 | 2.14 | - | - |
| 1513850 | 2.59 | Topsoil | Limestone | 3.05 | 15.86 | Fresh | 37.9 | 2.75 | - | - |
| A135283 | 4.88 | Sand and gravel | Limestone and Sandstone | 60.39 | 70.15 | Not Tested | 75.7 | 7.87 | 1241.0 | 1787.0 |
| A128031 | 1.53 | Gravel | Limestone and Sandstone | 60.39 | 70.15 | Not Tested | 75.7 | 8.39 | 248.2 | 357.4 |
| A021623 | 2.10 | Topsoil | Limestone | 6.60 | 26.60 | Not Tested | 44.0 | 3.60 | 14.7 | 21.1 |
| A006908 | 1.21 | Soil | Limestone and Sandstone | 13.10 | 57.91 | Not Tested | 54.6 | 8.33 | 10.0 | 14.4 |
| 1532268 | 1.53 | Sand | Limestone and Sandstone | 12.81 | 61.00 | Not Tested | 94.6 | 5.19 | 3.7 | 5.4 |
| 1532951 | 1.22 | Clay | Limestone and Sandstone | 13.42 | 61.00 | Not Tested | 757.0 | 1.53 | 14.2 | 20.4 |
| 1507373 | 3.97 | Stone | Limestone | 6.10 | 18.30 | Fresh | 113.6 | 3.97 | 186.1 | 268.1 |
| 1507374 | 3.66 | Stone | Limestone | 6.10 | 18.61 | Fresh | 113.6 | 2.44 | 186.1 | 268.1 |
| A093655 | 3.36 | Clay and boulders | Limestone and Sandstone | 6.10 | 63.44 | Not Tested | 75.7 | 8.69 | 992.8 | 1429.6 |

REGIONAL WELLS MAP

APPENDIX A



NOT TO SCALE

316/4h



RECEIVED 15
JUL 22 1952
GEOLOGICAL BRANCH
DEPARTMENT OF MINES

No 7372

UTM 1182 4588010E

5R 50110110N

Elev. 226 0300

Basin 213

The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

County or District Carlton Tp. argood Con. 6 Lot 13 Pt. Lot
7 E Bull's Gruby P.O. Acres
(including pump)

Pipe and Casing Record

Pumping Test

| | |
|----------------------------------|--|
| Casing diameter(s) <u>5 in</u> | Date |
| Length(s) of casing(s) <u>18</u> | Developed Capacity |
| Length of screen | Duration of Test <u>1 H.R.</u> |
| Type of screen | Pumping Rate <u>300 m H</u> |
| Type of pump | Drawdown <u>6 feet</u> |
| Capacity of pump | Static level of completed well <u>8 feet</u> |
| Depth of pump setting | Is well a gravel-wall type? |

Water Record

| Kind (fresh or mineral) | Quality (hard, soft, contains iron, sulphur etc.) | Appearance (clear, cloudy, coloured) | For what purpose(s) is the water to be used? | How far is well from possible source of contamination? | What is source of contamination? | 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>fresh</u> | <u>hard</u> | <u>clear</u> | <u>cottage</u> | <u>8 feet</u> | <u>septic</u> | | <u>8 feet</u> <u>47</u> | <u>hard</u> | <u>39</u> |

Well Log

Drift and Bedrock Record

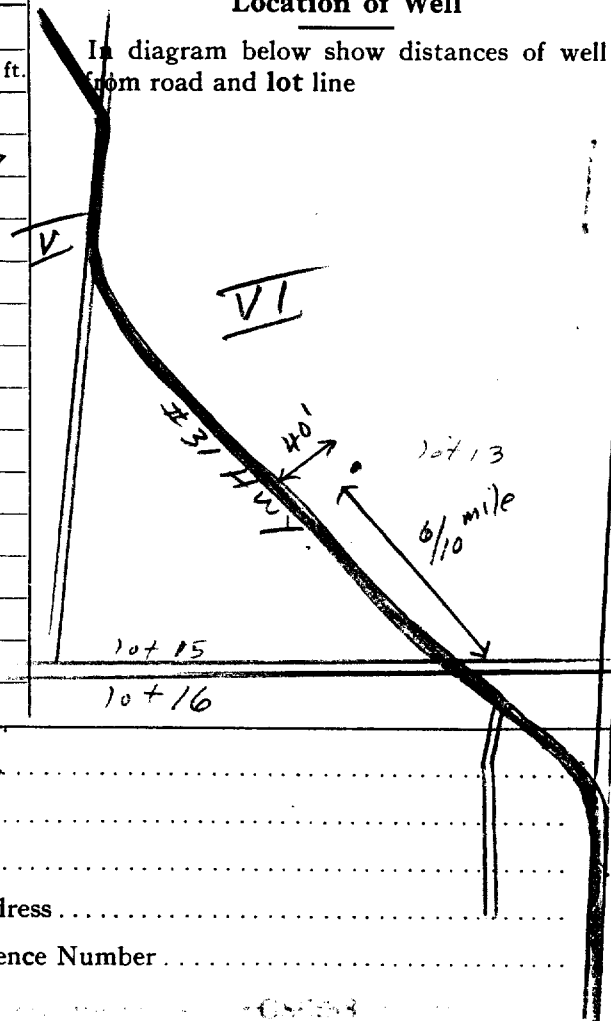
From To
0 ft.ft.

Loam
Lime stone

1 16
16 47

Location of Well

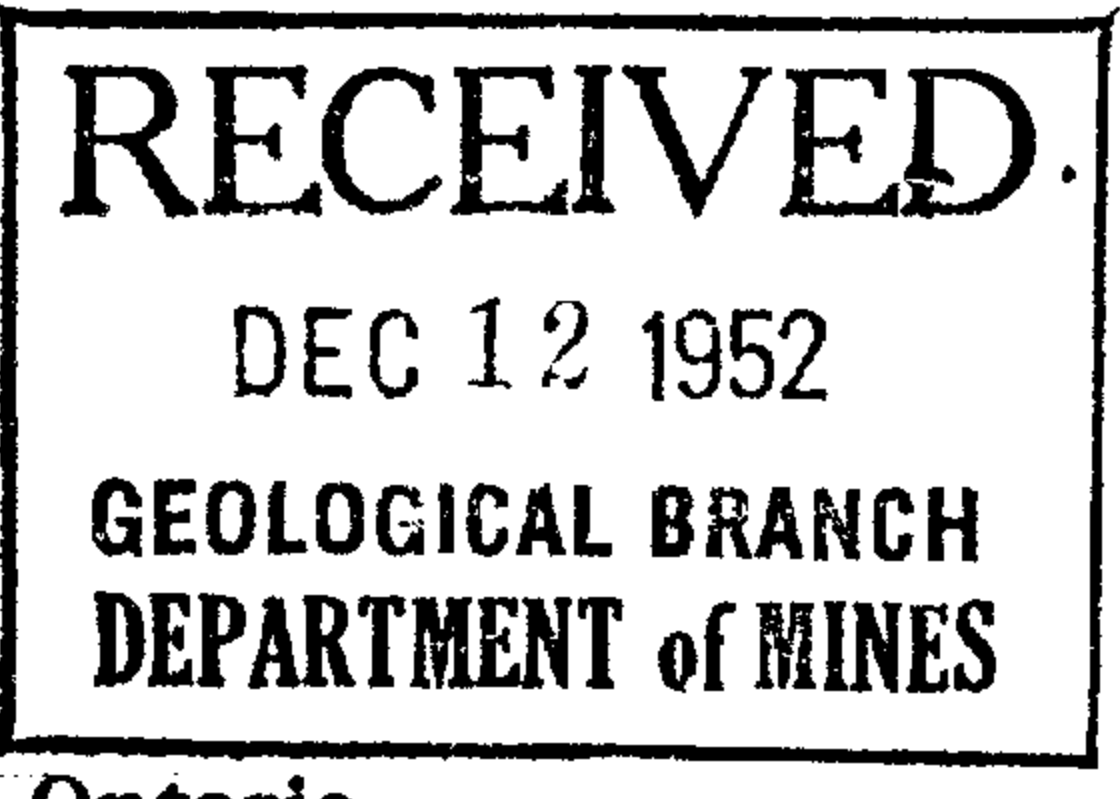
In diagram below show distances of well from road and lot line



Situation: Is well on upland, in valley, or on hillside?
 Drilling Firm W. L. Cherry
 Address Vars. P.O.
 Recorded by Address
 Date Licence Number



ONTARIO



The Well Drillers Act
Department of Mines, Province of Ontario

Water Well Record

County or District *Carleton* Tp. *Argood* Con *VI* Lot *413* Pt. Lot
Owner *[Redacted]* Address *Greely* Acres
Date Completed *July 15/52* Cost of Well (not including pump)

Pipe and Casing Record

Pumping Test

Casing diameter(s) *5" ~~4"~~*
Length(s) of casing(s) *12 ft*
Length of screen
Type of screen
Type of pump
Capacity of pump
Depth of pump setting
Date
Developed Capacity
Duration of Test *4 hr*
Pumping Rate *300 P.H.*
Drawdown *11 feet*
Static level of completed well *9 feet*
Is well a gravel-wall type?

Water Record

Kind (fresh or mineral) *fresh*
Quality (hard, soft, contains iron, sulphur etc.) *hard*
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? *15 feet*
What is source of contamination? *out house*
Enclose a copy of any mineral analysis that has been made of water

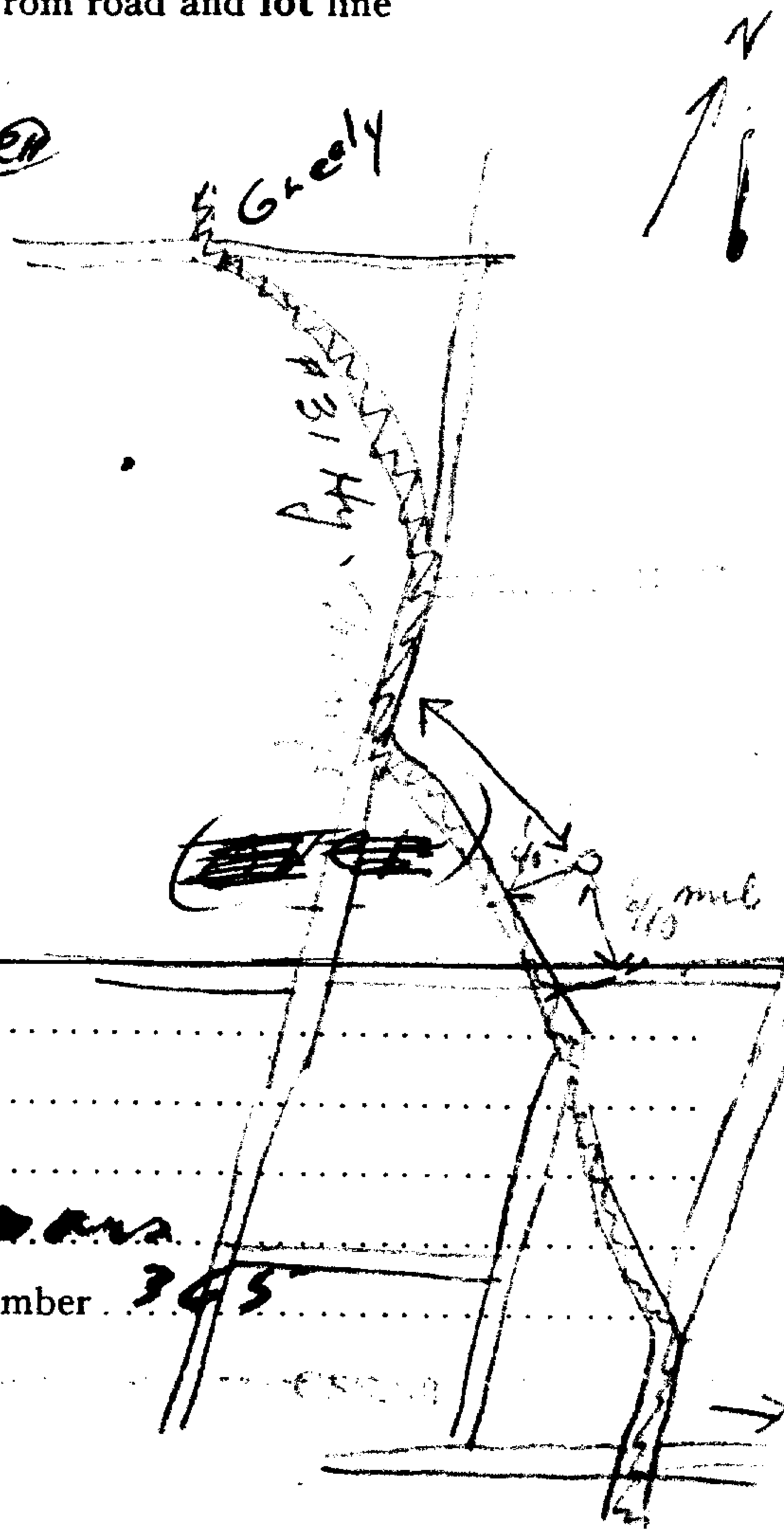
| Depth(s) to Water Horizon(s) | Kind of Water | No. of Feet Water Rises |
|------------------------------|---------------|-------------------------|
| <i>4 ft</i> | <i>hard</i> | <i>38 ft</i> |
| <i>47 ft</i> | | |
| | | |
| | | |
| | | |
| | | |

Well Log

| Drift and Bedrock Record | From | To |
|--------------------------|-----------|-----------|
| | 0 ft. |ft. |
| <i>Loam</i> | <i>1</i> | <i>10</i> |
| <i>Thin stone</i> | <i>10</i> | <i>37</i> |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Location of Well

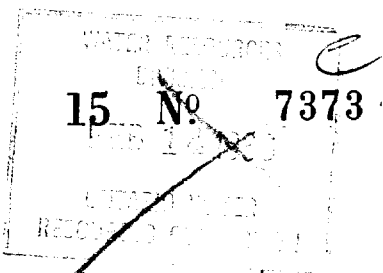
In diagram below show distances of well from road and lot line



Situation: Is well on upland, in valley, or on hillside? *valley*
Drilling Firm *Christy*
Address *var*
Recorded by *M.C. Christy* Address *var*
Date *Dec 8/52* Licence Number *343*

DUPLICATE

316/544



UTIM 1482 4583010 E

05R 510098210 N

The Ontario Water Resources Commission Act

Elev. 4R 01295

WATER WELL RECORD

Basin 25 | Carl

Township, Village, Town or City Osgoode

Con. VI Lot 13

Date completed 7 (day) Dec (month) 1965 (year)

Address RR # 3 Metcalfe Ont

Casing and Screen Record

Inside diameter of casing 5"

Total length of casing 20'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 5"

Pumping Test

Static level 13'

Test-pumping rate 30 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 40' 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>hardpan & boulders</u> | <u>0'</u> | <u>13'</u> | <u>58'</u> | <u>fresh</u> |
| <u>limestone</u> | <u>13</u> | <u>60</u> | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

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

Drilling or Boring Firm Capital Water Supply

Address 1243 Heron Rd Ottawa 733-0600

Licence Number 1687

Name of Driller or Borer H Mains

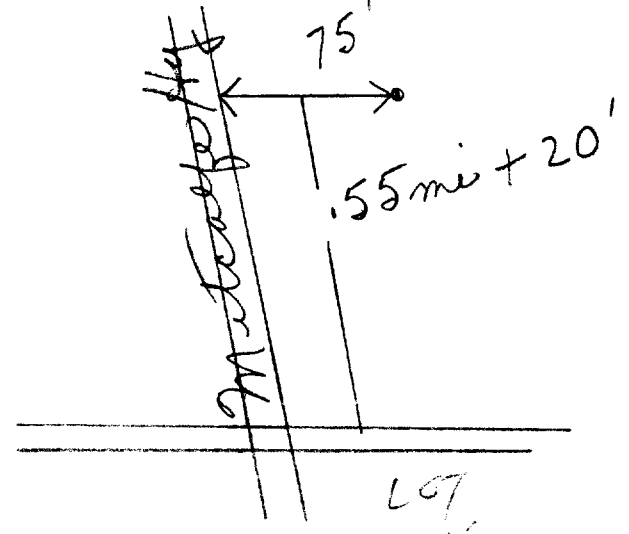
Address

Date Dec 8 1965

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.



LOT 16

316/4h



WATER RESOURCES COMMISSION
15 No. 7374

UTM 182 4583110 E

5 R 50097819 N

The Ontario Water Resources Commission Act

Elev. 4 R 0295

WATER WELL RECORD

Basin 25 Carl

Township, Village, Town or City Osgoode

Con. V1 Lot 13

Date completed 2 Dec 1965
(day month year)

Address RR # 3 Metcalf Ont

Casing and Screen Record

Inside diameter of casing 5"

Total length of casing 20'

Type of screen

Length of screen

Depth to top of screen

Diameter of finished hole 5"

Pumping Test

Static level 8

Test-pumping rate 30 G.P.M.

Pumping level 10

Duration of test pumping 1 hr

Water clear or cloudy at end of test cloudy

Recommended pumping rate 10 G.P.M.

with pump setting of 45' 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>boulders & hardpan limestone</u> | <u>0'</u> | <u>12'</u> | <u>60'</u> | <u>fresh</u> |
| | <u>12'</u> | <u>61'</u> | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

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

Drilling or Boring Firm Capital Water Supply

Address 1243 Heron Rd
Ottawa 733-0600

Licence Number 1687

Name of Driller or Borer G. Colbourne

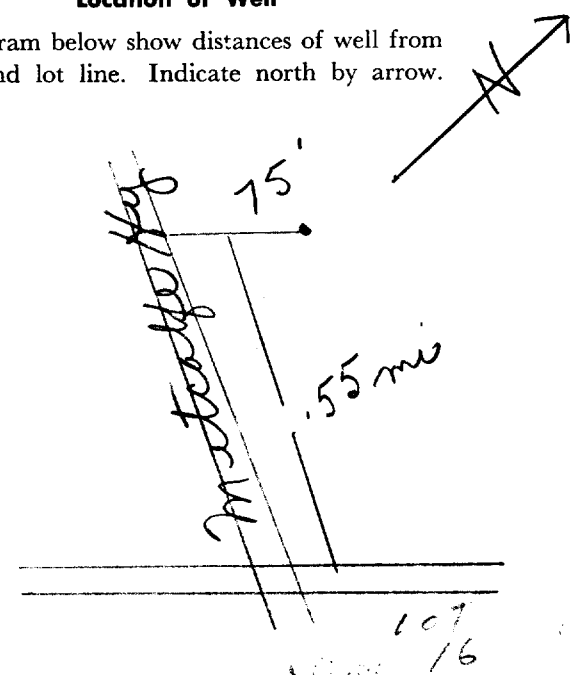
Address

Date Dec 4 1965

Stated 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.



31
UTM 118Z 458840

316/4h
1962



GROUND WATER BRANCH
15 No 7377
FEB 25 1965
ONTARIO WATER RESOURCES COMMISSION

CONSENT 510110090N
The Ontario Water Resources Commission Act

Elev. 430300

WATER WELL RECORD

Basin 25
County or District Carleton

Township, Village, Town or City Osgoode

Con. 6 Lot 13

Date completed Oct 18 1962
(day month year)

Address Metcalf road

Casing and Screen Record

Inside diameter of casing 4
Total length of casing 15 feet
Type of screen
Length of screen
Depth to top of screen
Diameter of finished hole 4 inch

Pumping Test

Static level 7 feet
Test-pumping rate 102 gpd per hour GPM
Pumping level 20 feet
Duration of test pumping 15 minutes
Water clear or cloudy at end of test Clear
Recommended pumping rate 1006 PPH
with pump setting of 67 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) |
|-------------------------------|----------|--------|----------------------------------|---------------------------------------|
| hard pan - Boulder | 0 | 12 | | |
| hard grey limestone | 12 | 68 | 68 | fresh |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

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

Is well on upland, in valley, or on hillside? Upland
Drilling or Boring Firm James R. Kittle

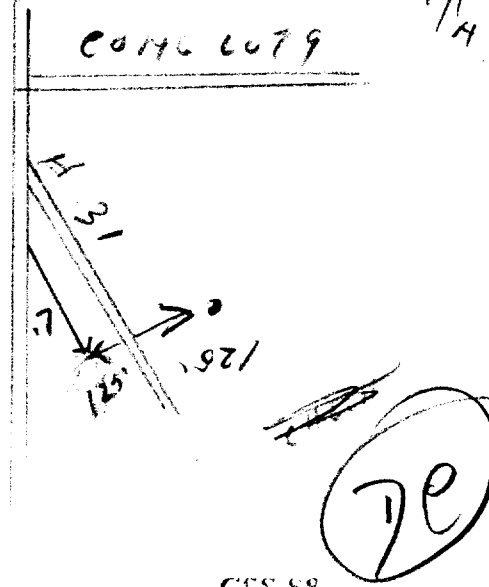
Address Ramsayville

Licence Number 759
Name of Driller or Borer James R. Kittle

Address Ramsayville
Date Oct 18 1962
James Robert Kittle
(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.





WATER WELL RECORD

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

11 | 1513850 | MUNICIPAL 15009 | CON. CAN | 3/9/73 | 106

CARLETON | OS GOODE | CON. BLOCK, TRACT, SURVEY, ETC. CONFESSION 6013 | LOT 25-27
 OS GOODE ONT | DATE COMPLETED 48-53 DAY 02 NO. 08 YR 73
 1513850 18 | 498888 | 5010056 | 4 | 297 | 4 | 26 | MAR 17, 1975 | 247

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | GENERAL DESCRIPTION | DEPTH - FEET | |
|----------------|----------------------|-----------------|---------------------|--------------|-------|
| | | | | FROM | TO |
| BROWNISH | | TOP SOIL | ORGANIC | 0 | 8 1/2 |
| BLUE GREY | | | LIMESTONE | 8 1/2 | 52 |

31 | 00091602 | 0052315 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40

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 type="checkbox"/> STEEL | | | |
| 12 | <input checked="" type="checkbox"/> GALVANIZED | 5/16" | 0 | 00.0 |
| 17-18 | <input type="checkbox"/> STEEL | | | |
| 24-25 | <input type="checkbox"/> STEEL | | | |

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

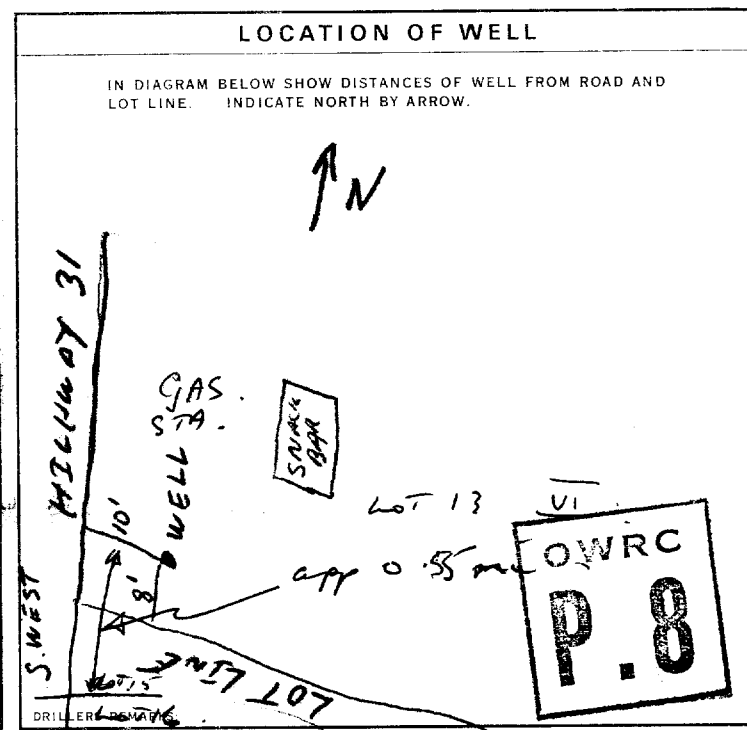
| PUMPING TEST METHOD | PUMPING RATE GPM | DURATION OF PUMPING HOURS |
|--|------------------|---------------------------|
| <input checked="" type="checkbox"/> PUMP | 0010 | 02 00 |

| STATIC LEVEL FEET | WATER LEVEL END OF PUMPING FEET | WATER LEVELS DURING PUMPING FEET | | | |
|-------------------|---------------------------------|----------------------------------|-----|-----|-----|
| 069 | 009 | 009 | 009 | 009 | 009 |

RECOMMENDED PUMP TYPE: SHALLOW

RECOMMENDED PUMP SETTING: 035 FEET

RECOMMENDED PUMPING RATE: 0010 GPM



FINAL STATUS OF WELL

WATER SUPPLY

WATER USE

DOMESTIC

METHOD OF DRILLING

ROTARY (CONVENTIONAL)

CONTRACTOR

NAME OF WELL CONTRACTOR: W. A. Levey
 ADDRESS: 309 Ashton Ave Ottawa Ont
 NAME OF DRILLER OR BORER: W. A. Levey
 SIGNATURE OF CONTRACTOR: W. A. Levey
 LICENCE NUMBER: 1703
 SUBMISSION DATE: DAY 2 NO. 8 YR 73

OFFICE USE ONLY

DATA SOURCE: 1
 CONTRACTOR: 1703
 DATE RECEIVED: 110274
 DATE OF INSPECTION: [blank]
 INSPECTOR: [signature]
 REMARKS: [blank]



Ontario

WATER WELL RECORD

316A

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

11 1515392 15.009 CON 06
 COUNTY OR DISTRICT: *Cult* TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: *Agwood* CON., BLOCK, TRACT, SURVEY, ETC.: *6*
 DATE COMPLETED: *03* MO *June* YR *76*
 HING: *0.08825* RC: *5* ELEVATION: *0290* RC: *5* BASIN CODE: *26*

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>shale</i> | | | <i>0</i> | <i>4</i> |
| <i>grey</i> | <i>limestone</i> | | | <i>4</i> | <i>28</i> |

31 *0004617* *0028215*
 32

41 WATER RECORD

| WATER FOUND AT - FEET | KIND OF WATER | | | |
|-----------------------|---|--------------------------------|----------------------------------|----------------------------------|
| <i>0026</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 | |
|---------------------|---|-----------------------|--------------|-------------|
| | | | FROM | TO |
| <i>06</i> | <input checked="" type="checkbox"/> STEEL | <i>188</i> | <i>0</i> | <i>0022</i> |
| <i>5 1/4</i> | <input type="checkbox"/> GALVANIZED | | | |
| | <input type="checkbox"/> CONCRETE | | | |
| | <input type="checkbox"/> OPEN HOLE | | | |

SCREEN

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

61 PLUGGING & SEALING RECORD

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

71 PUMPING TEST

| PUMPING TEST METHOD | PUMPING RATE | DURATION OF PUMPING |
|---|-----------------|--------------------------------|
| <input type="checkbox"/> PUMP <input checked="" type="checkbox"/> TRAILER | <i>0020</i> GPM | <i>01</i> HOURS <i>10</i> MINS |

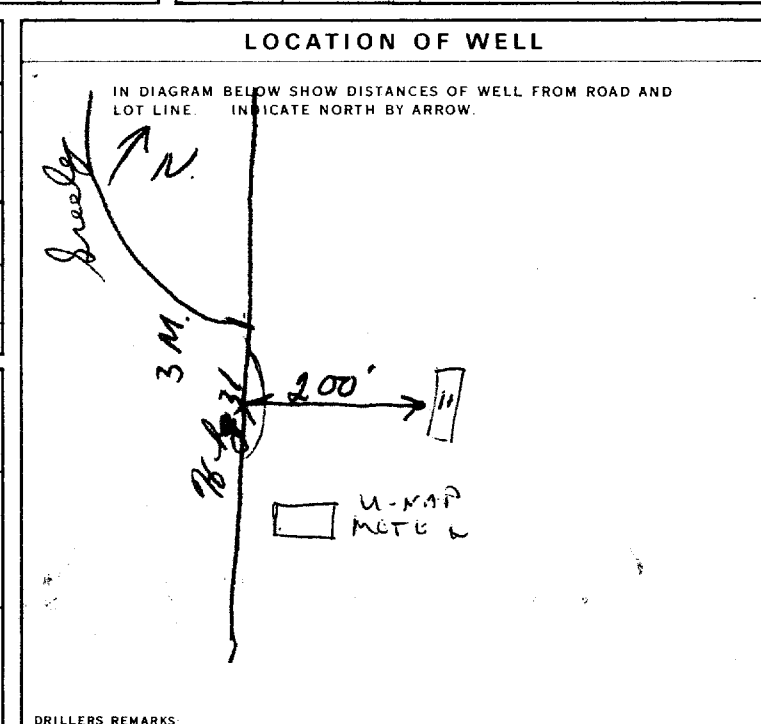
| STATIC LEVEL | WATER LEVEL END OF PUMPING | WATER LEVELS DURING |
|-----------------|----------------------------|---------------------|
| <i>007</i> FEET | <i>014</i> FEET | <i>014</i> FEET |

IF FLOWING, GIVE RATE: *25* GPM

RECOMMENDED PUMP TYPE: SHALLOW DEEP

RECOMMENDED PUMP SETTING: *020* FEET

RECOMMENDED PUMPING RATE: *0005* GPM



FINAL STATUS OF WELL: *1*

WATER USE: *01*

METHOD OF DRILLING: *1*

CONTRACTOR: *Maurice Sawyer* LICENCE NUMBER: *1517*

NAME OF DRIVER OR OPERATOR: *Carlton Sawyer* LICENCE NUMBER: *0-9*

SIGNATURE OF CONTRACTOR: *Maurice Sawyer* SUBMISSION DATE: _____

OFFICE USE ONLY

DATA SOURCE: *1* CONTRACTOR: *1517* DATE REC'D: *300676*

DATE OF INSPECTION: *Aug 31 / 76* INSPECTOR: *P/R Dyl*

REMARKS: *...*

P
WI

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

11 1517028 **15009** **CON** **06**

COUNTY OR DISTRICT: [Redacted] TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: **Carleton Place** CON. BLOCK, TRACT, SURVEY, ETC: **6 II** LOT: **013**

DATE COMPLETED: **21** DAY **21** MO **June** YR **79**

WELLING: **010099** ELEVATION: **0300** BASIN CODE: **26**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

| GENERAL COLOUR | MOST COMMON MATERIAL | OTHER MATERIALS | GENERAL DESCRIPTION | DEPTH - FEET | |
|----------------|----------------------|-----------------|---------------------|--------------|----|
| | | | | FROM | TO |
| Brown | hard pan | stone | | 0 | 10 |
| grey | limestone | | | 10 | 47 |

31 **001061412** **0007A15**

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 |

045

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 | 188 | 0 | 188 |
| 4 | 1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE | | | |
| | 1 <input type="checkbox"/> STEEL 2 <input type="checkbox"/> GALVANIZED 3 <input type="checkbox"/> CONCRETE 4 <input type="checkbox"/> OPEN HOLE | | | |

00072

SCREEN

| SIZE(S) OF OPENING (SLOT NO.) | DIAMETER INCHES | LENGTH FEET |
|-------------------------------|------------------------|-------------|
| | 31-33 | 34-38 |
| | | 39-40 |
| MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN | 41-44 |
| | | 50 |

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 type="checkbox"/> PUMP 2 <input checked="" type="checkbox"/> WEAVER | 0012 GPM | 01 HOURS 00 MINS |
| STATIC LEVEL | WATER LEVEL END OF PUMPING | WATER LEVELS DURING |
| 010 FEET | 018 FEET | 15 MINUTES: 018 FEET 30 MINUTES: 018 FEET 45 MINUTES: 018 FEET 60 MINUTES: 018 FEET |
| IF FLOWING, GIVE RATE | PUMP INTAKE SET AT | WATER AT END OF TEST |
| | 47 GPM | 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 | 025 FEET | 0005 GPM |

LOCATION OF WELL

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

DRILLERS REMARKS

FINAL STATUS OF WELL

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: **Maurice Cayer Ltd** LICENCE NUMBER: **1517**

ADDRESS: **Carleton Ont.**

NAME OF DRILLER OR BORER: _____ LICENCE NUMBER: _____

SIGNATURE OF CONTRACTOR: **Maurice Cayer** SUBMISSION DATE: _____

OFFICE USE ONLY

DATA SOURCE: **1** CONTRACTOR: **1517** DATE RECEIVED: **09 07 79**

DATE OF INSPECTION: _____ INSPECTOR: **K**

REMARKS: _____

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

11

1532268

Municipality 15009 Con. CAN 05
10 22 23 24

Sublot 3

County or District: Ottawa-Carleton Township/Borough/City/Town/Village: Osgoode Con block tract survey, etc.: 5 Lot: 13
Address: Greely, Ont Date completed: 27 07 01
day month year

21 Northing RC Elevation RC Basin Code ii iii iv
10 12 17 18 24 25 26 30 31 47

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

| General colour | Most common material | Other materials | General description | Depth - feet | |
|----------------|----------------------|-----------------|---------------------|--------------|-----|
| | | | | From | To |
| | sand | fill | | 0 | 5 |
| grey | limestone | | | 5 | 178 |
| " | sandstone | | | 178 | 200 |

31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

41 WATER RECORD

| Water found at - feet | Kind of water |
|-----------------------|--|
| 10-13 128 | 1 <input checked="" type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas |
| 15-18 192 | 1 <input checked="" type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas |
| 20-23 | 1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas |
| 25-28 | 1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas |
| 30-33 | 1 <input type="checkbox"/> Fresh 3 <input type="checkbox"/> Sulphur 2 <input type="checkbox"/> Salty 4 <input type="checkbox"/> Minerals 5 <input type="checkbox"/> Gas |

51 CASING & OPEN HOLE RECORD

| Inside diam inches | Material | Wall thickness inches | Depth - feet | |
|--------------------|---|-----------------------|--------------|-----|
| | | | From | To |
| 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 | 42 |
| 17-18 8 3/4 | 1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic | | 0 | 40 |
| 24-25 6 | 1 <input type="checkbox"/> Steel 2 <input type="checkbox"/> Galvanized 3 <input type="checkbox"/> Concrete 4 <input checked="" type="checkbox"/> Open hole 5 <input type="checkbox"/> Plastic | | 40 | 200 |

SCREEN

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

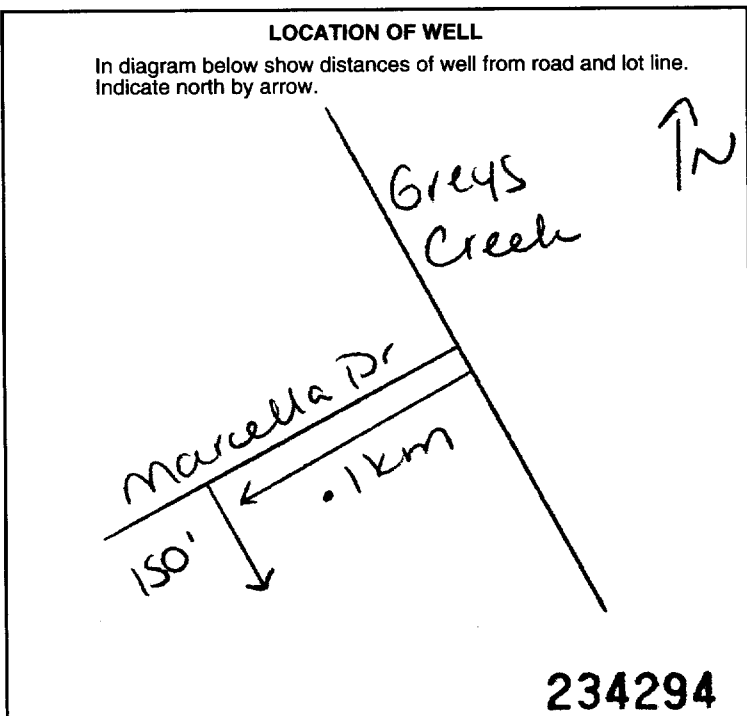
Material and type: _____ Depth at top of screen: _____ feet

61 PLUGGING & SEALING RECORD

| Depth set at - feet | | Material and type (Cement grout, bentonite, etc.) |
|---------------------|----------|---|
| From | To | |
| 10-13 2 | 17 42 | Cement grout |
| 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 | 25 GPM | 1 Hours 17-18 Mins |
| Static level | Water level end of pumping | Water levels during |
| 19-21 17 feet | 22-24 100 feet | 1 <input type="checkbox"/> Pumping 2 <input checked="" type="checkbox"/> Recovery |
| 15 minutes 17 feet | 30 minutes 17 feet | 45 minutes 17 feet |
| 60 minutes 17 feet | | |
| If flowing give rate | Pump intake set at | Water at end of test |
| GPM | feet | <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Cloudy |
| Recommended pump type | Recommended pump setting | Recommended pump rate |
| <input type="checkbox"/> Shallow <input checked="" type="checkbox"/> Deep | 100 feet | 25 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 type="checkbox"/> Rotary (air) | 8 <input type="checkbox"/> Jetting | |

Name of Well Contractor: AirKoch Drilling Ltd Well Contractor's Licence No.: 1119
Address: RR #2 Jasper, Ont
Name of Well Technician: Shannon Purcell Well Technician's Licence No.: Ta122
Signature of Technician/Contractor: _____ Submission date: 1008 01
day mo

MINISTRY USE ONLY

| Data source | Contractor | Date received |
|--------------------|-------------|---------------|
| | 1119 | SEP 20 2001 |
| Date of inspection | Inspector | |
| Remarks | | |

CSS.ES1

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

11

1532951

Municipality
15009

Con.
CON

05

Plan 4m1029

| | | | | | |
|--|------------|--|--|--|-----------------------------------|
| County or District Ottawa Carleton | | Township/Borough/City/Town/Village Osgoode | | Con block tract survey, etc. 5 | Lot 13 |
| Owner's surname Miramare Homes | First Name | Address Greely, Ont | | | Date completed 23 05 02 |

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 |
| | clay | fr | | 0 | 4 |
| grey | limestone | | | 4 | 142 |
| grey | sandstone | | | 142 | 200 |

31

32

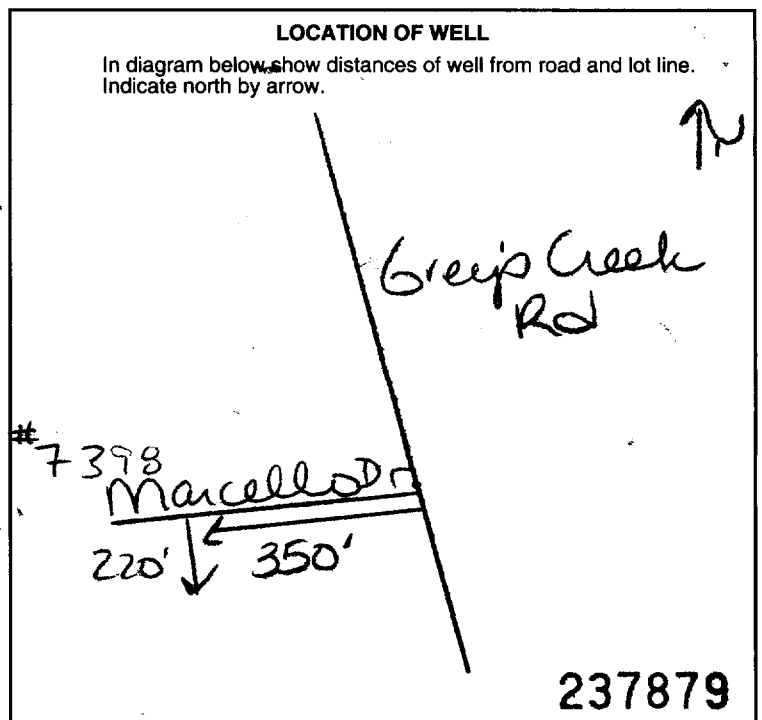
| 41 WATER RECORD | |
|-----------------------|--|
| Water found at - feet | Kind of water |
| 195 | <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Salty <input type="checkbox"/> Sulphur <input type="checkbox"/> Minerals <input type="checkbox"/> Gas |
| 15-18 | <input type="checkbox"/> 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 | <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input type="checkbox"/> Open hole <input type="checkbox"/> Plastic | 188 | 0 | 44 |
| 8 3/4 | <input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Open hole <input type="checkbox"/> Plastic | | 0 | 42 |
| 6 | <input type="checkbox"/> Steel <input type="checkbox"/> Galvanized <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Open hole <input type="checkbox"/> Plastic | | 42 | 200 |

| SCREEN | Sizes of opening (Slot No.) | Diameter | Length |
|--------|-----------------------------|----------|------------------------|
| | | inches | 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 | |
| 2 | 44 | Cement grout |
| 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 | <input type="checkbox"/> Bailer | 200 GPM | | 1 Hours 17-18 Mins | |
| | Static level | Water level end of pumping | 25 Water levels during | | | |
| | 5 | 180 | 15 minutes | 30 minutes | 45 minutes | 60 minutes |
| | | 5 | 5 | 5 | 5 | |
| | | feet | feet | feet | feet | |
| | | 38-41 Pump intake set at | | 42 Water at end of test | | |
| | | GPM | | <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Cloudy | | |
| | | 43-45 Recommended pump setting | | 46-49 Recommended pump rate | | |
| | | 180 feet | | 200 GPM | | |



| 54 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 | |
| 55-56 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 | |
| 57 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 type="checkbox"/> Rotary (air) | <input type="checkbox"/> Jetting | |

| | |
|---|---|
| Name of Well Contractor Air Rock Drilling Ltd | Well Contractor's Licence No. 1119 |
| Address RR# 1 Richmond, Ont | |
| Name of Well Technician Shannon Purcell | Well Technician's Licence No. 12122 |
| Signature of Technician/Contractor | Submission date 13 06 02 |

| MINISTRY USE ONLY | 58 Data source | | 59-62 Contractor | | 63-68 Date received | |
|-------------------|--------------------|--|------------------|--|---------------------|--|
| | | | 1119 | | JUL 12 2002 | |
| | Date of inspection | | Inspector | | | |
| Remarks | | | | | | |
| CSS.ES2 | | | | | | |



Instructions for Completing Form

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

Ministry Use Only

Address of Well Location (County/District/Municipality) Ottawa Carleton RR#/Street Number/Name 7399 Marcella Drive GPS Reading NAD Zone Easting Northing Unit Make/Model Mode of Operation: Undifferentiated Averaged Differentiated, specify

Log of Overburden and Bedrock Materials (see instructions)

Table with columns: General Colour, Most common material, Other Materials, General Description, Depth From, Metres To. Rows include Soil, Broken Rock, Limestone, Sandstone.

Hole Diameter table with columns: Depth From, Metres To, Diameter Centimetres. Values: 0-13.10 (22.53), 13.10-57.91 (15.23).

Water Record section with fields for Water found at, Kind of Water, Gas, Sulphur, Minerals, Chlorinated status.

Construction Record table with columns: Inside diam, Material, Wall thickness, Depth From, Metres To. Includes Casing and Screen sections.

Test of Well Yield table with columns: Pumping test method, Draw Down, Recovery. Includes submersible pump test data.

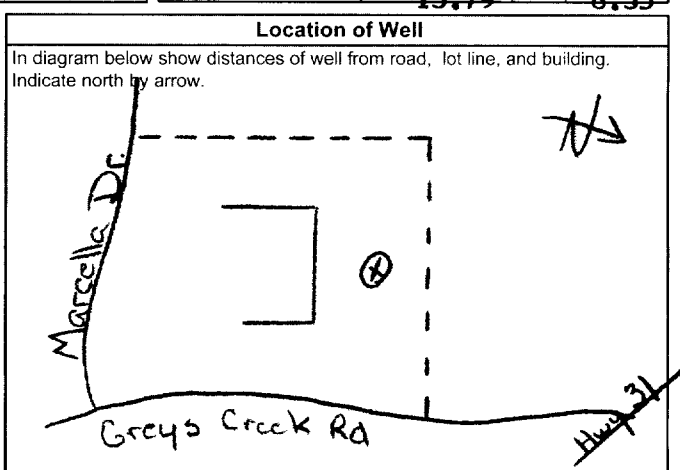
Plugging and Sealing Record table with columns: Depth set at, Material and type, Volume Placed. Includes grouting details.

Method of Construction section with checkboxes for Cable Tool, Rotary (air), Diamond, Digging, etc.

Water Use section with checkboxes for Domestic, Industrial, Public Supply, etc.

Final Status of Well section with checkboxes for Water Supply, Recharge well, Unfinished, etc.

Well Contractor/Technician Information section with fields for Name, Licence No., Signature, Date Submitted.



Audit No. Z 07053, Date Well Completed 2004 02 04, Date Delivered 2004 02 05.

Ministry Use Only section with fields for Data Source, Contractor 1558, Date Received MAR 25 2004, Well Record Number 1534570.

Instructions for Completing Form

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

| Ministry Use Only | | | | | | | | | | | |
|-------------------|--|--|--|--|--|--|--|--|--|-----|-----|
| MUN | | | | | | | | | | CON | LOT |

Well Owner's Information and Location of Well Information

RR#/Street Number/Name: **4676 Greys Creek Rd Metcalf** City/Town/Village: **Metcalf** Site/Compartment/Block/Tract etc.: **12 0**

GPS Reading: NAD 83 Zone: **18** Easting: **0455193** Northing: **5010288** Unit Make/Model: **E Tex** 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 From Metres | Metres To |
|----------------|----------------------|-----------------|---------------------|-------------------|-----------|
| Brown | Top Soil | | | 0 | 2.1 |
| Gray | Limestone | | | 2.1 | 6.6 |
| Gray | Limestone | | | 6.6 | 26.6 |

Hole Diameter

| Depth From | Metres To | Diameter Centimetres |
|------------|-----------|----------------------|
| 0 | 6.6 | 25.40 |

Construction Record

| Inside diam centimetres | Material | Wall thickness centimetres | Depth From Metres | Metres To |
|-------------------------|--|----------------------------|-------------------|-----------|
| 15.24 | <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized | 0.48 | 0 | 6.6 |

Screen

| Outside diam | Material | Slot No. |
|--------------|---|----------|
| | <input type="checkbox"/> Steel <input type="checkbox"/> Fibreglass <input type="checkbox"/> Plastic <input type="checkbox"/> Concrete <input type="checkbox"/> Galvanized | |

No Casing or Screen

Open hole

Test of Well Yield

| Pumping test method | Draw Down | | Recovery | |
|---|-----------|--------------------|----------|--------------------|
| | Time min | Water Level Metres | Time min | Water Level Metres |
| Pump | | | | |
| Pump intake set at (metres) | 20 | 3.6 | | 6.6 |
| Pumping rate (litres/min) | 44 | 1 | 1 | 2 |
| Duration of pumping | 2 | 1 | 2 | 2 |
| Final water level end of pumping (metres) | 3 | 1 | 3 | 1 |
| Recommended pump type | 4 | 0 | 4 | 1 |
| Recommended pump depth (metres) | 5 | 0 | 5 | 0 |
| Recommended pump rate (litres/min) | 10 | 0 | 10 | 0 |
| If flowing give rate (litres/min) | 15 | 0 | 15 | 0 |
| | 20 | 0 | 20 | 0 |
| | 25 | 0 | 25 | 0 |
| | 30 | 0 | 30 | 0 |
| | 40 | 0 | 40 | 0 |
| | 50 | 0 | 50 | 0 |
| | 60 | 0 | 60 | 0 |

Water Record

Water found at **20** Metres / Kind of Water

m Fresh Sulphur Gas Salty Minerals Other:

m Fresh Sulphur Gas Salty Minerals Other:

m Fresh Sulphur Gas Salty Minerals Other:

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

Chlorinated Yes No

Plugging and Sealing Record Annular space Abandonment

| Depth set at - Metres From | To | Material and type (bentonite slurry, neat cement slurry) etc. | Volume Placed (cubic metres) |
|----------------------------|-----|---|------------------------------|
| 0 | 6.6 | Quick Grant | 2 Basis |

Method of Construction

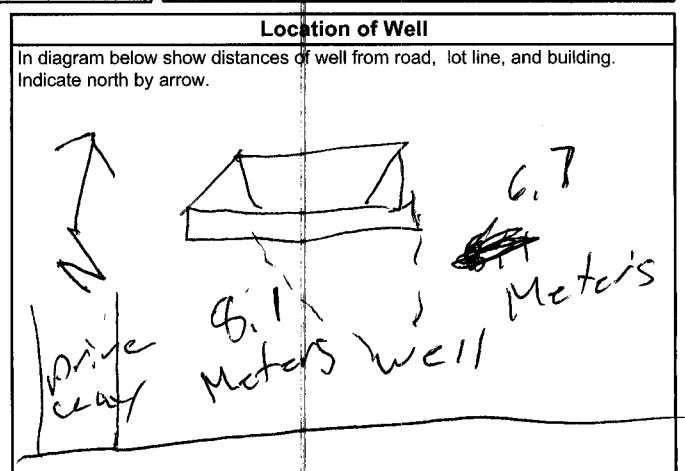
Cable Tool Rotary (air) Diamond Digging Rotary (conventional) Air percussion Jetting Other Rotary (reverse) Boring Driving

Water Use

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

Final Status of Well

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



Audit No. **Z 38047** Date Well Completed **2005 10 03**

Was the well owner's information package delivered? Yes No Date Delivered **2005 10 03**

Well Contractor/Technician Information

Name of Well Contractor: **Daves Well Drilling** Well Contractor's Licence No.: **6965**

Business Address (street name, number, city etc.): **RR 3 North August 79**

Name of Well Technician (last name, first name): **Dave Fish** Well Technician's Licence No.: **10-144**

Signature of Technician/Contractor: *[Signature]* Date Submitted: **2005 10 03**

Ministry Use Only

Data Source: Contractor **8588**

Date Received: **FEB 14 2006** Date of Inspection: **2005 10 03**

Remarks: Well Record Number



Measurements recorded in: Metric Imperial

Well Tag **A093655**

Page of

Well Owner's Information

First Name **WESA** Last Name / Organization **WESA** E-mail Address Well Constructed by Well Owner

Mailing Address (Street Number/Name) **3108 Carp Road Box 430 Carp Ont K0A1L0** Municipality Province Postal Code Telephone No. (inc. area code)

Well Location

Address of Well Location (Street Number/Name) **#6570 Bank Street** Township **Osgoode** Lot **P/L12** Concession **6**

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

UTM Coordinates Zone **18** Easting **458409** Northing **5010477** Municipal Plan and Sublot Number **PLAN 4R-18752 Part 2** 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 |
|----------------|------------------------|-----------------|---------------------|-------------------|-----------------|
| | Boulders + Clay | | | 0' | 11' |
| | Grey + black limestone | | | 11' | 180' |
| | Grey + white sandstone | | | 180' | 208' |

"Ottawa Childrens Treatment Centre"

| Annular Space | | |
|--------------------------|----|---|
| Depth Set at (m/ft) From | To | Type of Sealant Used (Material and Type) |
| 20' | 0' | Neat Cement Slurry |
| | | Volume Placed (m ³ /ft ³) 14.04 |

| 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 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) From | To | |
| 6" | Steel | 0.188" | 20' | 208' | <input checked="" type="checkbox"/> Water Supply |
| 5 7/8" | Open hole | | 20' | 208' | <input type="checkbox"/> Replacement Well |

| Construction Record - Screen | | | Status of Well | | |
|------------------------------|---------------------------------------|----------|-------------------|----|------------------------------------|
| Outside Diameter (cm/in) | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) From | To | |
| | | | | | <input type="checkbox"/> Test Hole |

| 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 | Diameter (cm/in) To |
| 57' | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify | 0' | 20' 6" |
| 201' | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify | 20' | 208' 5 7/8" |

Well Contractor and Well Technician Information

Business Name of Well Contractor **AIRLOCK DRILLING CO LTD 1119** Well Contractor's Licence No.

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

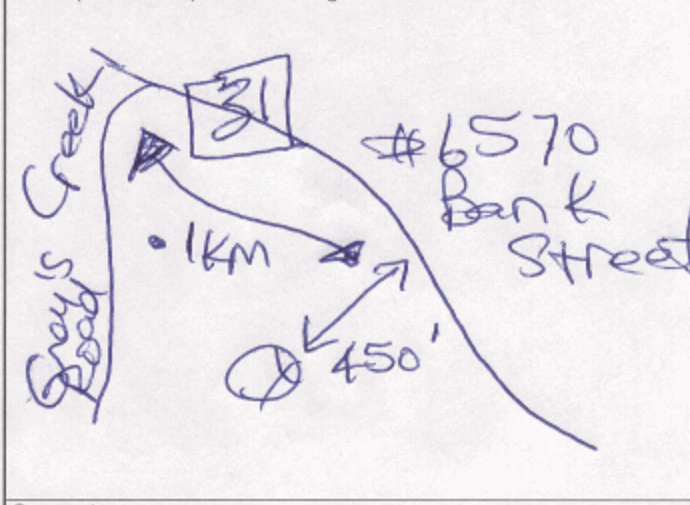
Province **ONT** Postal Code **K0A2Z0** Business E-mail Address

Bus. Telephone No. (inc. area code) **613 838 2170** Name of Well Technician (Last Name, First Name) **HOGAN DAN**

Well Technician's Licence No. **T 3058** Signature of Technician and/or Contractor **DAN HOGAN** Date Submitted **20100315**

| 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 NOT TESTED | | | | |
| If pumping discontinued, give reason: | | | | |
| Pump intake set at (m/ft) 200' | | | | |
| Pumping rate (l/min / GPM) 20 | | | | |
| Duration of pumping 1 hrs + 0 min | | | | |
| Final water level end of pumping (m/ft) 28'9" | | | | |
| If flowing give rate (l/min / GPM) 30 | | | | |
| Recommended pump depth (m/ft) 140' | | | | |
| Recommended pump rate (l/min / GPM) 20 | | | | |
| Well production (l/min / GPM) 30 | | | | |
| Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | | | |

Map of Well Location



Comments:

| | | |
|--|--|---|
| Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Date Package Delivered 2010 02 02 | Ministry Use Only Audit No. Z 108240 Received 22 2010 |
| | Date Work Completed 2010 01 28 | |

Address of Well Location (Street Number/Name) **6682 Bank Street** Township **Osgoode** Lot **W P/L 14 6** Concession _____
 County/District/Municipality **Ottawa-Carleton** City/Town/Village **Osgoode** Province **Ontario** Postal Code _____
 UTM Coordinates Zone **18** Easting **458952** Northing **5010094** Municipal Plan and Sublot Number **Greely** Other _____
 NAD **83** **18** **458952** **5010094**

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 |
|----------------|----------------------|-----------------------|---------------------|-------------------|-----------------|
| | Gravel | | | 0' | 5' |
| Grey & Brown | Limestone | | | 5' | 174' |
| Grey | Limestone | + White Sandstone Mix | | 174' | 212' |
| Grey | Limestone | + White Sandstone Mix | | 212' | 230' |

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) |
|--------------------------|------------------------|--|--|
| 198' | 0' | Neat cement | 95.2 |

Results of Well Yield Testing

| Time (min) | Draw Down | | Recovery | |
|--------------|--------------------|------------|--------------------|------------|
| | Water Level (m/ft) | Time (min) | Water Level (m/ft) | Time (min) |
| Static Level | 27.5" | | 28.5" | |
| 1 | 28.5 | 1 | 27.5 | |
| 2 | 28.5 | 2 | 27.5 | |
| 3 | 28.5 | 3 | 27.5 | |
| 4 | 28.5 | 4 | 27.5 | |
| 5 | 28.5 | 5 | 27.5 | |
| 10 | 28.5 | 10 | 27.5 | |
| 15 | 28.5 | 15 | 27.5 | |
| 20 | 28.5 | 20 | 27.5 | |
| 25 | 28.5 | 25 | 27.5 | |
| 30 | 28.5 | 30 | 27.5 | |
| 40 | 28.5 | 40 | 27.5 | |
| 50 | 28.5 | 50 | 27.5 | |
| 60 | 28.5" | 60 | 27.5" | |

After test of well yield, water was:
 Clear and sand free
 Other, specify **Not 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) **28.5"**
 If flowing give rate (l/min / GPM) **20**
 Recommended pump depth (m/ft) **220'**
 Recommended pump rate (l/min / GPM) **20**
 Well production (l/min / GPM) **20**
 Disinfected? Yes No

Method of Construction

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

Construction Record - Casing

| Inside Diameter (cm/in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) | | Status of Well |
|-------------------------|--|------------------------|--------------|------|--|
| | | | From | To | |
| 6 1/4" | Steel | .188" | 12' | 198' | <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 _____ |
| 5 1/8" | Open Hole | | 198' | 230' | |

Construction Record - Screen

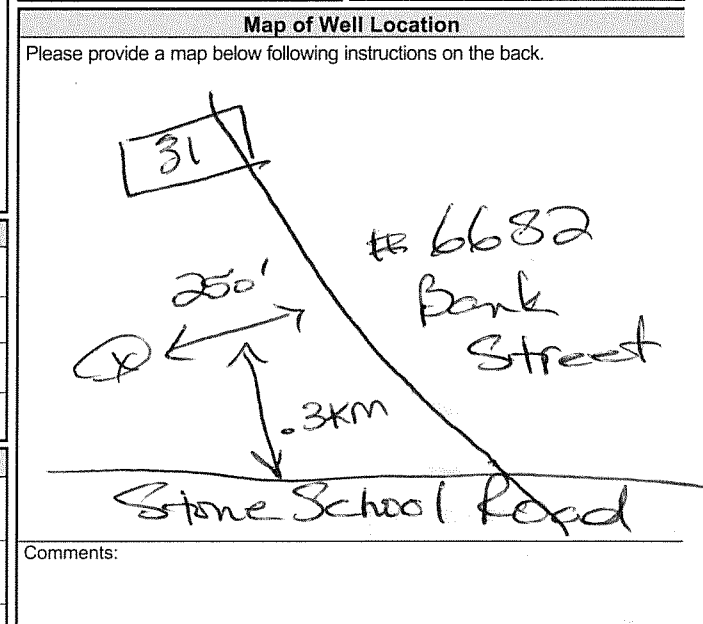
| Outside Diameter (cm/in) | Material (Plastic, Galvanized, Steel) | Slot No. | Depth (m/ft) | |
|--------------------------|---------------------------------------|----------|--------------|----|
| | | | From | To |
| | | | | |

Water Details

| Water found at Depth (m/ft) | Kind of Water: <input type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested | Depth (m/ft) From | Depth (m/ft) To | Diameter (cm/in) |
|-----------------------------|--|-------------------|-----------------|------------------|
| 212' | <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Other, specify _____ | 0' | 198' | 9 3/4" |
| | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____ | 198' | 230' | 5 7/8" |

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) **6659 Franktown Road, RR#1** Municipality **Richmond**
 Province **ON** Postal Code **K0A 2Z0** Business E-mail Address **air-rock@sympatico.ca**
 Bus. Telephone No. (inc. area code) **613-938-2170** 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 **2012 08 31**



Well owner's information package delivered Yes No

Date Package Delivered **2012 08 13**
 Date Work Completed **2012 08 08**

Ministry Use Only
 Audit No. **Z144678**
 Rec'd **22 2012**

Address of Well Location (Street Number/Name) **6637 Bank Street** Township **Osgoode** Lot **WP/L 13** Concession **6**
 County/District/Municipality **Ottawa-Carleton** City/Town/Village **Greely** Province **Ontario** Postal Code _____
 UTM Coordinates Zone **8** Easting **18** Northing **458812** **5010324** 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 |
| | Sand & Gravel | | | 0' | 16' |
| Grey | Limestone | | | 16' | 154' |
| Grey & White | Sandstone | | | 154' | 208' |
| White | Sandstone | | | 208' | 217' |
| White | Sandstone | | | 217' | 230' |

Annular Space

| Depth Set at (m/ft) | Type of Sealant Used (Material and Type) | Volume Placed (m³/ft³) |
|---------------------|--|------------------------|
| From 198' To 0' | Neat cement | 78 |

Method of Construction

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

Construction Record - Casing

| Inside Diameter (cm/in) | Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) | Wall Thickness (cm/in) | Depth (m/ft) | | Status of Well |
|-------------------------|--|------------------------|--------------|------|--|
| | | | From | To | |
| 6 1/4" | Steel | .188" | 0' | 198' | <input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned, Insufficient Supply <input type="checkbox"/> Abandoned, Poor Water Quality <input type="checkbox"/> Abandoned, other, specify _____ <input type="checkbox"/> Other, specify _____ |
| 6 1/8" | Open Hole | | 198' | 230' | |

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 | Hole Diameter | |
|-----------------------------|--|------------------|--------|
| | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____ | Depth (m/ft) | |
| | | From | |
| | | To | |
| | | Diameter (cm/in) | |
| 208 (m/ft) | <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested | 0' 198' | 9 3/4" |
| 217 (m/ft) | <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested | 198' 230' | 6 1/8" |
| | <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____ | | |

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) **6659 Franktown Road, RR#1** Municipality **Richmond**
 Province **ON** Postal Code **K0A 2Z0** Business E-mail Address **air-rock@sympatico.ca**
 Bus. Telephone No. (inc. area code) **6138382170** Name of Well Technician (Last Name, First Name) **Furcell, Shannon**
 Well Technician's Licence No. **T2122** Signature of Technician and/or Contractor *[Signature]* Date Submitted **2012 08 31**

Results of Well Yield Testing

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

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

Pump intake set at (m/ft) **220**

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

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

Final water level end of pumping (m/ft) **29.2"**

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

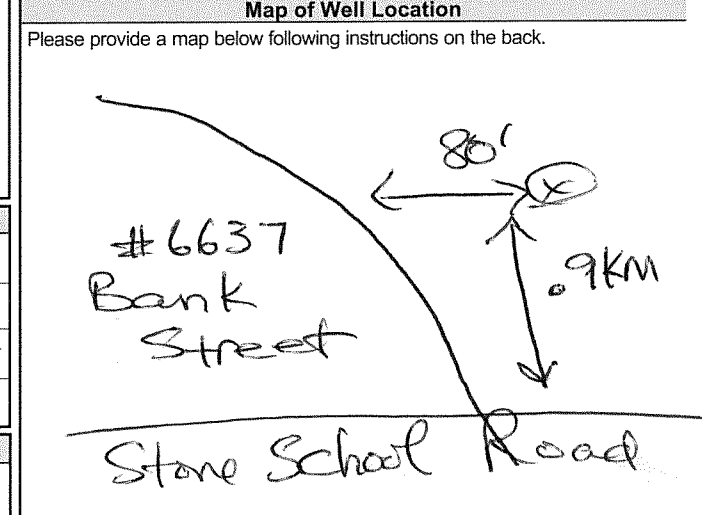
Recommended pump depth (m/ft) **220'**

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

Well production (l/min / GPM) **20**

Disinfected? Yes No

| Time (min) | Draw Down | | Recovery | |
|--------------|--------------------|------------|--------------------|------------|
| | Water Level (m/ft) | Time (min) | Water Level (m/ft) | Time (min) |
| Static Level | 29.1" | | 29.2" | |
| 1 | 29.1 | 1 | 29.1 | |
| 2 | 29.1 | 2 | 29.1 | |
| 3 | 29.1 | 3 | 29.1 | |
| 4 | 29.1 | 4 | 29.1 | |
| 5 | 29.1 | 5 | 29.1 | |
| 10 | 29.1 | 10 | 29.1 | |
| 15 | 29.1 | 15 | 29.1 | |
| 20 | 29.1 | 20 | 29.1 | |
| 25 | 29.1 | 25 | 29.1 | |
| 30 | 29.1 | 30 | 29.1 | |
| 40 | 29.1 | 40 | 29.1 | |
| 50 | 29.2 | 50 | 29.1 | |
| 60 | 29.2" | 60 | 29.1" | |



Comments:

| Well owner's information package delivered | Date Package Delivered | Ministry Use Only |
|---|--|---|
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | 2012 08 17 Date Work Completed 2012 08 15 | Audit No. Z144696 Received SEP 22 2012 |

Well Owner's Information

First Name: _____ Last Name / Organization: _____ E-mail Address: **HAWLER AUTO BODY** Well Constructed by Well Owner

Mailing Address (Street Number/Name): **c/o Cornwall Gravel Co. Ltd. 390 Eleventh St. Cornwall** Municipality: **Cornwall** Province: **ON** Postal Code: **K6H 5R9** Telephone No. (inc. area code): _____

Well Location

Address of Well Location (Street Number/Name): **6653 Bank Street** Township: **Osgoode** Lot: **W P/L 13** Concession: **8**

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

UTM Coordinates Zone: **18** Easting: **458941** Northing: **5010248** 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) |
|----------------|----------------------|-----------------|---------------------|-----------|
| | | | | From To |
| | Sand & Gravel | | | 0' 16' |
| Grey | Limestone | | | 16' 168' |
| Grey & White | Sandstone | | | 168' 210' |
| White | Sandstone | | | 210' 211' |
| White | Sandstone | | | 211' 215' |
| White | Sandstone | | | 215' 230' |

Annular Space

| Depth Set at (m) | Type of Sealant Used (Material and Type) | Volume Placed (m³) |
|------------------|--|--------------------|
| From To | | |
| 198' 0' | Neat cement | 82.6 |

Results of Well Yield Testing

| Time (min) | Draw Down (m/ft) | | Recovery (m/ft) | |
|--------------|--------------------|------------|--------------------|------------|
| | Water Level (m/ft) | Time (min) | Water Level (m/ft) | Time (min) |
| Static Level | 28.5 | | 28.7 | |
| 1 | 28.7 | 1 | 28.5 | |
| 2 | 28.7 | 2 | 28.5 | |
| 3 | 28.7 | 3 | 28.5 | |
| 4 | 28.7 | 4 | 28.5 | |
| 5 | | 5 | | |
| 10 | | 10 | | |
| 15 | | 15 | | |
| 20 | | 20 | | |
| 25 | | 25 | | |
| 30 | | 30 | | |
| 40 | | 40 | | |
| 50 | | 50 | | |
| 60 | | 60 | | |

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

If pumping discontinued, give reason:
X

Pump intake set at (m): **220**

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

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

Final water level end of pumping (m/ft): **28.7"**

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

Recommended pump depth (m): **220'**

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

Well production (l/min / GPM): **20**

Disinfected? Yes 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 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"/> Monitoring |
| <input type="checkbox"/> Other, specify _____ | | <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) | From | To |
| 6 1/4" | Steel | .188" | 12' | 198' | |
| 6" | Open Hole | | 198' | 230' | |

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

| Water Details | | Hole Diameter | |
|-----------------------------|--|---------------|------------------|
| 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 _____ | Depth (m/ft) | Diameter (cm/in) |
| From | To | From | To |
| 211 | | 0' | 9 3/4" |
| 215 | | 198' | 6" |

Well Contractor and Well Technician Information

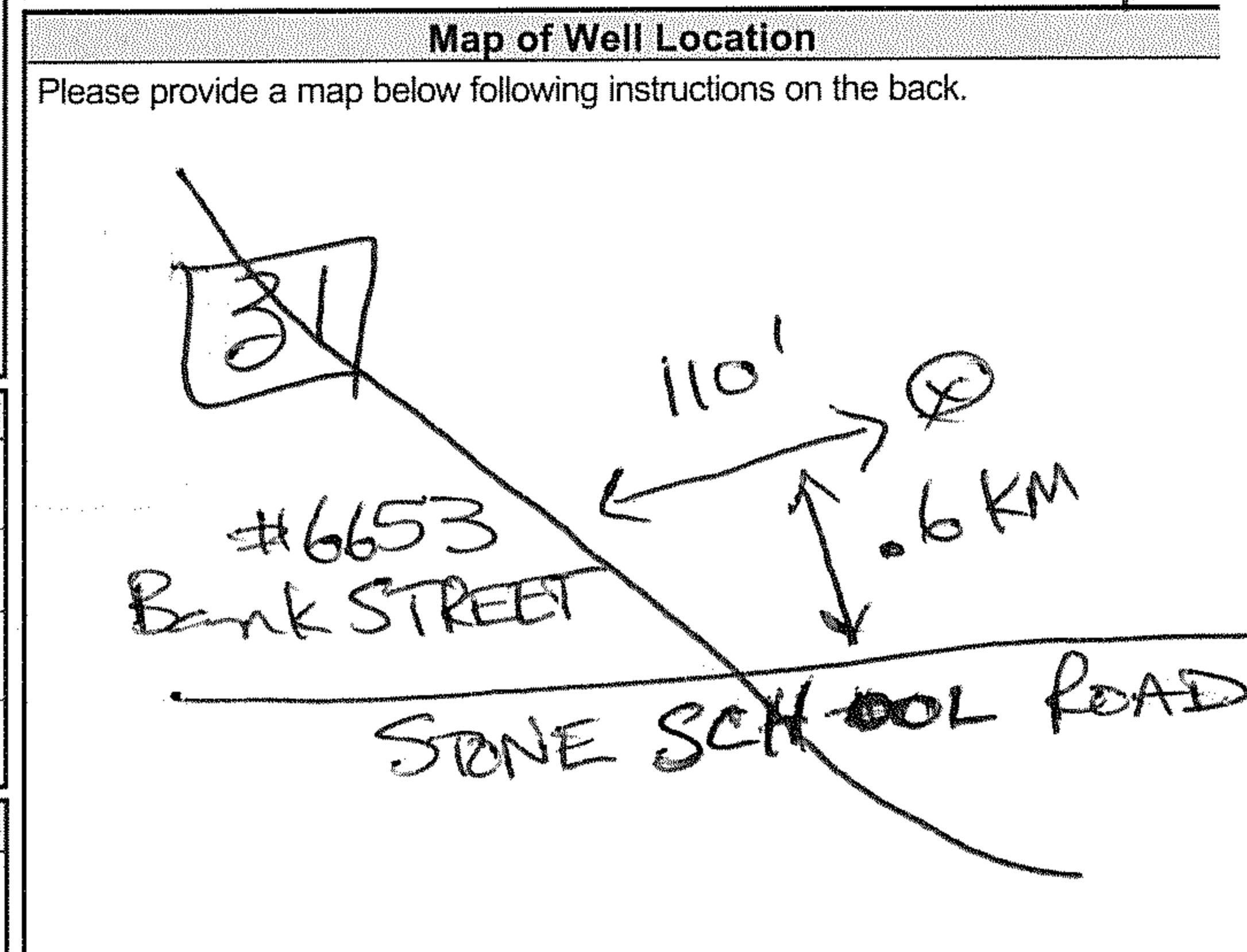
Business Name of Well Contractor: **Air Rock Drilling Co. Ltd.** Well Contractor's Licence No.: **1119**

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

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

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

Well Technician's Licence No.: **T2122** Signature of Technician and/or Contractor: _____ Date Submitted: **2012 08 31**



Comments: _____

| | | |
|---|---|--|
| Well owner's information package delivered: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Date Package Delivered: 2012 08 03 | Ministry Use Only Audit No.: Z144668 Received: SEP 22 2012 |
| Date Work Completed: 2012 07 31 | | |



Measurements recorded in: Metric Imperial

A186997

Page of

Well Owner's Information

First Name, Last Name / Organization (Kenny U Pull Ottawa), E-mail Address, Mailing Address (9100 Henri-Bourassa East), Municipality (Montreal), Province (PQ), Postal Code (H1E 2R4), Telephone No.

Well Location

Address of Well Location (6650 Bank Street), Township (Osgoode), Lot (P/L 13), Concession (6), City/Town/Village (Metcalfe), Province (Ontario), Postal Code, UTM Coordinates, Municipal Plan and Sublot Number (4R-25595), Other (Parts 7 to 9)

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 (From/To). Includes handwritten note: * PO# 32-36479EG *

Annular Space table with columns: Depth Set at (From/To), Type of Sealant Used, Volume Placed.

Method of Construction and Well Use checkboxes: Cable Tool, Rotary, Boring, Air percussion, Diamond, Jetting, Driving, Digging, Public, Commercial, Not used, Municipal, Test Hole, Monitoring, Irrigation, Cooling & Air Conditioning, Industrial, etc.

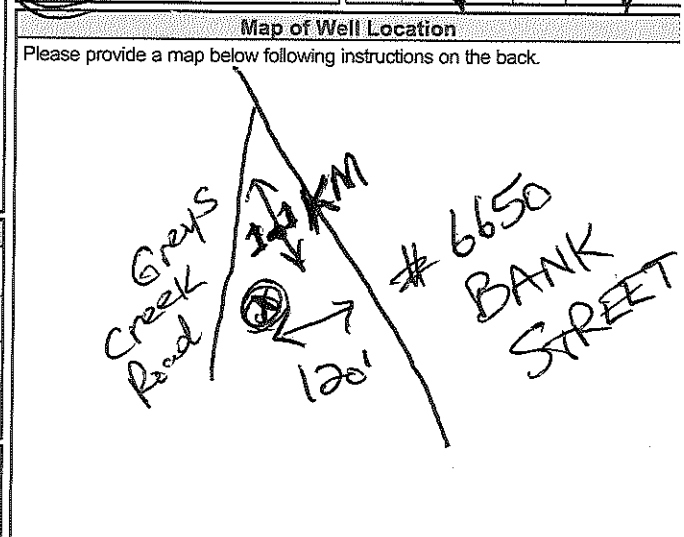
Construction Record - Casing table with columns: Inside Diameter, Open Hole OR Material, Wall Thickness, Depth (From/To), Status of Well.

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 108, 204, 214 m. Hole diameters at 0-40, 40-220 m.

Well Contractor and Well Technician Information: Business Name (Air Rock Drilling Co. Ltd.), Licence No. (1112), Business Address (6658 Franktown Road, RR#1), Municipality (Richmond), Province (ON), Postal Code (K0A 2Z0), Business E-mail Address (air-rock@sympatico.ca), Name of Well Technician (Hanna, Jeremy), Signature, Date Submitted (2017 01 31).

Results of Well Yield Testing table with columns: Draw Down (Time, Water Level), Recovery (Time, Water Level). Includes pumping rate (20 L/min), final water level (28.1 m), and recommended pump depth (100').



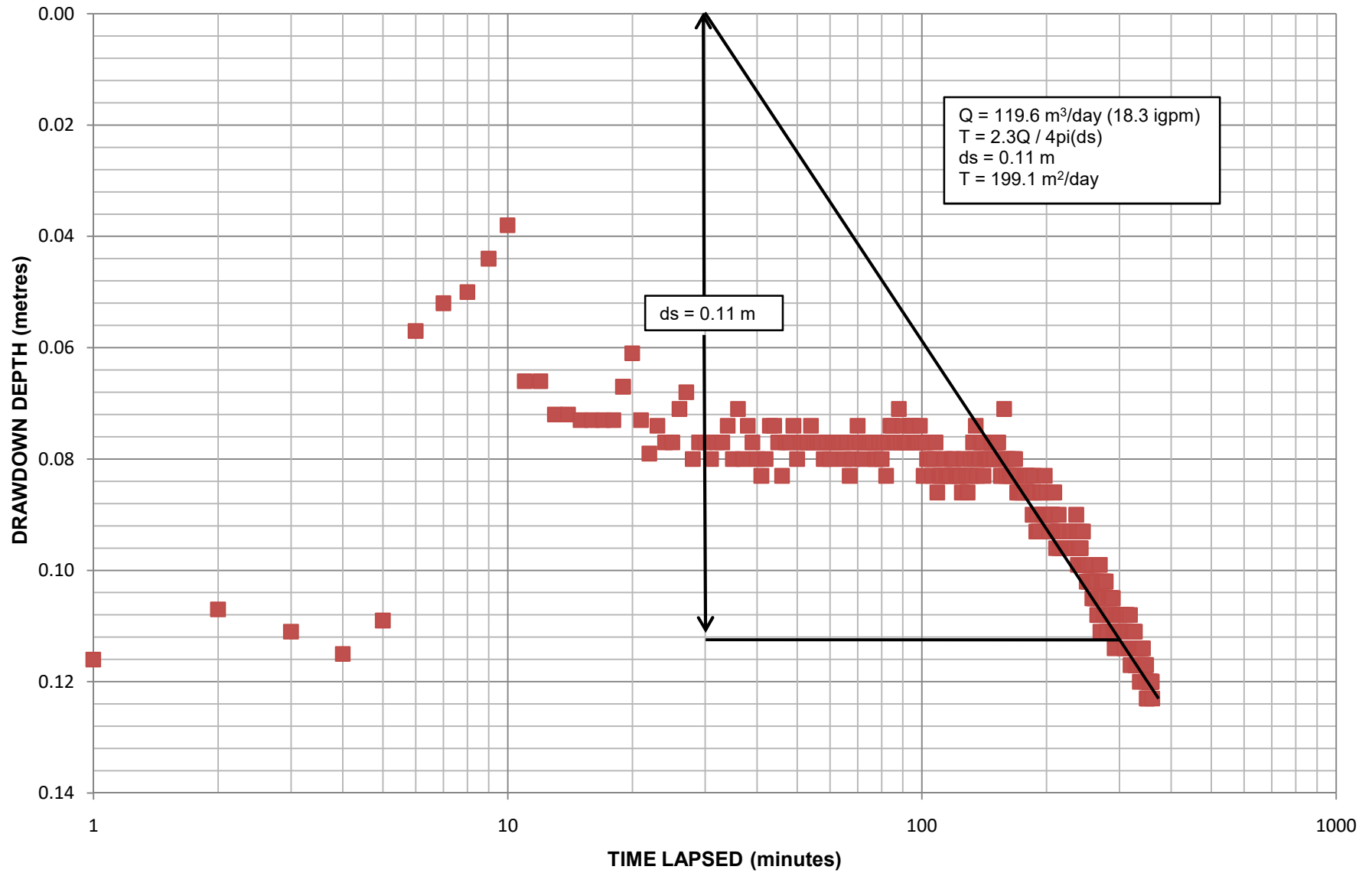
Comments: 3/4 HP - 15 GPM SET @ 100 FT

Ministry Use Only section: Well owner's information package delivered (Yes), Date Package Delivered (Y 2017 M 01 D 28), Date Work Completed (2017 01 24), Audit No. (2237272), Received (APR 18 2017).



ATTACHMENT B
PUMPING TEST DATA FOR TW1

TW1-WELL DRAWDOWN VS. TIME-KOLLAARD FILE 170035



DRAWDOWN DATA TW-1

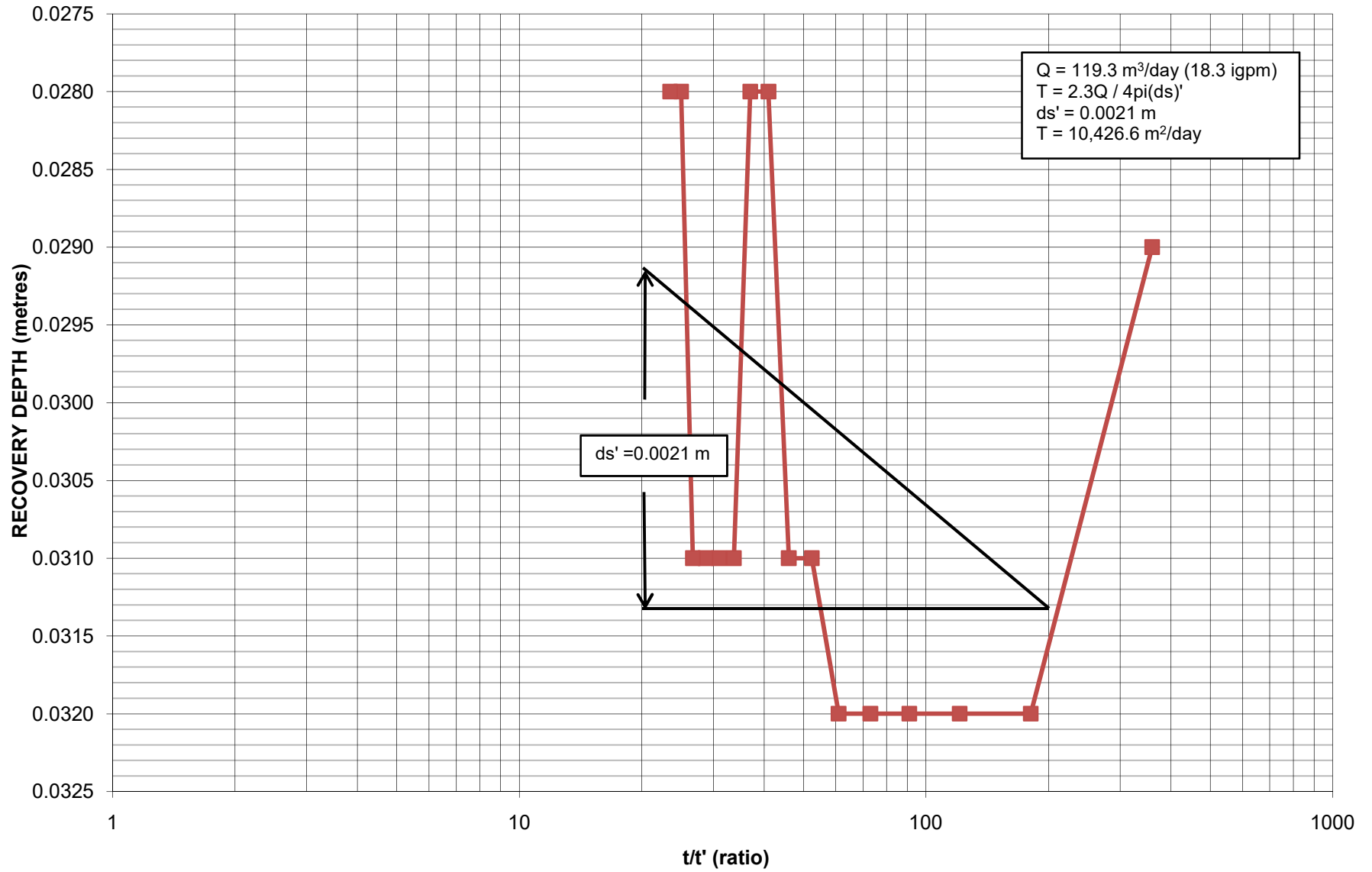
| Time Lapsed (minutes) | Abs Pres (kPa) | Temp (°C) | Water Level (m) | Drawdown (m) |
|--------------------------|-------------------|--------------|--------------------|-----------------|
| 0 | 366.717 | 9.571 | -9.36 | 0.00 |
| 1 | 365.584 | 9.571 | -9.476 | 0.12 |
| 2 | 365.667 | 9.472 | -9.467 | 0.11 |
| 3 | 365.63 | 9.373 | -9.471 | 0.11 |
| 4 | 365.594 | 9.275 | -9.475 | 0.12 |
| 5 | 365.647 | 9.176 | -9.469 | 0.11 |
| 6 | 366.154 | 9.176 | -9.417 | 0.06 |
| 7 | 366.207 | 9.077 | -9.412 | 0.05 |
| 8 | 366.23 | 8.978 | -9.41 | 0.05 |
| 9 | 366.29 | 8.978 | -9.404 | 0.04 |
| 10 | 366.343 | 8.879 | -9.398 | 0.04 |
| 11 | 366.074 | 8.879 | -9.426 | 0.07 |
| 12 | 366.068 | 8.779 | -9.426 | 0.07 |
| 13 | 366.008 | 8.779 | -9.432 | 0.07 |
| 14 | 366.008 | 8.779 | -9.432 | 0.07 |
| 15 | 366.001 | 8.68 | -9.433 | 0.07 |
| 16 | 366.001 | 8.68 | -9.433 | 0.07 |
| 17 | 366.001 | 8.68 | -9.433 | 0.07 |
| 18 | 366.001 | 8.68 | -9.433 | 0.07 |
| 19 | 366.061 | 8.68 | -9.427 | 0.07 |
| 20 | 366.121 | 8.68 | -9.421 | 0.06 |
| 21 | 366.001 | 8.68 | -9.433 | 0.07 |
| 22 | 365.942 | 8.68 | -9.439 | 0.08 |
| 23 | 365.995 | 8.581 | -9.434 | 0.07 |
| 24 | 365.965 | 8.581 | -9.437 | 0.08 |
| 25 | 365.965 | 8.581 | -9.437 | 0.08 |
| 26 | 366.025 | 8.581 | -9.431 | 0.07 |
| 27 | 366.054 | 8.581 | -9.428 | 0.07 |
| 28 | 365.935 | 8.581 | -9.44 | 0.08 |
| 29 | 365.965 | 8.581 | -9.437 | 0.08 |
| 30 | 365.965 | 8.581 | -9.437 | 0.08 |
| 31 | 365.935 | 8.581 | -9.44 | 0.08 |
| 32 | 365.965 | 8.581 | -9.437 | 0.08 |
| 33 | 365.965 | 8.581 | -9.437 | 0.08 |
| 34 | 365.995 | 8.581 | -9.434 | 0.07 |
| 35 | 365.935 | 8.581 | -9.44 | 0.08 |
| 36 | 366.025 | 8.581 | -9.431 | 0.07 |
| 37 | 365.935 | 8.581 | -9.44 | 0.08 |
| 38 | 365.995 | 8.581 | -9.434 | 0.07 |
| 39 | 365.965 | 8.581 | -9.437 | 0.08 |
| 40 | 365.935 | 8.581 | -9.44 | 0.08 |
| 41 | 365.905 | 8.581 | -9.443 | 0.08 |
| 42 | 365.935 | 8.581 | -9.44 | 0.08 |
| 43 | 365.995 | 8.581 | -9.434 | 0.07 |
| 44 | 365.995 | 8.581 | -9.434 | 0.07 |
| 45 | 365.965 | 8.581 | -9.437 | 0.08 |
| 46 | 365.905 | 8.581 | -9.443 | 0.08 |
| 47 | 365.965 | 8.581 | -9.437 | 0.08 |
| 48 | 365.965 | 8.581 | -9.437 | 0.08 |
| 49 | 365.995 | 8.581 | -9.434 | 0.07 |
| 50 | 365.935 | 8.581 | -9.44 | 0.08 |
| 51 | 365.965 | 8.581 | -9.437 | 0.08 |
| 52 | 365.965 | 8.581 | -9.437 | 0.08 |
| 53 | 365.965 | 8.581 | -9.437 | 0.08 |
| 54 | 365.995 | 8.581 | -9.434 | 0.07 |
| 55 | 365.965 | 8.581 | -9.437 | 0.08 |
| 56 | 365.965 | 8.581 | -9.437 | 0.08 |
| 57 | 365.965 | 8.581 | -9.437 | 0.08 |
| 58 | 365.935 | 8.581 | -9.44 | 0.08 |
| 59 | 365.965 | 8.581 | -9.437 | 0.08 |
| 60 | 365.935 | 8.581 | -9.44 | 0.08 |
| 61 | 365.965 | 8.581 | -9.437 | 0.08 |
| 62 | 365.965 | 8.581 | -9.437 | 0.08 |
| 63 | 365.965 | 8.581 | -9.437 | 0.08 |
| 64 | 365.965 | 8.581 | -9.437 | 0.08 |
| 65 | 365.935 | 8.581 | -9.44 | 0.08 |
| 66 | 365.965 | 8.581 | -9.437 | 0.08 |
| 67 | 365.905 | 8.581 | -9.443 | 0.08 |
| 68 | 365.935 | 8.581 | -9.44 | 0.08 |
| 69 | 365.965 | 8.581 | -9.437 | 0.08 |
| 70 | 365.995 | 8.581 | -9.434 | 0.07 |
| 71 | 365.965 | 8.581 | -9.437 | 0.08 |
| 72 | 365.935 | 8.581 | -9.44 | 0.08 |
| 73 | 365.965 | 8.581 | -9.437 | 0.08 |
| 74 | 365.965 | 8.581 | -9.437 | 0.08 |
| 75 | 365.965 | 8.581 | -9.437 | 0.08 |
| 76 | 365.965 | 8.581 | -9.437 | 0.08 |
| 77 | 365.935 | 8.581 | -9.44 | 0.08 |
| 78 | 365.935 | 8.581 | -9.44 | 0.08 |
| 79 | 365.965 | 8.581 | -9.437 | 0.08 |
| 80 | 365.935 | 8.581 | -9.44 | 0.08 |
| 81 | 365.965 | 8.581 | -9.437 | 0.08 |
| 82 | 365.905 | 8.581 | -9.443 | 0.08 |
| 83 | 365.965 | 8.581 | -9.437 | 0.08 |
| 84 | 365.995 | 8.581 | -9.434 | 0.07 |
| 85 | 365.995 | 8.581 | -9.434 | 0.07 |
| 86 | 365.965 | 8.581 | -9.437 | 0.08 |

| | | | | |
|-----|---------|-------|--------|------|
| 87 | 365.965 | 8.581 | -9.437 | 0.08 |
| 88 | 366.018 | 8.481 | -9.431 | 0.07 |
| 89 | 365.965 | 8.581 | -9.437 | 0.08 |
| 90 | 365.995 | 8.581 | -9.434 | 0.07 |
| 91 | 365.965 | 8.581 | -9.437 | 0.08 |
| 92 | 365.965 | 8.581 | -9.437 | 0.08 |
| 93 | 365.965 | 8.581 | -9.437 | 0.08 |
| 94 | 365.995 | 8.581 | -9.434 | 0.07 |
| 95 | 365.988 | 8.481 | -9.434 | 0.07 |
| 96 | 365.965 | 8.581 | -9.437 | 0.08 |
| 97 | 365.958 | 8.481 | -9.437 | 0.08 |
| 98 | 365.958 | 8.481 | -9.437 | 0.08 |
| 99 | 365.988 | 8.481 | -9.434 | 0.07 |
| 100 | 365.965 | 8.581 | -9.437 | 0.08 |
| 101 | 365.905 | 8.581 | -9.443 | 0.08 |
| 102 | 365.958 | 8.481 | -9.437 | 0.08 |
| 103 | 365.935 | 8.581 | -9.44 | 0.08 |
| 104 | 365.935 | 8.581 | -9.44 | 0.08 |
| 105 | 365.929 | 8.481 | -9.44 | 0.08 |
| 106 | 365.899 | 8.481 | -9.443 | 0.08 |
| 107 | 365.929 | 8.481 | -9.44 | 0.08 |
| 108 | 365.958 | 8.481 | -9.437 | 0.08 |
| 109 | 365.869 | 8.481 | -9.446 | 0.09 |
| 110 | 365.899 | 8.481 | -9.443 | 0.08 |
| 111 | 365.899 | 8.481 | -9.443 | 0.08 |
| 112 | 365.899 | 8.481 | -9.443 | 0.08 |
| 113 | 365.929 | 8.481 | -9.44 | 0.08 |
| 114 | 365.929 | 8.481 | -9.44 | 0.08 |
| 115 | 365.899 | 8.481 | -9.443 | 0.08 |
| 116 | 365.899 | 8.481 | -9.443 | 0.08 |
| 117 | 365.899 | 8.481 | -9.443 | 0.08 |
| 118 | 365.929 | 8.481 | -9.44 | 0.08 |
| 119 | 365.929 | 8.481 | -9.44 | 0.08 |
| 120 | 365.929 | 8.481 | -9.44 | 0.08 |
| 121 | 365.899 | 8.481 | -9.443 | 0.08 |
| 122 | 365.899 | 8.481 | -9.443 | 0.08 |
| 123 | 365.899 | 8.481 | -9.443 | 0.08 |
| 124 | 365.899 | 8.481 | -9.443 | 0.08 |
| 125 | 365.869 | 8.481 | -9.446 | 0.09 |
| 126 | 365.929 | 8.481 | -9.44 | 0.08 |
| 127 | 365.929 | 8.481 | -9.44 | 0.08 |
| 128 | 365.899 | 8.481 | -9.443 | 0.08 |
| 129 | 365.869 | 8.481 | -9.446 | 0.09 |
| 130 | 365.899 | 8.481 | -9.443 | 0.08 |
| 131 | 365.929 | 8.481 | -9.44 | 0.08 |
| 132 | 365.899 | 8.481 | -9.443 | 0.08 |
| 133 | 365.958 | 8.481 | -9.437 | 0.08 |
| 134 | 365.929 | 8.481 | -9.44 | 0.08 |
| 135 | 365.988 | 8.481 | -9.434 | 0.07 |
| 136 | 365.899 | 8.481 | -9.443 | 0.08 |
| 137 | 365.929 | 8.481 | -9.44 | 0.08 |
| 138 | 365.929 | 8.481 | -9.44 | 0.08 |
| 139 | 365.958 | 8.481 | -9.437 | 0.08 |
| 140 | 365.958 | 8.481 | -9.437 | 0.08 |
| 141 | 365.899 | 8.481 | -9.443 | 0.08 |
| 142 | 365.929 | 8.481 | -9.44 | 0.08 |
| 143 | 365.929 | 8.481 | -9.44 | 0.08 |
| 144 | 365.929 | 8.481 | -9.44 | 0.08 |
| 145 | 365.929 | 8.481 | -9.44 | 0.08 |
| 146 | 365.929 | 8.481 | -9.44 | 0.08 |
| 147 | 365.958 | 8.481 | -9.437 | 0.08 |
| 148 | 365.958 | 8.481 | -9.437 | 0.08 |
| 149 | 365.929 | 8.481 | -9.44 | 0.08 |
| 150 | 365.929 | 8.481 | -9.44 | 0.08 |
| 151 | 365.958 | 8.481 | -9.437 | 0.08 |
| 152 | 365.958 | 8.481 | -9.437 | 0.08 |
| 153 | 365.958 | 8.481 | -9.437 | 0.08 |
| 154 | 365.929 | 8.481 | -9.44 | 0.08 |
| 155 | 365.899 | 8.481 | -9.443 | 0.08 |
| 156 | 365.899 | 8.481 | -9.443 | 0.08 |
| 157 | 365.929 | 8.481 | -9.44 | 0.08 |
| 158 | 366.018 | 8.481 | -9.431 | 0.07 |
| 159 | 365.929 | 8.481 | -9.44 | 0.08 |
| 160 | 365.899 | 8.481 | -9.443 | 0.08 |
| 161 | 365.929 | 8.481 | -9.44 | 0.08 |
| 162 | 365.929 | 8.481 | -9.44 | 0.08 |
| 163 | 365.899 | 8.481 | -9.443 | 0.08 |
| 164 | 365.899 | 8.481 | -9.443 | 0.08 |
| 165 | 365.929 | 8.481 | -9.44 | 0.08 |
| 166 | 365.899 | 8.481 | -9.443 | 0.08 |
| 167 | 365.929 | 8.481 | -9.44 | 0.08 |
| 168 | 365.929 | 8.481 | -9.44 | 0.08 |
| 169 | 365.899 | 8.481 | -9.443 | 0.08 |
| 170 | 365.869 | 8.481 | -9.446 | 0.09 |
| 171 | 365.869 | 8.481 | -9.446 | 0.09 |
| 172 | 365.869 | 8.481 | -9.446 | 0.09 |
| 173 | 365.869 | 8.481 | -9.446 | 0.09 |
| 174 | 365.869 | 8.481 | -9.446 | 0.09 |
| 175 | 365.869 | 8.481 | -9.446 | 0.09 |
| 176 | 365.869 | 8.481 | -9.446 | 0.09 |
| 177 | 365.899 | 8.481 | -9.443 | 0.08 |
| 178 | 365.899 | 8.481 | -9.443 | 0.08 |
| 179 | 365.899 | 8.481 | -9.443 | 0.08 |

| | | | | |
|-----|---------|-------|--------|------|
| 180 | 365.899 | 8.481 | -9.443 | 0.08 |
| 181 | 365.869 | 8.481 | -9.446 | 0.09 |
| 182 | 365.899 | 8.481 | -9.443 | 0.08 |
| 183 | 365.869 | 8.481 | -9.446 | 0.09 |
| 184 | 365.869 | 8.481 | -9.446 | 0.09 |
| 185 | 365.839 | 8.481 | -9.45 | 0.09 |
| 186 | 365.899 | 8.481 | -9.443 | 0.08 |
| 187 | 365.869 | 8.481 | -9.446 | 0.09 |
| 188 | 365.869 | 8.481 | -9.446 | 0.09 |
| 189 | 365.809 | 8.481 | -9.453 | 0.09 |
| 190 | 365.839 | 8.481 | -9.45 | 0.09 |
| 191 | 365.809 | 8.481 | -9.453 | 0.09 |
| 192 | 365.809 | 8.481 | -9.453 | 0.09 |
| 193 | 365.869 | 8.481 | -9.446 | 0.09 |
| 194 | 365.869 | 8.481 | -9.446 | 0.09 |
| 195 | 365.869 | 8.481 | -9.446 | 0.09 |
| 196 | 365.839 | 8.481 | -9.45 | 0.09 |
| 197 | 365.839 | 8.481 | -9.45 | 0.09 |
| 198 | 365.899 | 8.481 | -9.443 | 0.08 |
| 199 | 365.839 | 8.481 | -9.45 | 0.09 |
| 200 | 365.869 | 8.481 | -9.446 | 0.09 |
| 201 | 365.839 | 8.481 | -9.45 | 0.09 |
| 202 | 365.839 | 8.481 | -9.45 | 0.09 |
| 203 | 365.809 | 8.481 | -9.453 | 0.09 |
| 204 | 365.839 | 8.481 | -9.45 | 0.09 |
| 205 | 365.839 | 8.481 | -9.45 | 0.09 |
| 206 | 365.839 | 8.481 | -9.45 | 0.09 |
| 207 | 365.839 | 8.481 | -9.45 | 0.09 |
| 208 | 365.869 | 8.481 | -9.446 | 0.09 |
| 209 | 365.869 | 8.481 | -9.446 | 0.09 |
| 210 | 365.809 | 8.481 | -9.453 | 0.09 |
| 211 | 365.779 | 8.481 | -9.456 | 0.10 |
| 212 | 365.809 | 8.481 | -9.453 | 0.09 |
| 213 | 365.809 | 8.481 | -9.453 | 0.09 |
| 214 | 365.839 | 8.481 | -9.45 | 0.09 |
| 215 | 365.779 | 8.481 | -9.456 | 0.10 |
| 216 | 365.809 | 8.481 | -9.453 | 0.09 |
| 217 | 365.809 | 8.481 | -9.453 | 0.09 |
| 218 | 365.779 | 8.481 | -9.456 | 0.10 |
| 219 | 365.779 | 8.481 | -9.456 | 0.10 |
| 220 | 365.809 | 8.481 | -9.453 | 0.09 |
| 221 | 365.809 | 8.481 | -9.453 | 0.09 |
| 222 | 365.779 | 8.481 | -9.456 | 0.10 |
| 223 | 365.809 | 8.481 | -9.453 | 0.09 |
| 224 | 365.779 | 8.481 | -9.456 | 0.10 |
| 225 | 365.779 | 8.481 | -9.456 | 0.10 |
| 226 | 365.779 | 8.481 | -9.456 | 0.10 |
| 227 | 365.779 | 8.481 | -9.456 | 0.10 |
| 228 | 365.809 | 8.481 | -9.453 | 0.09 |
| 229 | 365.779 | 8.481 | -9.456 | 0.10 |
| 230 | 365.779 | 8.481 | -9.456 | 0.10 |
| 231 | 365.809 | 8.481 | -9.453 | 0.09 |
| 232 | 365.779 | 8.481 | -9.456 | 0.10 |
| 233 | 365.779 | 8.481 | -9.456 | 0.10 |
| 234 | 365.779 | 8.481 | -9.456 | 0.10 |
| 235 | 365.779 | 8.481 | -9.456 | 0.10 |
| 236 | 365.839 | 8.481 | -9.45 | 0.09 |
| 237 | 365.809 | 8.481 | -9.453 | 0.09 |
| 238 | 365.75 | 8.481 | -9.459 | 0.10 |
| 239 | 365.779 | 8.481 | -9.456 | 0.10 |
| 240 | 365.809 | 8.481 | -9.453 | 0.09 |
| 241 | 365.779 | 8.481 | -9.456 | 0.10 |
| 242 | 365.779 | 8.481 | -9.456 | 0.10 |
| 243 | 365.75 | 8.481 | -9.459 | 0.10 |
| 244 | 365.809 | 8.481 | -9.453 | 0.09 |
| 245 | 365.809 | 8.481 | -9.453 | 0.09 |
| 246 | 365.75 | 8.481 | -9.459 | 0.10 |
| 247 | 365.75 | 8.481 | -9.459 | 0.10 |
| 248 | 365.75 | 8.481 | -9.459 | 0.10 |
| 249 | 365.75 | 8.481 | -9.459 | 0.10 |
| 250 | 365.72 | 8.481 | -9.462 | 0.10 |
| 251 | 365.75 | 8.481 | -9.459 | 0.10 |
| 252 | 365.75 | 8.481 | -9.459 | 0.10 |
| 253 | 365.72 | 8.481 | -9.462 | 0.10 |
| 254 | 365.72 | 8.481 | -9.462 | 0.10 |
| 255 | 365.72 | 8.481 | -9.462 | 0.10 |
| 256 | 365.72 | 8.481 | -9.462 | 0.10 |
| 257 | 365.75 | 8.481 | -9.459 | 0.10 |
| 258 | 365.69 | 8.481 | -9.465 | 0.11 |
| 259 | 365.72 | 8.481 | -9.462 | 0.10 |
| 260 | 365.72 | 8.481 | -9.462 | 0.10 |
| 261 | 365.69 | 8.481 | -9.465 | 0.11 |
| 262 | 365.69 | 8.481 | -9.465 | 0.11 |
| 263 | 365.72 | 8.481 | -9.462 | 0.10 |
| 264 | 365.72 | 8.481 | -9.462 | 0.10 |
| 265 | 365.66 | 8.481 | -9.468 | 0.11 |
| 266 | 365.66 | 8.481 | -9.468 | 0.11 |
| 267 | 365.69 | 8.481 | -9.465 | 0.11 |
| 268 | 365.75 | 8.481 | -9.459 | 0.10 |
| 269 | 365.75 | 8.481 | -9.459 | 0.10 |
| 270 | 365.63 | 8.481 | -9.471 | 0.11 |
| 271 | 365.69 | 8.481 | -9.465 | 0.11 |
| 272 | 365.72 | 8.481 | -9.462 | 0.10 |

| | | | | |
|-----|---------|-------|--------|------|
| 273 | 365.69 | 8.481 | -9.465 | 0.11 |
| 274 | 365.72 | 8.481 | -9.462 | 0.10 |
| 275 | 365.66 | 8.481 | -9.468 | 0.11 |
| 276 | 365.69 | 8.481 | -9.465 | 0.11 |
| 277 | 365.72 | 8.481 | -9.462 | 0.10 |
| 278 | 365.72 | 8.481 | -9.462 | 0.10 |
| 279 | 365.66 | 8.481 | -9.468 | 0.11 |
| 280 | 365.63 | 8.481 | -9.471 | 0.11 |
| 281 | 365.63 | 8.481 | -9.471 | 0.11 |
| 282 | 365.69 | 8.481 | -9.465 | 0.11 |
| 283 | 365.66 | 8.481 | -9.468 | 0.11 |
| 284 | 365.66 | 8.481 | -9.468 | 0.11 |
| 285 | 365.69 | 8.481 | -9.465 | 0.11 |
| 286 | 365.69 | 8.481 | -9.465 | 0.11 |
| 287 | 365.66 | 8.481 | -9.468 | 0.11 |
| 288 | 365.69 | 8.481 | -9.465 | 0.11 |
| 289 | 365.69 | 8.481 | -9.465 | 0.11 |
| 290 | 365.63 | 8.481 | -9.471 | 0.11 |
| 291 | 365.63 | 8.481 | -9.471 | 0.11 |
| 292 | 365.601 | 8.481 | -9.474 | 0.11 |
| 293 | 365.63 | 8.481 | -9.471 | 0.11 |
| 294 | 365.63 | 8.481 | -9.471 | 0.11 |
| 295 | 365.66 | 8.481 | -9.468 | 0.11 |
| 296 | 365.63 | 8.481 | -9.471 | 0.11 |
| 297 | 365.63 | 8.481 | -9.471 | 0.11 |
| 298 | 365.66 | 8.481 | -9.468 | 0.11 |
| 299 | 365.63 | 8.481 | -9.471 | 0.11 |
| 300 | 365.66 | 8.481 | -9.468 | 0.11 |
| 301 | 365.66 | 8.481 | -9.468 | 0.11 |
| 302 | 365.66 | 8.481 | -9.468 | 0.11 |
| 303 | 365.66 | 8.481 | -9.468 | 0.11 |
| 304 | 365.63 | 8.481 | -9.471 | 0.11 |
| 305 | 365.63 | 8.481 | -9.471 | 0.11 |
| 306 | 365.63 | 8.481 | -9.471 | 0.11 |
| 307 | 365.66 | 8.481 | -9.468 | 0.11 |
| 308 | 365.66 | 8.481 | -9.468 | 0.11 |
| 309 | 365.601 | 8.481 | -9.474 | 0.11 |
| 310 | 365.63 | 8.481 | -9.471 | 0.11 |
| 311 | 365.66 | 8.481 | -9.468 | 0.11 |
| 312 | 365.66 | 8.481 | -9.468 | 0.11 |
| 313 | 365.66 | 8.481 | -9.468 | 0.11 |
| 314 | 365.63 | 8.481 | -9.471 | 0.11 |
| 315 | 365.63 | 8.481 | -9.471 | 0.11 |
| 316 | 365.601 | 8.481 | -9.474 | 0.11 |
| 317 | 365.601 | 8.481 | -9.474 | 0.11 |
| 318 | 365.66 | 8.481 | -9.468 | 0.11 |
| 319 | 365.571 | 8.481 | -9.477 | 0.12 |
| 320 | 365.63 | 8.481 | -9.471 | 0.11 |
| 321 | 365.601 | 8.481 | -9.474 | 0.11 |
| 322 | 365.601 | 8.481 | -9.474 | 0.11 |
| 323 | 365.63 | 8.481 | -9.471 | 0.11 |
| 324 | 365.601 | 8.481 | -9.474 | 0.11 |
| 325 | 365.63 | 8.481 | -9.471 | 0.11 |
| 326 | 365.601 | 8.481 | -9.474 | 0.11 |
| 327 | 365.63 | 8.481 | -9.471 | 0.11 |
| 328 | 365.571 | 8.481 | -9.477 | 0.12 |
| 329 | 365.571 | 8.481 | -9.477 | 0.12 |
| 330 | 365.601 | 8.481 | -9.474 | 0.11 |
| 331 | 365.601 | 8.481 | -9.474 | 0.11 |
| 332 | 365.571 | 8.481 | -9.477 | 0.12 |
| 333 | 365.601 | 8.481 | -9.474 | 0.11 |
| 334 | 365.601 | 8.481 | -9.474 | 0.11 |
| 335 | 365.601 | 8.481 | -9.474 | 0.11 |
| 336 | 365.541 | 8.481 | -9.48 | 0.12 |
| 337 | 365.601 | 8.481 | -9.474 | 0.11 |
| 338 | 365.571 | 8.481 | -9.477 | 0.12 |
| 339 | 365.601 | 8.481 | -9.474 | 0.11 |
| 340 | 365.571 | 8.481 | -9.477 | 0.12 |
| 341 | 365.571 | 8.481 | -9.477 | 0.12 |
| 342 | 365.601 | 8.481 | -9.474 | 0.11 |
| 343 | 365.571 | 8.481 | -9.477 | 0.12 |
| 344 | 365.571 | 8.481 | -9.477 | 0.12 |
| 345 | 365.571 | 8.481 | -9.477 | 0.12 |
| 346 | 365.571 | 8.481 | -9.477 | 0.12 |
| 347 | 365.541 | 8.481 | -9.48 | 0.12 |
| 348 | 365.571 | 8.481 | -9.477 | 0.12 |
| 349 | 365.511 | 8.481 | -9.483 | 0.12 |
| 350 | 365.511 | 8.481 | -9.483 | 0.12 |
| 351 | 365.511 | 8.481 | -9.483 | 0.12 |
| 352 | 365.541 | 8.481 | -9.48 | 0.12 |
| 353 | 365.541 | 8.481 | -9.48 | 0.12 |
| 354 | 365.541 | 8.481 | -9.48 | 0.12 |
| 355 | 365.541 | 8.481 | -9.48 | 0.12 |
| 356 | 365.541 | 8.481 | -9.48 | 0.12 |
| 357 | 365.541 | 8.481 | -9.48 | 0.12 |
| 358 | 365.541 | 8.481 | -9.48 | 0.12 |
| 359 | 365.541 | 8.481 | -9.48 | 0.12 |
| 360 | 365.511 | 8.481 | -9.483 | 0.12 |

TW1- WELL RECOVERY VS. TIME - KOLLAARD FILE 170035



RECOVERY DATA TW-1

| t' | t / t' | Abs Pres (kPa) | Temp (°C) | Water Level (m) | Drawdown (m) | Manual Measured Water Level | Drawdown (m) | Recovery (%) |
|-----------|---------------|---------------------------|----------------------|----------------------------|-------------------------|--|-------------------------|-------------------------|
| 1 | 360 | 366.435 | 8.481 | -9.389 | 0.03 | 9.38 | 0.02 | 83% |
| 2 | 181.0 | 366.405 | 8.481 | -9.392 | 0.03 | 9.38 | 0.02 | 83% |
| 3 | 121.0 | 366.405 | 8.481 | -9.392 | 0.03 | 9.38 | 0.02 | 83% |
| 4 | 91.0 | 366.405 | 8.481 | -9.392 | 0.03 | 9.38 | 0.02 | 83% |
| 5 | 73.0 | 366.405 | 8.481 | -9.392 | 0.03 | 9.38 | 0.02 | 83% |
| 6 | 61.0 | 366.405 | 8.481 | -9.392 | 0.03 | 9.38 | 0.02 | 83% |
| 7 | 52.4 | 366.412 | 8.581 | -9.391 | 0.03 | 9.38 | 0.02 | 83% |
| 8 | 46.0 | 366.412 | 8.581 | -9.391 | 0.03 | 9.38 | 0.02 | 83% |
| 9 | 41.0 | 366.442 | 8.581 | -9.388 | 0.03 | 9.38 | 0.02 | 83% |
| 10 | 37.0 | 366.442 | 8.581 | -9.388 | 0.03 | 9.38 | 0.02 | 83% |
| 11 | 33.7 | 366.412 | 8.581 | -9.391 | 0.03 | 9.38 | 0.02 | 83% |
| 12 | 31.0 | 366.412 | 8.581 | -9.391 | 0.03 | 9.38 | 0.02 | 83% |
| 13 | 28.7 | 366.412 | 8.581 | -9.391 | 0.03 | 9.38 | 0.02 | 83% |
| 14 | 26.7 | 366.412 | 8.581 | -9.391 | 0.03 | 9.38 | 0.02 | 83% |
| 15 | 25.0 | 366.442 | 8.581 | -9.388 | 0.03 | 9.37 | 0.01 | 92% |
| 16 | 23.5 | 366.442 | 8.581 | -9.388 | 0.03 | 9.37 | 0.01 | 92% |
| 17 | 22.2 | 366.442 | 8.581 | -9.388 | 0.03 | - | - | - |
| 18 | 21.0 | 366.442 | 8.581 | -9.388 | 0.03 | - | - | - |
| 19 | 19.9 | 366.412 | 8.581 | -9.391 | 0.03 | - | - | - |
| 20 | 19.0 | 366.442 | 8.581 | -9.388 | 0.03 | - | - | - |
| 21 | 18.1 | 366.442 | 8.581 | -9.388 | 0.03 | - | - | - |
| 1405 | 1.3 | 365.445 | 9.275 | -9.49 | 0.13 | 9.43 | 0.07 | - |
| 5740 | 1.1 | 362.053 | 9.373 | -9.836 | 0.48 | 9.85 | 0.49 | - |



ATTACHMENT C

RESULTS OF LABORATORY TESTING
OF WELL WATER SAMPLES (2017 and 2024)

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#:
Invoice to: Kollaard Associates Inc.

Report Number: 1709239
Date Submitted: 2017-06-09
Date Reported: 2017-06-11
Project: 170035
COC #: 190936

Page 1 of 2

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____

Dragana Dzeletovic
Team Leader, Microbiology

All analysis is completed in Ottawa, Ontario (unless otherwise indicated).

Eurofins Ottawa is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on our CALA scope of accreditation. It can be found at <http://www.cala.ca/scopes/2602.pdf>.

Eurofins (Ottawa) is certified and accredited for specific parameters by OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils). Licensed by Ontario MOE for specific tests in drinking water.

Eurofins (Mississauga) is accredited for specific parameters by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required.

Client: Kollaard Associates Inc.
 210 Prescott St., Box 189
 Kemptville, ON
 K0G 1J0
 Attention: Ms. Colleen Vermeersch
 PO#:
 Invoice to: Kollaard Associates Inc.

Report Number: 1709239
 Date Submitted: 2017-06-09
 Date Reported: 2017-06-11
 Project: 170035
 COC #: 190936

| Group | Analyte | MRL | Units | Guideline | Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D. | 1297441 Water 2017-06-08 TW1 - 3hrs | 1297442 Water 2017-06-08 TW1 - 6 hours |
|-----------------|---------------------------|----------|----------|-----------|--|--|---|
| Others | Escherichia Coli | 0 | ct/100mL | MAC 0 | | 0 | 0 |
| | Faecal Coliforms | 0 | ct/100mL | | | 0 | 0 |
| | Heterotrophic Plate Count | 0 | ct/100mL | | | | 0 |
| | | | ct/1mL | | | 26 | |
| Total Coliforms | 0 | ct/100mL | MAC 0 | | 1* | 0 | |

Guideline = ODWSOG

*** = Guideline Exceedence**

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).

Results relate only to the parameters tested on the samples submitted.

Analytical Method: AMBCOLM1

additional QA/QC information available on request.

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range



Certificate of Analysis

Client: Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention: Ms. Colleen Vermeersch
PO#: 170035
Invoice to: Kollaard Associates Inc.

Report Number: 1709240
Date Submitted: 2017-06-09
Date Reported: 2017-06-16
Project: 170035
COC #: 190936

Dear Colleen Vermeersch:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

APPROVAL: _____
Addrine Thomas
Team Leader, Inorganics

All analysis is completed in Ottawa, Ontario (unless otherwise indicated).

Eurofins Ottawa is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on our CALA scope of accreditation. It can be found at <http://www.cala.ca/scopes/2602.pdf>.

Eurofins(Ottawa) is certified and accredited for specific parameters by OMAFRA, Ontario Ministry of Agriculture, Food and Rural Affairs (for farm soils). Licensed by Ontario MOE for specific tests in drinking water.

Eurofins(Mississauga) is accredited for specific parameters by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required.

Client: Kollaard Associates Inc.
 210 Prescott St., Box 189
 Kemptville, ON
 K0G 1J0
 Attention: Ms. Colleen Vermeersch
 PO#: 170035
 Invoice to: Kollaard Associates Inc.

Report Number: 1709240
 Date Submitted: 2017-06-09
 Date Reported: 2017-06-16
 Project: 170035
 COC #: 190936

| Group | Analyte | MRL | Units | Guideline | 1297443 Water 2017-06-08 TW1-3hrs | 1297444 Water 2017-06-08 TW1-6hrs |
|-------------------|-------------------------|-------|-------|-----------|--|--|
| Calculations | Hardness as CaCO3 | 1 | mg/L | OG 100 | 429* | 427* |
| | Ion Balance | 0.01 | | | 0.91 | 0.92 |
| | TDS (COND - CALC) | 1 | mg/L | AO 500 | 722* | 715* |
| General Chemistry | Alkalinity as CaCO3 | 5 | mg/L | OG 500 | 313 | 299 |
| | Cl | 1 | mg/L | AO 250 | 129 | 126 |
| | Colour | 2 | TCU | AO 5 | 2 | 2 |
| | Conductivity | 5 | uS/cm | | 1110 | 1100 |
| | F | 0.10 | mg/L | MAC 1.5 | 0.18 | 0.19 |
| | N-NO2 | 0.10 | mg/L | MAC 1.0 | <0.10 | <0.10 |
| | N-NO3 | 0.10 | mg/L | MAC 10.0 | <0.10 | <0.10 |
| | pH | 1.00 | | 6.5-8.5 | 7.95 | 7.96 |
| | SO4 | 1 | mg/L | AO 500 | 126 | 124 |
| | Turbidity | 0.1 | NTU | AO 5.0 | 1.6 | 1.2 |
| Metals | Ca | 1 | mg/L | | 96 | 95 |
| | Fe | 0.03 | mg/L | AO 0.3 | 0.19 | 0.16 |
| | K | 1 | mg/L | | 6 | 6 |
| | Mg | 1 | mg/L | | 46 | 46 |
| | Mn | 0.01 | mg/L | AO 0.05 | 0.04 | 0.04 |
| | Na | 2 | mg/L | AO 200 | 62 | 57 |
| Nutrients | Total Kjeldahl Nitrogen | 0.1 | mg/L | | 0.3 | 0.3 |
| Phenols | Phenols | 0.001 | mg/L | | <0.001 | <0.001 |
| Subcontract | DOC | 0.5 | mg/L | AO 5 | 1.7 | 1.9 |
| | N-NH3 | 0.01 | mg/L | | 0.14 | 0.15 |
| | S2- | 0.02 | mg/L | AO 0.05 | <0.02 | <0.02 |
| | Tannin & Lignin | 0.1 | mg/L | | <0.1 | <0.1 |

Guideline = ODWSOG

*** = Guideline Exceedence**

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).
 Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Kollaard Associates Inc.
 210 Prescott St., Box 189
 Kemptville, ON
 K0G 1J0
 Attention: Ms. Colleen Vermeersch
 PO#: 170035
 Invoice to: Kollaard Associates Inc.

Report Number: 1709240
 Date Submitted: 2017-06-09
 Date Reported: 2017-06-16
 Project: 170035
 COC #: 190936

QC Summary

| Analyte | Blank | QC % Rec | QC Limits |
|--|------------|----------|-----------|
| Run No 328025 Analysis/Extraction Date 2017-06-09 Analyst H_D | | | |
| Method C SM2130B | | | |
| Turbidity | <0.1 NTU | 99 | 70-130 |
| Run No 328037 Analysis/Extraction Date 2017-06-09 Analyst SKH | | | |
| Method M SM3120B-3500C | | | |
| Calcium | <1 mg/L | 95 | 90-110 |
| Potassium | <1 mg/L | 94 | 87-113 |
| Magnesium | <1 mg/L | 94 | 76-124 |
| Sodium | <2 mg/L | 95 | 82-118 |
| Run No 328051 Analysis/Extraction Date 2017-06-09 Analyst H_D | | | |
| Method C SM4500-NO3-F | | | |
| N-NO2 | <0.10 mg/L | 107 | 80-120 |
| N-NO3 | <0.10 mg/L | 108 | 80-120 |
| Run No 328101 Analysis/Extraction Date 2017-06-12 Analyst SKH | | | |
| Method EPA 200.8 | | | |
| Iron | <0.03 mg/L | 95 | 91-109 |
| Manganese | <0.01 mg/L | 98 | 92.9-107 |
| Run No 328114 Analysis/Extraction Date 2017-06-12 Analyst MAG | | | |

Guideline = ODWSOG

*** = Guideline Exceedence**

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).
 Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Kollaard Associates Inc.
 210 Prescott St., Box 189
 Kemptville, ON
 K0G 1J0
 Attention: Ms. Colleen Vermeersch
 PO#: 170035
 Invoice to: Kollaard Associates Inc.

Report Number: 1709240
 Date Submitted: 2017-06-09
 Date Reported: 2017-06-16
 Project: 170035
 COC #: 190936

QC Summary

| Analyte | Blank | QC % Rec | QC Limits |
|--|-------------|----------|-----------|
| Method C SM2120C | | | |
| Colour | <2 TCU | 95 | 90-110 |
| Run No 328249 Analysis/Extraction Date 2017-06-13 Analyst H_D | | | |
| Method C SM4500-H+B | | | |
| Alkalinity (CaCO3) | <5 mg/L | 100 | 90-110 |
| Conductivity | <5 uS/cm | 99 | 90-110 |
| F | <0.10 mg/L | 101 | 90-110 |
| pH | 5.89 | 99 | 90-110 |
| Run No 328360 Analysis/Extraction Date 2017-06-13 Analyst AET | | | |
| Method SM 4110 | | | |
| Chloride | <1 mg/L | 104 | 90-110 |
| SO4 | <1 mg/L | 107 | 90-110 |
| Run No 328373 Analysis/Extraction Date 2017-06-14 Analyst AET | | | |
| Method SUBCONTRACT P-INORG | | | |
| DOC | <0.5 mg/L | 92 | |
| N-NH3 | <0.01 mg/L | 96 | |
| Phenols | <0.001 mg/L | 96 | 69-132 |
| S2- | <0.02 mg/L | 96 | |

Guideline = ODWSOG

*** = Guideline Exceedence**

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).
 Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Kollaard Associates Inc.
 210 Prescott St., Box 189
 Kemptville, ON
 K0G 1J0
 Attention: Ms. Colleen Vermeersch
 PO#: 170035
 Invoice to: Kollaard Associates Inc.

Report Number: 1709240
 Date Submitted: 2017-06-09
 Date Reported: 2017-06-16
 Project: 170035
 COC #: 190936

QC Summary

| Analyte | Blank | QC % Rec | QC Limits |
|--|-----------|----------|-----------|
| Tannin & Lignin | <0.1 mg/L | 100 | |
| Total Kjeldahl Nitrogen | <0.1 mg/L | 99 | 81-126 |
| Run No 328434 Analysis/Extraction Date 2017-06-16 Analyst AET | | | |
| Method C Ion Balance | | | |
| Ion Balance | | | |
| Method C SM2340B | | | |
| Hardness as CaCO3 | | | |
| Method C SM2540 | | | |
| TDS (COND - CALC) | | | |

Guideline = ODWSOG

* = **Guideline Exceedence**

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).
 Results relate only to the parameters tested on the samples submitted.
 Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

OFFICIAL CERTIFICATE OF ANALYSIS : 3894495**WORK REQUEST : 100279175****Report Date : 2024-05-06**

Kollaard Associates Inc.
210 Prescott St., Box 189
Kemptville, ON
K0G 1J0
Attention : Colleen Vermeersch

Reception Date : 2024-05-02
Project : 230156
Sampler : NA
PO Number : Not Applicable
Temperature : 9 °C

| Analysis | Quantity | External Method |
|---------------------------------------|----------|--------------------------|
| E.Coli and Total Coliforms (DC Plate) | 1 | Modified from MECP E3407 |
| Heterotrophic Plate Count (mHPC) | 1 | Modified from SM 9215 D |

Criteria :

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

Sample status upon receipt :

7668653

Compliant

Notes :

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

Legend :

RL : Reporting limit

QC : Reference material (QC)

N/A : Not applicable

1 : Results in annex

* : Analysis conducted by external subcontracting

^ : Analysis not accredited

OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Kollaard Associates Inc.
Project : 230156

Reception Date: 2024-05-02

| | | Eurofins Sample No : | | 7668653 | | | | | |
|--|----|--------------------------------|----------|----------------|---|---|--|--|--|
| | | Matrix : | | Drinking water | | | | | |
| | | Sampling Date : | | 2024-05-01 | | | | | |
| | | Client Sample Identification : | | 6622 Bank St | | | | | |
| Microbiology | RL | Unit | Criteria | | | | | | |
| | | | A | B | C | | | | |
| E.Coli and Total Coliforms (DC Plate) | | | | | | | | | |
| Escherichia coli (DC) | 0 | CFU/100mL | 0 | | | 0 | | | |
| Total Coliforms (DC) | 0 | CFU/100mL | 0 | | | 0 | | | |
| Heterotrophic Plate Count (mHPC) | 0 | CFU/1 mL | | | | 2 | | | |

Approved by : 
 Emma-Dawn Ferguson,
 Environmental Chemist

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Kollaard Associates Inc.
 Project : 230156

Reception Date: 2024-05-02

| Parameter | Unit | RL | Blank | QC | | Matrix Spike | | Duplicate | |
|---|-----------|----|-------|------------|---------|--------------|---------|--|---------|
| | | | | Recovery % | Range % | Recovery % | Range % | RPD % | Range % |
| E.Coli and Total Coliforms (DC Plate) | | | | | | | | | |
| <i>Method : Total Coliforms and E.Coli by MF (Water, DC plate). Internal method: OTT-M-BAC-WI45296.</i> | | | | | | | | | |
| Escherichia coli (DC) | CFU/100mL | 0 | 0 | | | | | - | 0-30 |
| Total Coliforms (DC) | CFU/100mL | 0 | 0 | | | | | - | 0-30 |
| Associated Samples : 7668653 | | | | | | | | Prep Date: 2024-05-02 Analysis Date: 2024-05-03 | |
| <i>Method : Heterotrophic Plate Count by MF (mHPC Media). Internal method: OTT-M-BAC-WI45296.</i> | | | | | | | | | |
| Heterotrophic Plate Count (mHPC) | CFU/1 mL | 0 | 0 | | | | | 0 | 0-30 |
| Associated Samples : 7668653 | | | | | | | | Prep Date: 2024-05-02 Analysis Date: 2024-05-04 | |

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



DRINKING WATER CHAIN-OF-CUSTODY

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

Eurofins Waterworks #:

100279175



Printed On : 2024-05-02 15:43:42

| CLIENT INFORMATION | | | | WATERWORKS INFORMATION | | | |
|---|--|------|--|------------------------|--|------------|--|
| Company: Kollaard Associates Inc. | | | | Waterworks Name: | | | |
| Contact: Colleen Vermeersch | | | | Waterworks #: | | | |
| Address: 210 Prescott St, Kempville, On K0G 1J0 | | | | Contact: | | | |
| Telephone: 613-860-0923 ext230 | | Fax: | | Address: | | Telephone: | |
| Email #1: | | #2: | | Cell Phone: | | Fax: | |
| Project: 230156 | | | | Quote #: 170314 | | | |
| PO #: | | | | Email #1: | | | |
| | | | | #2: | | | |

| REGULATION/GUIDELINE REQUIRED | | | | TURN-AROUND TIME (Business Days) | | | | |
|---|--|--|--|--|--|--|---|---|
| <input type="checkbox"/> O. Reg 170 | <input type="checkbox"/> O. Reg 170 15.1 | <input checked="" type="checkbox"/> ODWSOG | <input checked="" type="checkbox"/> Private Well | <input type="checkbox"/> None | <input type="checkbox"/> 1 Day* (100%) | <input type="checkbox"/> 2 Day** (50%) | <input type="checkbox"/> 3-5 Days (25%) | <input checked="" type="checkbox"/> 5-7 Days (Standard) |
| <input type="checkbox"/> O. Reg 318/319 | <input type="checkbox"/> O. Reg 243 | <input type="checkbox"/> GCDWQ | <input type="checkbox"/> Other: | Please contact the laboratory in advance to determine rush availability. Surcharges may apply to rush service. Note that some tests (i.e. O. Reg. 170 Schedule 24 pesticides) may take up to 3 weeks to analyze. Please see notes (on reverse) about TAT policies. | | | | |

| The optimal temperature conditions during transport must be less than 10°C. Sample(s) cannot be frozen. Note that for drinking water samples, all exceedances will be reported where (and how) the application legislation requires. The COC must be complete upon submission of the samples, there will be a \$25 surcharge if required information is missing (required fields are shaded in grey). | | Sample Details | | | | | | Sample Analysis Required | | | | Field Measurements | | | Sample RN# (Lab Use Only) |
|--|---------------------|------------------------------|-----------------------------|---------------------------------------|-----------------|--------------------|--|--------------------------|-------------------------------|-------------------------|-------------|--------------------|---------------|-----------------|------------------------------|
| | | Sample Type Code (see below) | Resample? Y = Yes N = No | MOE/MOH Reportable? Y = Yes N = No | # of Containers | SPL Code/Watertrax | Sample Location (i.e. Kitchen, POE) | Subdivision parameters | Kollaard Subdivision/bacteria | Kollaard Special Metals | true colour | Total Chlorine | Free Chlorine | Field Turbidity | |
| Sample ID | Date/Time Collected | | | | | | | | | | | | | | |
| 6622 Bank St | May-01 / 10:00 | PW | N | N | 8 | wellhead | ✓ | ✓ | ✓ | ✓ | - | - | - | 7668653 | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

Sample Type Codes for Drinking Water: RW = Raw Water, TW = Treated Water at Point of Entry to distribution, TW-NT = Untreated Water at Point of Entry to distribution, DW = Distribution, RP = Residential Plumbing, NRP = Non-Residential Plumbing, S = Standing, F = Flushed, PW = Private Well

| PRINT | SIGN | DATE/TIME | TEMP (°C) | COMMENTS: |
|--------------------------|--------------------|--------------|-----------|--|
| Sampled By: Connor Ibach | | | | Sample for metals were field filtered using 0.45 micron filter |
| Relinquished By: | | | | |
| Received By: | <i>[Signature]</i> | 5/1/24 15:55 | 9 | |

OFFICIAL CERTIFICATE OF ANALYSIS : 3900285

WORK REQUEST : 100279205

Report Date : 2024-05-09

Kollaard Associates Inc.
 210 Prescott St., Box 189
 Kemptville, ON
 K0G 1J0
 Attention : Colleen Vermeersch

Reception Date : 2024-05-02
 Project : 230156
 Sampler : NA
 PO Number : Not Applicable
 Temperature : 9 °C

| Analysis | Quantity | External Method |
|--|----------|--|
| Alkalinity (Water, Automated) | 1 | Modified from SM 2320 B |
| Ammonia, Total (Water, Colorimetry) | 1 | Modified from EPA 350.1 |
| Chloride (Water, IC) | 1 | Modified from SM 4110 B and C |
| Colour, Apparent (Water, Spectrophotometry) | 1 | Modified from SM 2120 C |
| Colour, True (Water, Spectrophotometry) | 1 | Modified from SM 2120 C |
| Conductivity (Water, Automated) | 1 | Modified from SM 2510 B |
| DOC (Water, IR) | 1 | Modified from SM 5310 B |
| Fluoride (Water, Auto/ISE) | 1 | Modified from SM 4500-F A and 4500-F C |
| Hardness (Water, Calculation Only) | 1 | SM 2340 B |
| Ion Balance (Water, Calculation) | 1 | Modified from SM1030 E |
| Lab Filtration (Water, Sample Preparation) | 1 | Lab Prep |
| Metals Scan (Water, ICP/MS) | 1 | Modified from EPA 200.8 |
| Metals Scan (Water, ICP/OES) | 1 | Modified from SM 3120 B |
| Nitrate (Water, IC) | 1 | Modified from SM 4110 B and C |
| Nitrite (Water, IC) | 1 | Modified from SM 4110 B and C |
| pH (25°C) (Water, Automated) | 1 | Modified from SM 4500-H+ B |
| Phenols (Water, Colorimetry) | 1 | Modified from EPA 420.2 |
| Sulphate (Water, IC) | 1 | Modified from SM 4110 B and C |
| Sulphide (Water, Colorimetry) | 1 | Modified from SM 4500-S2 D |
| Tannin and Lignin (Water, Spec) | 1 | Modified from SM 5550 B |
| TDS (Estimated) | 1 | Modified from SM 2510 A |
| Total Kjeldahl Nitrogen (Water, Colorimetry) | 1 | Modified from EPA 351.2 |
| Turbidity (Water, Turbidimeter) | 1 | Modified from SM 2130 B |

Criteria :

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

Sample status upon receipt :

7668847

Compliant

Certificate Comments :

7668847

Carbon spike not available due to matrix interference. Anions MRL raised due to matrix interference.

Notes :

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

Legend :

RL : Reporting limit

QC : Reference material (QC)

N/A : Not applicable

1 : Results in annex

* : Analysis conducted by external subcontracting

^ : Analysis not accredited

OFFICIAL CERTIFICATE OF ANALYSIS - EXCEEDENCE SUMMARY

Client : Kollaard Associates Inc.
 Project : 230156

Reception Date : 2024-05-02

| Eurofins Sample No | Client Sample Identification | Analyte | Result | Units | Exceeded Criteria | | |
|---|------------------------------|---------------------------------|--------|-------|-------------------|---|---|
| | | | | | A | B | C |
| Hardness (Water, Calculation Only) | | | | | | | |
| 7668847 | 6622 Bank St | Hardness as CaCO3 (Calculation) | 318 | mg/L | 80-100 | | |
| TDS (Estimated) | | | | | | | |
| 7668847 | 6622 Bank St | TDS (Estimated)^ | 683 | mg/L | 500 | | |

OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Kollaard Associates Inc.
Project : 230156

Reception Date: 2024-05-02

| Eurofins Sample No : | | | | | | 7668847 | | | | |
|--------------------------------|-----|------|----------|---|---|----------------|--|--|--|--|
| Matrix : | | | | | | Drinking water | | | | |
| Sampling Date : | | | | | | 2024-05-01 | | | | |
| Client Sample Identification : | | | | | | 6622 Bank St | | | | |
| Anions | RL | Unit | Criteria | | | | | | | |
| | | | A | B | C | | | | | |
| Chloride | 0.5 | mg/L | 250 | | | 104 | | | | |
| Nitrate (as Nitrogen) | 0.1 | mg/L | 10.0 | | | <0.5 | | | | |
| Nitrite (as Nitrogen) | 0.1 | mg/L | 1.0 | | | <0.5 | | | | |
| Sulphate | 1 | mg/L | 500 | | | 113 | | | | |

| Eurofins Sample No : | | | | | | 7668847 | | | | |
|--------------------------------|-----|------|----------|---|---|----------------|--|--|--|--|
| Matrix : | | | | | | Drinking water | | | | |
| Sampling Date : | | | | | | 2024-05-01 | | | | |
| Client Sample Identification : | | | | | | 6622 Bank St | | | | |
| Calculations | RL | Unit | Criteria | | | | | | | |
| | | | A | B | C | | | | | |
| Ion Balance (Calculation)^ | 0.1 | | 1.01 | | | | | | | |

| Eurofins Sample No : | | | | | | 7668847 | | | | |
|---------------------------------|-------|-------|----------|---|---|----------------|--|--|--|--|
| Matrix : | | | | | | Drinking water | | | | |
| Sampling Date : | | | | | | 2024-05-01 | | | | |
| Client Sample Identification : | | | | | | 6622 Bank St | | | | |
| General Chemistry | RL | Unit | Criteria | | | | | | | |
| | | | A | B | C | | | | | |
| Alkalinity (as CaCO3) | 5 | mg/L | 500 | | | 307 | | | | |
| Colour (Apparent) | 2 | TCU | 5 | | | <2 | | | | |
| Colour (True) | 2 | TCU | | | | <2 | | | | |
| Conductivity @ 25°C | 5 | uS/cm | | | | 1050 | | | | |
| Dissolved Organic Carbon | 0.5 | mg/L | 5 | | | 1.8 | | | | |
| Fluoride | 0.1 | mg/L | 1.5 | | | 0.24 | | | | |
| Hardness as CaCO3 (Calculation) | 1 | mg/L | 80-100 | | | 318 | | | | |
| pH @ 25°C | 1 | | 6.5-8.5 | | | 7.80 | | | | |
| Phenols-4AAP | 0.001 | mg/L | | | | <0.001 | | | | |
| Sulphide (S2-) | 0.01 | mg/L | 0.05 | | | <0.01 | | | | |
| Tannin and Lignin | 0.1 | mg/L | | | | 0.4 | | | | |
| TDS (Estimated)^ | 5 | mg/L | 500 | | | 683 | | | | |
| Turbidity | 0.1 | NTU | 5 | | | 0.3 | | | | |

OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Kollaard Associates Inc.
Project : 230156

Reception Date: 2024-05-02

| | | Eurofins Sample No : | | 7668847 | | | | | |
|-------------------------------------|--------|--------------------------------|----------|----------------|---|---------|--|--|--|
| | | Matrix : | | Drinking water | | | | | |
| | | Sampling Date : | | 2024-05-01 | | | | | |
| | | Client Sample Identification : | | 6622 Bank St | | | | | |
| Metals | RL | Unit | Criteria | | | | | | |
| | | | A | B | C | | | | |
| Metals Scan (Water, ICP/MS) | | | | | | | | | |
| Aluminum | 0.01 | mg/L | 0.1 | | | <0.01 | | | |
| Antimony | 0.0005 | mg/L | 0.006 | | | <0.0005 | | | |
| Arsenic | 0.001 | mg/L | 0.01 | | | <0.001 | | | |
| Barium | 0.001 | mg/L | 1 | | | 0.118 | | | |
| Beryllium | 0.0005 | mg/L | | | | <0.0005 | | | |
| Boron | 0.01 | mg/L | 5 | | | 0.17 | | | |
| Cadmium | 0.0001 | mg/L | 0.005 | | | <0.0001 | | | |
| Chromium | 0.001 | mg/L | 0.05 | | | <0.001 | | | |
| Cobalt | 0.0002 | mg/L | | | | <0.0002 | | | |
| Copper | 0.001 | mg/L | 1 | | | 0.057 | | | |
| Iron | 0.03 | mg/L | 0.3 | | | <0.03 | | | |
| Lead | 0.001 | mg/L | 0.01 | | | <0.001 | | | |
| Manganese | 0.01 | mg/L | 0.05 | | | 0.04 | | | |
| Mercury | 0.0001 | mg/L | 0.001 | | | <0.0001 | | | |
| Molybdenum | 0.005 | mg/L | | | | <0.005 | | | |
| Nickel | 0.005 | mg/L | | | | 0.006 | | | |
| Selenium | 0.001 | mg/L | 0.05 | | | <0.001 | | | |
| Silver | 0.0001 | mg/L | | | | <0.0001 | | | |
| Strontium | 0.001 | mg/L | | | | 1.49 | | | |
| Thallium | 0.0001 | mg/L | | | | <0.0001 | | | |
| Uranium | 0.001 | mg/L | 0.02 | | | <0.001 | | | |
| Vanadium | 0.001 | mg/L | | | | <0.001 | | | |
| Zinc | 0.01 | mg/L | 5 | | | 0.07 | | | |
| Metals Scan (Water, ICP/OES) | | | | | | | | | |
| Calcium | 1 | mg/L | | | | 54 | | | |
| Magnesium | 1 | mg/L | | | | 45 | | | |
| Potassium | 1 | mg/L | | | | 6 | | | |
| Sodium | 1 | mg/L | 200 | | | 117 | | | |

| | | Eurofins Sample No : | | 7668847 | | | | | |
|-------------------------|-----|--------------------------------|------------------------------|----------------|------|--|--|--|--|
| | | Matrix : | | Drinking water | | | | | |
| | | Sampling Date : | | 2024-05-01 | | | | | |
| | | Client Sample Identification : | | 6622 Bank St | | | | | |
| Nutrients | RL | Unit | | | | | | | |
| | | | Ammonia (Total, as Nitrogen) | 0.02 | mg/L | | | | |
| Total Kjeldahl Nitrogen | 0.1 | mg/L | 0.200 | | | | | | |

OFFICIAL CERTIFICATE OF ANALYSIS - RESULTS

Client : Kollaard Associates Inc.
 Project : 230156

Reception Date: 2024-05-02

| | | | | | | | | |
|--------------------------------|-----------|----------------|--|--|--|--|--|--|
| Eurofins Sample No : | | 7668847 | | | | | | |
| Matrix : | | Drinking water | | | | | | |
| Sampling Date : | | 2024-05-01 | | | | | | |
| Client Sample Identification : | | 6622 Bank St | | | | | | |
| Sample Preparation | RL | Unit | | | | | | |
| Lab Filtration | | y | | | | | | |

Approved by : 
 Emma-Dawn Ferguson, M.Sc.
 Environmental Chemist

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Kollaard Associates Inc.
Project : 230156

Reception Date: 2024-05-02

| Parameter | Unit | RL | Blank | QC | | Matrix Spike | | Duplicate | |
|--|-------|------|--------|------------|---------|--------------|---------|--|---------|
| | | | | Recovery % | Range % | Recovery % | Range % | RPD % | Range % |
| Alkalinity (Water, Automated) | | | | | | | | | |
| <i>Method : Alkalinity (water, titration to pH 4.5, automated). Internal method: OTT-I-AT-WI45398.</i> | | | | | | | | | |
| Alkalinity (as CaCO ₃) | mg/L | 5 | <5 | 97 | 95-105 | | | 0 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |
| Ammonia, Total (Water, Colorimetry) | | | | | | | | | |
| <i>Method : Ammonia (Water, Colorimetry). Internal method: OTT-I-NUT-WI46201.</i> | | | | | | | | | |
| Ammonia (Total, as Nitrogen) | mg/L | 0.02 | <0.020 | 118 | 80-120 | 108 | 80-120 | 3 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-07 Analysis Date: 2024-05-08 | |
| Chloride (Water, IC) | | | | | | | | | |
| <i>Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.</i> | | | | | | | | | |
| Chloride | mg/L | 0.5 | <0.5 | 100 | 80-120 | 96 | 80-120 | 1 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-07 | |
| Colour, Apparent (Water, Spectrophotometry) | | | | | | | | | |
| <i>Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.</i> | | | | | | | | | |
| Colour (Apparent) | TCU | 2 | <2 | 87 | 39-159 | | | 4 | 0-40 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-06 | |
| Colour, True (Water, Spectrophotometry) | | | | | | | | | |
| <i>Method : Colour (Water, Spectrophotometric). Internal method: OTT-I-SPEC-WI45980.</i> | | | | | | | | | |
| Colour (True) | TCU | 2 | <2 | 87 | 39-159 | | | - | 0-40 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-06 | |
| Conductivity (Water, Automated) | | | | | | | | | |
| <i>Method : Conductivity (Water, Autotitrator). Internal Method: OTT-I-AT-WI45398.</i> | | | | | | | | | |
| Conductivity @ 25°C | uS/cm | 5 | <5 | 99 | 98-102 | | | 0 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |
| DOC (Water, IR) | | | | | | | | | |
| <i>Method : Organic carbon (water, IR, combustion). Internal method: OTT-I-DEM-WI46148.</i> | | | | | | | | | |
| Dissolved Organic Carbon | mg/L | 0.5 | <0.5 | 101 | 84-116 | | | 4 | 0-15 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-07 | |
| Fluoride (Water, Auto/ISE) | | | | | | | | | |
| <i>Method : Fluoride by autotitrator, ion selective electrode. Internal method: OTT-I-AT-WI45398.</i> | | | | | | | | | |
| Fluoride | mg/L | 0.1 | <0.1 | 101 | 90-110 | | | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Kollaard Associates Inc.
Project : 230156

Reception Date: 2024-05-02

| Parameter | Unit | RL | Blank | QC | | Matrix Spike | | Duplicate | |
|--|------|--------|---------|------------|---------|--------------|---------|--|---------|
| | | | | Recovery % | Range % | Recovery % | Range % | RPD % | Range % |
| Metals Scan (Water, ICP/MS) | | | | | | | | | |
| <i>Method : Metals (Water, ICP/MS). Internal method: AMMTFQE1.</i> | | | | | | | | | |
| Aluminum | mg/L | 0.01 | <0.01 | 100 | 80-120 | 97 | 70-130 | - | 0-20 |
| Antimony | mg/L | 0.0005 | <0.0005 | 94 | 80-120 | 88 | 70-130 | - | 0-20 |
| Arsenic | mg/L | 0.001 | <0.001 | 103 | 80-120 | 98 | 70-130 | - | 0-20 |
| Barium | mg/L | 0.001 | <0.001 | 100 | 80-120 | 87 | 70-130 | 3 | 0-20 |
| Beryllium | mg/L | 0.0005 | <0.0005 | 106 | 80-120 | 108 | 70-130 | - | 0-20 |
| Boron | mg/L | 0.01 | <0.01 | 100 | 80-120 | 91 | 70-130 | 0 | 0-20 |
| Cadmium | mg/L | 0.0001 | <0.0001 | 104 | 80-120 | 98 | 70-130 | - | 0-20 |
| Chromium | mg/L | 0.001 | <0.001 | 110 | 80-120 | 96 | 70-130 | - | 0-20 |
| Cobalt | mg/L | 0.0002 | <0.0002 | 110 | 80-120 | 93 | 70-130 | - | 0-20 |
| Copper | mg/L | 0.001 | <0.001 | 110 | 80-120 | 92 | 70-130 | 3 | 0-20 |
| Iron | mg/L | 0.03 | <0.03 | 100 | 80-120 | 96 | 70-130 | - | 0-20 |
| Lead | mg/L | 0.001 | <0.001 | 110 | 80-120 | 92 | 70-130 | - | 0-20 |
| Manganese | mg/L | 0.01 | <0.01 | 100 | 80-120 | 94 | 70-130 | - | 0-20 |
| Mercury | mg/L | 0.0001 | <0.0001 | 96 | 80-120 | 90 | 70-130 | - | 0-20 |
| Molybdenum | mg/L | 0.005 | <0.005 | 100 | 80-120 | 96 | 70-130 | - | 0-20 |
| Nickel | mg/L | 0.005 | <0.005 | 110 | 80-120 | 96 | 70-130 | - | 0-20 |
| Selenium | mg/L | 0.001 | <0.001 | 100 | 80-120 | 93 | 70-130 | - | 0-20 |
| Silver | mg/L | 0.0001 | <0.0001 | 104 | 80-120 | 80 | 70-130 | - | 0-20 |
| Strontium | mg/L | 0.001 | <0.001 | 100 | 80-120 | 89 | 70-130 | 2 | 0-20 |
| Thallium | mg/L | 0.0001 | <0.0001 | 109 | 80-120 | 93 | 70-130 | - | 0-20 |
| Uranium | mg/L | 0.001 | <0.001 | 100 | 80-120 | 93 | 70-130 | - | 0-20 |
| Vanadium | mg/L | 0.001 | <0.001 | 100 | 80-120 | 95 | 70-130 | - | 0-20 |
| Zinc | mg/L | 0.01 | <0.01 | 110 | 80-120 | 95 | 70-130 | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |
| Metals Scan (Water, ICP/OES) | | | | | | | | | |
| <i>Method : Metals (Water, ICP/OES). Internal method: OTT-I-MET-WI48491.</i> | | | | | | | | | |
| Calcium | mg/L | 1 | <1 | 101 | 86-115 | 106 | 70-130 | 0 | 0-20 |
| Magnesium | mg/L | 1 | <1 | 100 | 91-109 | 103 | 70-130 | 0 | 0-20 |
| Potassium | mg/L | 1 | <1 | 100 | 87-113 | 104 | 70-130 | - | 0-20 |
| Sodium | mg/L | 1 | <1 | 99 | 85-115 | 105 | 70-130 | 0 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-02 | |
| Nitrate (Water, IC) | | | | | | | | | |
| <i>Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.</i> | | | | | | | | | |
| Nitrate (as Nitrogen) | mg/L | 0.1 | <0.1 | 97 | 80-120 | 106 | 80-120 | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-07 | |
| Nitrite (Water, IC) | | | | | | | | | |
| <i>Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.</i> | | | | | | | | | |
| Nitrite (as Nitrogen) | mg/L | 0.1 | <0.1 | 95 | 80-120 | | | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-07 | |
| pH (25°C) (Water, Automated) | | | | | | | | | |
| <i>Method : pH (Water, Automated Meter). Internal method: OTT-I-AT-WI45398.</i> | | | | | | | | | |
| pH @ 25°C | | 1 | 5.74 | 100 | 97-103 | | | 0 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |

OFFICIAL CERTIFICATE OF ANALYSIS - QUALITY CONTROL

Client : Kollaard Associates Inc.
Project : 230156

Reception Date: 2024-05-02

| Parameter | Unit | RL | Blank | QC | | Matrix Spike | | Duplicate | |
|--|------|-------|--------|------------|---------|--------------|---------|--|---------|
| | | | | Recovery % | Range % | Recovery % | Range % | RPD % | Range % |
| Phenols (Water, Colorimetry) | | | | | | | | | |
| <i>Method : Phenols (Water, Colorimetry). Internal method: OTT-I-4AAP-WI46150.</i> | | | | | | | | | |
| Phenols-4AAP | mg/L | 0.001 | <0.001 | 112 | 75-125 | 106 | 70-130 | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |
| Sulphate (Water, IC) | | | | | | | | | |
| <i>Method : Anions (Water, Ion Chromatography). Internal method: OTT-I-IC-WI45985.</i> | | | | | | | | | |
| Sulphate | mg/L | 1 | <1 | 90 | 90-110 | 89 | 80-120 | 0 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-06 Analysis Date: 2024-05-07 | |
| Sulphide (Water, Colorimetry) | | | | | | | | | |
| <i>Method : Sulphide, S2- (Water, Colorimetry). Internal method: OTT-I-SPEC-WI45931.</i> | | | | | | | | | |
| Sulphide (S2-) | mg/L | 0.01 | <0.01 | 115 | 80-120 | | | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-08 | |
| Tannin and Lignin (Water, Spec) | | | | | | | | | |
| <i>Method : Tannin and Lignin (Water, Spec), Internal method: OTT-I-SPEC-WI57693.</i> | | | | | | | | | |
| Tannin and Lignin | mg/L | 0.1 | <0.1 | 108 | 80-120 | | | - | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-09 Analysis Date: 2024-05-09 | |
| Total Kjeldahl Nitrogen (Water, Colorimetry) | | | | | | | | | |
| <i>Method : TKN (Water, colorimetry). Internal method: OTT-I-NUT-WI46201.</i> | | | | | | | | | |
| Total Kjeldahl Nitrogen | mg/L | 0.1 | <0.100 | 109 | 70-130 | 115 | 70-130 | 16 | 0-20 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-08 Analysis Date: 2024-05-09 | |
| Turbidity (Water, Turbidimeter) | | | | | | | | | |
| <i>Method : Turbidity (Water, Turbidimeter). Internal method: OTT-I-TUR-WI46288.</i> | | | | | | | | | |
| Turbidity | NTU | 0.1 | <0.1 | 98 | 80-120 | | | 4 | 0-30 |
| Associated Samples : 7668847 | | | | | | | | Prep Date: 2024-05-03 Analysis Date: 2024-05-06 | |

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



CERTIFICATE OF ANALYSIS

| | | | |
|--------------------------------|---|--------------------------------|---|
| Work Order | : WT2410851 | Page | : 1 of 5 |
| Client | : Kollaard Associates Inc. | Laboratory | : ALS Environmental - Waterloo |
| Contact | : Colleen Vermeersch | Account Manager | : Costas Farassoglou |
| Address | : 210 Prescott Street Unit 1 Kemptville ON Canada K0G1J0 | Address | : 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8 |
| Telephone | : 613 860 0923 | Telephone | : 613 225 8279 |
| Project | : 230156 | Date Samples Received | : 02-May-2024 13:50 |
| PO | : 230156 | Date Analysis Commenced | : 06-May-2024 |
| C-O-C number | : ---- | Issue Date | : 08-May-2024 10:46 |
| Sampler | : CLIENT | | |
| Site | : ---- | | |
| Quote number | : SOA 2024 | | |
| No. of samples received | : 1 | | |
| No. of samples analysed | : 1 | | |

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

| <i>Signatories</i> | <i>Position</i> | <i>Laboratory Department</i> |
|--------------------|--|------------------------------|
| Jeremy Gingras | Supervisor - Semi-Volatile Instrumentation | Organics, Waterloo, Ontario |
| Sarah Birch | VOC Section Supervisor | VOC, Waterloo, Ontario |



General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

| <i>Unit</i> | <i>Description</i> |
|-------------|----------------------|
| - | no units |
| µg/L | micrograms per litre |

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.



Analytical Results

| Sub-Matrix: Water | | | | | Client sample ID | 6622 BANK ST | --- | --- | --- | --- |
|-----------------------------------|------------|------------|------|------|-----------------------------|----------------------|-------|-------|-------|-----|
| (Matrix: Water) | | | | | Client sampling date / time | 01-May-2024 10:00 | --- | --- | --- | --- |
| Analyte | CAS Number | Method/Lab | LOR | Unit | WT2410851-001 | ----- | ----- | ----- | ----- | |
| | | | | | Result | --- | --- | --- | --- | |
| Volatile Organic Compounds | | | | | | | | | | |
| Acetone | 67-64-1 | E611D/WT | 20 | µg/L | <20 | --- | --- | --- | --- | |
| Benzene | 71-43-2 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Bromodichloromethane | 75-27-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Bromoform | 75-25-2 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Bromomethane | 74-83-9 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Carbon tetrachloride | 56-23-5 | E611D/WT | 0.20 | µg/L | <0.20 | --- | --- | --- | --- | |
| Chlorobenzene | 108-90-7 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Chloroform | 67-66-3 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dibromochloromethane | 124-48-1 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dibromoethane, 1,2- | 106-93-4 | E611D/WT | 0.20 | µg/L | <0.20 | --- | --- | --- | --- | |
| Dichlorobenzene, 1,2- | 95-50-1 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichlorobenzene, 1,3- | 541-73-1 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichlorobenzene, 1,4- | 106-46-7 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichlorodifluoromethane | 75-71-8 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloroethane, 1,1- | 75-34-3 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloroethane, 1,2- | 107-06-2 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloroethylene, 1,1- | 75-35-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloroethylene, cis-1,2- | 156-59-2 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloroethylene, trans-1,2- | 156-60-5 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloromethane | 75-09-2 | E611D/WT | 1.0 | µg/L | <1.0 | --- | --- | --- | --- | |
| Dichloropropane, 1,2- | 78-87-5 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloropropylene, cis+trans-1,3- | 542-75-6 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Dichloropropylene, cis-1,3- | 10061-01-5 | E611D/WT | 0.30 | µg/L | <0.30 | --- | --- | --- | --- | |
| Dichloropropylene, trans-1,3- | 10061-02-6 | E611D/WT | 0.30 | µg/L | <0.30 | --- | --- | --- | --- | |
| Ethylbenzene | 100-41-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Hexane, n- | 110-54-3 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Methyl ethyl ketone [MEK] | 78-93-3 | E611D/WT | 20 | µg/L | <20 | --- | --- | --- | --- | |
| Methyl isobutyl ketone [MIBK] | 108-10-1 | E611D/WT | 20 | µg/L | <20 | --- | --- | --- | --- | |
| Methyl-tert-butyl ether [MTBE] | 1634-04-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |



Analytical Results

| Sub-Matrix: Water | | | | | Client sample ID | 6622 BANK ST | ---- | ---- | ---- | ---- |
|--|-------------|--------------|------|------|-----------------------------|----------------------|-------|-------|-------|------|
| (Matrix: Water) | | | | | Client sampling date / time | 01-May-2024 10:00 | ---- | ---- | ---- | ---- |
| Analyte | CAS Number | Method/Lab | LOR | Unit | WT2410851-001 | ----- | ----- | ----- | ----- | |
| | | | | | Result | --- | --- | --- | --- | |
| Volatile Organic Compounds | | | | | | | | | | |
| Styrene | 100-42-5 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Tetrachloroethane, 1,1,1,2- | 630-20-6 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Tetrachloroethane, 1,1,2,2- | 79-34-5 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Tetrachloroethylene | 127-18-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Toluene | 108-88-3 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Trichloroethane, 1,1,1- | 71-55-6 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Trichloroethane, 1,1,2- | 79-00-5 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Trichloroethylene | 79-01-6 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Trichlorofluoromethane | 75-69-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Vinyl chloride | 75-01-4 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| Xylene, m+p- | 179601-23-1 | E611D/WT | 0.40 | µg/L | <0.40 | --- | --- | --- | --- | |
| Xylene, o- | 95-47-6 | E611D/WT | 0.30 | µg/L | <0.30 | --- | --- | --- | --- | |
| Xylenes, total | 1330-20-7 | E611D/WT | 0.50 | µg/L | <0.50 | --- | --- | --- | --- | |
| BTEX, total | --- | E611D/WT | 1.0 | µg/L | <1.0 | --- | --- | --- | --- | |
| Hydrocarbons | | | | | | | | | | |
| F1 (C6-C10) | --- | E581.F1-L/WT | 25 | µg/L | <25 | --- | --- | --- | --- | |
| F2 (C10-C16) | --- | E601.SG/WT | 100 | µg/L | <100 | --- | --- | --- | --- | |
| F3 (C16-C34) | --- | E601.SG/WT | 250 | µg/L | <250 | --- | --- | --- | --- | |
| F4 (C34-C50) | --- | E601.SG/WT | 250 | µg/L | <250 | --- | --- | --- | --- | |
| F1-BTEX | --- | EC580/WT | 25 | µg/L | <25 | --- | --- | --- | --- | |
| Hydrocarbons, total (C6-C50) | n/a | EC581SG/WT | 240 | µg/L | <370 | --- | --- | --- | --- | |
| Chromatogram to baseline at nC50 | n/a | E601.SG/WT | - | - | YES | --- | --- | --- | --- | |
| Hydrocarbons Surrogates | | | | | | | | | | |
| Bromobenzotrifluoride, 2- (F2-F4 surrogate) | 392-83-6 | E601.SG/WT | 1.0 | % | 93.2 | --- | --- | --- | --- | |
| Dichlorotoluene, 3,4- | 95-75-0 | E581.F1-L/WT | 1.0 | % | 103 | --- | --- | --- | --- | |
| Volatile Organic Compounds Surrogates | | | | | | | | | | |
| Bromofluorobenzene, 4- | 460-00-4 | E611D/WT | 1.0 | % | 104 | --- | --- | --- | --- | |
| Difluorobenzene, 1,4- | 540-36-3 | E611D/WT | 1.0 | % | 98.5 | --- | --- | --- | --- | |

Page : 5 of 5
Work Order : WT2410851
Client : Kollaard Associates Inc.
Project : 230156



Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.



QUALITY CONTROL INTERPRETIVE REPORT

| | |
|---|---|
| <p>Work Order : WT2410851</p> <p>Client : Kollaard Associates Inc.</p> <p>Contact : Colleen Vermeersch</p> <p>Address : 210 Prescott Street Unit 1 Kemptville ON Canada K0G1J0</p> <p>Telephone : 613 860 0923</p> <p>Project : 230156</p> <p>PO : 230156</p> <p>C-O-C number : ----</p> <p>Sampler : CLIENT</p> <p>Site : ----</p> <p>Quote number : SOA 2024</p> <p>No. of samples received : 1</p> <p>No. of samples analysed : 1</p> | <p>Page : 1 of 5</p> <p>Laboratory : ALS Environmental - Waterloo</p> <p>Account Manager : Costas Farassoglou</p> <p>Address : 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8</p> <p>Telephone : 613 225 8279</p> <p>Date Samples Received : 02-May-2024 13:50</p> <p>Issue Date : 08-May-2024 10:46</p> |
|---|---|

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

- Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
- CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
- DQO: Data Quality Objective.
- LOR: Limit of Reporting (detection limit).
- RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "----" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.



Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water** Evaluation: ✖ = Holding time exceedance ; ✔ = Within Holding Time

| Analyte Group : Analytical Method Container / Client Sample ID(s) | Method | Sampling Date | Extraction / Preparation | | | | Analysis | | | |
|---|-----------|---------------|--------------------------|---------------|--------|------|---------------|---------------|--------|------|
| | | | Preparation Date | Holding Times | | Eval | Analysis Date | Holding Times | | Eval |
| | | | | Rec | Actual | | | Rec | Actual | |
| Hydrocarbons : CCME PHC - F1 by Headspace GC-FID (Low Level) | | | | | | | | | | |
| Glass vial (sodium bisulfate) 6622 BANK ST | E581.F1-L | 01-May-2024 | 07-May-2024 | 14 days | 6 days | ✔ | 07-May-2024 | 14 days | 6 days | ✔ |
| Hydrocarbons : Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID | | | | | | | | | | |
| Amber glass/Teflon lined cap (sodium bisulfate) 6622 BANK ST | E601.SG | 01-May-2024 | 06-May-2024 | 14 days | 5 days | ✔ | 07-May-2024 | 40 days | 1 days | ✔ |
| Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS | | | | | | | | | | |
| Glass vial (sodium bisulfate) 6622 BANK ST | E611D | 01-May-2024 | 07-May-2024 | 14 days | 6 days | ✔ | 07-May-2024 | 14 days | 6 days | ✔ |

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).



Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water** Evaluation: ✖ = QC frequency outside specification; ✔ = QC frequency within specification.

| Quality Control Sample Type | Method | QC Lot # | Count | | Frequency (%) | | |
|--|-----------|----------|-------|---------|---------------|----------|------------|
| | | | QC | Regular | Actual | Expected | Evaluation |
| Analytical Methods | | | | | | | |
| Laboratory Duplicates (DUP) | | | | | | | |
| CCME PHC - F1 by Headspace GC-FID (Low Level) | E581.F1-L | 1430753 | 1 | 5 | 20.0 | 5.0 | ✔ |
| VOCs (Eastern Canada List) by Headspace GC-MS | E611D | 1430751 | 1 | 20 | 5.0 | 5.0 | ✔ |
| Laboratory Control Samples (LCS) | | | | | | | |
| CCME PHC - F1 by Headspace GC-FID (Low Level) | E581.F1-L | 1430753 | 1 | 5 | 20.0 | 5.0 | ✔ |
| Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID | E601.SG | 1430025 | 1 | 10 | 10.0 | 5.0 | ✔ |
| VOCs (Eastern Canada List) by Headspace GC-MS | E611D | 1430751 | 1 | 20 | 5.0 | 5.0 | ✔ |
| Method Blanks (MB) | | | | | | | |
| CCME PHC - F1 by Headspace GC-FID (Low Level) | E581.F1-L | 1430753 | 1 | 5 | 20.0 | 5.0 | ✔ |
| Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID | E601.SG | 1430025 | 1 | 10 | 10.0 | 5.0 | ✔ |
| VOCs (Eastern Canada List) by Headspace GC-MS | E611D | 1430751 | 1 | 20 | 5.0 | 5.0 | ✔ |
| Matrix Spikes (MS) | | | | | | | |
| CCME PHC - F1 by Headspace GC-FID (Low Level) | E581.F1-L | 1430753 | 1 | 5 | 20.0 | 5.0 | ✔ |
| VOCs (Eastern Canada List) by Headspace GC-MS | E611D | 1430751 | 1 | 20 | 5.0 | 5.0 | ✔ |



Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

| Analytical Methods | Method / Lab | Matrix | Method Reference | Method Descriptions |
|--|---|--------|---------------------------------|---|
| CCME PHC - F1 by Headspace GC-FID (Low Level) | E581.F1-L ALS Environmental - Waterloo | Water | CCME PHC in Soil - Tier 1 (mod) | CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements. |
| Silica Gel Treated CCME PHCs - F2-F4sg by GC-FID | E601.SG ALS Environmental - Waterloo | Water | CCME PHC in Soil - Tier 1 (mod) | Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements. |
| VOCs (Eastern Canada List) by Headspace GC-MS | E611D ALS Environmental - Waterloo | Water | EPA 8260D (mod) | Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. |
| F1-BTEX | EC580 ALS Environmental - Waterloo | Water | CCME PHC in Soil - Tier 1 | F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX). |
| SUM F1 to F4 where F2-F4 is SG treated | EC581SG ALS Environmental - Waterloo | Water | CCME PHC in Soil - Tier 1 | Hydrocarbons, total (C6-C50) is the sum of CCME Fraction F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50), where F2-F4 have been treated with silica gel. F4G-sg is not used within this calculation due to overlap with other fractions. |

| Preparation Methods | Method / Lab | Matrix | Method Reference | Method Descriptions |
|---|---|--------|------------------|---|
| VOCs Preparation for Headspace Analysis | EP581 ALS Environmental - Waterloo | Water | EPA 5021A (mod) | Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system. |
| PHCs and PAHs Hexane Extraction | EP601 ALS Environmental - Waterloo | Water | EPA 3511 (mod) | Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction. |



QUALITY CONTROL REPORT

| | | | |
|--------------------------------|---|--------------------------------|---|
| Work Order | : WT2410851 | Page | : 1 of 10 |
| Client | : Kollaard Associates Inc. | Laboratory | : ALS Environmental - Waterloo |
| Contact | : Colleen Vermeersch | Account Manager | : Costas Farassoglou |
| Address | : 210 Prescott Street Unit 1 Kemptville ON Canada K0G1J0 | Address | : 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8 |
| Telephone | : 613 860 0923 | Telephone | : 613 225 8279 |
| Project | : 230156 | Date Samples Received | : 02-May-2024 13:50 |
| PO | : 230156 | Date Analysis Commenced | : 06-May-2024 |
| C-O-C number | : ---- | Issue Date | : 08-May-2024 10:47 |
| Sampler | : CLIENT | | |
| Site | : ---- | | |
| Quote number | : SOA 2024 | | |
| No. of samples received | : 1 | | |
| No. of samples analysed | : 1 | | |

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

| <i>Signatories</i> | <i>Position</i> | <i>Laboratory Department</i> |
|--------------------|--|--------------------------------------|
| Jeremy Gingras | Supervisor - Semi-Volatile Instrumentation | Waterloo Organics, Waterloo, Ontario |
| Sarah Birch | VOC Section Supervisor | Waterloo VOC, Waterloo, Ontario |

Page : 2 of 10
Work Order : WT2410851
Client : Kollaard Associates Inc.
Project : 230156



General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.

CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.



Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

| Sub-Matrix: Water | | | | | Laboratory Duplicate (DUP) Report | | | | | | |
|---|------------------|--------------------------------|------------|--------|-----------------------------------|------|-----------------|------------------|----------------------|------------------|-----------|
| Laboratory sample ID | Client sample ID | Analyte | CAS Number | Method | LOR | Unit | Original Result | Duplicate Result | RPD(%) or Difference | Duplicate Limits | Qualifier |
| Volatile Organic Compounds (QC Lot: 1430751) | | | | | | | | | | | |
| WT2410851-001 | 6622 BANK ST | Acetone | 67-64-1 | E611D | 20 | µg/L | <20 | <20 | 0 | Diff <2x LOR | ---- |
| | | Benzene | 71-43-2 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Bromodichloromethane | 75-27-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Bromoform | 75-25-2 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Bromomethane | 74-83-9 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Carbon tetrachloride | 56-23-5 | E611D | 0.20 | µg/L | <0.20 | <0.20 | 0 | Diff <2x LOR | ---- |
| | | Chlorobenzene | 108-90-7 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Chloroform | 67-66-3 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dibromochloromethane | 124-48-1 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dibromoethane, 1,2- | 106-93-4 | E611D | 0.20 | µg/L | <0.20 | <0.20 | 0 | Diff <2x LOR | ---- |
| | | Dichlorobenzene, 1,2- | 95-50-1 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichlorobenzene, 1,3- | 541-73-1 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichlorobenzene, 1,4- | 106-46-7 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichlorodifluoromethane | 75-71-8 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloroethane, 1,1- | 75-34-3 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloroethane, 1,2- | 107-06-2 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloroethylene, 1,1- | 75-35-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloroethylene, cis-1,2- | 156-59-2 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloroethylene, trans-1,2- | 156-60-5 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloromethane | 75-09-2 | E611D | 1.0 | µg/L | <1.0 | <1.0 | 0 | Diff <2x LOR | ---- |
| | | Dichloropropane, 1,2- | 78-87-5 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Dichloropropylene, cis-1,3- | 10061-01-5 | E611D | 0.30 | µg/L | <0.30 | <0.30 | 0 | Diff <2x LOR | ---- |
| | | Dichloropropylene, trans-1,3- | 10061-02-6 | E611D | 0.30 | µg/L | <0.30 | <0.30 | 0 | Diff <2x LOR | ---- |
| | | Ethylbenzene | 100-41-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Hexane, n- | 110-54-3 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Methyl ethyl ketone [MEK] | 78-93-3 | E611D | 20 | µg/L | <20 | <20 | 0 | Diff <2x LOR | ---- |
| | | Methyl isobutyl ketone [MIBK] | 108-10-1 | E611D | 20 | µg/L | <20 | <20 | 0 | Diff <2x LOR | ---- |
| | | Methyl-tert-butyl ether [MTBE] | 1634-04-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Styrene | 100-42-5 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Tetrachloroethane, 1,1,1,2- | 630-20-6 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |



Sub-Matrix: **Water**

Laboratory Duplicate (DUP) Report

| Laboratory sample ID | Client sample ID | Analyte | CAS Number | Method | LOR | Unit | Original Result | Duplicate Result | RPD(%) or Difference | Duplicate Limits | Qualifier |
|---|------------------|-----------------------------|-------------|-----------|-------|-------|-----------------|------------------|----------------------|------------------|-----------|
| Volatile Organic Compounds (QC Lot: 1430751) - continued | | | | | | | | | | | |
| WT2410851-001 | 6622 BANK ST | Tetrachloroethane, 1,1,2,2- | 79-34-5 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Tetrachloroethylene | 127-18-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Toluene | 108-88-3 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Trichloroethane, 1,1,1- | 71-55-6 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Trichloroethane, 1,1,2- | 79-00-5 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Trichloroethylene | 79-01-6 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Trichlorofluoromethane | 75-69-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Vinyl chloride | 75-01-4 | E611D | 0.50 | µg/L | <0.50 | <0.50 | 0 | Diff <2x LOR | ---- |
| | | Xylene, m+p- | 179601-23-1 | E611D | 0.40 | µg/L | <0.40 | <0.40 | 0 | Diff <2x LOR | ---- |
| Xylene, o- | 95-47-6 | E611D | 0.30 | µg/L | <0.30 | <0.30 | 0 | Diff <2x LOR | ---- | | |
| Hydrocarbons (QC Lot: 1430753) | | | | | | | | | | | |
| WT2410851-001 | 6622 BANK ST | F1 (C6-C10) | ---- | E581.F1-L | 25 | µg/L | <25 | <25 | 0 | Diff <2x LOR | ---- |



Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Water

| Analyte | CAS Number | Method | LOR | Unit | Result | Qualifier |
|--|------------|--------|-----|------|--------|-----------|
| Volatile Organic Compounds (QCLot: 1430751) | | | | | | |
| Acetone | 67-64-1 | E611D | 20 | µg/L | <20 | --- |
| Benzene | 71-43-2 | E611D | 0.5 | µg/L | <0.50 | --- |
| Bromodichloromethane | 75-27-4 | E611D | 0.5 | µg/L | <0.50 | --- |
| Bromoform | 75-25-2 | E611D | 0.5 | µg/L | <0.50 | --- |
| Bromomethane | 74-83-9 | E611D | 0.5 | µg/L | <0.50 | --- |
| Carbon tetrachloride | 56-23-5 | E611D | 0.2 | µg/L | <0.20 | --- |
| Chlorobenzene | 108-90-7 | E611D | 0.5 | µg/L | <0.50 | --- |
| Chloroform | 67-66-3 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dibromochloromethane | 124-48-1 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dibromoethane, 1,2- | 106-93-4 | E611D | 0.2 | µg/L | <0.20 | --- |
| Dichlorobenzene, 1,2- | 95-50-1 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichlorobenzene, 1,3- | 541-73-1 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichlorobenzene, 1,4- | 106-46-7 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichlorodifluoromethane | 75-71-8 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloroethane, 1,1- | 75-34-3 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloroethane, 1,2- | 107-06-2 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloroethylene, 1,1- | 75-35-4 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloroethylene, cis-1,2- | 156-59-2 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloroethylene, trans-1,2- | 156-60-5 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloromethane | 75-09-2 | E611D | 1 | µg/L | <1.0 | --- |
| Dichloropropane, 1,2- | 78-87-5 | E611D | 0.5 | µg/L | <0.50 | --- |
| Dichloropropylene, cis-1,3- | 10061-01-5 | E611D | 0.3 | µg/L | <0.30 | --- |
| Dichloropropylene, trans-1,3- | 10061-02-6 | E611D | 0.3 | µg/L | <0.30 | --- |
| Ethylbenzene | 100-41-4 | E611D | 0.5 | µg/L | <0.50 | --- |
| Hexane, n- | 110-54-3 | E611D | 0.5 | µg/L | <0.50 | --- |
| Methyl ethyl ketone [MEK] | 78-93-3 | E611D | 20 | µg/L | <20 | --- |
| Methyl isobutyl ketone [MIBK] | 108-10-1 | E611D | 20 | µg/L | <20 | --- |
| Methyl-tert-butyl ether [MTBE] | 1634-04-4 | E611D | 0.5 | µg/L | <0.50 | --- |
| Styrene | 100-42-5 | E611D | 0.5 | µg/L | <0.50 | --- |
| Tetrachloroethane, 1,1,1,2- | 630-20-6 | E611D | 0.5 | µg/L | <0.50 | --- |
| Tetrachloroethane, 1,1,2,2- | 79-34-5 | E611D | 0.5 | µg/L | <0.50 | --- |
| Tetrachloroethylene | 127-18-4 | E611D | 0.5 | µg/L | <0.50 | --- |



Sub-Matrix: **Water**

| Analyte | CAS Number | Method | LOR | Unit | Result | Qualifier |
|--|-------------|-----------|-----|------|--------|-----------|
| Volatile Organic Compounds (QCLot: 1430751) - continued | | | | | | |
| Toluene | 108-88-3 | E611D | 0.5 | µg/L | <0.50 | ---- |
| Trichloroethane, 1,1,1- | 71-55-6 | E611D | 0.5 | µg/L | <0.50 | ---- |
| Trichloroethane, 1,1,2- | 79-00-5 | E611D | 0.5 | µg/L | <0.50 | ---- |
| Trichloroethylene | 79-01-6 | E611D | 0.5 | µg/L | <0.50 | ---- |
| Trichlorofluoromethane | 75-69-4 | E611D | 0.5 | µg/L | <0.50 | ---- |
| Vinyl chloride | 75-01-4 | E611D | 0.5 | µg/L | <0.50 | ---- |
| Xylene, m+p- | 179601-23-1 | E611D | 0.4 | µg/L | <0.40 | ---- |
| Xylene, o- | 95-47-6 | E611D | 0.3 | µg/L | <0.30 | ---- |
| Hydrocarbons (QCLot: 1430025) | | | | | | |
| F2 (C10-C16) | ---- | E601.SG | 100 | µg/L | <100 | ---- |
| F3 (C16-C34) | ---- | E601.SG | 250 | µg/L | <250 | ---- |
| F4 (C34-C50) | ---- | E601.SG | 250 | µg/L | <250 | ---- |
| Hydrocarbons (QCLot: 1430753) | | | | | | |
| F1 (C6-C10) | ---- | E581.F1-L | 25 | µg/L | <25 | ---- |



Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Water

| | | | | | Laboratory Control Sample (LCS) Report | | | | |
|--|------------|--------|-----|------|--|--------------|---------------------|------|-----------|
| | | | | | Spike | Recovery (%) | Recovery Limits (%) | | |
| Analyte | CAS Number | Method | LOR | Unit | Target Concentration | LCS | Low | High | Qualifier |
| Volatile Organic Compounds (QCLot: 1430751) | | | | | | | | | |
| Acetone | 67-64-1 | E611D | 20 | µg/L | 100 µg/L | 97.8 | 70.0 | 130 | ---- |
| Benzene | 71-43-2 | E611D | 0.5 | µg/L | 100 µg/L | 98.8 | 70.0 | 130 | ---- |
| Bromodichloromethane | 75-27-4 | E611D | 0.5 | µg/L | 100 µg/L | 104 | 70.0 | 130 | ---- |
| Bromoform | 75-25-2 | E611D | 0.5 | µg/L | 100 µg/L | 90.3 | 70.0 | 130 | ---- |
| Bromomethane | 74-83-9 | E611D | 0.5 | µg/L | 100 µg/L | 99.8 | 60.0 | 140 | ---- |
| Carbon tetrachloride | 56-23-5 | E611D | 0.2 | µg/L | 100 µg/L | 113 | 70.0 | 130 | ---- |
| Chlorobenzene | 108-90-7 | E611D | 0.5 | µg/L | 100 µg/L | 99.9 | 70.0 | 130 | ---- |
| Chloroform | 67-66-3 | E611D | 0.5 | µg/L | 100 µg/L | 105 | 70.0 | 130 | ---- |
| Dibromochloromethane | 124-48-1 | E611D | 0.5 | µg/L | 100 µg/L | 97.6 | 70.0 | 130 | ---- |
| Dibromoethane, 1,2- | 106-93-4 | E611D | 0.2 | µg/L | 100 µg/L | 92.8 | 70.0 | 130 | ---- |
| Dichlorobenzene, 1,2- | 95-50-1 | E611D | 0.5 | µg/L | 100 µg/L | 101 | 70.0 | 130 | ---- |
| Dichlorobenzene, 1,3- | 541-73-1 | E611D | 0.5 | µg/L | 100 µg/L | 103 | 70.0 | 130 | ---- |
| Dichlorobenzene, 1,4- | 106-46-7 | E611D | 0.5 | µg/L | 100 µg/L | 102 | 70.0 | 130 | ---- |
| Dichlorodifluoromethane | 75-71-8 | E611D | 0.5 | µg/L | 100 µg/L | 77.4 | 60.0 | 140 | ---- |
| Dichloroethane, 1,1- | 75-34-3 | E611D | 0.5 | µg/L | 100 µg/L | 87.8 | 70.0 | 130 | ---- |
| Dichloroethane, 1,2- | 107-06-2 | E611D | 0.5 | µg/L | 100 µg/L | 88.5 | 70.0 | 130 | ---- |
| Dichloroethylene, 1,1- | 75-35-4 | E611D | 0.5 | µg/L | 100 µg/L | 104 | 70.0 | 130 | ---- |
| Dichloroethylene, cis-1,2- | 156-59-2 | E611D | 0.5 | µg/L | 100 µg/L | 99.3 | 70.0 | 130 | ---- |
| Dichloroethylene, trans-1,2- | 156-60-5 | E611D | 0.5 | µg/L | 100 µg/L | 88.7 | 70.0 | 130 | ---- |
| Dichloromethane | 75-09-2 | E611D | 1 | µg/L | 100 µg/L | 103 | 70.0 | 130 | ---- |
| Dichloropropane, 1,2- | 78-87-5 | E611D | 0.5 | µg/L | 100 µg/L | 96.4 | 70.0 | 130 | ---- |
| Dichloropropylene, cis-1,3- | 10061-01-5 | E611D | 0.3 | µg/L | 100 µg/L | 97.0 | 70.0 | 130 | ---- |
| Dichloropropylene, trans-1,3- | 10061-02-6 | E611D | 0.3 | µg/L | 100 µg/L | 93.4 | 70.0 | 130 | ---- |
| Ethylbenzene | 100-41-4 | E611D | 0.5 | µg/L | 100 µg/L | 101 | 70.0 | 130 | ---- |
| Hexane, n- | 110-54-3 | E611D | 0.5 | µg/L | 100 µg/L | 84.3 | 70.0 | 130 | ---- |
| Methyl ethyl ketone [MEK] | 78-93-3 | E611D | 20 | µg/L | 100 µg/L | 90.6 | 70.0 | 130 | ---- |
| Methyl isobutyl ketone [MIBK] | 108-10-1 | E611D | 20 | µg/L | 100 µg/L | 91.7 | 70.0 | 130 | ---- |
| Methyl-tert-butyl ether [MTBE] | 1634-04-4 | E611D | 0.5 | µg/L | 100 µg/L | 102 | 70.0 | 130 | ---- |
| Styrene | 100-42-5 | E611D | 0.5 | µg/L | 100 µg/L | 98.0 | 70.0 | 130 | ---- |
| Tetrachloroethane, 1,1,1,2- | 630-20-6 | E611D | 0.5 | µg/L | 100 µg/L | 105 | 70.0 | 130 | ---- |
| Tetrachloroethane, 1,1,2,2- | 79-34-5 | E611D | 0.5 | µg/L | 100 µg/L | 94.4 | 70.0 | 130 | ---- |
| Tetrachloroethylene | 127-18-4 | E611D | 0.5 | µg/L | 100 µg/L | 111 | 70.0 | 130 | ---- |
| Toluene | 108-88-3 | E611D | 0.5 | µg/L | 100 µg/L | 99.4 | 70.0 | 130 | ---- |



Sub-Matrix: **Water**

| | | | | | Laboratory Control Sample (LCS) Report | | | | |
|--|-------------|-----------|-----|------|--|--------------|---------------------|------|-----------|
| | | | | | Spike | Recovery (%) | Recovery Limits (%) | | |
| Analyte | CAS Number | Method | LOR | Unit | Target Concentration | LCS | Low | High | Qualifier |
| Volatile Organic Compounds (QCLot: 1430751) - continued | | | | | | | | | |
| Trichloroethane, 1,1,1- | 71-55-6 | E611D | 0.5 | µg/L | 100 µg/L | 110 | 70.0 | 130 | ---- |
| Trichloroethane, 1,1,2- | 79-00-5 | E611D | 0.5 | µg/L | 100 µg/L | 95.4 | 70.0 | 130 | ---- |
| Trichloroethylene | 79-01-6 | E611D | 0.5 | µg/L | 100 µg/L | 110 | 70.0 | 130 | ---- |
| Trichlorofluoromethane | 75-69-4 | E611D | 0.5 | µg/L | 100 µg/L | 110 | 60.0 | 140 | ---- |
| Vinyl chloride | 75-01-4 | E611D | 0.5 | µg/L | 100 µg/L | 96.3 | 60.0 | 140 | ---- |
| Xylene, m+p- | 179601-23-1 | E611D | 0.4 | µg/L | 200 µg/L | 102 | 70.0 | 130 | ---- |
| Xylene, o- | 95-47-6 | E611D | 0.3 | µg/L | 100 µg/L | 100 | 70.0 | 130 | ---- |
| Hydrocarbons (QCLot: 1430025) | | | | | | | | | |
| F2 (C10-C16) | ---- | E601.SG | 100 | µg/L | 4010 µg/L | 108 | 70.0 | 130 | ---- |
| F3 (C16-C34) | ---- | E601.SG | 250 | µg/L | 8300 µg/L | 109 | 70.0 | 130 | ---- |
| F4 (C34-C50) | ---- | E601.SG | 250 | µg/L | 4360 µg/L | 111 | 70.0 | 130 | ---- |
| Hydrocarbons (QCLot: 1430753) | | | | | | | | | |
| F1 (C6-C10) | ---- | E581.F1-L | 25 | µg/L | 2000 µg/L | 92.3 | 80.0 | 120 | ---- |



Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

| | | | | | Matrix Spike (MS) Report | | | | | |
|--|------------------|--------------------------------|-------------|--------|--------------------------|----------|--------------|---------------------|------|-----------|
| | | | | | Spike | | Recovery (%) | Recovery Limits (%) | | |
| Laboratory sample ID | Client sample ID | Analyte | CAS Number | Method | Concentration | Target | MS | Low | High | Qualifier |
| Volatile Organic Compounds (QCLot: 1430751) | | | | | | | | | | |
| WT2410851-001 | 6622 BANK ST | Acetone | 67-64-1 | E611D | 108 µg/L | 100 µg/L | 108 | 60.0 | 140 | ---- |
| | | Benzene | 71-43-2 | E611D | 97.3 µg/L | 100 µg/L | 97.3 | 60.0 | 140 | ---- |
| | | Bromodichloromethane | 75-27-4 | E611D | 105 µg/L | 100 µg/L | 105 | 60.0 | 140 | ---- |
| | | Bromoform | 75-25-2 | E611D | 90.9 µg/L | 100 µg/L | 90.9 | 60.0 | 140 | ---- |
| | | Bromomethane | 74-83-9 | E611D | 95.7 µg/L | 100 µg/L | 95.7 | 60.0 | 140 | ---- |
| | | Carbon tetrachloride | 56-23-5 | E611D | 109 µg/L | 100 µg/L | 109 | 60.0 | 140 | ---- |
| | | Chlorobenzene | 108-90-7 | E611D | 97.4 µg/L | 100 µg/L | 97.4 | 60.0 | 140 | ---- |
| | | Chloroform | 67-66-3 | E611D | 105 µg/L | 100 µg/L | 105 | 60.0 | 140 | ---- |
| | | Dibromochloromethane | 124-48-1 | E611D | 99.4 µg/L | 100 µg/L | 99.4 | 60.0 | 140 | ---- |
| | | Dibromoethane, 1,2- | 106-93-4 | E611D | 97.8 µg/L | 100 µg/L | 97.8 | 60.0 | 140 | ---- |
| | | Dichlorobenzene, 1,2- | 95-50-1 | E611D | 98.2 µg/L | 100 µg/L | 98.2 | 60.0 | 140 | ---- |
| | | Dichlorobenzene, 1,3- | 541-73-1 | E611D | 99.1 µg/L | 100 µg/L | 99.1 | 60.0 | 140 | ---- |
| | | Dichlorobenzene, 1,4- | 106-46-7 | E611D | 98.2 µg/L | 100 µg/L | 98.2 | 60.0 | 140 | ---- |
| | | Dichlorodifluoromethane | 75-71-8 | E611D | 63.4 µg/L | 100 µg/L | 63.4 | 60.0 | 140 | ---- |
| | | Dichloroethane, 1,1- | 75-34-3 | E611D | 99.9 µg/L | 100 µg/L | 99.9 | 60.0 | 140 | ---- |
| | | Dichloroethane, 1,2- | 107-06-2 | E611D | 103 µg/L | 100 µg/L | 103 | 60.0 | 140 | ---- |
| | | Dichloroethylene, 1,1- | 75-35-4 | E611D | 98.0 µg/L | 100 µg/L | 98.0 | 60.0 | 140 | ---- |
| | | Dichloroethylene, cis-1,2- | 156-59-2 | E611D | 99.5 µg/L | 100 µg/L | 99.5 | 60.0 | 140 | ---- |
| | | Dichloroethylene, trans-1,2- | 156-60-5 | E611D | 92.1 µg/L | 100 µg/L | 92.1 | 60.0 | 140 | ---- |
| | | Dichloromethane | 75-09-2 | E611D | 102 µg/L | 100 µg/L | 102 | 60.0 | 140 | ---- |
| | | Dichloropropane, 1,2- | 78-87-5 | E611D | 98.2 µg/L | 100 µg/L | 98.2 | 60.0 | 140 | ---- |
| | | Dichloropropylene, cis-1,3- | 10061-01-5 | E611D | 100 µg/L | 100 µg/L | 100 | 60.0 | 140 | ---- |
| | | Dichloropropylene, trans-1,3- | 10061-02-6 | E611D | 96.7 µg/L | 100 µg/L | 96.7 | 60.0 | 140 | ---- |
| | | Ethylbenzene | 100-41-4 | E611D | 95.9 µg/L | 100 µg/L | 95.9 | 60.0 | 140 | ---- |
| | | Hexane, n- | 110-54-3 | E611D | 89.0 µg/L | 100 µg/L | 89.0 | 60.0 | 140 | ---- |
| | | Methyl ethyl ketone [MEK] | 78-93-3 | E611D | 100 µg/L | 100 µg/L | 100 | 60.0 | 140 | ---- |
| | | Methyl isobutyl ketone [MIBK] | 108-10-1 | E611D | 102 µg/L | 100 µg/L | 102 | 60.0 | 140 | ---- |
| | | Methyl-tert-butyl ether [MTBE] | 1634-04-4 | E611D | 100 µg/L | 100 µg/L | 100 | 60.0 | 140 | ---- |
| | | Styrene | 100-42-5 | E611D | 95.4 µg/L | 100 µg/L | 95.4 | 60.0 | 140 | ---- |
| | | Tetrachloroethane, 1,1,1,2- | 630-20-6 | E611D | 103 µg/L | 100 µg/L | 103 | 60.0 | 140 | ---- |
| | | Tetrachloroethane, 1,1,2,2- | 79-34-5 | E611D | 98.2 µg/L | 100 µg/L | 98.2 | 60.0 | 140 | ---- |
| | | Tetrachloroethylene | 127-18-4 | E611D | 102 µg/L | 100 µg/L | 102 | 60.0 | 140 | ---- |
| | | Toluene | 108-88-3 | E611D | 95.2 µg/L | 100 µg/L | 95.2 | 60.0 | 140 | ---- |
| | | Trichloroethane, 1,1,1- | 71-55-6 | E611D | 104 µg/L | 100 µg/L | 104 | 60.0 | 140 | ---- |
| | | Trichloroethane, 1,1,2- | 79-00-5 | E611D | 99.4 µg/L | 100 µg/L | 99.4 | 60.0 | 140 | ---- |
| | | Trichloroethylene | 79-01-6 | E611D | 105 µg/L | 100 µg/L | 105 | 60.0 | 140 | ---- |
| | | Trichlorofluoromethane | 75-69-4 | E611D | 100 µg/L | 100 µg/L | 100 | 60.0 | 140 | ---- |
| | | Vinyl chloride | 75-01-4 | E611D | 88.0 µg/L | 100 µg/L | 88.0 | 60.0 | 140 | ---- |
| | | Xylene, m+p- | 179601-23-1 | E611D | 193 µg/L | 200 µg/L | 96.3 | 60.0 | 140 | ---- |
| | | Xylene, o- | 95-47-6 | E611D | 96.4 µg/L | 100 µg/L | 96.4 | 60.0 | 140 | ---- |

Page : 10 of 10
 Work Order : WT2410851
 Client : Kollaard Associates Inc.
 Project : 230156



Sub-Matrix: **Water**

| | | | | | <i>Matrix Spike (MS) Report</i> | | | | | |
|--------------------------------------|-------------------------|----------------|-------------------|---------------|---------------------------------|---------------|---------------------|----------------------------|-------------|------------------|
| | | | | | <i>Spike</i> | | <i>Recovery (%)</i> | <i>Recovery Limits (%)</i> | | |
| <i>Laboratory sample ID</i> | <i>Client sample ID</i> | <i>Analyte</i> | <i>CAS Number</i> | <i>Method</i> | <i>Concentration</i> | <i>Target</i> | <i>MS</i> | <i>Low</i> | <i>High</i> | <i>Qualifier</i> |
| Hydrocarbons (QCLot: 1430753) | | | | | | | | | | |
| WT2410851-001 | 6622 BANK ST | F1 (C6-C10) | ---- | E581.F1-L | 1610 µg/L | 2000 µg/L | 80.7 | 60.0 | 140 | ---- |



www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here (lab use only)

COC Number: 17 -

Page of

Contact and company name below will appear on the final report

Report Format / Distribution

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Company: Kollard Associates (27196)

Select Report Format: F EXCEL EDD (DIGITAL)

Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply

Contact: Colleen Vermeersch

Quality Control (QC) Report with Report Y N

1 Business day [E1 - 100%] Same Day, Weekend or Statutory holiday [E2 - 200%] (Laboratory opening fees may apply)

Phone: 613.860.0923, ext.230

Compare Results to Criteria on Report - provide details below if box checked

EMERGENCY 2 day [P2-50%]

Company address below will appear on the final report

Select Distribution: EMAIL MAIL FAX

Date and Time Required for all E&P TATs: _____

Street: 210 Prescott Street, Unit 1 P.O. Box 189

Email 1 or Fax: colleen@kollard.ca

For tests that can not be performed according to the service level selected, you will be contacted.

City/Province: Kemptonville, Ontario

Email 2

Analy

Postal Code: K0G 1J0

Email 3

Indicate Filtered (F), Preserved (P) or Filled

Invoice To: Same as Report To

Invoice Distribution: EMAIL MAIL FAX

Environmental Division

Company: Kollard Associates Inc.

Select Invoice Distribution: EMAIL MAIL FAX

Waterloo

Contact: admin@kollard.ca

Email 1 or Fax: admin@kollard.ca

Work Order Reference

Project Information

Email 2

WT2410851

ALS Account # / Quote #: Q71021

Oil and Gas Required Fields (client use)

Telephone: + 1 519 886 8910

Job #: _____

Major/Minor Code: _____

Barcode

PO / A/E: 230166

Requisitioner: _____

Routing Code: _____

LSD: _____

Location: _____

Sampler: _____

ALS Lab Work Order # (lab use only): _____

ALS Contact: _____

NUMBER OF CONTAINERS

ALS Sample # (lab use only)

Sample Identification and/or Coordinates (This description will appear on the report)

VOCs

Petroleum Hydrocarbons F1-F4

Table with columns for Date, Time, Sample Type, and other tracking fields.

6822 Bank St

1-May-24

10:00

Water

SAI

Sam.

Drinking Water (DW) Samples (client use)

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Are samples taken from a Regulated DW System? Y N

Ontario Drinking Water Regulation (ODWQS) JAN 1, 2017

Frozen Ice Packs Ice Cubes Cooling Initiated

Are samples for human consumption/ use? Y N

SHIPPING RELEASE (client use)

SIF Observations Yes No Customarily seal intact Yes No

Released by: _____

Date: _____

Time: _____

Received by: _____

Date: 02/05/24

Time: 3:50

Received by: _____

SHIPMENT RELEASE (client use)

INITIAL SHIPMENT RECEPTION (lab use only)

FINAL SHIPMENT RECEPTION (lab use only)

REPER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

DATE: 8-2 3 MAY 24 10:00

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

W1142, 02053

Ryznar Stability Index

$$RSI = 2(pH_s) - pH$$

RSI << 6 → the scale tendency increases as the index decreases

RSI >> 7 → the calcium carbonate formation probably does not lead to a protective corrosion inhibitor film

RSI >> 8 → mild steel corrosion becomes an increasing problem

Langelier Saturation Index

$$LSI = pH - pH_s$$

If LSI is negative → no potential to scale, the water will dissolve CaCO₃

If LSI is positive → scale can form and CaCO₃ precipitation may occur

If LSI is close to zero → borderline scale potential, water quality or temperature change or evaporation could change the index

where pH measured from sample

pH_s = pH at saturation in calcite or calcium carbonate

$$pH_s = (9.3 + A + B) - (C + D)$$

$$A = \frac{\log_{10}[TDS] - 1}{10}$$

$$B = -13.12 \times \log_{10}(\text{°C} + 273) + 34.55$$

$$C = \log_{10}[Ca^{2+} \text{ as } CaCO_3] - 0.4$$

$$D = \log_{10}[\text{alkalinity as } CaCO_3]$$

| | TW1-3hr | TW1-6hr |
|---|---------|---------|
| pH | 7.95 | 7.96 |
| hardness [mg/l as CaCO ₃] | 429 | 427 |
| Alkalinity [mg/l as CaCO ₃] | 313 | 299 |
| total dissolved solids [mg/l] | 722 | 715 |
| temperature (°C) | 8.5 | 8.5 |
| A | 0.18585 | 0.18543 |
| B | 2.41284 | 2.41284 |
| C | 2.23246 | 2.23043 |
| D | 2.49554 | 2.47567 |
| pH _s | 7.1707 | 7.19217 |
| →→ RSI | 6.39139 | 6.42435 |
| →→ LSI | 0.7793 | 0.76783 |



ATTACHMENT D
SEWAGE EFFLUENT DILUTION CALCULATIONS
AND CLIMATE DATA

SEPTIC EFFLUENT DILUTION CALCULATIONS

| | |
|--|------------------------|
| Number of Lots | 1 |
| Gross Site Area | 60190.0 m ² |
| Env. Can. Water Surplus (NPI-Glacial Till) | 379 mm |

Hard Surface Area (Post-Development)

| | | | |
|------------------------------------|------------------------|-------------------|-----------------------|
| Existing Building Area | 2326 m ² | | |
| Proposed Storage Building | 2323 m ² | | |
| Proposed Warehouse Building | 2323 m ² | | |
| Asphalt (C=0.9) | 3015.0 m ² | | |
| gravel area (semi-pervious, C=0.6) | 15480.0 m ² | Total gravel area | 25,800 m ² |

Net Infiltration Area = Gross Site Area - Hard Surface Area (Post-Development)
34723.0 m²

Maximum daily sewage flow 6,450 L/day
2,354 m³/year

Infiltration Reduction Factor:

| | |
|---|-------------|
| Topography (rolling/flat, 2m/km) | 0.15 |
| Soil (med. Combinations of clay and loam) | 0.20 |
| <u>Cover (cultivated)</u> | <u>0.10</u> |
| Total IRF | 0.45 |

| | |
|--|---------|
| Concentration Septic System #1 (Conventional) C ₁ | 40 mg/L |
| Volume Septic System #1 (Conventional) V ₁ | 3250 L |
| Concentration Septic System #2 (Tertiary) C ₂ | 20 mg/L |
| Volume Septic System #2 (Tertiary) V ₂ | 3200 L |

V_{water} = annual volume of precipitation infiltration, available for dilution

$V_{\text{water}} = \text{NIA} \times \text{NPI} \times \text{IRF}$

$V_{\text{water}} = 5922.008 \text{ m}^3/\text{yr}$

V_{sewage} = annual volume of sewage generated

$V_{\text{sewage}} = 2354.25 \text{ m}^3/\text{yr}$

$[\text{NO}_3]_{\text{gw}} = \frac{[\text{NO}_3]_{\text{eff}} \times \text{Daily Flow} \times 365 \text{ days/year}}{V_{\text{water}} + V_{\text{sewage}}}$

8.6 mg/L

Ottawa Intl A WATER BUDGET MEANS FOR THE PERIOD 1939-2021 DC20492

LAT.... 45.32 WATER HOLDING CAPACITY... 75 MM HEAT INDEX... 36.75
 LONG... 75.67 LOWER ZONE..... 45 MM A..... 1.080

| DATE | TEMP (C) | PCPN | RAIN | MELT | PE | AE | DEF | SURP | SNOW | SOIL | ACC P |
|-------|----------|------|------|------|-----|-----|-----|------|------|------|-------|
| 31- 1 | -10.6 | 62 | 12 | 14 | 0 | 0 | 0 | 25 | 83 | 74 | 294 |
| 28- 2 | -9.0 | 56 | 10 | 16 | 1 | 1 | 0 | 26 | 111 | 74 | 350 |
| 31- 3 | -2.8 | 65 | 31 | 77 | 6 | 6 | 0 | 103 | 68 | 75 | 416 |
| 30- 4 | 5.7 | 73 | 68 | 73 | 31 | 31 | 0 | 110 | 0 | 75 | 489 |
| 31- 5 | 13.1 | 75 | 75 | 0 | 80 | 80 | 0 | 14 | 0 | 56 | 565 |
| 30- 6 | 18.3 | 85 | 85 | 0 | 116 | 107 | -9 | 5 | 0 | 29 | 650 |
| 31- 7 | 20.9 | 88 | 88 | 0 | 136 | 103 | -33 | 3 | 0 | 11 | 737 |
| 31- 8 | 19.7 | 84 | 84 | 0 | 118 | 83 | -35 | 1 | 0 | 11 | 822 |
| 30- 9 | 14.8 | 82 | 82 | 0 | 75 | 65 | -10 | 4 | 0 | 24 | 904 |
| 31-10 | 8.3 | 78 | 78 | 0 | 37 | 36 | -1 | 14 | 0 | 52 | 78 |
| 30-11 | 1.2 | 76 | 59 | 8 | 10 | 10 | 0 | 38 | 9 | 71 | 154 |
| 31-12 | -6.9 | 79 | 27 | 14 | 1 | 1 | 0 | 36 | 47 | 74 | 233 |
| AVE | 6.0 TTL | 903 | 699 | 202 | 611 | 523 | -88 | 379 | | | |

Ottawa Intl A STANDARD DEVIATIONS FOR THE PERIOD 1939-2021 DC20492

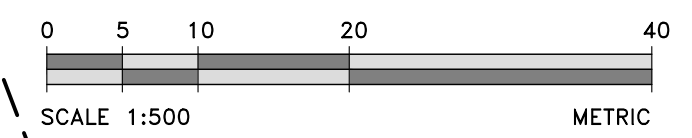
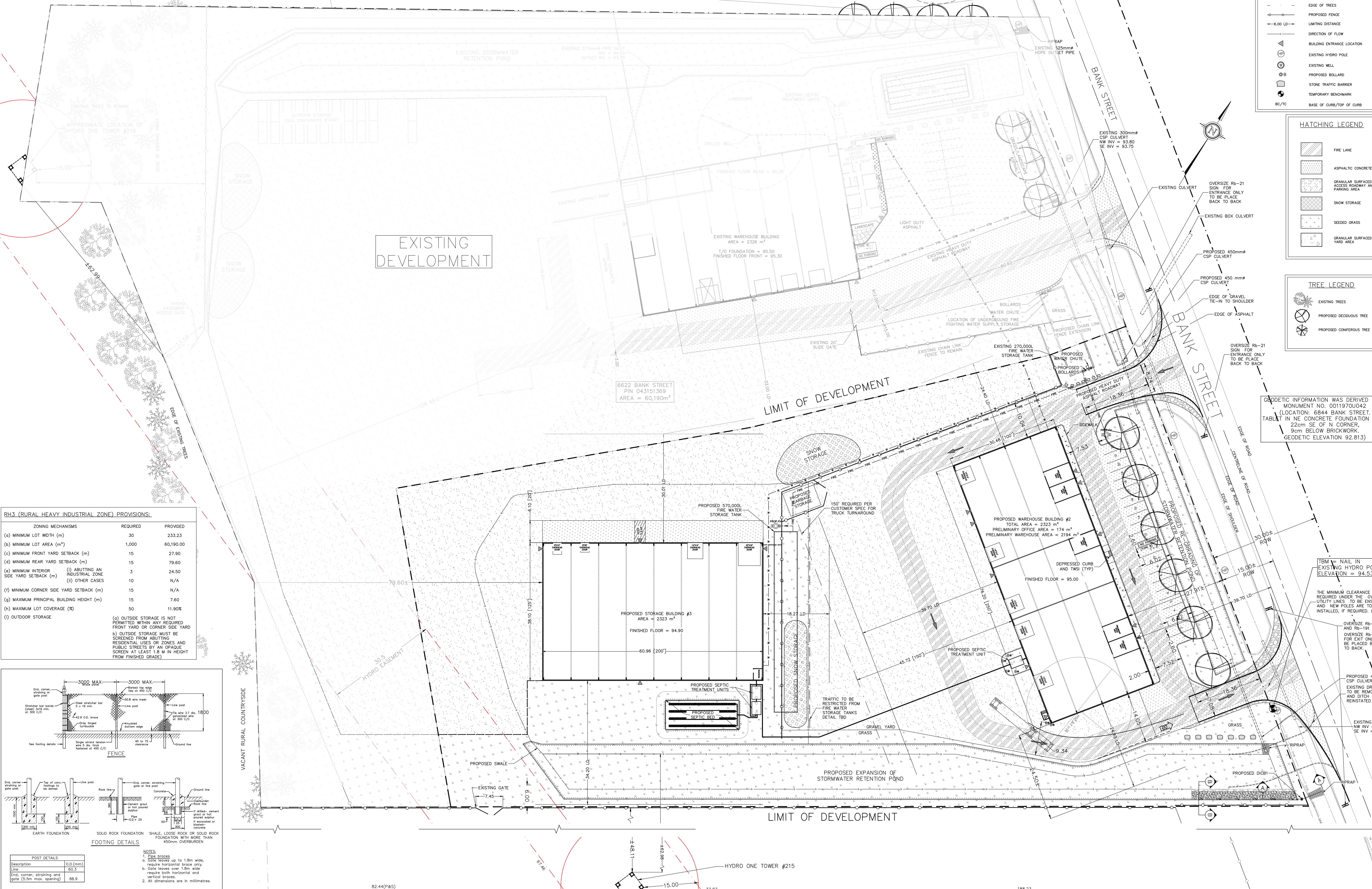
| DATE | TEMP (C) | PCPN | RAIN | MELT | PE | AE | DEF | SURP | SNOW | SOIL | ACC P |
|-------|----------|------|------|------|----|----|-----|------|------|------|-------|
| 31- 1 | 2.9 | 26 | 15 | 17 | 1 | 1 | 0 | 28 | 44 | 3 | 59 |
| 28- 2 | 2.6 | 26 | 14 | 25 | 1 | 1 | 0 | 34 | 59 | 3 | 63 |
| 31- 3 | 2.6 | 28 | 22 | 49 | 5 | 5 | 0 | 55 | 87 | 0 | 71 |
| 30- 4 | 1.8 | 32 | 33 | 88 | 9 | 9 | 0 | 89 | 2 | 2 | 80 |
| 31- 5 | 1.8 | 34 | 34 | 2 | 12 | 12 | 0 | 24 | 0 | 22 | 94 |
| 30- 6 | 1.2 | 38 | 38 | 0 | 8 | 17 | 18 | 16 | 0 | 29 | 105 |
| 31- 7 | 1.2 | 45 | 45 | 0 | 8 | 31 | 33 | 16 | 0 | 22 | 117 |
| 31- 8 | 1.3 | 37 | 37 | 0 | 9 | 29 | 31 | 4 | 0 | 21 | 126 |
| 30- 9 | 1.5 | 39 | 39 | 0 | 8 | 16 | 16 | 15 | 0 | 28 | 132 |
| 31-10 | 1.5 | 37 | 37 | 1 | 7 | 7 | 2 | 21 | 0 | 27 | 37 |
| 30-11 | 1.8 | 27 | 27 | 8 | 4 | 4 | 0 | 32 | 13 | 12 | 45 |
| 31-12 | 3.0 | 30 | 22 | 13 | 1 | 1 | 0 | 30 | 34 | 4 | 55 |



ATTACHMENT E
SITE PLAN (KOLLAARD)

| SITE STATISTICS: | | |
|-----------------------------|-------|----------------|
| TOTAL AREA | 60190 | m ² |
| AREA OF NEW DEVELOPMENT | 22423 | m ² |
| EXISTING BUILDING FOOTPRINT | 2517 | m ² |
| NEW BUILDING FOOTPRINT | 4646 | m ² |
| GROSS FLOOR AREA (TOTAL) | 4561 | m ² |
| WAREHOUSE | 4381 | m ² |
| ACCESSORY OFFICE | 180 | m ² |

| PARKING REQUIREMENTS FOR BUILDING #2: | | |
|---|----------|----------|
| VEHICULAR PARKING | REQUIRED | PROVIDED |
| WAREHOUSE (0.8 per 100m ² OF GFA) | 18 | 18 |
| ACCESSORY OFFICE (2.4 per 100m ² OF GFA) | 4 | 4 |
| | TOTAL | 22 |
| HANDICAP PARKING | 1 TYPE B | 1 |
| | TOTAL | 22 |
| LOADING SPACE | 1 | 5 |



GENERAL LEGEND

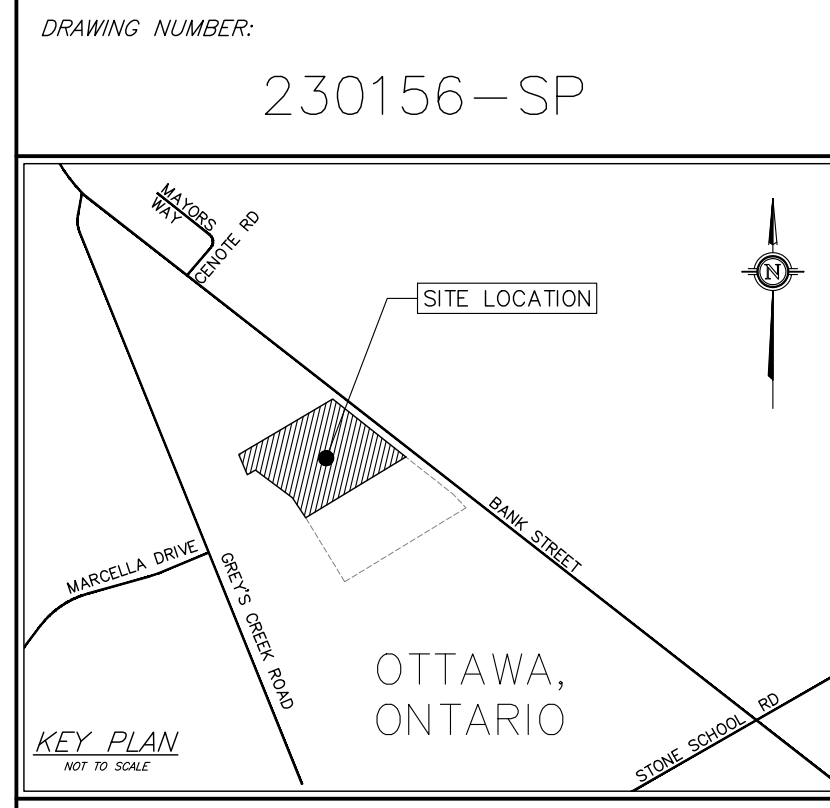
- EXISTING ELEVATION
- PROPOSED/EXISTING ELEVATIONS
- DRAINAGE SLOPE
- CENTRELINE OF ROAD
- EDGE OF ROAD
- TOP OF SLOPE
- PROPERTY LINE
- OVERHEAD WIRE
- EDGE OF TREES
- PROPOSED FENCE
- LIMITING DISTANCE
- DIRECTION OF FLOW
- BUILDING ENTRANCE LOCATION
- EXISTING HYDRO POLE
- EXISTING WELL
- PROPOSED BOLLARD
- STONE TRAFFIC BARRIER
- TEMPORARY BENCHMARK
- BC/TC
- BASE OF CURB/TOP OF CURB

HATCHING LEGEND

- FIRE LANE
- ASPHALTIC CONCRETE
- GRANULAR SURFACED ACCESS ROADWAY AND PARKING AREA
- SNOW STORAGE
- SEEDED GRASS
- GRANULAR SURFACED YARD AREA

TREE LEGEND

- EXISTING TREES
- PROPOSED DECIDUOUS TREE
- PROPOSED CONIFEROUS TREE



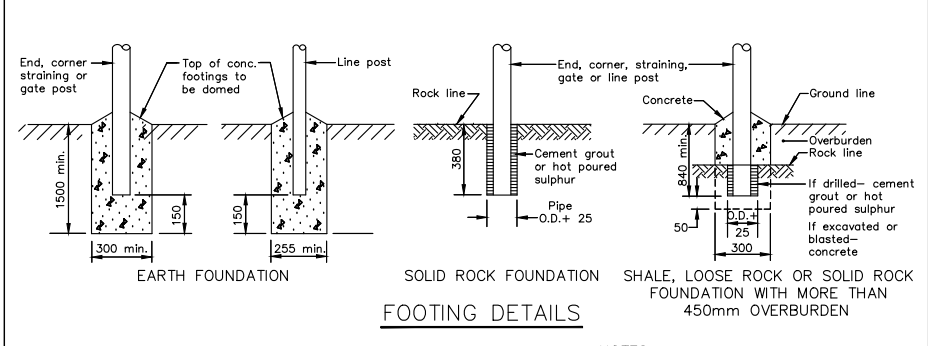
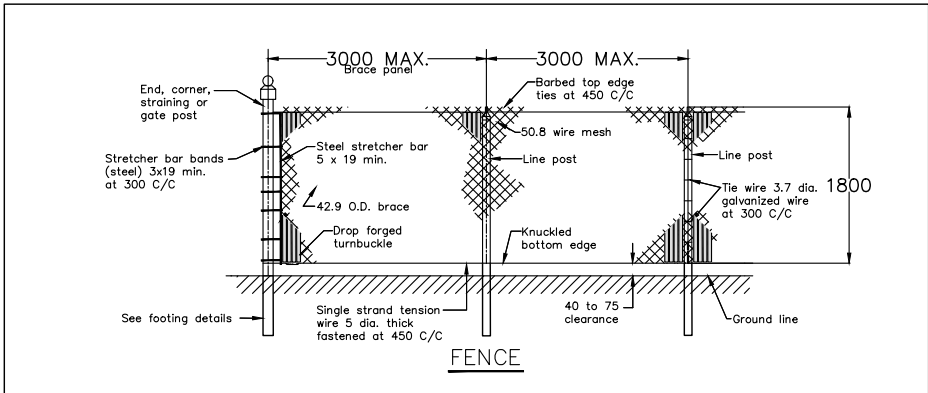
DRAWING: SITE PLAN

- GENERAL NOTES:
- ALL DIMENSIONS ARE IN METRES, UNLESS OTHERWISE SPECIFIED; ALL ELEVATIONS ARE IN METRES AND ARE GEODETIC.
 - GEODETIC INFORMATION WAS DERIVED FROM MONUMENT NO. 0011970U042.
 - TBM = NAIL IN EXISTING HYDRO POLE. ELEVATION = 94.53.
 - THIS IS NOT A LEGAL SURVEY. BOUNDARY INFORMATION WAS DERIVED FROM PLAN 4R-25595.
 - CLIENT IS RESPONSIBLE FOR ACQUIRING ALL NECESSARY PERMITS.
 - CONTRACTOR TO VERIFY THAT APPROPRIATE PERMITS HAVE BEEN ACQUIRED PRIOR TO ANY CONSTRUCTION.
 - CONTRACTOR IS RESPONSIBLE FOR LOCATION AND PROTECTION OF UTILITIES.
 - ALL DIMENSIONS TO BE VERIFIED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION.
 - THIS DRAWING IS NOT FOR CONSTRUCTION UNTIL ALL APPROVALS HAVE BEEN GRANTED.
 - HYDRO SERVICE TO BE INSTALLED ACCORDING TO THE SPECIFICATIONS OF SERVICE PROVIDER AND THE MECHANICAL ENGINEER.
 - ALL MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
 - ANY CHANGES MADE TO THIS PLAN MUST BE VERIFIED AND APPROVED BY KOLLAARD ASSOCIATES, INC.
 - THIS DRAWING IS PART OF KOLLAARD ASSOCIATES DESIGN REPORTS #230156.

RH3 (RURAL HEAVY INDUSTRIAL ZONE) PROVISIONS:

| ZONING MECHANISMS | REQUIRED | PROVIDED |
|--|----------|-----------|
| (a) MINIMUM LOT WIDTH (m) | 30 | 233.23 |
| (b) MINIMUM LOT AREA (m ²) | 1,000 | 60,190.00 |
| (c) MINIMUM FRONT YARD SETBACK (m) | 15 | 27.90 |
| (d) MINIMUM REAR YARD SETBACK (m) | 15 | 79.60 |
| (e) MINIMUM INTERIOR SIDE YARD SETBACK (m) | 3 | 24.50 |
| (f) MINIMUM CORNER SIDE YARD SETBACK (m) | 10 | N/A |
| (g) MAXIMUM PRINCIPAL BUILDING HEIGHT (m) | 15 | 7.60 |
| (h) MAXIMUM LOT COVERAGE (%) | 50 | 11.90% |
| (i) OUTDOOR STORAGE | | |

(a) OUTSIDE STORAGE IS NOT PERMITTED WITHIN ANY REQUIRED FRONT YARD OR CORNER SIDE YARD
 b) OUTSIDE STORAGE MUST BE SCREENED FROM ABUTTING RESIDENTIAL USES OR ZONES AND PUBLIC STREETS BY AN OPAQUE SCREEN AT LEAST 1.8 M IN HEIGHT FROM FINISHED GRADE



POST DETAILS

| Description | O.D. (mm) |
|---|-----------|
| Line | 60.3 |
| End, corner, straining and gate (5.5m max. opening) | 88.9 |

NOTES:
 1. Pipe brackets
 a. Splice located up to 1.8m wide, require horizontal brace only.
 b. Splice located over 1.8m wide, require both horizontal and vertical braces.
 2. All dimensions are in millimetres.

ELEVATION ~ CHAIN-LINK FENCE WITH PRIVACY SLATS (NOT TO SCALE)

| REV | BY | DATE | DESCRIPTION |
|-----|-----|----------------|--------------------------------------|
| 0 | ARK | APRIL 29, 2024 | SUBMITTED FOR SITE PLAN CONSTRUCTION |

Kollaard Associates Engineers

P.O. BOX 189, 210 PRESCOTT ST. (613) 860-0923
 KEMPTVILLE, ONTARIO info@kollaard.ca
 K0G 1J0 FAX (613) 258-0475
 http://www.kollaard.ca

CONSULTANTS:

CLIENT:

CAMM WAREHOUSING AND RENTALS INC.

PROJECT:

PROPOSED WAREHOUSE WITH OFFICE

LOCATION:

6622 BANK STREET, OTTAWA, ON

DESIGNED BY: ARK
 CHECKED BY: SD
 DRAWN BY: ARK
 APPROVED BY: SD
 DATE: 04/29/2024
 SCALE: AS NOTED
 PROJECT NUMBER: 230156

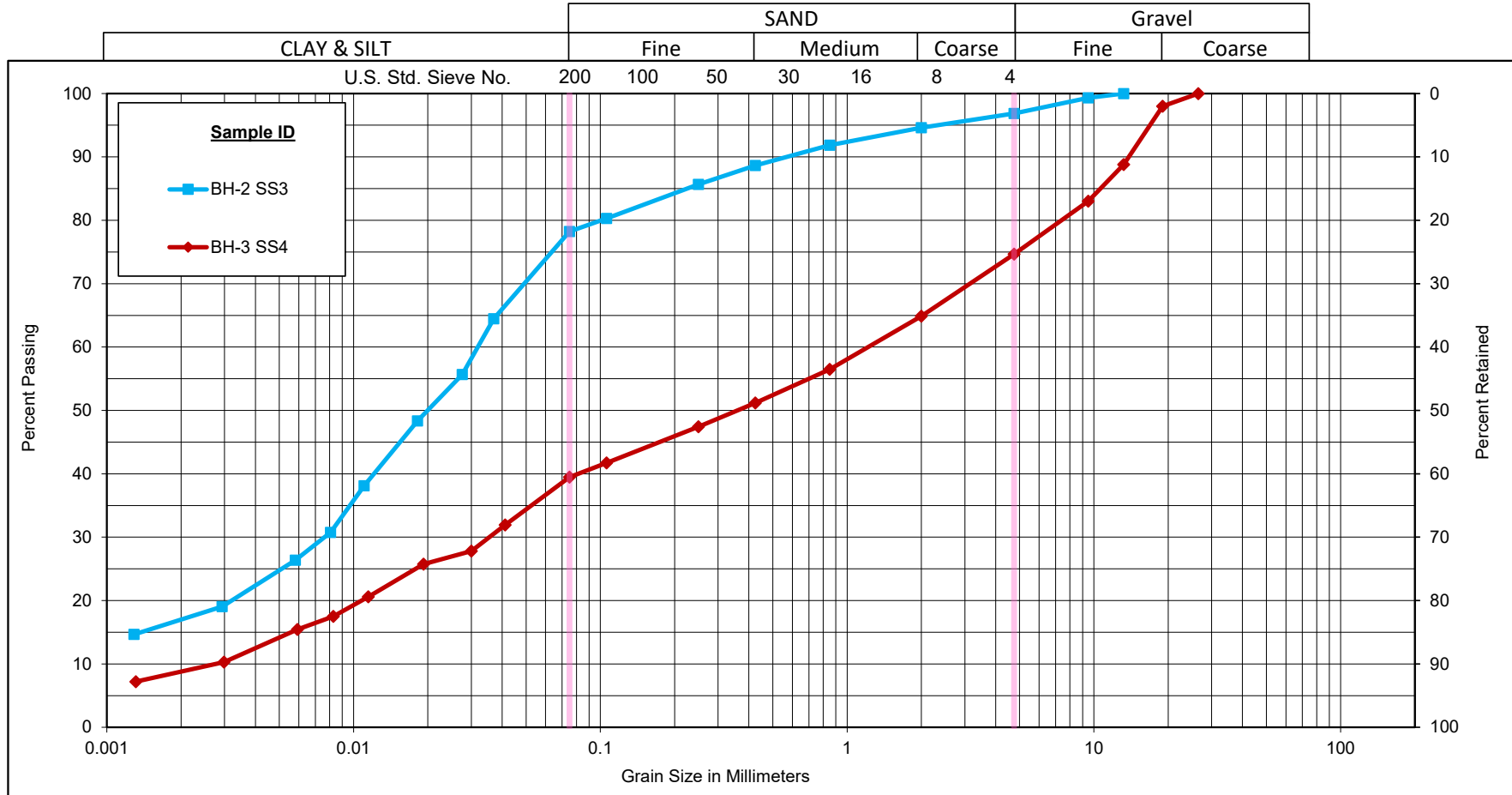
S.E. deWit
 100079612
 LICENCED PROFESSIONAL ENGINEER
 APR 29, 2024
 PROVINCE OF ONTARIO



ATTACHMENT F

HYDROMETER ANALYSIS FOR GLACIAL TILL, BH2 AND BH3

Unified Soil Classification System



| Sample ID | Depth | % Gravel | % Sand | % Silt | % Clay |
|-----------|-----------|----------|--------|--------|--------|
| BH-2 SS3 | 7'6"-9'6" | 3.1 | 18.7 | 61.2 | 17.0 |
| BH-3 SS4 | 10'-12' | 25.3 | 35.2 | 31.5 | 8.0 |



GRAIN SIZE DISTRIBUTION

Kolaard Associates, File #230156
Camm Machinery

Figure No.

Project No. 121625581



Particle-Size Analysis of Soils

LS702

AASHTO T88

| PROJECT DETAILS | | | |
|-----------------|----------------------------------|---------------|--------------------|
| Client: | Kolaard Associates, File #230156 | Project No.: | 121625581 |
| Project: | Camm Machinery | Test Method: | LS702 |
| Material Type: | Soil | Sampled By: | Kolaard Associates |
| Source: | BH-2 | Date Sampled: | May 1, 2024 |
| Sample No.: | SS3 | Tested By: | Brian Prevost |
| Sample Depth | 7'6"-9'6" | Date Tested: | May 6, 2024 |

| WASH TEST DATA | |
|---|-------|
| Oven Dry Mass In Hydrometer Analysis (g) | 63.19 |
| Sample Weight after Hydrometer and Wash (g) | 11.20 |
| Percent Passing No. 200 Sieve (%) | 82.3 |
| Percent Passing Corrected (%) | 77.85 |

| PERCENT LOSS IN SIEVE | |
|--------------------------------|--------|
| Sample Weight Before Sieve (g) | 191.60 |
| Sample Weight After Sieve (g) | 191.50 |
| Percent Loss in Sieve (%) | 0.05 |

| SOIL INFORMATION | | |
|------------------------------------|-------|---|
| Liquid Limit (LL) | | |
| Plasticity Index (PI) | | |
| Soil Classification | | |
| Specific Gravity (G _s) | 2.750 | |
| Sg. Correction Factor (α) | 0.978 | |
| Mass of Dispersing Agent/Litre | 40 | g |

| CALCULATION OF DRY SOIL MASS | |
|--|--------|
| Oven Dried Mass (W _o), (g) | 115.44 |
| Air Dried Mass (W _a), (g) | 117.16 |
| Hygroscopic Corr. Factor (F=W _o /W _a) | 0.9853 |
| Air Dried Mass in Analysis (M _a), (g) | 64.13 |
| Oven Dried Mass in Analysis (M _o), (g) | 63.19 |
| Percent Passing 2.0 mm Sieve (P ₁₀), (%) | 94.62 |
| Sample Represented (W), (g) | 66.78 |

| SIEVE ANALYSIS | | |
|----------------------------|-------------------|-----------------|
| Sieve Size mm | Cum. Wt. Retained | Percent Passing |
| 75.0 | | 100.0 |
| 63.0 | | 100.0 |
| 53.0 | | 100.0 |
| 37.5 | | 100.0 |
| 26.5 | | 100.0 |
| 19.0 | | 100.0 |
| 13.2 | 0.0 | 100.0 |
| 9.5 | 1.3 | 99.3 |
| 4.75 | 6.0 | 96.9 |
| 2.00 | 10.3 | 94.6 |
| Total (C + F) ¹ | 191.50 | |
| 0.850 | 1.86 | 91.84 |
| 0.425 | 3.98 | 88.66 |
| 0.250 | 5.97 | 85.68 |
| 0.106 | 9.56 | 80.31 |
| 0.075 | 10.95 | 78.23 |
| PAN | 11.07 | |

Note 1: (C + F) = Coarse + Fine

| HYDROMETER DETAILS | |
|--|-------|
| Volume of Bulb (V _B), (cm ³) | 63.0 |
| Length of Bulb (L ₂), (cm) | 14.47 |
| Length from '0' Reading to Top of Bulb (L ₁), (cm) | 10.29 |
| Scale Dimension (h _s), (cm/Div) | 0.155 |
| Cross-Sectional Area of Cylinder (A), (cm ²) | 27.25 |
| Meniscus Correction (H _m), (g/L) | 1.0 |

START TIME 10:05 AM

| HYDROMETER ANALYSIS | | | | | | | | | | | |
|---------------------|----------|---------------------------|------------------------------------|------------------------------------|-------------------------------------|---|---------------------------|----------|------------|----------|---------------------|
| Date | Time | Elapsed Time T Mins | H _s Divisions g/L | H _c Divisions g/L | Temperature T _c °C | Corrected Reading R = H _s - H _c g/L | Percent Passing P % | L cm | η Poise | K | Diameter D mm |
| 06-May-24 | 10:06 AM | 1 | 51.0 | 7.0 | 23.0 | 44.0 | 64.46 | 8.30904 | 9.39251 | 0.012818 | 0.03695 |
| 06-May-24 | 10:07 AM | 2 | 45.0 | 7.0 | 23.0 | 38.0 | 55.67 | 9.23904 | 9.39251 | 0.012818 | 0.02755 |
| 06-May-24 | 10:10 AM | 5 | 40.0 | 7.0 | 23.0 | 33.0 | 48.35 | 10.01404 | 9.39251 | 0.012818 | 0.01814 |
| 06-May-24 | 10:20 AM | 15 | 33.0 | 7.0 | 23.0 | 26.0 | 38.09 | 11.09904 | 9.39251 | 0.012818 | 0.01103 |
| 06-May-24 | 10:35 AM | 30 | 28.0 | 7.0 | 23.0 | 21.0 | 30.77 | 11.87404 | 9.39251 | 0.012818 | 0.00806 |
| 06-May-24 | 11:05 AM | 60 | 25.0 | 7.0 | 23.0 | 18.0 | 26.37 | 12.33904 | 9.39251 | 0.012818 | 0.00581 |
| 06-May-24 | 2:15 PM | 250 | 20.0 | 7.0 | 23.0 | 13.0 | 19.0463 | 13.11404 | 9.39251 | 0.012818 | 0.00294 |
| 07-May-24 | 9:16 AM | 1391 | 17.0 | 7.0 | 21.5 | 10.0 | 14.6510 | 13.57904 | 9.73081 | 0.013047 | 0.00129 |

Remarks:

Reviewed By: Brian Prevost
Date: May 8, 2024



Particle-Size Analysis of Soils
 LS702
 AASHTO T88

PROJECT DETAILS

| | | | |
|----------------|----------------------------------|---------------|--------------------|
| Client: | Kolaard Associates, File #230156 | Project No.: | 121625581 |
| Project: | Camm Machinery | Test Method: | LS702 |
| Material Type: | Soil | Sampled By: | Kolaard Associates |
| Source: | BH-3 | Date Sampled: | May 1, 2024 |
| Sample No.: | SS4 | Tested By: | Brian Prevost |
| Sample Depth | 10'-12' | Date Tested: | May 6, 2024 |

WASH TEST DATA

| | |
|---|-------|
| Oven Dry Mass In Hydrometer Analysis (g) | 61.66 |
| Sample Weight after Hydrometer and Wash (g) | 24.49 |
| Percent Passing No. 200 Sieve (%) | 60.3 |
| Percent Passing Corrected (%) | 39.11 |

PERCENT LOSS IN SIEVE

| | |
|--------------------------------|--------|
| Sample Weight Before Sieve (g) | 432.70 |
| Sample Weight After Sieve (g) | 431.70 |
| Percent Loss in Sieve (%) | 0.23 |

SOIL INFORMATION

| | | |
|------------------------------------|-------|---|
| Liquid Limit (LL) | | |
| Plasticity Index (PI) | | |
| Soil Classification | | |
| Specific Gravity (G _s) | 2.750 | |
| Sg. Correction Factor (α) | 0.978 | |
| Mass of Dispersing Agent/Litre | 40 | g |

CALCULATION OF DRY SOIL MASS

| | |
|--|--------|
| Oven Dried Mass (W _o), (g) | 216.14 |
| Air Dried Mass (W _a), (g) | 217.30 |
| Hygroscopic Corr. Factor (F=W _o /W _a) | 0.9947 |
| Air Dried Mass in Analysis (M _a), (g) | 61.99 |
| Oven Dried Mass in Analysis (M _o), (g) | 61.66 |
| Percent Passing 2.0 mm Sieve (P ₁₀), (%) | 64.87 |
| Sample Represented (W), (g) | 95.05 |

SIEVE ANALYSIS

| Sieve Size mm | Cum. Wt. Retained | Percent Passing |
|----------------------------|-------------------|-----------------|
| 75.0 | | 100.0 |
| 63.0 | | 100.0 |
| 53.0 | | 100.0 |
| 37.5 | | 100.0 |
| 26.5 | 0.0 | 100.0 |
| 19.0 | 8.6 | 98.0 |
| 13.2 | 48.4 | 88.8 |
| 9.5 | 73.5 | 83.0 |
| 4.75 | 109.6 | 74.7 |
| 2.00 | 152.0 | 64.9 |
| Total (C + F) ¹ | 431.70 | |
| 0.850 | 7.97 | 56.49 |
| 0.425 | 13.01 | 51.18 |
| 0.250 | 16.59 | 47.42 |
| 0.106 | 22.01 | 41.71 |
| 0.075 | 24.13 | 39.48 |
| PAN | 24.21 | |

Note 1: (C + F) = Coarse + Fine

HYDROMETER DETAILS

| | |
|--|-------|
| Volume of Bulb (V _B), (cm ³) | 63.0 |
| Length of Bulb (L ₂), (cm) | 14.47 |
| Length from '0' Reading to Top of Bulb (L ₁), (cm) | 10.29 |
| Scale Dimension (h _s), (cm/Div) | 0.155 |
| Cross-Sectional Area of Cylinder (A), (cm ²) | 27.25 |
| Meniscus Correction (H _m), (g/L) | 1.0 |

START TIME 10:05 AM

HYDROMETER ANALYSIS

| Date | Time | Elapsed Time T Mins | H _s Divisions g/L | H _c Divisions g/L | Temperature T _c °C | Corrected Reading R = H _s - H _c g/L | Percent Passing P % | L cm | η Poise | K | Diameter D mm |
|----------|----------|---------------------------|------------------------------------|------------------------------------|-------------------------------------|---|---------------------------|----------|------------|----------|---------------------|
| 6-May-24 | 10:06 AM | 1 | 38.0 | 7.0 | 23.0 | 31.0 | 31.91 | 10.32404 | 9.39251 | 0.012818 | 0.04119 |
| 6-May-24 | 10:07 AM | 2 | 34.0 | 7.0 | 23.0 | 27.0 | 27.79 | 10.94404 | 9.39251 | 0.012818 | 0.02999 |
| 6-May-24 | 10:10 AM | 5 | 32.0 | 7.0 | 23.0 | 25.0 | 25.73 | 11.25404 | 9.39251 | 0.012818 | 0.01923 |
| 6-May-24 | 10:20 AM | 15 | 27.0 | 7.0 | 23.0 | 20.0 | 20.59 | 12.02904 | 9.39251 | 0.012818 | 0.01148 |
| 6-May-24 | 10:35 AM | 30 | 24.0 | 7.0 | 23.0 | 17.0 | 17.50 | 12.49404 | 9.39251 | 0.012818 | 0.00827 |
| 6-May-24 | 11:05 AM | 60 | 22.0 | 7.0 | 23.0 | 15.0 | 15.44 | 12.80404 | 9.39251 | 0.012818 | 0.00592 |
| 6-May-24 | 2:15 PM | 250 | 17.0 | 7.0 | 23.0 | 10.0 | 10.29 | 13.57904 | 9.39251 | 0.012818 | 0.00299 |
| 7-May-24 | 9:17 AM | 1392 | 14.0 | 7.0 | 21.5 | 7.0 | 7.21 | 14.04404 | 9.73081 | 0.013047 | 0.00131 |

Remarks:

Reviewed By: Brian Prevost
 Date: May 8, 2024