Hydrogeological Assessment Report – Matheson and Rosedale Subdivision, Part Lot 20 Concession 3, Montague, Ontario



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1.0 Introduction

Cambium Inc. (Cambium) was retained by Smart Homes Ottawa Inc.(the Client) to undertake a hydrogeological assessment for a proposed subdivision development located on Part Lot 20 Concession 3, Montague, at the southeast corner of Matheson Drive and Rosedale Road South in the Township of Montague, Ontario (the Site). The regional location of the Site is outlined on Figure 1 and a Site plan is outlined on Figure 2.

The total area of the Site is approximately 23.53 ha (58.15 acres) and is currently comprised of undeveloped agricultural land. It is proposed that the Site will be developed into 41 new residential lots with minimum areas of 0.4 ha (1 acre). A conceptual site plan of the proposed development is included in Appendix A. There are no municipal water or wastewater services available near the property and therefore, the Site has to be privately serviced.

As such, a hydrogeological assessment was undertaken for the required on-site wastewater services and water supply, in accordance with the Ministry of the Environment Guidelines D-5-4 and D-5-5 (Ministry of the Environment, 1996a; 1996b).

The suitability of the development area for on-site disposal of wastewater was determined by identifying and characterizing the native soils and bedrock, the location of the shallow water table, and surficial slopes across the Site. Additionally, a predictive assessment of the attenuation capacity of Site for the potential nitrate contamination from on-site wastewater systems was conducted.

The water supply assessment included the installation and hydraulic testing of test wells and water quality testing of the aquifer to determine the sustainability of on-site groundwater resources. As per D-5-5 guidelines, for a property with a developable area of more than 15 ha and up to 25 ha, a total of four test wells are required to characterize the water supply aquifer at the Site.

Cambium used the results of the wastewater and water supply assessments to calculate the maximum number of residential lots for the Site considering its specific conditions (i.e., soil type, bedrock depth, terrain, and groundwater characteristics).



2.0 Environmental Features

To assess environmental features, databases maintained by the MECP, Rideau Valley Conservation Authority (RVCA), and Ministry of Natural Resources and Forestry (MNRF) were reviewed.

Based on this information, the Site is situated within the Rideau River tertiary watershed within the Rideau Valley Source Protection Area, under the jurisdiction of the RVCA (Ministry of the Environment, Conservation and Parks, 2023a).

According to the Regulation Map published by the RVCA (2023), the Site does not contain a regulated area per O.Reg. 41/24 (Prohibited Activities, Exemptions and Permits).

The Site is also not located within any Areas of Environmental Significance or Areas of Natural and Scientific Interests identified by the Natural Heritage System database published by the MNRF (2023a). A woodland area is identified in the northeastern portion of the Site (Appendix A).

As per the Source Water Protection Information Atlas published by the MECP (2023a), the Site is situated within a Well Head Protection Area D (WHPA-D) with a vulnerability score of 2, and a Highly Vulnerable Aquifer (HVA) with a vulnerability score of 6 (Appendix A).

Wellhead protection areas are the areas of land surrounding a municipal well which are categorized based on the time it takes for groundwater to travel to the well. Within WHPA-D, contaminated groundwater would take between 5 years and 25 years to reach the protected well (SGBLS, 2015). A vulnerability score of 2 (the second lowest risk category) indicates the area does not pose a significant risk of source water contamination.

HVAs are aquifers that are more sensitive to contamination. In general, a HVA consists of granular materials (e.g., sand and/or gravel) or fractured rock that has a high permeability and is near the surface of the ground. By default, all HVA's have a vulnerability score of 6. Based on test pit results (Section 4.1), soil thickness is less than 1 m across most of the Site, which indicates that the default vulnerability score is appropriate for the property.



3.0 Physical Setting

3.1 Topography and Drainage

Topography at the Site gently slopes from the eastern corner to the western corner of the property (Appendix A). Elevations range from 127 meters above sea level (masl) to 118 masl. Rosedale Creek is located approximately 200 m west of the Site.

Surface runoff at the Site is assumed to follow Site topography and flow west into Rosedale Creek, ultimately discharging into the Rideau River approximately 4 km from Site.

3.2 Physiography

The Site is located in the physiographic region known as the Smiths Falls Limestone Plain. The Plain is described as the largest and most continuous tract of shallow soil over limestone in Southern Ontario and covers an area of approximately 3,626 km². Notable features of the region include old marine beach deposits in areas of higher relief, low drumlins and scattered till, and deep clay deposits (Chapman & Putnam, 1984).

3.3 Overburden Geology

According to Miscellaneous Release – Data 128 from the Ontario Geological Survey (2010), a portion of the western border of the Site consists of silt and clay, minor sand and gravel, and fine-textured glaciomarine deposits. The remainder of the Site consists of a minimal surficial veneer comprised of topsoil overlaying Paleozoic bedrock.

3.4 Bedrock Geology

According to Miscellaneous Release – Data 219 from the Ontario Geological Survey (2007), the Site is underlain by bedrock of the March Formation, part of the Beekmantown Group. The bedrock of the March Formation is described as sandstone, dolomitic sandstone and dolostone.



4.0 Test Pit Investigation

Cambium staff completed a test pit investigation at the Site on January 4th, 2024, to assess subsurface conditions at the Site. A total of 18 test pits, designated as TP01-24 and TP18-24, were advanced on the Site to a predetermined depth of 2 meters below ground surface (mbgs) or when refusal was encountered (Table 1). Test pit locations are shown in Figure 3 and test pit logs are included in Appendix B.

Test Pit	Termination Depth (mbgs)	Termination Material
TP01-24	0.42	Bedrock
TP02-24	2.00	Clay
TP03-24	0.93	Bedrock
TP04-24	0.32	Bedrock
TP05-24	0.14	Bedrock
TP06-24	0.48	Bedrock
TP07-24	0.22	Bedrock
TP08-24	0.34	Bedrock
TP09-24	0.84	Bedrock
TP10-24	0.48	Bedrock
TP11-24	0.64	Bedrock
TP12-24	0.18	Bedrock
TP13-24	1.74	Bedrock
TP14-24	1.08	Bedrock
TP15-24	0.20	Bedrock
TP16-24	0.30	Bedrock
TP17-24	0.27	Bedrock
TP18-24	0.41	Bedrock

Table 1 Test Pit Termination Depths



4.1 Test Pit Logs

Eight test pits consisted of topsoil underlain by bedrock, nine test pits encountered subsurface soils prior to terminating on bedrock, and one test pit was terminated at the predetermined depth of 2 mbgs.

A summary of general lithological details obtained from the investigation is presented below.

Topsoil

Topsoil material was encountered in all test pits, ranging in thickness of 0.12 to 0.48 m, with an average of 0.23 m. The material was described as a dark brown, silty sand with frequent rootlets.

Subsurface Soils

In ten test pits, subsurface soils were encountered below the topsoil which consisted of brown, moist, sand and silt to silty sand with some clay and gravel and trace boulders, ranging in thickness of 0.02 to 0.81 m with an average thickness of 0.24 m. In TP02-24, TP09-24, TP11-24, TP13-24, and TP14-24, the previous subsurface soil was underlain by grey, wet, silty sand with some clay and trace gravel and boulders, ranging in thickness of 0.10 to 1.24 m with an average thickness of 0.28 m. In the remaining eight test pits, subsurface soils were absent beneath the topsoil.

Bedrock

Bedrock was encountered in all test pits except TP02-24 that was ended at the predetermined termination depth. The bedrock at TP10-24 was fractured and large slabs were removed during excavation before refusal at 0.48 mbgs.

Groundwater

The groundwater conditions at the Site generally consisted of dry to moist soils throughout the entire depth, except for TP02-24, TP06-24, and TP14-24, where wet soils were encountered at depths ranging from 0.45 mbgs to 1.90 mbgs. Water seeping into the pits and pooling at the base was observed during the investigation at TP06-24, TP13-24, and TP14-24.



Cambium notes that groundwater levels at the Site may fluctuate seasonally and in response to climatic events.

4.2 Physical Laboratory Testing

Physical laboratory testing, including grain size distribution analysis, was completed on three soil samples to confirm textural classification identified during field logging and obtain percolation rate estimates. Analysis results are based on the Unified Soil Classification System scale. A summary of results is provided in Table 2. Complete laboratory analysis reports are provided in Appendix C.

Test Pit	Depth (mbgs)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	T-time (min/cm)
TP02- 24 GS1	0.25 – 1.0	Silt and Sand some Clay trace Gravel	2	38	46	14	35
TP09- 24 GS 1	0.22 – 0.65	Sand and Silt some Clay trace Gravel	3	43	39	15	35
TP13- 24 GS2	0.5 – 1.74	Silty Sand some Clay some Gravel	13	44	32	11	30



5.0 On-Site Sewage Assessment – Subdivision

As per Guideline D-5-4 (Technical Guideline for Individual On-Site Sewage Systems: Water Quality Risk Assessment) an assessment was completed to determine the feasibility of utilizing on-site sewage disposal for the development.

Guideline D-5-4 indicates that the concentration of nitrate in the effluent plume at the Site boundary must be less the Ontario Drinking Water Quality Standard (ODWQS) of 10 mg/L to prevent contamination of adjacent properties (Ministry of the Environment, 2006). Although natural processes and soil interaction can result in nitrate being attenuated in the receiving aquifer system, the procedure within Guideline D-5-4 states that only dilution can be used as the attenuation mechanism to predict future nitrate concentrations. As such, a mass balance calculation was used to determine the impact of the proposed development at the Site.

The results obtained for the wastewater assessment are discussed in the following subsections.

5.1 Available Dilution

The total available dilution for the Site is estimated by the following equation:

$$Q_i = A \times S \times I$$

Where:

- Qi Volume of Available dilution water
- A Area of the Site
- S Water surplus
- I Infiltration factor

To calculate the water surplus the thirty-year climate normal data collected between 1981 and 2010 at the Drummond Center weather station was used. The data was accessed through the Environment Canada website (Environment Canada, 2023). The total yearly precipitation, on average, was 876 mm.



The Thornthwaite method was used to determine the amount of evapotranspiration that will occur at the Site (Dingman, 2008). The calculated depth of evapotranspiration was 520 mm/yr. The water balance calculations are attached in Appendix D. Given these calculations, the water surplus for the Site was determined to be 356 mm/yr.

To determine the fraction of surplus water that infiltrates into the soils on-site, the volume of surplus water is multiplied by an infiltration factor. The infiltration factor varies between 0 and 1 and is estimated based on topography, soils and cover (as per the Stormwater Management Planning and Design Manual (Ministry of the Environment, 2006)). Site specific values are summarized in Table 3.

In addition to calculating the infiltration factor, the area of the proposed development was identified (based on the proposed development plan provided in Appendix A), to determine the total volume of available dilution water generated on the Site. From the development plan, the total area is 235,300 m².

For road areas, water was assumed to run-off towards the permeable areas of the Site. The proposed roofed area was included in the permeable area as it is assumed that roof leaders will direct any roof runoff to landscaped areas as is typical in rural subdivisions and therefore will not contribute to a post-development recharge deficit. The calculations used to determine the available dilution water are summarized in Table 3.

Infiltration Factor					
Topography	Hilly to rolling land = 0.15				
Soil	Silty Sand = 0.3				
Cover	Cultivated land = 0.1				
Infiltration Factor (I)	0.55				
Volume of Precipitation Water					
Land Area (A) (m ²)	235,300				
Surplus (S) (m/day)	9.94 x 10 ⁻⁴				
Volume of Surplus Water Per Day (AxS)	233.81 m³/day (233,806 L/day)				
Volume of Available Dilution Water Per Day ((AxS)xI)	128.59 m³/day (128,593 L/day)				
Volume of Runoff Water Per Day ((AxS)x(1-I))	105.21 m³/day (105,213 L/day)				

Table 3 Available Dilution Calculations – All Lots



5.2 Predictive Assessment

Based on Procedure D-5-4, a proposed lot is anticipated to generate an average discharge of 1,000 L/day of sewage effluent. Total nitrogen (all species) ultimately converts to nitrate through the wastewater treatment process. Nitrate is considered to be the critical contaminant in sewage effluent. A nitrate loading of 40 grams/lot/day is required to be used to determine the effluent loading from conventional septic systems on the receiving groundwater system.

To determine if the lot size is adequate for the Site, a mass balance calculation is used to determine the sewage loading for nitrate on the property boundary. The mass balance calculations employed is:

 $Q_tC_t = Q_eC_e + Q_iC_i$

Where:

Qt	=	Total volume (Q _e + Q _i)
Ct	=	Total concentration of nitrate at the property boundary
Qe	=	Volume of septic effluent
Ce	=	Concentration of nitrate in effluent (40 mg/L)
Qi	=	Volume of available dilution water
Ci	=	Concentration of nitrate in infiltration water (0.1 mg/L)

To determine the concentration of nitrate at the property boundary (C_t), the above mass balance equation is rearranged as:

$$C_t = \frac{Q_e C_e + Q_i C_i}{Q_t}$$

This equation was used to calculate the predicted nitrate concentration at the lot boundary. Calculation results are detailed in Appendix D and summarized in Table 4.

Surplus water which infiltrates into the soils on-site will also provide groundwater recharge. Although nitrate is not present in atmospheric precipitation, a value of 0.4 mg/L was used in the calculation for the concentration of nitrate in the infiltration water. This value simulates the



long-term contributions of residual agricultural nitrate from historical activities on the Site, and was based on the average groundwater nitrate concentrations measured in the test wells on the undeveloped portions of the Site (Q_i, Section 6.4).

Variable	Value
Number of Lots	41
Q _e (L/day)	41000
C _e (mg/L)	40
Q _i (L/day)	128,593
C _i (mg/L)	0.4
Q _t (L/day)	169593
C _t (mg/L)	9.97

 Table 4
 Predictive Assessment of Nitrate Concentration – All Lots

Based on the predictive assessment detailed above, the proposed 41 lots would result in a nitrate concentration of 9.97 mg/L, which is less than the ODWQS nitrate concentration limit of 10 mg/L at the property boundary, as required by guideline D-5-4. The proposed development is therefore expected to maintain acceptable nitrate concentration thresholds at property boundaries.

5.3 Conceptual Wastewater System Design

Section 8 of the *Ontario Building Code* (OBC) details the design, construction, operation, and maintenance of sewage systems. No proposed lot specific development information is available at this time. As such, the following assumptions were used in the conceptual on-site sewage system design:

- Four-bedroom dwelling.
- Percolation rate of >50 min/cm (accounts for worst-case soils)
- Minimum lot area of 4,048 m²



According to Table 8.2.1.3.A of the OBC, a four-bedroom dwelling has a daily sewage design flow volume of 2,000 L/day. Based on the design flow for residential occupancy, the proposed septic tank capacity was calculated as follows in accordance with section 8.2.2.3. of the OBC:

Volume (V): V = 2 * Q V = 2 * 2,000 L V = 4,000 L

A single two compartment septic tank with capacity of 4,500 L would be suitable to achieve the minimal capacity requirements.

The estimated percolation times from the soil samples for the proposed lots across the Site were between 30 and 35. However, bedrock was observed in 17 of 18 test pits, several directly under the topsoil layer, ranging from depths of 0.14 to 1.74 mbgs. As such, a percolation rate of 50 min/cm was considered as a worst case. A conventional leaching bed will require a minimum vertical separation of 0.9 m between the bedrock contact as per the OBC; as such, the proposed leaching beds may be required to be either partly or fully raised.

Considering worst-case conditions (T>50 min/cm, bedrock at the surface, and the smallest proposed lot of 4,048 m²), a conceptual sewage system design using a raised filter bed was explored. The total required footprint is determined by the allowable sewage loading rate based on Table 8.7.4.1. of the OBC. Using a soil percolation time of 50 min/cm, the maximum loading rate is 4 L/m²/day, the following calculations described the required footprint of the conceptual filter bed components:

Effective Filter Area:
$$A = Q / 75$$

 $A = (2,000 L/d) / 75$
 $A = 26.7 m^2$
Loading Area: $A = Q / LR$
 $A = (2,000 L/d) / (4)$
 $A = 500 m^2$



Based on a daily sewage design flow of 2,000 L/day, the loading area (total footprint) of the proposed raised leaching bed needs to be a minimum of 500 m². Considering worst-case percolation rates for soils and the lot with the smallest area, 3,548 m² would remain for the development of a residential dwelling.

The large area of the Site will provide adequate space for the installation of on-site wastewater treatment systems and should be able meet the required setback distances (i.e., structures, property lines, wells etc.) outlined in OBC Tables 8.2.1.6.A and 8.2.1.6.B. However, each lot should be considered and evaluated independently for each Site-specific sewage system design. The Site conditions appear feasible to install on-site wastewater systems.



6.0 Water Supply Assessment

The results obtained for the water supply assessment are discussed in the following subsections.

6.1 Well Inventory Survey

6.1.1 MECP Well Records Assessment

Cambium accessed the MECP Water Well Information System to review water well records within 500 m of the Site (Ministry of the Environment, Conservation and Parks, 2023b). A total of 58 records were identified, all of which describe wells installed into bedrock. The records identified one abandoned water supply well, one recharge well, and the remaining wells were all water supply wells. The bedrock lithology for all records were described as limestone or sandstone overlain by clay or sand. The locations of wells records identified within 500 m of the Site are illustrated in Figure 4. A summary of water well information, including total depth, static water level, and recommended pumping rate, is presented in Table 5. Further details are provided Appendix E.

		Depth (mbgs)	Depth Water Found (mbgs)	Static Water Level (mbgs)	Recommended Pumping Rate (L/min)
Bedrock	Minimum	12.80	7.62	1.00	12.00
Wells	Maximum	29.87	28.96	14.00	482.00
Count = 58	Average	21.71	18.57	6.30	63.16

 Table 5
 MECP Water Well Information Summary

6.1.2 Door-to-Door Well Survey

A door-to-door survey of all accessible properties within 500 m of the property was conducted by Cambium staff on February 9th, 2024, to confirm details in the public record and to identify any wells not included in the MECP records assessment. Thirty properties were visited, and inperson interviews were conducted with available homeowners regarding the condition and



details of their water supply well(s), including the method of construction, water level, pump intake, well, and water level depths, water use, and general water quality and well yield.

If a homeowner was unavailable, a letter was left either with an additional resident of the home, or in the mailbox with a pre-paid return envelope. The letter explained the nature of the proposed project and the survey and provided direct contact information for Cambium's project manager.

Details and responses from the well use survey are provided in Appendix E. Generally, survey results indicate that the water supply for the surrounding residences is of good quality, except for hardness. No water quantity issues were noted. No homeowners expressed willingness to have their wells monitored during the pumping test for the proposed development. One residential well completed on a lot previously severed from the Site was included in the water supply investigation, however, which is detailed in the following section.

6.2 Water Supply Well Installation

Three test wells, denoted as TW1, TW2, and TW3, were installed at the Site by AirRock Drilling in January 2024. Pumping tests were completed at all three wells, as well as a residential well (RW1) which was installed at the residential property severed from the northwestern edge of the Site (987 Matheson Drive), to characterize the aquifer as per Guideline D-5-5.

Well records for the test wells and residential well indicate sandstone bedrock was encountered during drilling, with little to no overburden noted. This is consistent with available geological mapping (Section 3.4), as well as the shallow depth to bedrock encountered during the subsurface investigation at the Site (Section 4.1). Well construction details for the four wells are summarized in Table 6 and well records are included in Appendix E.



Well ID	Well Tag Number	Well Diameter (m)	Depth (mbgs)	Casing Stick-up (mags*)	Water Level (mbgs)
TW1	A395660	0.152	24.58	0.52	8.82
TW2	A395658	0.152	25.17	0.60	9.70
TW3	A395659	0.152	31.80	0.55	11.93
RW1	A378942	0.152	22.47	0.68	7.14

Table 6 Test Well Construction Details

*mags = meters above ground surface

6.3 Hydraulic Pumping Tests

Hydraulic pumping tests were completed by Cambium staff at the four identified wells between February 26th and March 8th, 2024. Prior to the first test, Solinst Leveloggers (loggers) were installed in all wells for the duration of the pumping tests to monitor water levels before, during, and after all tests. Manual measurements were also recorded during the pumping tests to mitigate the possibility of equipment failure.

The test wells were chlorinated on February 9th, 2023, to ensure adequate disinfection within each well. A disinfected submersible pump was then installed in each well prior to testing. Following pump installation, the water level in the test well was allowed to recover to static conditions before pumping began. The pumping rate for each test was controlled by a valve connected to a digital flow meter and water was discharged in a downslope direction approximately 15 m from each test well.

The pumping test at RW1 was completed with the pump previously existing in the well. Pumping was achieved by opening an outside garden tap, with water discharging through a garden hose directed away from the well head area.

Specific details pertaining to each pumping test are described in the following subsections.

6.3.1 TW1 Pumping Test

The pumping test for TW1 was completed by Cambium staff on February 28th, 2024. Well water levels measured during TW1 pumping test activities are provided in Appendix F.



The static water level in TW1 was 7.95 mbgs prior to commencing the pumping test. The pump was installed at a depth of approximately 19.5 mbgs. The available drawdown in the well was therefore approximately 11.6 m (height of static water level above pump).

Hydraulic testing began at 9:21 am and ran for a duration of six hours. A pumping rate of 14 L/min was maintained for the majority of the test. The total volume of water discharged from TW1 during the pumping test was approximately 5,000 L.

Water levels in TW1 initially decreased 9 cm during the first 11 minutes of the test, however after this time water levels rose, and were 6 cm higher than static water level at 3:31 pm, the time of pumping cessation. Similar trends of increasing water levels were measured in the other wells monitored during the test (TW2, TW3, RW1), which indicates the presence of background water levels trends that are of greater influence than potential effects from TW1 pumping.

The approximate 5,000 L that was discharged from TW1 during the pumping test is greater than daily demand of 2,000 L/day for a typical four-bedroom residence estimated by Part 8 of the Ontario Building Code (O Reg. 332/12). Additionally, the pumping rate of 14 L/min is greater than the typical peak demand rate for a 4-bedroom residence at 13.7 L/min as per MECP Procedure D-5-5 (Ministry of the Environment, 1996b). These results, along with the absence of observable water level responses due to TW1 pumping in the other wells monitored during testing activities, indicate that TW1 is anticipated to provide sufficient yield for a residential dwelling without detrimental effect to surrounding water users.

6.3.2 TW2 Pumping Test

The pumping test for TW2 was completed by Cambium staff on February 27th, 2024. Well water levels measured during TW2 pumping test activities are provided in Appendix F.

The static water level in TW2 was 9.26 mbgs prior to commencing the pumping test. The pump was installed at a depth of approximately 19.5 mbgs. The available drawdown in the well was therefore approximately 10.2 m (height of static water level above pump).



Hydraulic testing began at 9:20 am, at a pumping rate of 14 L/min. At 56 minutes into the test, a rupture in the discharge line occurred down the well and pumping activities ceased. The issue was resolved, and testing resumed at 11:40 am. Pumping continued for 5 hours at a continuous rate of 14 L/m, and then ceased at 4:40 pm. The total volume of water discharged from TW2 during the pumping test was approximately 5,000 L.

Water levels in TW2 initially decreased to a maximum drawdown of 3 cm at 1:07 pm, however after this time water levels rose, achieving pre-test water level conditions by the time of pumping cessation. Similar trends of increasing water levels were measured in the other wells monitored during the test (TW1, TW3, RW1), which indicates the presence of background water levels trends that are of greater influence than potential effects from TW2 pumping.

The approximate 5,000 L that was discharged from TW2 during the pumping test is greater than daily demand of 2,000 L/day for a typical four-bedroom residence estimated by Part 8 of the Ontario Building Code (O Reg. 332/12). Additionally, the pumping rate of 14 L/min is greater than the typical peak demand rate for a 4-bedroom residence at 13.7 L/min as per MECP Procedure D-5-5 (Ministry of the Environment, 1996b). These results, along with the absence of observable water level responses due to TW2 pumping in the other wells monitored during testing activities, indicate that TW2 is anticipated to provide sufficient yield for a residential dwelling without detrimental effect to surrounding water users.

6.3.3 TW3 Pumping Test

The pumping test for TW3 was completed by Cambium staff on February 26th, 2024. Well water levels measured during TW3 pumping test activities are provided in Appendix F.

The static water level in TW3 was 11.46 mbgs prior to commencing the pumping test. The pump was installed at a depth of approximately 24.5 mbgs. The available drawdown in the well was therefore approximately 13.0 m (height of static water level above pump).

Hydraulic testing began at 1:52 pm and ran for a duration of six hours at a continuous pumping rate of 14 L/min. Pumping ceased at 8 pm. The total volume of water discharged from TW3 during the pumping test was approximately 5,000 L.



Water levels in TW3 decreased to a maximum drawdown of 2 cm at the time of pumping cessation. A similar trend of 2 cm drawdown was measured in the other wells monitored during the test (TW1, TW2, RW1). Following pumping cessation, water levels rose to 1 cm above pretest water levels conditions within 8 minutes. No water level changes were noted in the monitoring wells. These results, in combination with the background trends noted during the TW1 and TW2 pumping tests, indicate the presence of background water levels trends that are of greater influence than potential effects from TW3 pumping.

The approximate 5,000 L that was discharged from TW3 during the pumping test is greater than daily demand of 2,000 L/day for a typical four-bedroom residence estimated by Part 8 of the Ontario Building Code (O Reg. 332/12). Additionally, the pumping rate of 14 L/min is greater than the typical peak demand rate for a 4-bedroom residence at 13.7 L/min as per MECP Procedure D-5-5 (Ministry of the Environment, 1996b). These results, along with the absence of observable water level responses due to TW3 pumping in the other wells monitored during testing activities, indicate that TW3 is anticipated to provide sufficient yield for a residential dwelling without detrimental effect to surrounding water users.

6.3.4 RW1 Pumping Test

The pumping test for RW1 was completed by Cambium staff on March 8th, 2024. Well water levels measured during RW1 pumping test activities are provided in Appendix F.

The static water level in RW1 was 5.81 mbgs prior to commencing the pumping test. The depth of the pump previously installed in the well is unknown but presumed to be approximately 19.5 mbgs. Given this depth, the available drawdown in the well would be approximately 13.7 m (height of static water level above pump).

Hydraulic testing began at 10:14 pm and ran for a duration of six hours. Pumping rates during the test were variable, ranging from approximately 10 to 14 L/min for the first hour, and 18 to 20 L/min for the remaining 5 hours. The total volume of water discharged from RW1 during the pumping test was approximately 6,000 L.



Water levels in RW1 decreased to a maximum drawdown of 10 cm at the time of pumping cessation (4:14 pm), which represents approximately less than 1% of the total drawdown available in the well. Following pumping cessation, water levels in RW1 recovered to pre-test conditions within 23 minutes. A maximum drawdown of 4 cm was also measured in TW1 which was monitored during the test. TW1 water levels regained pre-test conditions within 1 hour following pumping cessation.

The approximate 6,000 L that was discharged from RW1 during the pumping test is greater than daily demand of 2,000 L/day for a typical four-bedroom residence estimated by Part 8 of the Ontario Building Code (O Reg. 332/12). Additionally, the dominant pumping rate of 18 L/min is greater than the typical peak demand rate for a 4-bedroom residence at 13.7 L/min as per MECP Procedure D-5-5 (Ministry of the Environment, 1996b). These results, along with the absence of observable water level responses due to RW1 pumping in the other wells monitored during testing activities, indicate that RW1 is anticipated to provide sufficient yield for a residential dwelling without detrimental effect to surrounding water users.

6.4 Groundwater Quality Analysis

Unfiltered groundwater samples were collected from TW1, TW2, TW3, and RW1 during the last 30 minutes of the pumping test conducted on each well. Residual chlorine concentrations in the wells were measured to be less than 0.01 mg/L prior to sampling. All samples were submitted for analysis of general organic and inorganic chemistry to Bureau Veritas in Mississauga, Ontario, which is accredited by the Canadian Association for Laboratory Accreditation Inc. Samples were stored at a temperature between 0 and 10 °C prior to and during transport.

Water quality results were compared against the ODWQS criteria for parameters outlined in Guideline D-5-5 Tables 1, 2, and 3 (Ministry of the Environment, 1996b). A complete summary of water quality results and certificates of lab analyses are provided in Appendix G. Parameters reported at concentrations exceeding ODWQS criteria are outlined in Table 7.



Parameter	Units	ODWQS Criteria	TW1	TW2	TW3	RW1
Hardness (as CaCO₃)	mg/L	80-100 (aesthetic/operation guideline)	190	210	300	260
Total Coliforms	CFU/100 ml	0	27	0	0	0

Table 7 Summary of ODWQS Exceedances

Hardness was the only parameter with measured concentrations exceeding ODWQS criteria in all wells. Hardness is an aesthetic/operational parameter which is typically elevated in limestone bedrock aquifers and is readily amenable with a conventional water softening unit.

Total Coliforms were also elevated above ODWQS guidelines in TW1. The reason for the exceedance is unknown at this time. It is possible that sampling error may have occurred (i.e. inadequate disinfection of the well after installation or contamination of sample during collection). Local aquifer contamination from septic system systems is ruled out as a cause for elevated total coliforms due the undeveloped nature of the property and lack of measurable E.coli in the sample. Lack of detectable Total Coliforms in the other tested wells also indicate that the issue is not systemic across the Site. Shock chlorination and resampling is recommended prior to use of the well. Should they persist, elevated total coliforms can be effectively treated with a residential water disinfection system (i.e. UV treatment or chlorination).

Nitrate concentrations in groundwater samples from test wells on the undeveloped portions of the Site were 0.26 mg/L (TW1), 0.30 mg/L (TW2), and 0.64 mg/L (TW3). The nitrate concentration in the groundwater sample from the well at 987 Matheson Drive was 1.79 mg/L. This is consistent with nitrate results obtained for other lots on the perimeter of the Site reported by Macintosh Perry (2022), which reported a nitrate concentration of <0.1 mg/L in the water supply well at 999 Matheson Drive, and 1.9 mg/L at 862 Rosedale Road.

All wells are completed at similar depths within the local bedrock aquifer. Detectable nitrate in most wells suggests that there is incomplete hydraulic separation between the surface and the water supply aquifer.



Low nitrate concentrations observed in the on-site test wells are inferred to be the result of historical agricultural land use at the Site. Change in land use at the Site will remove this agricultural nitrate source and groundwater concentrations are anticipated to decline to the rainwater/snow melt nitrate concentration of <0.1 mg/L. To simulate the long-term mobilization of residual agricultural nitrate by water infiltrating through the unsaturated zone, a background concentration equal to the average nitrate concentration of the on-site test wells (0.4 mg/L) was used in the nitrate attenuation predictive assessment (Section 5.2).

Elevated concentrations in the groundwater samples from water supply wells tested at the existing residential properties along the perimeter of the Site suggest that nitrate will increase in the water supply aquifer following installation of septic systems. Results suggest the long-term concentration under lots with on-site septic beds is <2 mg/L.



7.0 Conclusions and Recommendations

Cambium was retained by the Client to complete a hydrogeological assessment for a proposed rural subdivision in the Township of Montague, Ontario, to demonstrate whether water and wastewater services for the facility can be provided in accordance with the D-5-4 and D-5-5 Guidelines without adversely impacting existing development in the surrounding area.

7.1 Wastewater Assessment

A soils investigation completed at the Site indicates the subsurface consists of a thin layer of sand and silt to silty sand which is underlain by shallow bedrock. Soil sample analysis indicates the sand and silt/silty sand has estimated percolation times (T times) ranging from 30 to 35 min/cm, which reflects moderate capacity for water to infiltrate into the shallow subsurface environment.

A nitrate impact assessment given an average daily septic flow of 1,000 L/day for each lot predicts that 41 lots within the 23.53 ha developable area will result in nitrate concentrations of 9.97 mg/L at property boundaries, which is less than the required ODWQS limit of 10 mg/L.

The conceptual wastewater design indicates that shallow soils at the Site may require raised filter beds as part of the private wastewater systems. The required footprint for a raised filter bed was calculated to be 500 m², leaving at minimum 3,548 m² of available area for development (estimated using the smallest proposed lot). Each lot should be considered and evaluated independently for each site-specific sewage system design. The Site conditions appear feasible to install on-site wastewater systems.

7.2 Water Supply Assessment

Hydraulic testing of the three on-site wells (TW1, TW2, and TW3) and one residential well (RW1) located on the adjacent severed parcel was completed between February 26th and March 8th, 2024. A minimum discharge rate of approximately 14 L/min was maintained for 6 hours, during all tests, which resulted in a minimum of approximately 5,000 L being pumped



from each well. Water level drawdown was negligible (i.e. < 0.1 m) in all test and observation wells.

Water quality samples collected from all four wells indicate water from the supply aquifer is of good quality, with only hardness exceeding ODWQS guidelines in all wells. This parameter is readily amendable with standard water treatment systems.

Total Coliforms were measured to be elevated above ODWQS guidelines in TW1. The reason for the exceedance is unknown at this time, however local aquifer contamination from septic system systems is ruled out as a cause for elevated total coliforms due the undeveloped nature of the property and lack of measurable E. coli in the sample. Shock chlorination and resampling is recommended prior to use of the well. Should they persist, elevated total coliforms can be effectively treated with a residential water disinfection system (i.e. UV treatment or chlorination).

Based on the pumping test and water quality results, it is anticipated that all test wells can sustainably provide a sufficient quantity of potable water to meet the daily demand for a residential dwelling without detrimental effect to surrounding water users.



8.0 Closing

We trust that the information in this submission meets your current requirements. If you have any questions regarding the contents of this report, please contact the undersigned.

Respectfully submitted,

Cambium Inc.

DocuSigned by:

Maren Catt Technician – Junior Hydrogeologist DocuSigned by: My 4EDE7E597E1C4AA...

Natasha Augustine, M.Sc. Coordinator – Environmental Scientist



Signed by: A84A949C3B4C4B4...

Kyle Horner, Ph.D., P.Geo. Senior Project Manager – Senior Hydrogeologist

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10.0 Standard Limitations

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

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Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

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The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



Appended Figures





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Appendix A Property and Land Information



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Source Protection Information Atlas Map



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Appendix B Test Pit Logs



Cambium Reference # 19387-001

Date: Jan. 04. 2024 Weather: Sunny, windy, -10 °C Logged by: MC

Test Pit ID	Depth (mbgs ¹)	Material	Sampl
TP01-24	0.00-0.15	Topsoil	
	0.15-0.42	Brown silty sand, some gravel, trace boulders, moist, rootlets, loose	GS1
18T			
424661		Ended on bedrock at 0.42mbgs	
4975427			
TP02-24	0.00-0.25	Topsoil	
	0.25-1.00	Brown silt and sand, some clay, trace gravel, moist, rootlets, loose	GS1
18T	1.00-1.90	Brown silty sand mixed with grey clay, moist, compact	
424569	1.90-2.00	Grey silty sand, some clay, trace gravel, trace boulders, compact, wet	GS2
4975343			
		Ended at target depth of 2mbgs	
TP03-24	0.00-0.12	Topsoil	
	0.10.0.00		001
18T	0.12-0.93	Brown silty sand, medium to coarse sand, some gravel, trace boulders, rootlets, dry, loose	GS1
424626		Ended on bedrock at 0.93mbgs	
4975211			
4975211			
TP04-24	0.00-0.32	Topsoil	
18T		Ended on bedrock at 0.32mbgs	
		Ended on bedrock at 0.52mbgs	
424771			
4975122			
TP05-24	0.00-0.14	Topsoil	
18T		Ended on bedrock at 0.14mbgs	
424511			
4975116			
TP06-24	0.00-0.26	Topsoil	
	0.26-0.45	Brown sand and silt, trace gravel, wet, dense	GS1
18T			
424950		Water trickling in around bottom of TP, pooling in bottom of TP	
4975029			
		Ended on bedrock at 0.45mbgs	
TP07-24	0.00-0.22	Topsoil	
107		Ended on bedreek at 0.22	
18T		Ended on bedrock at 0.22	
425049			
4975108			
TP08-24	0.00-0.32	Topsoil	
.	0.32-0.34	Brown silty sand, moist, loose	*
18T			
425121		Ended on bedrock at 0.34mbgs	
4975246		Pid ant complexity to bound to include:	
		* Did not sample due to hard to isolate	

¹meters below ground surface



Cambium Reference # 19287-001

Date: Jan. 04. 2024 Weather: Sunny, windy, -10 °C Logged by: MC

Test Pit ID	Depth (mbgs ¹)	Material	Sample
TP09-24	0.00-0.22	Topsoil	
	0.22-0.65	Brown sand and silt, some clay, trace gravel, moist, dense	GS1
18T	0.65-0.84	Grey clay, trace gravel, moist, dense	GS2
424924			
4975187		Ended on bedrock at 0.84mbgs	
TP10-24	0.00-0.48	Topsoil	
18T	0.23-0.48	Large slabs of fractured bedrock	
424810	0.23-0.40		
4975329		Ended on bedrock at 0.48mbgs	
4973329		Linded of Dedrock at 0.46mbgs	
TP11-24	0.00-0.22	Topsoil	
	0.22-0.53	Brown silts and sand, moist, loose	GS1
18T	0.53-0.64	Grey silty sand, some clay, moist, dense	GS2
424857			
4975378		Ended on bedrock at 0.64mbgs	
TP12-24	0.00-0.18	Topsoil	
18T		Ended on bedrock at 0.18mbgs	
424999			
4975411			
TP13-24	0.00-0.25	Topsoil	
11 10 24	0.28-0.50	Brown silt and sand, trace gravel, moist, dense	GS1
18T	0.50-1.74	Grey silty sand, some clay, some gravel, trace boulder, moist, dense	GS2
424915	0.00 1.74		002
4975489		Water trickling in at approximately 0.05m above bottom	
4070400			
		Ended on bedrock at 1.74mbgs	
TP14-24	0.00-0.30	Topsoil	
	0.30-0.46	Orangy brown silty sand, dense, wet, slumping into hole	GS1
18T	0.46-1.08	Grey silty sand, some clay, trace gravel, wet, slumping into hole	GS2
424803			
4975628	0.5	Water trickling in and pooling around in the bottom	
		Ended on bedrock at 1.08mbgs	
TP15-24	0.00-0.20	Topsoil	
18T		Ended on bedrock at 0.2mbgs	
424778			
4975460			
TP16-24	0.00-0.30	Topsoil	
18T		Ended on bedrock at 0.3mbgs	
424702			
4975292			
-			
:			

¹meters below ground surface



Cambium Reference # 19287-001

Date: Jan. 04. 2024 Weather: Sunny, windy, -10 °C Logged by: MC

Test Pit ID	Depth (mbgs ¹)	Material	Sample
TP17-24	0.00-0.27	Topsoil	GS1
18T		Ended on bedrock at 0.27mbgs	
424696			
4975225			
TD / 0 0 /			
TP18-24	0.00-0.22	Topsoil	001
107	0.22-0.41	Brown silt and sand, moist, dense	GS1
18T 424862		Ended on bodrook at 0.41mbro	
424882		Ended on bedrock at 0.41mbgs	
4373227			-
	+		+

¹meters below ground surface



Appendix C Grainsize Analysis Results



Grain Size Distribution Chart

Project Number:	19387-001	Client:	EFI Engineering					
Project Name:	Matheson and Rosedale Sub	Matheson and Rosedale Subdivision						
Sample Date:	January 4, 2024	Sampled By:	Maren Catt - Cambium Inc.					
Location:	TP 02-24 GS 1	Depth:	0.25 m to 1.0 m	Lab Sample No:	S-24-0118			

UNIFIED SOIL CLASSIFICATION SYSTEM							
CLAY & SILT (<0.075 mm)	SAND (<4.	75 mm to 0.075 mm)	GRAVEL (>4.75 mm)				
	FINE	MEDIUM	COARSE	FINE	COARSE		



	MIT SOIL CLASSIFICATION SYSTEM								
CLAX	CLAY SILT	FINE MEDIUM COARSE FINE		FINE	MEDIUM	COARSE	BOULDERS		
CLAT		SAND			GRAVEL				

Borehole No.	Sample No.		Depth	Gravel	Sand		Silt	Clay	Moisture
TP 02-24	GS 1	().25 m to 1.0 m	2	38		46	14	19.4
	Description		Classification	D ₆₀	D ₃₀		D ₁₀	Cu	C _c
Silt and Sar	nd some Clay trace Gra	avel	ML	0.077	0.020)	-	-	-

Additional information available upon request

Issued By:

Date Issued:

January 24, 2024

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194 Sophia St. | Peterborough | ON | K9H 1E5



Grain Size Distribution Chart

Project Number:	19387-001	Client:	EFI Engineering					
Project Name:	Matheson and Rosedale Sub	Natheson and Rosedale Subdivision						
Sample Date:	January 4, 2024	Sampled By:	Maren Catt - Cambium Inc.					
Location:	TP 09-24 GS 1	Depth:	0.22 m to 0.65 m	Lab Sample No:	S-24-0119			





	MIT SOIL CLASSIFICATION SYSTEM								
CLAX	CLAY SILT	FINE MEDIUM COARSE FINE		FINE	MEDIUM	COARSE	BOULDERS		
CLAY		SAND				BOULDERS			

Borehole No.	Sample No.		Depth	Gravel	Sand		Silt	C	Clay	Moisture
TP 09-24	GS 1	0	.22 m to 0.65 m	3	43		39		15	17.1
	Description		Classification	D ₆₀	D ₃₀		D ₁₀		Cu	C _c
Sand and S	Silt some Clay trace Gr	avel	ML	0.093	0.026	6	-		-	-

Additional information available upon request

Issued By:

Date Issued:

January 24, 2024



Grain Size Distribution Chart

Project Number:	19387-001	Client:	EFI Engineering					
Project Name:	Matheson and Rosedale Sub	Natheson and Rosedale Subdivision						
Sample Date:	January 4, 2024	Sampled By:	Maren Catt - Cambium Inc.					
Location:	TP 13-24 GS 2	Depth:	0.5 m to 1.74 m	Lab Sample No:	S-24-0120			





	MIT SOIL CLASSIFICATION SYSTEM										
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS			
CLAT	SILT		SAND			GRAVEL		BOULDERS			

Borehole No.	Sample No.	Depth			Gravel Sar		Sand		Silt	С	lay	Moisture
TP 13-24	GS 2	(0.5 m to 1.74 m		13		44		32	1	11	9.4
	Description		Classification		D ₆₀		D ₃₀		D ₁₀		Cu	C _c
Silty Sand	some Gravel some C	lay	y SM		0.1800		0.040	0	0.0017	1	05.88	5.23

Additional information available upon request

Issued By:

Date Issued:

January 24, 2024

(Senior Project Manager)

Cambium Inc. (Laboratory)

866.217.7900 | cambium-inc.com 194 Sophia St. | Peterborough | ON | K9H 1E5



Appendix D Water Balance Calculations



Water Balance Calculations

						WATER-							
то	dified fro	-			5-8 (pg 2	99) using		-	mon (19	963)			
		Ir	nput Dat	а		Comp	outed Va	lues					
											Surplus	363	mm/yr
Weather Station Location:	Drumm	ond, ON	I		L	atitude:	45.0	degree					
Solar Declination (degree)	-20.6	-12.6	-1.5	10.0	19.0	23.1	21.0	13.4	2.6	-9.0	-18.5	-23.0	
DayLength (hr)*	9.1	10.3	11.8	13.4	14.7	15.4	15.0	13.8	12.3	10.8	9.4	8.7	
·													
Available Water St	torage C	apacity	0.14	m/m	Roc	ot Depth	460	mm	S	OILmax	64.4	mm	
						-							
			MON	NTHLY W	ATER B		DATA						
		Ter	nperatu	res in C,	water-b	alance te	erms in r	nm.					
Month:	J	F	М	Α	м	J	J	Α	S	0	Ν	D	Year
	======	======			======	======		======			======	=====	======
TEMPERATURE (T)	-9.8	-8.5	-2.0	6.0	12.7	17.8	20.3	19.1	14.4	7.8	1.6	-5.8	
PRECIPITATION (P)	67.7	51.3	55.1	64.2	77.0	82.4	83.5	75.3	91.8	78.5	83.6	65.9	876
RAIN	24.1	15.9	28.6	53.0	76.9	82.4	83.5	75.3	91.8	76.3	67.8	26.7	702
SNOW	44	35	27	11	0	0	0	0	0	2	16	39	174
MELT FACTOR (F)	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.27	0.00	1, 1
РАСК	94	130	156	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12	51	
MELT	0	130	0	167	0	0	0	0	0	2	4	0	174
	24	16	29	220	-	82	84	75	-		4 72	27	
INPUT (W)		-	-	-	77	-	-	-	92	79			876 520
POTENTIAL ET (PET)	0	0	0	40	70	96	113	97	63	38	21	0	538
NET INPUT (ΔW)	24	16	29	180	7	-14	-29	-22	29	41	51	27	
SOIL MOISTURE (SOIL)	64	64	64	64	64	52	33	23	52	64	64	64	
ΔSOIL	0	0	0	0	0	-13	-19	-9	29	12	0	0	
ET	0	0	0	40	70	95	102	85	63	38	21	0	514
SURPLUS=W-ET-DSOIL	24	16	29	180	7	0	0	0	0	29	51	27	363
Notes:													
Precipitation, Rain, Temperature, and L	atitude ar	e inputted	paramete	ers									
SOILmax = available water storage cap	acity * roo	t depth											
m = month													
D = Day length (hrs) =2*cos ⁻¹ (-tan(Latite	ude)*tan(E	Declinatior	n))/0.2618	[calculation	on is in rad	ians]							
$SNOW_m = P_m - RAIN_m$			-0 -										
$F_m = 0 \text{ if } T_m \le 0^\circ \text{C}; F_m = 0.167^* T_m \text{ if } 0^\circ \text{C}$	<t<sub>m<6°C; F</t<sub>	_m = 1 if T _m	>=6°C										
$PACK_{m} = (1-F_{m})^{*}(SNOW_{m}+PACK_{m-1})$ $MELT = F_{m}^{*}(SNOW_{m}+PACK_{m-1})$													
$W_{m} = RAIN_{m} + MELT_{m}.$													
PET = 0 if $T_m < 0$; otherwise PET = 2.98*0).611*exp(17.3*T _m /(T _m +237))/	(T _m +237.2	!)*Number	r of days in I	month [Ha	amon ET m	nodel (196	3)]			
$\Delta W_m = W_m - PET_m$,	•		,				
$SOIL = min\{[\Delta W_m + SOIL_{m-1}], SOILmax\}, in $	f ∆Wm>0;	otherwise	SOIL = SO	IL _{m-1} * exp	(∆W/SOILi	max)							
Δ SOIL = SOIL _{m-1} -SOIL _m													
ET = PET if W _m > PET; otherwise, ET=W	_m -∆SOIL												



Nitrate Attenuation

Calculations	or Subdi	ivision Dev	elopment	<u>- 41 Lots</u>	
Input Data			Co	omputed Valu	es
	<u>Areas</u>		Total		
	LO	T AREA (m ²)	235300		
		TPRINT (m ²)	0		
		D AREA (m ²)	0		
Avaible		on Area (m ²)	235300		
Surplus water			Infiltration F	actor	
0.363 m	/yr	Hilly to	Rolling land	0.15	
9.94E-04 m	/day		Silty Sand	0.3	
233.8056 m	³ /day	Cul	tivated land	0.1	
			Total	0.55	
Infiltrated wat					
0.000547 m				2	
128.5931 m	³/day	<u>Runoff</u>	105.2125	m³/day	
PRED	CIED NIT	RATE CONCE	NIRATIONS		
	41 lots				
Qe	41000				
Ce	40				
	128593.1				
Ci	0.4				
Qt	169593.1				
mg/L	9.97				



Appendix E Water Well Survey Results

	rio 🕅	Conserv	vation and F	unto		A395660			Regulation	903	Ontario Wa	ater Re	sources
Measurem	nents recor	ded in:	Metric Y	Imperial		A39000U					Page		of
the state of the state	a and a second and a second a second	ormation	f and							KENNE	a de la		
First Name	8		Last Name/C			Ottawa Inc	1	E-mail Address	5		1		Vell Own
		et Number/Na				Municipality		Province	Postal Code	210	Telephone	No. (in	c, area co
	ation	th Line F	Cad	1.111		North Go	Wei	UN	<u> </u>	211		1 23	
Address of	Well Locati	on (Street Nu				Township	219 Ch 1 2 2 1		Lot 19	1420-009	Concessio 4	n	COLOV DO DO
	secale I	Road So		CIAIC)		Montague City/Town/Village			19	Provi	ince	Post	al Code
	nark			- this -		Smith Fa				On	tario		
NAD	dinates Zon	e Easting		orthing	5272	Municipal Plan and s		ber		1	W#1/3		
1.	10. 12 18 17 - E. D	- State - Alter - Proven	S.D. Sand Trate of the		1	cord (see instructions	on the back						
General C	olour	Most Com	mon Material		(Other Materials		Ge	neral Description			From	pth (mat
Brown			Top	stone								2	4
Grey	n			istone								18	68
Grey				istone								68	74
Grey				istone								74	80
1													1
						. A							1
		KIG	of I	1)00	0		3 #	3					1
		The Le		UT.	-	t	4						
		the second	Annular						Results of W				Contraction of the second second
From	t at (m)		Type of Sea (Material an			Volume Placed (m ³ /ft ³)		test of well yiek clear and sand	free	Time	water Leve	Time	Water L
201	0'	Neat c				7.80		Other, specify	Not teste	(min) Static	(m/ft)	(min)	(m/fi 32.
-		-					Ifpun	ping discentinu	ied, give reason;	Level	318		
						1		X		11	32.2	1 1	3
								inteland to	(AL)	-			-
							Pump	intake set at (n 70		2	32.4	-	
Meth	iod of Con	struction	1. Partico		Well U	se		70 ing rate (Vmin X		2	32.5	3	3
Cable Too	X	Diamond		viic nestic	Comm	ercial 🗌 Not used	Pump I Durati	70 ing rate (Vmin 20 on of pumping	SERO)	2 3 4	32.5 32.6	3	3
Cable Too Rotary (Co Rotary (Re	ol onventional)	Diamond		mestic stock	Comm Municip	ercial Not used pal · Dewater ple Monitori	Pump I Durati	70 ing rate (Vmin 20 on of pumping 1 hrs + 0	min	2 3 4 5	32.5 32.6 32.6	3	3
Cable Too Rotary (Co Rotary (Ro Boring Air percus	ol onventional) everse) ssion	Diamond		nestic estock ation ustrial	Comm Municip	ercial Not used	Pump I Durati	70 ing rate (Vmin 20 on of pumping 1 hrs + 0	SERO)	2 3 4 5 10	32.5 32.6 32.6 32.7	3 4 5 10	3 3 3 3
Cable Too Rotary (Co Rotary (Re Boring	ol conventional) everse) ssion scify	Diamond		nestic estock ation ustrial er, specify	Comm Municip	ercial Not used pal Dewater ole Monitori & Air Conditioning	Pump I Durati 19 Final v	70 ing rate (l/min 20 on of pumping 1 hrs + 0 water level end	min of pumping (m/it)	2 3 4 5 10 15	32.5 32.6 32.6 32.7 32.7	3 4 5 10 15	3 3 3 3 3
Cable Too Rotary (Cc Rotary (Re Boring Air percuss Other, spe	ol onventional) everse) ssion ecifyCon Open Hole	Diamond	Live	nestic estock ation ustrial er, specify ing Dept	Comm Municij Test Ho Cooling	ercial Not used pal Dewater ble Monitori g & Air Conditioning	Pump I Durati 19 Final v If flowi	70 ing rate (Vmin × 20 on of pumping 1 hrs + 0 vater level end 32.8	min of pumping (m/it) hin/GPM)	2 3 4 5 10 15 20	32.5 32.6 32.6 32.7 32.7 32.7 32.8	3 4 5 10 15 20	3 3 3 3 3 3 3
Cable Too Rotary (Cc Rotary (Re Boring Air percuss Other, spe	ol onventional) everse) ssion scify <u>Con</u> Open Hole (Galvanized	Diamond	Live	nestic sstock ation ustrial er, specify ing Dept From	Comm Municip Test Hc Cooling th (n	ercial Not used pal Dewater ble Monitori g & Air Conditioning	Pump Durati 9 Final v If flowi	70 ing rate (l/min × 20 on of pumping <u>1 hrs + 0</u> water jevel end 32.8 ing give rate (l/m mended pump 70	min of pumping (m/lt) nin/GPM) o depth (rfdff)	2 3 4 5 10 15	32.5 32.6 32.6 32.7 32.7 32.8 32.8	3 4 5 10 15 20	3 3 3 3 3 3 3
Cable Too Rotary (CC Rotary (Re Boring Air percuss Other, spe	ol onventional) everse) ssion scify <u>Con</u> Open Hole (Galvanized	Diamond Jetting Driving Digging	Live Live Infig Othe Cord Casi Wall Thickgaes	nestic estock ation ustrial er, specify ing Dept	Comm Municip Test Hc Cooling th (n	ercial Not used pal Dewater ble Monitori & Air Conditioning Status of Well Water Supply Replacement We Test Hole Recharge Weil	Pump Durati 9 Final v If flowi	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 vater level end 32.8 ing give rate (l/m mended pump 70 mended pump	min of pumping (m/R) nin/GPM) o depth (nS(R)) o rate	2 3 4 5 10 15 20	32.5 32.6 32.6 32.7 32.7 32.8 32.8 32.8 32.8	3 4 5 10 15 20	3 3 3 3 3 3 3 3
Cable Too Rotary (Cc Rotary (Cc Rotary (Re Boring Direr percuss Other, spe Diameter (cm Co	ol onventional) everse) ssion scify Open Hole (Galvanized Concrete, P	Diamond Jetting Driving Digging Struction Re OR Material , Fibreglass, lastic, Steel)	Live Live Indu Condecident Wall Thickness (critic)	nestic sstock ation ustrial er, specify ing Dept From	Comm Municip Test Hc Cooling th (n	ercial Not usee pal Dewater ble Monitori g & Air Conditioning Status of Well Water Supply Replacement Wel Test Hole Recharge Well Dewatering Well Dewatering Well	Pump Ing 99 Final v If flowi II Recor	70 ing rate (l/min × 20 on of pumping <u>1 hrs + 0</u> vater level end 32.8 mg give rate (l/m mmended pump 70	min of pumping (m/it) nin/GPM) o depth (r@it)	2 3 4 5 10 15 20 25	32.5 32.6 32.6 32.7 32.7 32.8 32.8	3 4 5 10 15 20 25	3 3 3 3 3 3 3 3 3 3
Cable Too Rotary (Cc Rotary (Cc Rotary (Re Boring Dir percuss Other, spe Inside ' Diameter (cm(c))	di conventional) everse) ssion scify Cont (Galvanized Concrete, P Steel	Diamond Jetting Driving Digging Struction Re OR Material , Fibreglass, lastic, Steel)	Live Live Indu Condecident Wall Thickness (critic)	nestic stock ation ustrial er, specify pept From +2 ⁴	Comm Munici Test Ho Cooling	ercial Not used pal Dewater ole Monitoring & Air Conditioning Status of Well Water Supply Replacement Wel Dewatering Well Observation and/ Monitoring Hole Altration	Pump Durati 19 Final v If flowi Recor (/mill por	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 vater level end 32.8 " nrmended pump 70 " pumended pump 70 " pumended pump 70 " pumended pump 70 "	min of pumping (m/it) nin/GPM) o depth (r@it)	2 3 4 5 10 15 20 25 30	32.5 32.6 32.6 32.7 32.7 32.8 32.8 32.8 32.8	3 4 5 10 15 20 25 30	3 3 3 3 3 3 3 3 3 3 3 3
Cable Too Rotary (Cc Rotary (Cc Rotary (Ro Boring Dir percus Other, spe Inside Inside Composition Inside Composition Inside	onventional) everse) ssion exity Open Hole (Galvanized Concrete, P Steel Open H	Diamond Jetting Driving Digging Struction Re OR Material , Fibreglass, lastic, Steel)	Live Live Indu Condecident Wall Thickness (critic)	nestic stock ation ustrial er, specify pept From +2 ⁴	Comm Munici Test Ho Cooling	ercial Not user pal Dewater ble Monitoring & Air Conditioning	Pump Pump Pump Pinalv If flowi If flowi Record (/mill or Well p	70 ing rate (Vmin 20 on of pumping 1 hrs + 0 vater level end 32.8 ing give rate (Vm mended pump 70 mended pump 70 mound of pumping 70 mound of the pumping 70 10 10 10 10 10 10 10 10 10 1	min of pumping (m/it) nin/GPM) o depth (r@it)	2 3 4 5 10 15 20 25 30 40	32.5 32.6 32.7 32.7 32.7 32.8 32.8 32.8 32.8 32.8	3 4 5 10 15 20 25 30 40	3 3 3 3 3 3 3 3 3 3 3 3
Cable Too Rotary (Re Boring Boring In percuss Other, spe Inside ' Diameter (cmito) 1/4."	al onventional) everse) sison softy	Diamond Jetting Driving Digging Struction Re OR Material , Fibreglass, lastic, Steel)	Vali Thickpass (critic) 188	nestic sstock ation sstrial er, specify ing Depl From +2 ⁴ 20 ⁷	Corring Municia Test H Cooling th (m2) To 20 80	ercial Not usee pal Dewater ble Monitoring & Air Conditioning	Pump Pump Pump Final v If flowing If flowing Recorr (Umil Well p	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 32.8 ing give rate (l/min 20 ing give r	min of pumping (m/R) in/GPM) o depth (n20) o rate	2 3 4 5 10 15 20 25 30 40 50 60	32.5 32.6 32.7 32.7 32.8 32.8 32.8 32.8 32.8 32.8 32.8 32.8	2 3 4 5 10 15 20 25 30 40 50 60	3 3 3 3 3 3 3 3 3 3 3 3 3
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Cutside	N onventional) everse) ssion conventional co	Diamond Diamond Jetting Driving Digging struction Re OR Material (), Floreglass, vastic, Steel) Hole struction Re erial	A cord - Casi Wall Thickness (critical) .188	nestic sstock ation sstrial er, specify ing Depl From +2 ⁴ 20 ⁷	Corrum Municij Test Hr. Cooling th (m2) To 20 80	ercial Not usee pal Dewater ble Monitoring & Air Conditioning Status of Well Vater Supply Replacement Wel Dewatering Well Dewatering Well Observation and/ Monitoring Hole Atteration (Construction) Abandoned, Poor Water Cuelity	Pump Pump Pump Pinalv If flowi If flowi Record (/mill Please	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 water javel end: 32.8 ing give rate (l/m 20 ing give rate (l/m) 20 ing give	min of pumping (mili) nin/GPM) o depth (milit) o rate	2 3 4 5 10 15 20 25 30 40 50 60	32.5 32.6 32.7 32.7 32.8 32.8 32.8 32.8 32.8 32.8 32.8 32.8	2 3 4 5 10 15 20 25 30 40 50 60	3 3 3 3 3 3 3 3 3 3 3 3 3
Cutside	N onventional) everse) ssion conventional co	Diamond Diamond Jetting Driving Digging struction Re OR Material (), Floreglass, vastic, Steel) Hole struction Re erial	A cord - Casi Wall Thickness (critical) .188	nestic stock ation ing Dept From +2 ⁴ 20 ⁴ men 	Corrum Municij Test Hr. Cooling th (m2) To 20 80	ercial Not user pal Dewater ole Monitori g & Air Conditioning	Pump Pump Pump Pinalv If flowi If flowi Record (/mill Please	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 32.8 ing give rate (l/min 20 ing give r	min of pumping (mili) nin/GPM) o depth (milit) o rate	2 3 4 5 10 15 20 25 30 40 50 60 9 instruct	32.5 32.6 32.7 32.7 32.8 32.8 32.8 32.8 32.8 32.8 32.8 32.8	3 3 4 5 10 15 20 25 30 40 50 60	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 2 5
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Cutside Diameter (crr/ln)	at Depth K	Diamond Distring Driving Driving Digging struction Re OR Material (, Floreglass, iastic, Steel) Hole struction Re erial anized, Steel) Water Deta anized of Water:	All States of the second secon	nestic stock ation strial er, specify From +2 ⁴ 20 ⁴ een Depti From	Corring Municip Test H: Cooling To Cooling th (m20) To 20 B0 f m10 To D0	ercial Not user pal Dewater ble Monitoring & Air Conditioning Status of Well Water Supply Replacement Wel Dewatering Well Dewatering Well Dewatering Well Observation and/ Monitoring Hole Alteration (Construction) Abandoned, Poor Water Cuslity Abandoned, other specify Other, specify tole Diameter	Pump Pump Ping Pinalv If flowi If flowi IRecord (/mild Please Please	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 water javel end: 32.8 ing give rate (l/m 20 ing give rate (l/m) 20 ing give	min of pumping (mill) in/GPM) o depth (mill) o rate	2 3 4 5 10 15 20 25 30 40 50 60 9 instruct	32.5 32.6 32.7 32.7 32.8 32.8 32.8 32.8 32.8 32.8 32.8 32.8	3 3 4 5 10 15 20 25 30 40 50 60	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 2
Cutside Diameter (cm/n) Cutside Baring Cutside	sion onventional) everse) sision open Hole (Galvarized Concrete, P Steel Open H	Diamond Diating Diving Digging Struction Re OR Material (, Fibreglass, iastic, Steel) Hole struction Re erial anized, Steel) Water: Deta anized of Water: Other, spec	A line of the second se	nestic stock ation strial er, specify From +2 ' 20 ' een Depti From	Corring Municip Test Hr Cooling th (mft) To B0 From	ercial Not user pal Dewater ble Monitoring & Air Conditioning Status of Well Water Supply Replacement Well Dewatering Well Dewatering Well Deservation and/ Monitoring Hole Alteration (Construction) Abandoned, Poor Water Cuality Abandoned, other specify Other, specify tole Diameter To (cmsc	Pump Pump Ping Pinalv If flowi If flowi IRecord (/mild Please Please	70 ing rate (l/min ² 20 on of pumping 1 hrs + 0 water javel end: 32.8 ing give rate (l/m 20 ing give rate (l/m) 20 ing give (l/m) 20 ing give rat	min of pumping (mill) in/GPM) o depth (mill) o rate	2 3 4 5 10 15 20 25 30 40 50 60 9 instruct	32.5 32.6 32.7 32.7 32.8 32.8 32.8 32.8 32.8 32.8 32.8 32.8	3 3 4 5 10 15 20 25 30 40 50 60	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 2
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	661 Well Locat		h Line R	oad	and the second second		North G	ower	ON	<u> K</u> QA	200			
	Address of V	Vell Location	(Street Num			T	ownship			Lot	0	Concession		
	987 County/Distr		Son Drive	9		c	Montague City/Town/Village	•		20	Provinc	2 2 F	Postal (Code
	Lar	nark	8				Smiths F				Onta	rio		
	UTM Coordi NAD		Easting		orthing 497512		Iunicipal Plan and	Sublot	Number		Other			
	Overburde	n and Bed	rock Materia	als/Abando	nment Sea		rd (see instructions er Materials	s on the I	back of this form) General Descriptior			Depth	
	General Co	lour	Most Comm	0	sker	0	Li			General Description			rom	2
	Grev	& Brown			Istone	i po	ch			- 1 -			21	74 /
	-	& Brown			istone				_				74 1	80
				Annular	Space					Results of W	ell Yield	d Testing		
	Depth Set			Type of Sea	alant Used		Volume Place	ed	After test of well	yield, water was:	Dra	w Down Water Level		
	From 20 (To D	Neat o	(Material an cement	а туре)		4.68	3	Other, spe		(min)	(m/ft)	(min)	(m/ft)
	e.		<u></u>						If pumping disc	ntinued, give reason:		32'2"	and the	34.5 1
											1	33.1	1	32.2
									Pump intake se 70		2	33.5	2	32.2
	Meth	od of Con	struction			Well Us	e		Pumping rate (l/ 20	min (GPM)	3	33.7 33.9	3	32.2
	Cable Too		Diamond	Pul		Commei			Duration of pur	the second s	4	34	4	32.2
	Rotary (R		Driving		estock	Test Hol		~ 11		min Lend of pumping (m/ft	5	34.2	5	32.2
	Boring		Digging	🗌 Ind	lustrial		a Ali Conditioning		34.0	l end of pumping (m/ft		34.2	10	32.2
	Other, spe		struction Re		ner, specify		Status of We	ell	If flowing give ra	te (I/min/GPM)	15	34.3	15 20	32.2
	Inside Diameter	Open Hole	OR Material I, Fibreglass,	Wall Thickness	1012 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	(m@)	Replacement			pump depth (mt)	20	34.4	20	32.2
	(cm/in)	Concrete, F	lastic, Steel)	(cm/in)	From	To	Test Hole		Recommended	pump rate	30	34.5	30	32.2
	614	Steel	ana ana ao amin' ao amin' Calina amin' amin' amin'	.188	+2'	20'	Recharge Well Dewatering Well	/ell	(I/min/GPM)	0	40	34.5	40	32.2
	6"	Open	Hole	eren alter i serieta	20 1	801	Observation ar Monitoring Hol		Well production		50	34.5	50	32.2
							Alteration (Construction)		Disinfected?		60	34.5	60	32/2*
						DECHERAL	Abandoned, Insufficient Su		Eres IN	Map of W		ation		
	Outside		struction Retention Retention	Slot No.	Depth	(m/ft)	Abandoned, P Water Quality		Please provide	a map below follow			e back	(P)
	Diameter (cm/in)	(Plastic, Galv	anized, Steel)	SIDE NO.	From		Abandoned, of specify	other,		40	78	7		
				_			Other, specify		PO	MATH		SON	~	
			2						2	MATIE	TE	-		
	Water found	at Depth	Water Det Kind of Water			Dept	tole Diameter th (m/@ Dian	meter	8	DR	VE	-		
	74 (m/ Water found		Other, spe			From	To (cm	3/	5	0.	1	311	60	17
			Other, spe	<u> </u>			20 80 6	4	.01			''	00	
	Water found		Kind of Water		Untested				-70	6 0.21	that	P	- 91er) 	
	(11)		Il Contracto		Technician				E.					
	Business Na Air Ru		Contractor ng Co. Ltd			We	7681	ice No.	j j	2				
			thember/Na			Mu	unicipality ond		Comments:		n e	16	, A	3
	Province	Po	stal Code K0A 2Z0	Business	s E-mạil Add	ress	patico.ca		1/211)-106PN	1/2e	ACI	01	7
									information	Date Package Deliver	11	Ministr Audit No. 7	y Use	Only
	61383	82170	rea code) Na	Hann	ia, Jerem	y .		U	package delivered	Y Y 2023 M M	ba	9	+U /	340
	Well-Technicia	icence i	io. Signature	of Technicia	n and/or Col	tractor Da	te SDODAted 10	31 0 0	Yes	POBSING	300	Received		
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Water Well Records Summary Report Produced by Cambium Inc. using MOECP Water Well Information System (WWIS)

All units in meters unless otherwise specified



Well ID: 3501204 Construction Date: 1952-06-20	Easting: 425346 Northing: 4974622	UTM Zone 18 Positional Accuracy: unknown UTM	
	Well Depth:18.3Well Diameter (cm):15.2Water First Found:18.3Static Level:6	Water KindFRESHFinal StatusWater SupplyPrimary Water Use:Livestock	Pump Rate (LPM):59Recommended Pump Rate:Pumping Duration (h:m):2:0
	Layer:Driller's Description:1LIMESTONE	Top: Bottom: 0 18.3	
Well ID: 3501205 Construction Date: 1967-09-20	Easting: 424991 Northing: 4975034	UTM Zone 18 Positional Accuracy: unknown UTM	
	Well Depth:15.2Well Diameter (cm):15.2Water First Found:14.3Static Level:6	Water KindFRESHFinal StatusWater SupplyPrimary Water Use:Domestic	Pump Rate (LPM):32Recommended Pump Rate:23Pumping Duration (h:m):1:0
	Layer: Driller's Description:	Top: Bottom:	
	1 CLAY	0 1.22	
	2 LIMESTONE	1.22 15.2	
Well ID: 3501206 Construction Date: 1953-02-03	Easting: 425370 Northing: 4974622	UTM Zone 18 Positional Accuracy: unknown UTM	
	Well Depth:14.3Well Diameter (cm):15.2Water First Found:12.2Static Level:7	Water KindFRESHFinal StatusWater SupplyPrimary Water Use:Livestock	Pump Rate (LPM):36Recommended Pump Rate:Pumping Duration (h:m):1:0
	Layer: Driller's Description:	Top: Bottom:	
	1 TOPSOIL	0 1.83	
	2 SANDSTONE	1.83 14.3	
Well ID: 3501226 Construction Date: 1962-01-22	Easting: 424326 Northing: 4975302	UTM Zone 18 Positional Accuracy: margin of error : 10	00 m - 300 m
	Well Depth:19.8Well Diameter (cm):10.2Water First Found:16.8Static Level:6	Water KindFRESHFinal StatusWater SupplyPrimary Water Use:Livestock	Pump Rate (LPM):23Recommended Pump Rate:23Pumping Duration (h:m):1:0
	Layer: Driller's Description:	Top: Bottom:	
	1 TOPSOIL	0 6.1	
	2 LIMESTONE	6.1 19.8	

Well ID: 3502813 Construction Date: 1971-08-06	Easting: 42 Northing: 4		UTM Zone Positional		margin of error :	30 m - 100 m
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 18.9	Water Kin Final Statu Primary W		FRESH Water Supply Domestic	Pump Rate (LPM):36Recommended Pump Rate:36Pumping Duration (h:m):1:0
	Layer: Di	riller's Description:	Тор:	Bottom:		
	1	TOPSOIL	0	0.30		
	2	CLAY	0.30	1.22		
	3	SANDSTONE	1.22	19.8		
Well ID: 3502920 Construction Date: 1972-01-20	Easting: 42 Northing: 4		UTM Zone Positional	-	margin of error :	30 m - 100 m
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 18.3	Water Kin Final Statu Primary W		FRESH Water Supply Domestic	Pump Rate (LPM):55Recommended Pump Rate:55Pumping Duration (h:m):0 : 30
	Layer: Di	riller's Description:	Тор:	Bottom:		
	1	TOPSOIL	0	0.30		
	2	SANDSTONE	0.30	23.2		
Well ID: 3503379 Construction Date: 1973-09-13	Easting: 42 Northing: 4		UTM Zone Positional	-	margin of error :	30 m - 100 m
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 23.8	Water Kin Final Statu Primary W		Not stated Water Supply Domestic	Pump Rate (LPM):91Recommended Pump Rate:91Pumping Duration (h:m):0:30
	Layer: Di	riller's Description:	Тор:	Bottom:		
	1	TOPSOIL	0	0.61		
	2	LIMESTONE	0.61	10.4		
	3	SANDSTONE	10.4	23.5		
	4	SANDSTONE	23.5	24.1		
	5	SANDSTONE	24.1	25		
Well ID: 3504152 Construction Date: 1975-12-11	Easting: 42 Northing: 4		UTM Zone Positional	-	margin of error :	100 m - 300 m
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 18.9	Water Kin Final Statu Primary W		FRESH Water Supply Domestic	Pump Rate (LPM):73Recommended Pump Rate:73Pumping Duration (h:m):0:30
	Layer: Di	riller's Description:	Тор:	Bottom:		
	1	CLAY	0	2.13		
	2	LIMESTONE	2.13	9.14		

Well ID: 3504446 Construction Date: 1976-09-28	Easting: 425 Northing: 49		UTM Zone Positional		margin of error :	100 m - 300 m		
	Well Depth:23.2Well Diameter (cm):15.2Water First Found:21.6Static Level:12		Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate Pumping Duration (h:m):	50 : 50 0 : 30	
	Layer: Dri	ler's Description:	Тор:	Bottom:				
	1	TOPSOIL	0	0.30				
	2	SANDSTONE	0.30	23.2				
Well ID: 3504456 Construction Date: 1976-10-01	Easting: 425 Northing: 49		UTM Zone 18 Positional Accuracy: margin of error : 100 m - 300 m					
	Well Depth: Well Diamet Water First I Static Level:	24.4 er (cm): 15.2 Found: 22.3 4	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	273 227 1:0	
	Layer: Dri	ler's Description:	Тор:	Bottom:				
	1	SANDSTONE	0	24.4				
Well ID: 3504509 Construction Date: 1976-12-09	Easting: 424981 Northing: 4975722		UTM Zone Positional	-	margin of error :	100 m - 300 m		
	Well Depth: Well Diamet Water First I Static Level:	25.3 er (cm): 15.2 Found: 25.3 11	Water Kin Final Statu Primary W	IS	Not stated Water Supply Livestock	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	64 45 1 : 20	
	Layer: Dri	ler's Description:	Тор:	Bottom:				
	1	CLAY	0	0.30				
	1	CLAY	0	0.30				
	1	CLAY	0	0.30				
	1	CLAY	0	0.30				
	2	LIMESTONE	0.30	25.3				
	2	LIMESTONE	0.30	25.3				
	2	LIMESTONE	0.30	25.3				
	2	LIMESTONE	0.30	25.3				
Well ID: 3505174 Construction Date: 1978-09-16	Easting: 425 Northing: 49		UTM Zone Positional		margin of error :	100 m - 300 m		
	Well Diamet Water First I	Well Depth:19.5Well Diameter (cm):15.2Water First Found:18.3Static Level:14		d Is Vater Use:	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	55 55 0 : 30	
	Layer: Dri	ler's Description:	Тор:	Bottom:				

Well ID: 3505409 Construction Date: 1979-05-25	Easting: Northing	424430 : 4975321	UTM Zone Positional	-	margin of error :	100 m - 300 m	
		neter (cm): 15.2 st Found: 16.8	Water Kin Final Statu Primary W		FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate Pumping Duration (h:m):	136 : 136 1 : 0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	FILL	0	0.91			
	1	FILL	0	0.91			
	1	FILL	0	0.91			
	2	SANDSTONE	0.91	19.8			
	2	SANDSTONE	0.91	19.8			
	2	SANDSTONE	0.91	19.8			
Well ID: 3505483 Construction Date: 1979-08-27	Easting: 425030 Northing: 4974721			UTM Zone 18 Positional Accuracy: margin of error : 100 m - 300 m			
	Well Depth:23.5Well Diameter (cm):15.2Water First Found:22.3Static Level:6		Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	45 45 1 : 0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.61			
	1	TOPSOIL	0	0.61			
	2	LIMESTONE	0.61	12.2			
	2	LIMESTONE	0.61	12.2			
	3	SANDSTONE	12.2	23.5			
	3	SANDSTONE	12.2	23.5			
Well ID: 3505713 Construction Date: 1980-03-03	Easting: Northing	425430 : 4974721	UTM Zone Positional		margin of error :	100 m - 300 m	
	Well Diar Water Fir	Well Depth:23.5Well Diameter (cm):15.2Water First Found:16.8Static Level:9		d ıs /ater Use:	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	91 91 1:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.30			
	1	TOPSOIL	0	0.30			
	2	LIMESTONE	0.30	16.8			
	2	LIMESTONE	0.30	16.8			
	3	SANDSTONE	16.8	23.5			

Well ID: 3505896 Construction Date: 1980-10-16	Easting: 42 Northing:		UTM Zone Positional		margin of error :	10 - 30 m	
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 19.8	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	91 91 :30
	Layer: D	riller's Description: CLAY	Тор: 0	Bottom: 2.13			
	2	LIMESTONE	2.13	7.62			
	3	SANDSTONE	7.62	21.3			
Well ID: 3505918 Construction Date: 1980-11-25	Easting: 42 Northing: 4		UTM Zone Positional	-	margin of error :	100 m - 300 m	
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 17.7	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	36 36 1:0
	Layer: Di 1	r iller's Description : SANDSTONE	Тор: 0	Bottom: 18.9			
Well ID: 3507155 Construction Date: 1976-08-09	Easting: 42 Northing:		UTM Zone Positional		margin of error :	100 m - 300 m	
	Well Depth Well Diame Water First Static Leve	eter (cm): 12.7 Found: 18.9	Water Kin Final Statu Primary W	IS	Not stated Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	45 45 1 : 10
	Layer: D	riller's Description:	Top:	Bottom:			
	1	CLAY	0	1.22			
	1	CLAY	0	1.22			
	1	CLAY	0	1.22			
	1	CLAY	0	1.22			
	2	SANDSTONE	1.22	19.5			
	2	SANDSTONE	1.22	19.5			
	2	SANDSTONE	1.22	19.5			
	2	SANDSTONE	1.22	19.5			
Well ID: 3507676 Construction Date: 1987-01-06	Easting: 42 Northing:		UTM Zone 18 Positional Accuracy: unknown UTM				
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 18.3	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	91 91 1:0
	Layer: D	riller's Description:	Тор:	Bottom:			
	1	SAND	0	1.83			
	1	SAND	0	1.83			
	2	SANDSTONE	1.83	19.5			
	2	SANDSTONE	1.83	19.5			

Well ID: 3508196 Construction Date: 1988-01-08	Easting: 424 Northing: 49		UTM Zone Positional		margin of error :	10 - 30 m	
	Well Depth: Well Diamet Water First F Static Level:	12.8 er (cm): 15.2 found: 11.6 2	Water Kin Final Statu Primary W	ıs	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	68 : 68 1:0
	Layer: Dril	ler's Description:	Top:	Bottom:			
	1	CLAY	0	2.13			
	2	SANDSTONE	2.13	12.8			
Well ID: 3509180 Construction Date: 1990-02-22	Easting: 424 Northing: 49		UTM Zone Positional	-	unknown UTM		
	Well Depth: Well Diamet Water First F Static Level:	19.8 er (cm): 15.2 found: 18.3 6	Water Kin Final Statu Primary W		FRESH Water Supply Livestock	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	182 182 1:0
	Layer: Dril	ler's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.61			
	1	TOPSOIL	0	0.61			
	2	LIMESTONE	0.61	7.62			
	2	LIMESTONE	0.61	7.62			
	3	SANDSTONE	7.62	19.8			
	3	SANDSTONE	7.62	19.8			
Well ID: 3509560 Construction Date: 1990-12-11	Easting: 424 Northing: 49		UTM Zone Positional	-	unknown UTM		
	Well Depth: Well Diamet Water First F Static Level:	22 er (cm): 15.2 found: 17.7 6	Water Kin Final Statu Primary W	ıs	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	159 45 1 : 0
	Layer: Dril	ler's Description:	Тор:	Bottom:			
	1	SAND	0	0.61			
	1	SAND	0	0.61			
	2	CLAY	0.61	2.13			
	2	CLAY	0.61	2.13			
	3	LIMESTONE	2.13	6.1			
	3	LIMESTONE	2.13	6.1			
	4	SANDSTONE	6.1	22			
	4	SANDSTONE	6.1	22			
Well ID: 3509627 Construction Date: 1991-01-18	Easting: 425 Northing: 49		UTM Zone Positional		margin of error :	10 - 30 m	
	Well Depth:27.4Well Diameter (cm):15.2Water First Found:25Static Level:13		Water Kind Final Status Primary Water Use:		FRESH Water Supply	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	55 55 1:0
	Water First F		Primary W	/ater Use:	Cooling And A		1.0
	Water First F Static Level:		Top:	Bottom:	-	Pumping Duration (n.m).	1.0

Docusign Envelope ID: E039F35D-6214-4	425-A526	-978C94715271	
	2	SANDSTONE	

9.14 27.4

	Z	SANDSTONE	9.14	27.4				
Well ID: 3509628 Construction Date: 1991-01-18	Easting: 42 Northing: 4		UTM Zone Positional		unknown UTM			
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 17.1	Water Kin Final Statu Primary W	IS	FRESH Water Supply Cooling And A	Recommended Pump Rate:	68 68 1:0	
	Layer: Di	riller's Description:	Тор:	Bottom:				
	1	TOPSOIL	0	0.91				
	1	TOPSOIL	0	0.91				
	1	TOPSOIL	0	0.91				
	2	SANDSTONE	0.91	24.7				
	2	SANDSTONE	0.91	24.7				
	2	SANDSTONE	0.91	24.7				
Well ID: 3509631 Construction Date: 1991-01-18	Easting: 424565 Northing: 4975403		UTM Zone 18 Positional Accuracy: margin of er			10 - 30 m		
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 16.5	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Recommended Pump Rate:	227 227 1 :	
	Layer: Di	riller's Description:	Тор:	Bottom:				
	1	CLAY	0	2.44				
	1	CLAY	0	2.44				
	2	SANDSTONE	2.44	24.4				
	2	SANDSTONE	2.44	24.4				
Well ID: 3509632 Construction Date: 1991-01-18	Easting: 42 Northing: 4		UTM Zone Positional	-	margin of error :	10 - 30 m		
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 Found: 18	Water Kin Final Statu Primary W	IS	FRESH Recharge Well Domestic	Recommended Pump Rate:	227 227 1:0	
	Layer: Di	riller's Description:	Тор:	Bottom:				
	1	CLAY	0	1.83				
	1	CLAY	0	1.83				
	2	SANDSTONE	1.83	24.4				
	2	SANDSTONE	1.83	24.4				
Well ID: 3509885 Construction Date: 1991-07-05	Easting: 425191 Northing: 4975865		UTM Zone 18 Positional Accuracy:					
	-				margin of error :	10 - 30 m		
	Northing: 4	4975865 1: 24.4 2ter (cm): 12.7 1: Found: 22.9	Positional Water Kin Final Statu	Accuracy: d Is	margin of error : FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate:	45 23 1:0	
	Northing: Well Depth Well Diame Water First Static Level	4975865 1: 24.4 2ter (cm): 12.7 1: Found: 22.9	Positional Water Kin Final Statu	Accuracy: d Is	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate:	23	
	Northing: Well Depth Well Diame Water First Static Level	4975865 :: 24.4 eter (cm): 12.7 : Found: 22.9 l: 5	Positional Water Kin Final Statu Primary W	Accuracy: d s /ater Use:	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate:	23	

Well ID: 3510554 Construction Date: 1992-12-03	Easting: 42 Northing:		UTM Zone Positional		margin of error :	10 - 30 m
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 t Found: 9.75	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM):136Recommended Pump Rate:91Pumping Duration (h:m):1:0
	-	riller's Description:	Тор:	Bottom:		
	1	TOPSOIL	0	1.52		
	1	TOPSOIL	0	1.52		
	1	TOPSOIL	0	1.52		
	2	LIMESTONE	1.52	21.3		
	2 2	LIMESTONE	1.52 1.52	21.3 21.3		
Well ID: 3511174 Construction Date: 1994-08-12	Easting: 42 Northing:		UTM Zone Positional	18	unknown UTM	
	Well Depth Well Diame Water First Static Leve	eter (cm): 15.2 t Found: 29	Water Kin Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM):91Recommended Pump Rate:45Pumping Duration (h:m):1:0
	Layer: D	riller's Description:	Тор:	Bottom:		
	1	TOPSOIL	0	0.61		
	2	SANDSTONE	0.61	29.6		
Well ID: 3511306 Construction Date: 1994-11-14	Easting: 42 Northing:		UTM Zone Positional		margin of error :	10 - 30 m
	Well Depth Well Diam	n: 18.9 eter (cm): 15.2	Water Kin Final Statu		Not stated Water Supply	Pump Rate (LPM): 68 Recommended Pump Rate: 68 Pumping Pumping (hum): 1:0
	Water First Static Leve	t Found: 15.9	Primary W	ater Use:	Domestic	Pumping Duration (h:m): 1:0
	Water First Static Leve	t Found: 15.9		ater Use: Bottom:	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Leve	t Found: 15.9 I: 8 riller's Description: CLAY	Primary W Top: 0	Bottom: 2.74	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Leve Layer: D 1 1	t Found: 15.9 1: 8 riller's Description: CLAY CLAY	Primary W Top: 0 0	Bottom: 2.74 2.74	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Leve Layer: D 1 1 1	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY	Primary W Top: 0 0	Bottom: 2.74 2.74 2.74	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Leve Layer: D 1 1 1 1 1	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY	Primary W Top: 0 0 0 0	Bottom: 2.74 2.74 2.74 2.74	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Leve Layer: D 1 1 1 1 2	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY LIMESTONE	Primary W Top: 0 0 0 0 2.74	Bottom: 2.74 2.74 2.74 2.74 2.74 8.84	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Leve Layer: D 1 1 1 1 2 2 2	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY LIMESTONE LIMESTONE	Primary W Top: 0 0 0 0 2.74 2.74	Bottom: 2.74 2.74 2.74 2.74 8.84 8.84	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Level Layer: D 1 1 1 1 2 2 2 2	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY LIMESTONE LIMESTONE LIMESTONE	Primary W Top: 0 0 0 2.74 2.74 2.74	Bottom: 2.74 2.74 2.74 2.74 8.84 8.84 8.84	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Level Layer: D 1 1 1 1 2 2 2 2 2 2	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY LIMESTONE LIMESTONE LIMESTONE LIMESTONE	Primary W Top: 0 0 0 2.74 2.74 2.74 2.74	Bottom: 2.74 2.74 2.74 2.74 8.84 8.84 8.84 8.84 8.84	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Level Layer: D 1 1 1 1 2 2 2 2 2 2 3	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY LIMESTONE LIMESTONE LIMESTONE LIMESTONE LIMESTONE SANDSTONE	Primary W Top: 0 0 0 2.74 2.74 2.74 2.74 8.84	Bottom: 2.74 2.74 2.74 2.74 8.84 8.84 8.84 8.84 8.84 18.9	Domestic	Pumping Duration (n:m): 1:0
	Water First Static Level Layer: D 1 1 1 1 2 2 2 2 2 2	t Found: 15.9 I: 8 riller's Description: CLAY CLAY CLAY CLAY CLAY LIMESTONE LIMESTONE LIMESTONE LIMESTONE	Primary W Top: 0 0 0 2.74 2.74 2.74 2.74	Bottom: 2.74 2.74 2.74 2.74 8.84 8.84 8.84 8.84 8.84		Pumping Duration (n:m): 1:0

Well ID: 3511492 Construction Date: 1995-07-25	-	: 424991 ng: 4975034	UTM Zone Positional		unknown UTM		
		ameter (cm): 15.2 First Found: 16.1	Water Kin Final State Primary V		Not stated Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	68 6 8 11:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	SAND	0	0.91			
	1	SAND	0	0.91			
	1	SAND	0	0.91			
	1	SAND	0	0.91			
	2	LIMESTONE	0.91	11.6			
	2	LIMESTONE	0.91	11.6			
	2	LIMESTONE	0.91	11.6			
	2	LIMESTONE	0.91	11.6			
	3	SANDSTONE	11.6	18.3			
	3	SANDSTONE	11.6	18.3			
	3	SANDSTONE	11.6	18.3			
	3	SANDSTONE	11.6	18.3			
Well ID: 3511965 Construction Date: 1997-02-21	Easting: 425405 Northing: 4975374		UTM Zone Positional		unknown UTM		
		ameter (cm): 15.2 First Found: 27.7	Water Kin Final State Primary V		FRESH Water Supply Livestock	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	91 45 1 : 15
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	GRAVEL	0	1.22			
	1	GRAVEL	0	1.22			
	1	GRAVEL	0	1.22			
	2	LIMESTONE	1.22	28.6			
	2	LIMESTONE	1.22	28.6			
	2	LIMESTONE	1.22	28.6			
Well ID: 3512062 Construction Date: 1997-06-17	-	: 424991 ng: 4975034	UTM Zone Positional		unknown UTM		
	Well Di Water I	Well Depth:22.6Well Diameter (cm):15.2Water First Found:12.8Static Level:9		ıd us /ater Use:	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	91 45 1:0
	Layer:	Driller's Description:	Top:	Bottom:			
	1	SAND	0	0.61			
	1	SAND	0	0.61			
	1	SAND					
	2	LIMESTONE	0.61	4.57			
			0.61 0.61	4.57 4.57			

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	3	LIMESTONE

4.57 22.6

Well ID: 3512116 Construction Date: 1997-08-28	Easting: Northing	424991 : 4975034	UTM Zone Positional		unknown UTM		
		neter (cm): 15.2 st Found: 20.7	Water Kin Final Statu Primary W		FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	86 86 1:0
	Layer: 1	Driller's Description: CLAY	Тор: 0	Bottom: 0.61			
	1	CLAY	0	0.61			
	1	CLAY	0	0.61			
	1	CLAY	0	0.61			
	2	LIMESTONE	0.61	22.6			
	2	LIMESTONE	0.61	22.6			
	2	LIMESTONE	0.61	22.6			
	2	LIMESTONE	0.61	22.6			
Well ID: 3512498 Construction Date: 1998-11-24	Easting: 425009UTM Zone 18Northing: 4975828Positional Accuracy: margin of error : 10 - 30 m						
	Well Depth:28.0Well Diameter (cm):15.2Water First Found:26.8Static Level:8		Water Kind Final Status Primary Water Use:		FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	45 45 1:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	SAND	0	0.61			
	1	SAND	0	0.61			
	1	SAND	0	0.61			
	1	SAND	0	0.61			
	2	LIMESTONE	0.61	20.1			
	2	LIMESTONE	0.61	20.1			
	2	LIMESTONE	0.61	20.1			
	2	LIMESTONE	0.61	20.1			
	3	SANDSTONE	20.1	28.0			
	3	SANDSTONE	20.1	28.0			
	3	SANDSTONE	20.1	28.0			
	3	SANDSTONE	20.1	28.0			
Well ID: 3512846 Construction Date: 1999-12-17	Easting: Northing	424181 : 4975942	UTM Zone 18 Positional Accuracy: margin of error		margin of error :	10 - 30 m	
		neter (cm): 15.2 rst Found: 18	Water Kin Final Statu Primary W		FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	114 114 1:
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	SAND	0	1.83			

	1	26-978C94715271 SAND	0	1.83			
	1	SAND	0	1.83			
	2	SANDSTONE	1.83	24.4			
	2	SANDSTONE	1.83	24.4			
	2	SANDSTONE	1.83	24.4			
	2	SANDSTONE	1.83	24.4			
Well ID: 3513877 Construction Date: 2002-10-10	Easting: Northing	425401 g: 4975374	UTM Zone Positional	-	unknown UTM		
		meter (cm): 15.2 rst Found: 23.2	Water Kind Final Statu Primary W	s	Not stated Water Supply Domestic	Recommended Pump Rate:	136 136 1:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.61			
	1	TOPSOIL	0	0.61			
	2	LIMESTONE	0.61	24.4			
	2	LIMESTONE	0.61	24.4			
Well ID: 3514012 Construction Date: 2003-01-07	Easting: Northing	424571 g: 4974688	UTM Zone Positional		margin of error :	1 km - 3 km	
	Well Depth:15.9Well Diameter (cm):15.2Water First Found:12.8Static Level:4		Water Kind Final Status Primary Water Use:		FRESH Water Supply Domestic	Recommended Pump Rate:	136 45 1:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.61			
	1	TOPSOIL	0	0.61			
	2	SAND	0.61	1.52			
	2	SAND	0.61	1.52			
	3	CLAY	1.52	3.05			
	3	CLAY	1.52	3.05			
	4	GRAVEL	3.05	3.96			
	4	GRAVEL	3.05	3.96			
	5	SANDSTONE	3.96	15.9			
	5 5	SANDSTONE SANDSTONE	3.96 3.96	15.9 15.9			
Well ID: 3514013 Construction Date: 2003-01-07	5 Easting:	SANDSTONE	3.96 UTM Zone	15.9 18	margin of error :	1 km - 3 km	
	5 Easting: Northing Well Dep Well Dia	SANDSTONE 424571 g: 4974688 oth: 15.2 meter (cm): 15.2 rst Found: 7.92	3.96 UTM Zone	15.9 18 Accuracy: I s	FRESH Water Supply	Pump Rate (LPM): Recommended Pump Rate:	227 45 1:0
	5 Easting: Northing Well Dep Well Dia Water Fi Static Lev Layer:	SANDSTONE 424571 g: 4974688 wht: 15.2 meter (cm): 15.2 rst Found: 7.92 vel: 2 Driller's Description:	3.96 UTM Zone Positional Water Kind Final Statu Primary W Top:	15.9 18 Accuracy: I s ater Use: Bottom:	FRESH Water Supply	Pump Rate (LPM): Recommended Pump Rate:	45
	5 Easting: Northing Well Dep Well Dia Water Fi Static Lep	SANDSTONE 424571 g: 4974688 oth: 15.2 meter (cm): 15.2 rst Found: 7.92 vel: 2	3.96 UTM Zone Positional Water Kind Final Statu Primary W	15.9 18 Accuracy: I s ater Use:	FRESH Water Supply	Pump Rate (LPM): Recommended Pump Rate:	45

Construction Date: 2004-01-29	Northing: Well Dept Well Diam	LIME 125401 4975375	STONE	3.66 3.66 UTM Zone	15.2 15.2						
Construction Date: 2004-01-29	Easting: 4 Northing: Well Dept Well Diam	125401 4975375	STONE								
Construction Date: 2004-01-29	Northing: Well Dept Well Diam	4975375		UTM Zone	10						
	Well Diam		Easting: 425401 Northing: 4975375			UTM Zone 18 Positional Accuracy: unknown UTM					
	Water First Static Lev	neter (cm): st Found:	22.6 : 15.2 21.3 8	Water Kind Final Statu Primary W	IS	FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	45 : 45 1:0			
	Layer: [Driller's De	escription:	Тор:	Bottom:						
	1	TOI	PSOIL	0	1.83						
	2	LIME	STONE	1.83	22.6						
	Easting: 4 Northing:			UTM Zone Positional	-	margin of error : 1	.00 m - 300 m				
	Well Diameter (cm):			Water Kind Final Statu Primary W	IS	Abandoned-Qu Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	:			
	Layer: [Driller's De	escription:	Тор:	Bottom:						
	Easting: 425031 Northing: 4975706		UTM Zone Positional	-	margin of error : 1	.00 m - 300 m					
	Well Depth:23.2Well Diameter (cm):15.2Water First Found:20.7Static Level:5				FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	482 : 482 2 :				
	Layer: [Driller's De	escription:	Тор:	Bottom:						
	1	TO	PSOIL	0	0.30						
	1	TO	PSOIL	0	0.30						
	1	то	PSOIL	0	0.30						
	1	то	PSOIL	0	0.30						
	2	LIME	STONE	0.30	23.2						
	2	LIME	STONE	0.30	23.2						
	2	LIME	STONE	0.30	23.2						
	2	LIME	STONE	0.30	23.2						
	Easting: 4 Northing:	125295 4974720		UTM Zone 18 Positional Accuracy: margin of error : 10 - 30 m							
	Well Depth:24.4Well Diameter (cm):15.2Water First Found:23.5Static Level:23.5			Water Kind Final Statu Primary W	IS	Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	57 : 32 1 :			
	-		escription:	Тор:	Bottom:						
	1	C	LAY	0	0.91						

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	1 CLAY		0	0.91			
	2	SANDSTONE	0.91	21.6			
	2	SANDSTONE	0.91	21.6			
	2	SANDSTONE	0.91	21.6			
	2	SANDSTONE	0.91	21.6			
	3	SANDSTONE	21.6	23.5			
	3	SANDSTONE	21.6	23.5			
	3	SANDSTONE	21.6	23.5			
	3	SANDSTONE	21.6	23.5			
	4	SANDSTONE	23.5	24.4			
	4	SANDSTONE	23.5	24.4			
	4	SANDSTONE	23.5	24.4			
	4	SANDSTONE	23.5	24.4			
Well ID: 3514905 Construction Date: 2005-05-18	Easting: Northin	425167 g: 4974871	UTM Zone Positional		margin of error :	30 m - 100 m	
		meter (cm): 15.2 rst Found: 16.5	Water Kin Final Statu	d ıs	Water Supply Domestic	Pump Rate (LPM):50Recommended Pump Rate:30Pumping Duration (h:m):1 :	
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	2	SANDSTONE	0.91	16.5			
	2	SANDSTONE	0.91	16.5			
	2	SANDSTONE	0.91	16.5			
	2	SANDSTONE	0.91	16.5			
	2	SANDSTONE	0.91	16.5			
	2	SANDSTONE	0.91	16.5			
	3	SANDSTONE	16.5	16.8			
	3 3	SANDSTONE SANDSTONE	16.5 16.5	16.8 16.8			
	3	SANDSTONE	16.5	16.8			
	3 3	SANDSTONE SANDSTONE	16.5 16.5	16.8 16.8			
	3 3 3	SANDSTONE SANDSTONE SANDSTONE	16.5 16.5 16.5	16.8 16.8 16.8			
	3 3 3 3	SANDSTONE SANDSTONE SANDSTONE SANDSTONE	16.5 16.5 16.5 16.5	16.8 16.8 16.8 16.8			

16.8

21.3

SANDSTONE

4

4

4

	A 4405 AT	-06 070004745074					
cusign Envelope ID: E039F35D-621	4-4425-A5 4	SANDSTONE	16.8	21.3			
	4	SANDSTONE	16.8	21.3			
	5	SANDSTONE	21.3	22.9			
	5	SANDSTONE	21.3	22.9			
	5	SANDSTONE	21.3	22.9			
	5	SANDSTONE	21.3	22.9			
	5	SANDSTONE	21.3	22.9			
	5	SANDSTONE	21.3	22.9			
	6	SANDSTONE	22.9	24.4			
	6	SANDSTONE	22.9	24.4			
	6	SANDSTONE	22.9	24.4			
	6	SANDSTONE	22.9	24.4			
	6	SANDSTONE	22.9	24.4			
	6	SANDSTONE	22.9	24.4			
Well ID: 3514939 Construction Date: 2005-06-14	-	: 425194 bg: 4974918	UTM Zone Positional		margin of error :	30 m - 100 m	
		ameter (cm): First Found: 24.4	Water King Final Statu Primary W	IS	Water Supply Domestic	Recommended Pump Rate:	45 30 1:
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.79			
	1	TOPSOIL	0	0.79			
	2	SANDSTONE	0.79	16.8			
	2	SANDSTONE	0.79	16.8			
	3	SANDSTONE	16.8	17.1			
	3	SANDSTONE	16.8	17.1			
	4	SANDSTONE	17.1	24.1			
	4	SANDSTONE	17.1	24.1			
	5	CANDCTONE		~ ~ 7			
	J	SANDSTONE	24.1	24.7			
	5	SANDSTONE	24.1 24.1	24.7 24.7			
	5	SANDSTONE	24.1	24.7			
	5 6 6 Easting	SANDSTONE SANDSTONE	24.1 24.7 24.7 UTM Zone	24.7 25.9 25.9	margin of error :	30 m - 100 m	
Well ID: 3514989 Construction Date: 2005-07-11	5 6 Easting Northin Well De Well Dia	SANDSTONE SANDSTONE SANDSTONE : 425160 ng: 4974808 : epth: 24.4 ameter (cm): 15.2 : first Found: 22.6	24.1 24.7 24.7 UTM Zone	24.7 25.9 25.9 18 Accuracy: d Is	Water Supply	Pump Rate (LPM): Recommended Pump Rate:	52 30 1:
	5 6 Easting Northin Well De Well Dia Water F	SANDSTONE SANDSTONE SANDSTONE : 425160 ng: 4974808 : epth: 24.4 ameter (cm): 15.2 : first Found: 22.6	24.1 24.7 24.7 UTM Zone Positional Water Kine Final Statu	24.7 25.9 25.9 18 Accuracy: d Is	Water Supply	Pump Rate (LPM): Recommended Pump Rate:	30
	5 6 Easting Northin Well De Well Dia Water F Static Le Layer:	SANDSTONE SANDSTONE SANDSTONE : 425160 ng: 4974808 epth: 24.4 ameter (cm): 15.2 First Found: 22.6 evel: Driller's Description:	24.1 24.7 24.7 UTM Zone Positional Water Kine Final Statu Primary W	24.7 25.9 25.9 18 Accuracy: d Is Vater Use: Bottom:	Water Supply	Pump Rate (LPM): Recommended Pump Rate:	30

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J	1	TOPSOIL	0	0.30			
	2	SANDSTONE	0.30	21.3			
	2	SANDSTONE	0.30	21.3			
	2	SANDSTONE	0.30	21.3			
	2	SANDSTONE	0.30	21.3			
	3	SANDSTONE	21.3	22.6			
	3	SANDSTONE	21.3	22.6			
	3	SANDSTONE	21.3	22.6			
	3	SANDSTONE	21.3	22.6			
	4	SANDSTONE	22.6	24.4			
	4	SANDSTONE	22.6	24.4			
	4	SANDSTONE	22.6	24.4			
	4	SANDSTONE	22.6	24.4			
Well ID: 3515018 Construction Date: 2005-07-28	Easting: Northing	424248 g: 4975444	UTM Zone Positional		margin of error :	30 m - 100 m	
	Well Depth: Well Diamet Water First I Static Level:		Water Kind Final Status Primary Water Use:		FRESH Water Supply Domestic	Pump Rate (LPM):159Recommended Pump Rate:45Pumping Duration (h:m):2 :	
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	3.05			
	1	TOPSOIL	0	3.05			
	1	TOPSOIL	0	3.05			
	1	TOPSOIL	0	3.05			
	2	LIMESTONE	3.05	13.7			
	2	LIMESTONE	3.05	13.7			
	2	LIMESTONE	3.05	13.7			
	2	LIMESTONE	3.05	13.7			
Well ID: 3515067 Construction Date: 2005-09-07	Easting: 425136 Northing: 4974837		UTM Zone 18 Positional Accuracy: margin of error : :		margin of error :	30 m - 100 m	
	Well Depth:24.4Well Diameter (cm):Water First Found:22Static Level:		Water Kind Final Status Primary Water Use:		Water Supply Domestic	Pump Rate (LPM):45Recommended Pump Rate:30Pumping Duration (h:m):1:0	
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	1	CLAY	0	0.91			
	2	SANDSTONE	0.91	21.3			
	2 2	SANDSTONE SANDSTONE	0.91 0.91	21.3 21.3			

cusign Envelope ID: E039F35D-621	2	SANDSTONE	0.91	21.3			
	2	SANDSTONE	0.91	21.3			
	2	SANDSTONE	0.91	21.3			
	2	SANDSTONE	0.91	21.3			
	3	SANDSTONE	21.3	24.4			
	3	SANDSTONE	21.3	24.4			
	3	SANDSTONE	21.3	24.4			
	3	SANDSTONE	21.3	24.4			
	3	SANDSTONE	21.3	24.4			
	3	SANDSTONE	21.3	24.4			
Well ID: 3515321 Construction Date: 2006-05-12	Easting: 425391 Northing: 4974943		UTM Zone 18 Positional Accuracy: margin of error : 10 - 30 m				
		ameter (cm): First Found: 12.2	Water Kin Final State Primary V		FRESH Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	45 45 2 :
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	TOPSOIL	0	0.91			
	1	TOPSOIL	0	0.91			
	1	TOPSOIL	0	0.91			
	1	TOPSOIL	0	0.91			
	2	LIMESTONE	0.91	24.4			
	2	LIMESTONE	0.91	24.4			
	2	LIMESTONE	0.91	24.4			
	2	LIMESTONE	0.91	24.4			
Well ID: 3515503 Construction Date: 2006-11-17	Easting: 425268 Northing: 4974973			UTM Zone 18 Positional Accuracy: margin of error : 1		10 - 30 m	
	Well De	pth: 24.4 ameter (cm): 15.2	Water Kin Final Stat		Water Supply	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	
		irst Found: 16.5	Primary V	/ater Use:	Domestic	Pumping Duration (n:m):	1:0
	Water F	irst Found: 16.5	Тор:	/ater Use: Bottom:		Pumping Duration (n:m):	1:0
	Water F Static Le	First Found: 16.5 evel:	-	Bottom: 0.91		Pumping Duration (n:m):	1:0
	Water F Static Le Layer:	irst Found: 16.5 evel: Driller's Description:	Top: 0 0	Bottom: 0.91 0.91		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1	First Found: 16.5 evel: Driller's Description: SAND SAND SAND	Тор: 0	Bottom: 0.91 0.91 0.91		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1	irst Found: 16.5 evel: Driller's Description: SAND SAND	Top: 0 0	Bottom: 0.91 0.91		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1 1	First Found: 16.5 evel: Driller's Description: SAND SAND SAND	Top: 0 0 0	Bottom: 0.91 0.91 0.91		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1 1 1	First Found: 16.5 evel: Driller's Description: SAND SAND SAND SAND SAND	Top: 0 0 0 0	Bottom: 0.91 0.91 0.91 0.91		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1 1 1 2	First Found: 16.5 evel: Driller's Description: SAND SAND SAND SAND SAND SANDSTONE	Top: 0 0 0 0 0.91	Bottom: 0.91 0.91 0.91 0.91 15.2		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1 1 2 2	First Found: 16.5 evel: Driller's Description: SAND SAND SAND SAND SANDSTONE SANDSTONE	Top: 0 0 0 0 0.91 0.91	Bottom: 0.91 0.91 0.91 0.91 15.2 15.2		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1 1 2 2 2 2	irst Found: 16.5 evel: Driller's Description: SAND SAND SAND SAND SANDSTONE SANDSTONE SANDSTONE	Top: 0 0 0 0 0.91 0.91 0.91	Bottom: 0.91 0.91 0.91 15.2 15.2 15.2		Pumping Duration (n:m):	1:0
	Water F Static Le Layer: 1 1 1 2 2 2 2 2 2	First Found: 16.5 evel: Driller's Description: SAND SAND SAND SAND SANDSTONE SANDSTONE SANDSTONE SANDSTONE	Top: 0 0 0 0 0.91 0.91 0.91 0.91	Bottom: 0.91 0.91 0.91 15.2 15.2 15.2 15.2		Pumping Duration (n:m):	1:0
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	3	SANDSTONE	15.2	16.8			
	4	SANDSTONE	16.8	23.8			
	4	SANDSTONE	16.8	23.8			
	4	SANDSTONE	16.8	23.8			
	4	SANDSTONE	16.8	23.8			
	5	SANDSTONE	23.8	24.4			
	5	SANDSTONE	23.8	24.4			
	5	SANDSTONE	23.8	24.4			
	5	SANDSTONE	23.8	24.4			
Well ID: 7048403 Construction Date: 2007-08-17	-	: 425200 ng: 4974843	UTM Zone Positional	-	margin of error :	10 - 30 m	
		ameter (cm): First Found: 22.9	Water Kin Final Statu Primary W	IS	Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	80 35 1:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	CLAY	0				
	1	CLAY	0				
	2	SANDSTONE		0.61			
	2	SANDSTONE		0.61			
	3	SANDSTONE	0.61	2.43			
	3	SANDSTONE	0.61	2.43			
	4	SANDSTONE	2.43	22.9			
	4	SANDSTONE	2.43	22.9			
	5	SANDSTONE	22.9	23.2			
	5	SANDSTONE	22.9	23.2			
	6		23.2	24.4			
	6		23.2	24.4			
Well ID: 7109832 Construction Date: 2008-08-14	-	: 424516 ng: 4975241	UTM Zone Positional		margin of error :	10 - 30 m	
		ameter (cm): 15.2 First Found: 15.9	Water Kin Final Statu Primary W	ıs	Untested Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	414 414 1:
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	CLAY	0	2.44			
	1	CLAY	0	2.44			
	1	CLAY	0	2.44			
	1	CLAY	0	2.44			
	1		•	2 4 4			

1

1

2

2

CLAY

CLAY

SANDSTONE

SANDSTONE

0

0

2.44

2.44

2.44

2.44

18.3

18.3

cusign Envelope ID: E039F35D-6214	4-4420-A0 2	SANDSTONE	2.44	18.3		
	2	SANDSTONE	2.44	18.3		
	2	SANDSTONE	2.44	18.3		
	2	SANDSTONE	2.44	18.3		
Well ID: 7122399 Construction Date: 2009-04-28	-	425098 g: 4974747	UTM Zone Positional		margin of error :	30 m - 100 m
		imeter (cm): 38.1 irst Found: 22.9	Water King Final Statu Primary W	S	Untested Water Supply Domestic	Pump Rate (LPM):68Recommended Pump Rate:68Pumping Duration (h:m):1:0
	Layer:	Driller's Description:	Тор:	Bottom:		
	1	CLAY	0	1.22		
	2	SANDSTONE	1.22	22.3		
	3	SANDSTONE	22.3	22.9		
	4	SANDSTONE	22.9	24.4		
Well ID: 7122400 Construction Date: 2009-04-28	-	425117 g: 4974777	UTM Zone Positional	-	margin of error :	30 m - 100 m
	Well Depth:24.4Well Diameter (cm):15Water First Found:22.3Static Level:21.3		Water King Final Statu Primary W	S	Untested Water Supply Domestic	Pump Rate (LPM):68Recommended Pump Rate:68Pumping Duration (h:m):1:0
	Layer:	Driller's Description:	Тор:	Bottom:		
	1	CLAY	0	0.76		
	1	CLAY	0	0.76		
	2	SANDSTONE	0.76	22.3		
	2	SANDSTONE	0.76	22.3		
	3	SANDSTONE	22.3	22.9		
	3	SANDSTONE	22.3	22.9		
	4	SANDSTONE	22.9	24.4		
	4	SANDSTONE	22.9	24.4		
Well ID: 7192550 Construction Date: 2012-12-04	-	424533 g: 4975223	UTM Zone Positional		margin of error :	30 m - 100 m
		imeter (cm): 15.9	Water King Final Statu	S	Untested Water Supply Domestic	Pump Rate (LPM):91Recommended Pump Rate:91Pumping Duration (h:m):1 :
	Water F Static Le	irst Found: 14.6 evel: 6	Primary vv			
	Static Le Layer:	evel: 6 Driller's Description:	Тор:	Bottom:		
	Static Le	evel: 6 Driller's Description: CLAY	Тор : 0	1.22		
	Static Le Layer:	evel: 6 Driller's Description: CLAY CLAY	Тор: 0 0	1.22 1.22		
	Static Le Layer: 1	evel: 6 Driller's Description: CLAY CLAY CLAY	Top: 0 0 0	1.22 1.22 1.22		
	Static Le Layer: 1 1	evel: 6 Driller's Description: CLAY CLAY	Тор: 0 0	1.22 1.22		
	Static Le Layer: 1 1	evel: 6 Driller's Description: CLAY CLAY CLAY	Top: 0 0 0	1.22 1.22 1.22		

Docusign Envelope ID: E039F35D-621	4-4425-A526-	978C94715271					
	2	SAND	1.22	12.2			
	2	SAND	1.22	12.2			
	2	SAND	1.22	12.2			
	2	SAND	1.22	12.2			
	2	SAND	1.22	12.2			
	3	SANDSTONE	12.2	14.6			
	3	SANDSTONE	12.2	14.6			
	3	SANDSTONE	12.2	14.6			
	3	SANDSTONE	12.2	14.6			
	3	SANDSTONE	12.2	14.6			
	3	SANDSTONE	12.2	14.6			
	4	SANDSTONE	14.6	16.5			
	4	SANDSTONE	14.6	16.5			
	4	SANDSTONE	14.6	16.5			
	4	SANDSTONE	14.6	16.5			
	4	SANDSTONE	14.6	16.5			
	4	SANDSTONE	14.6	16.5			
	5	SANDSTONE	16.5	18.3			
	5	SANDSTONE	16.5	18.3			
	5	SANDSTONE	16.5	18.3			
	5	SANDSTONE	16.5	18.3			
	5 5	SANDSTONE SANDSTONE	16.5 16.5	18.3 18.3			
Well ID: 7228026 Construction Date: 2014-09-22	5	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone	18.3 18.3 18	margin of error :	30 m - 100 m	
	5 5 Easting: 42 Northing: 4 Well Depth	SANDSTONE SANDSTONE 24567 4975187 : 18.6 eter (cm): 14.9 : Found: 16.1	16.5 16.5 UTM Zone Positional Water Kine Final Statu	18.3 18.3 18 Accuracy: d s	margin of error : Untested Water Supply Domestic	30 m - 100 m Pump Rate (LPM): 91 Recommended Pump Rate: 91 Pumping Duration (h:m): 1 :	
	5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve	SANDSTONE SANDSTONE 24567 4975187 : 18.6 eter (cm): 14.9 : Found: 16.1	16.5 16.5 UTM Zone Positional Water Kine Final Statu	18.3 18.3 18 Accuracy: d s	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve	SANDSTONE SANDSTONE 24567 4975187 a: 18.6 eter (cm): 14.9 : Found: 16.1 1: 3	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W	18.3 18.3 18 Accuracy: d s ater Use:	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: De	SANDSTONE SANDSTONE 24567 4975187 :: 18.6 eter (cm): 14.9 : Found: 16.1 1: 3 :: 3	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W	18.3 18.3 Accuracy: d s ater Use: Bottom:	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Di 1	SANDSTONE SANDSTONE 24567 4975187 : 18.6 eter (cm): 14.9 : Found: 16.1 I: 3 riller's Description: SAND	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0	18.3 18.3 Accuracy: d s ater Use: 0.61	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Di 1 1	SANDSTONE SANDSTONE 24567 4975187 a: 18.6 eter (cm): 14.9 : Found: 16.1 I: 3 riller's Description: SAND SAND	16.5 16.5 UTM Zone Positional Water Kind Final Statu Primary W Top: 0 0	18.3 18.3 18 Accuracy: d s ater Use: 0.61 0.61	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Dr 1 1 1	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0	18.3 18.3 18 Accuracy: d s ater Use: 0.61 0.61 0.61	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Du 1 1 1 1 1	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0 0	18.3 18.3 Accuracy: d s ater Use: 0.61 0.61 0.61 0.61	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Du 1 1 1 1 1 1	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0 0 0 0	18.3 18.3 Accuracy: d s ater Use: 0.61 0.61 0.61 0.61 0.61	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Du 1 1 1 1 1 1 1 1 1	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0 0 0 0 0 0	18.3 18.3 18 Accuracy: d s ater Use: 0.61 0.61 0.61 0.61 0.61 0.61 0.61	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Du 1 1 1 1 1 1 1 2	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0 0 0 0 0 0 0 0 0	18.3 18.3 18 Accuracy: d s ater Use: 0.61 0.61 0.61 0.61 0.61 0.61 13.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Du 1 1 1 1 1 1 1 2 2	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18.3 18.3 18 Accuracy: d s ater Use: 0.61 0.61 0.61 0.61 0.61 0.61 13.7 13.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	
	5 5 Easting: 42 Northing: 4 Well Depth Well Diame Water First Static Leve Layer: Du 1 1 1 1 1 1 2 2 2 2	SANDSTONE SANDSTONE	16.5 16.5 UTM Zone Positional Water Kine Final Statu Primary W Top: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	18.3 18.3 18 Accuracy: d s ater Use: 0.61 0.61 0.61 0.61 0.61 13.7 13.7 13.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91	

Docusign Envelope ID: E039F35D-621	4-4425-A526- 3	-978C94715271 SANDSTONE	13.7	16.1		
	3	SANDSTONE	13.7	16.1		
	3	SANDSTONE	13.7	16.1		
	3	SANDSTONE	13.7	16.1		
	3	SANDSTONE	13.7	16.1		
	3	SANDSTONE	13.7	16.1		
	4	SANDSTONE	16.1	16.5		
	4	SANDSTONE	16.1	16.5		
	4	SANDSTONE	16.1	16.5		
	4	SANDSTONE	16.1	16.5		
	4	SANDSTONE	16.1	16.5		
	4	SANDSTONE	16.1	16.5		
	5	SANDSTONE	16.5	18.6		
	5	SANDSTONE	16.5	18.6		
	5	SANDSTONE	16.5	18.6		
	5	SANDSTONE	16.5	18.6		
	5	SANDSTONE	16.5	18.6		
	5	SANDSTONE	16.5	18.6		
	0		10.0	2010		
Well ID: 7268446	Easting: 42	24760	UTM Zone	10		
	-				margin of arror i	20 - 100 -
Construction Date: 2016-08-10	Northing:	4974829	Positional	Accuracy:	margin of error : 3	
	Northing: Well Depth	4974829 n: 24.4		Accuracy: d	Untested	30 m - 100 m Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First	4974829 n: 24.4 eter (cm): 15.9 t Found: 17.7	Positional Water Kin Final Statu	Accuracy: d ıs		Pump Rate (LPM): 91
	Northing: Well Depth Well Diame Water First Static Leve	4974829 n: 24.4 eter (cm): 15.9 t Found: 17.7 l: 7	Positional Water Kin Final Statu Primary W	Accuracy: d ıs /ater Use:	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D	4974829 a: 24.4 eter (cm): 15.9 t Found: 17.7 I: 7 riller's Description:	Positional Water Kim Final Statu Primary W Top:	Accuracy: d Is /ater Use: Bottom:	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: Di 1	4974829 a: 24.4 eter (cm): 15.9 t Found: 17.7 I: 7 riller's Description: SAND	Positional Water Kim Final Statu Primary W Top: 0	Accuracy: d Is Vater Use: Bottom: 1.22	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D 1 1	4974829 a: 24.4 eter (cm): 15.9 a: Found: 17.7 b: 7 riller's Description: SAND SAND	Positional Water Kin Final Statu Primary W Top: 0 0	Accuracy: d Is Vater Use: Bottom: 1.22 1.22	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D 1 1 1 1	4974829 a: 24.4 eter (cm): 15.9 a: Found: 17.7 b: 7 riller's Description: SAND SAND SAND	Positional Water Kim Final Statu Primary W Top: 0 0 0	Accuracy: d /ss /ater Use: Bottom: 1.22 1.22 1.22	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diama Water First Static Leve Layer: D 1 1 1 1 1	4974829 a: 24.4 eter (cm): 15.9 t Found: 17.7 I: 7 riller's Description: SAND SAND SAND SAND	Positional Water Kim Final Statu Primary W Top: 0 0 0 0 0	Accuracy: d /s /ater Use: Bottom: 1.22 1.22 1.22 1.22 1.22	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diama Water First Static Leve Layer: D 1 1 1 1 1 2	4974829 a: 24.4 eter (cm): 15.9 t Found: 17.7 I: 7 riller's Description: SAND SAND SAND SAND SAND SAND	Positional Water Kim Final Statu Primary W Top: 0 0 0 0 0 1.22	Accuracy: d /s /ater Use: 1.22 1.22 1.22 1.22 1.22 1.22 1.7,7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D 1 1 1 1 2 2 2	4974829 a: 24.4 eter (cm): 15.9 a: Found: 17.7 b: 7 riller's Description: SAND SAND SAND SAND SAND SAND SAND	Positional Water Kim Final Statu Primary W Top: 0 0 0 0 1.22 1.22	Accuracy: d is /ater Use: 1.22 1.22 1.22 1.22 1.22 1.7.7 17.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D 1 1 1 1 2 2 2 2	4974829 a: 24.4 eter (cm): 15.9 a Found: 17.7 a Found: 17.7	Positional Water Kim Final Statu Primary W Top: 0 0 0 0 1.22 1.22 1.22	Accuracy: d /ater Use: 1.22 1.22 1.22 1.22 1.22 1.7.7 17.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diama Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 2	4974829 a: 24.4 bter (cm): 15.9 a Found: 17.7 17.7 a Found: 17.7 a Found:	Positional Water Kim Final Statu Primary W Top: 0 0 0 0 1.22 1.22 1.22 1.22	Accuracy: d /s /ater Use: 1.22 1.22 1.22 1.22 1.22 1.77 17.7 17.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diama Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 2 3	4974829 a: 24.4 b: 24.4 5.9 5.9 5.9 17.7 7 c: 24.4 15.9 17.7 7 c: 24.4 17.7 20 20 20 20 20 20 20 20 20 20	Positional Water Kim Final Statu Primary W Top: 0 0 0 0 1.22 1.22 1.22 1.22 1.22 1.22 1	Accuracy: d /s /ater Use: 1.22 1.22 1.22 1.22 1.22 1.77 17.7 17.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 2 3 3 3	4974829 a: 24.4 be (cm): 15.9 a Found: 15.9 a Found: 17.7 a T.7 cm cm cm cm cm cm cm cm cm cm	Positional Water Kim Final Statu Primary W 0 0 0 1.22 1.22 1.22 1.22 1.22 1.22 1.77 17.7	Accuracy: d ss /ater Use: 1.22 1.22 1.22 1.22 1.22 17.7 17.7 17.7	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diamo Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 3 3 3 3 3	4974829 a: 24.4 eter (cm): 15.9 Found: 17.7 1: 7 riller's Description: SAND SAND SAND SAND SAND SANDSTONE SANDSTONE SANDSTONE SANDSTONE SANDSTONE SANDSTONE SANDSTONE	Positional Water Kim Final Statu Primary W 0 0 0 1.22 1.22 1.22 1.22 1.22 1.22 1.77 17.7	Accuracy: d /s /ater Use: 1.22 1.22 1.22 1.22 1.22 1.7.7 17.7 17.	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diamo Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3	4974829 a: 24.4 b: 7000 24.4 15.9 15.9 17.7 17.	Positional Water Kim Final Statu Primary W 0 0 0 1.22 1.22 1.22 1.22 1.22 1.22 1.2	Accuracy: d /s /ater Use: 1.22 1.22 1.22 1.22 1.22 1.22 1.77 17.7 17.	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diame Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 3 3 3 3 3 3 3 3 4	4974829 a: 24.4 b: 7000 b: 7000 c:	Positional Water Kim Final Statu Primary W 0 0 0 1.22 1.22 1.22 1.22 1.22 1.22 1.2	Accuracy: d ss /ater Use: 1.22 1.22 1.22 1.22 1.22 1.22 1.7.7 17.7 1	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91
	Northing: Well Depth Well Diamo Water First Static Leve Layer: D 1 1 1 1 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3	4974829 a: 24.4 b: 7000 24.4 15.9 15.9 17.7 17.	Positional Water Kim Final Statu Primary W 0 0 0 1.22 1.22 1.22 1.22 1.22 1.22 1.2	Accuracy: d /s /ater Use: 1.22 1.22 1.22 1.22 1.22 1.22 1.77 17.7 17.	Untested Water Supply Domestic	Pump Rate (LPM): 91 Recommended Pump Rate: 91

SANDSTONE

4

22.6

24.4

Well ID: 7268447 Construction Date: 2016-08-10	Easting: 424277UTM Zone 18Northing: 4975064Positional Accuracy: margin of error : 30 m - 100 m						
		ameter (cm): 15.6 First Found: 27.4	Water Kin Final Statu Primary W		Untested Water Supply Domestic	Pump Rate (LPM): Recommended Pump Rate: Pumping Duration (h:m):	91 91 1:0
	Layer:	Driller's Description:	Тор:	Bottom:			
	1	SANDSTONE	0	18.9			
	1	SANDSTONE	0	18.9			
	1	SANDSTONE	0	18.9			
	1	SANDSTONE	0	18.9			
	2	SAND	18.9	27.4			
	2	SAND	18.9	27.4			
	2	SAND	18.9	27.4			
	2	SAND	18.9	27.4			
	3	SANDSTONE	27.4	28.0			
	3	SANDSTONE	27.4	28.0			
	3	SANDSTONE	27.4	28.0			
	3	SANDSTONE	27.4	28.0			
	4	SANDSTONE	28.0	29.9			
	4	SANDSTONE	28.0	29.9			
	4	SANDSTONE	28.0	29.9			
	4	SANDSTONE	28.0	29.9			



Environmental

Geotechnical

Building Sciences

Construction Quality Verification

Telephone (866) 217.7900 (705) 742.7900

Website cambium-inc.com

Mailing Address P.O. Box 325, Peterborough, Ontario Canada, K9J 6Z3

Locations Peterborough

Kingston Barrie Oshawa

Laboratory Peterborough



Dear property owner,

February 9, 2024

Cambium is conducting a groundwater study for the proposed subdivision located southeast of the intersection of Matheson Drive and Rosedale Road South. As part of the assessment, we are taking inventory of private groundwater users located adjacent to the work area. The purpose of the inventory is to identify nearby water supply wells that may be sensitive to the development and to catalogue the existing groundwater conditions, water levels, yields, water quality, etc.

If a supply well is located on your property, we are requesting that you please review and complete the attached questionnaire. Complete as much information as possible and scan the document (or take a photograph) and email to kyle.horner@cambium-inc.com. Please note, Cambium Inc. may contact you at a later date to request permission to monitor the water level in your well in the future.

You are not obligated to complete this form, your participation is voluntary, and all results regarding your well will be confidential. If you choose to provide a response to this letter, please do so before Friday, February 23, 2024.

If you have any questions regarding this project, please contact Kyle Horner at 613 876 4516.

Best regards,

Kyle Horner, Ph.D., P.Geo. Senior Hydrogeologist / Senior Project Manager, Cambium Inc.

KH/kh Attached: Water Well Survey Questionnaire



Number	Street	Spoke to	Participated in	Comments	Water Level	Depth	Well Record #	U	тм
		owner	program		(mtop)	(mtop)		mE	mN
100	Bower Boulevard	Yes	No	Gave letter to homeowner					
105	Bower Boulevard	No	-	Left letter in mailbox					
115	Bower Boulevard	No	-	Left letter in mailbox					
116	Bower Boulevard	Yes	No	Gave letter to homeowner					
125	Bower Boulevard	Yes	No	Gave letter to homeowner					
126	Bower Boulevard	No	-	Left letter in mailbox					
135	Bower Boulevard	No	-	Left letter in mailbox					
136	Bower Boulevard	No	-	Left letter in mailbox					
146	Bower Boulevard	No	-	Left letter in mailbox					
147	Bower Boulevard	Yes	No	Gave letter to homeowner - emailed in response - indicated water was hard	-	24.38	A051443	425200	4974843
151	Bower Boulevard	Yes	No	Gave letter to homeowner					
156	Bower Boulevard	Yes	No	Gave letter to homeowner					
166	Bower Boulevard	Yes	No	Gave letter to homeowner					
167	Bower Boulevard	No	-	Left letter in mailbox					
173	Bower Boulevard	No	-	Left letter in mailbox					
182	Bower Boulevard	No	-	Left letter in mailbox					
746	Rosedal Rd South	No	-	Left letter in mailbox					
760	Rosedal Rd South	No	-	Left letter in mailbox					
765	Rosedal Rd South	No	-	Left letter in mailbox					
771	Rosedal Rd South	No	-	Left letter in mailbox					
780	Rosedal Rd South	Yes	No	Gave letter to homeowner					
782	Rosedal Rd South	No	-	Left letter in mailbox					
785	Rosedal Rd South	No	-	Left letter in mailbox					
795	Rosedal Rd South	Yes	No	Gave letter to homeowner - emailed in response - indicated water was hard	-	~30	-	-	-
805	Rosedal Rd South	Yes	No	Gave letter to homeowner - emailed in response - indicated water was hard	-	24.4	A360999	424701	4974928
815	Rosedal Rd South	No	-	Left letter in mailbox					
843	Rosedal Rd South	No	-	Left letter in mailbox					
845	Rosedal Rd South	No	-	Left letter in mailbox					
862	Rosedal Rd South	Yes	No	Gave letter to homeowner					



Number	Street	Spoke to	Participated in	Comments Water Level	Depth (mton)	Well Record #	UTM
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Number	Street	Spoke to	Participated in	Comments	Water Level	Depth (mton)	Well Record #	UTM



Number	Street	Spoke to	Participated in	Comments	Water Level	Depth	Well Record #	UTM



Appendix F Hydraulic Pumping Test Results



Hydrogeological Assessment - Smart Homes Ottawa Inc. Cambium Ref. No.: 19387-001



Measured Water Levels for TW1 Pumping Test



Hydrogeological Assessment - Smart Homes Ottawa Inc. Cambium Ref. No.: 19387-001



Measured Water Levels for TW2 Pumping Test



Hydrogeological Assessment - Smart Homes Ottawa Inc. Cambium Ref. No.: 19387-001



Measured Water Levels for TW3 Pumping Test



Hydrogeological Assessment - Smart Homes Ottawa Inc. Cambium Ref. No.: 19387-001



Measured Water Levels for RW1 Pumping Test



Appendix G Water Quality Results



Your Project #: 19387-001 Your C.O.C. #: 977413-03-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/06 Report #: R8055255 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C462310 Received: 2024/03/01, 08:51

Sample Matrix: Water # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2024/03/05	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2024/03/04	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2024/03/04	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity	1	N/A	2024/03/02	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2024/03/01	CAM SOP-00446	SM 24 5310 B m
Hardness (calculated as CaCO3)	1	N/A	2024/03/05	CAM SOP	SM 2340 B
				00102/00408/00447	
Metals Analysis by ICPMS (as received) (2)	1	N/A	2024/03/04	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2024/03/05		
Anion and Cation Sum	1	N/A	2024/03/05		
Total Coliforms/ E. coli, CFU/100mL	1	N/A	2024/03/01	CAM SOP-00551	MECP-E3407
Fecal coliform, (CFU/100mL)	1	N/A	2024/03/01	CAM SOP-00552	
Total Ammonia-N	1	N/A	2024/03/05	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (3)	1	N/A	2024/03/04	CAM SOP-00440	SM 24 4500-NO3I/NO2B
рН	1	2024/03/02	2024/03/02	CAM SOP-00413	SM 24th - 4500H+ B
Orthophosphate	1	N/A	2024/03/04	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C)	1	N/A	2024/03/05		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2024/03/05		Auto Calc
Sulphate by Automated Turbidimetry	1	N/A	2024/03/04	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids (TDS calc)	1	N/A	2024/03/05		Auto Calc
Turbidity	1	N/A	2024/03/01	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

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Your Project #: 19387-001 Your C.O.C. #: 977413-03-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/06 Report #: R8055255 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C462310

Received: 2024/03/01, 08:51

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(2) Metals analysis was performed on the sample 'as received'.

(3) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to: Christine Gripton, Senior Project Manager Email: Christine.Gripton@bureauveritas.com Phone# (519)652-9444

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

> Total Cover Pages : 2 Page 2 of 12

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Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

RCAP - COMPREHENSIVE (DRINKING WATER)

Bureau Veritas ID		YNA332			YNA332		
Sampling Date		2024/02/28			2024/02/28		
		14:50			14:50		
COC Number		977413-03-01			977413-03-01		
	UNITS	TW1	RDL	QC Batch	TW1 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	3.75	N/A	9250424			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	180	1.0	9250087			
Calculated TDS	mg/L	180	1.0	9250422			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.5	1.0	9250087			
Cation Sum	me/L	3.92	N/A	9250424			
Hardness (CaCO3)	mg/L	190	1.0	9250421			
Ion Balance (% Difference)	%	2.21	N/A	9250423			
Langelier Index (@ 20C)	N/A	0.482		9250426			
Langelier Index (@ 4C)	N/A	0.232		9250427			
Saturation pH (@ 20C)	N/A	7.46		9250426			
Saturation pH (@ 4C)	N/A	7.71		9250427			
Inorganics							
Total Ammonia-N	mg/L	<0.050	0.050	9253581			
Conductivity	umho/cm	360	1.0	9252632			
Dissolved Organic Carbon	mg/L	1.6	0.40	9248281			
Orthophosphate (P)	mg/L	<0.010	0.010	9251735	<0.010	0.010	9251735
рН	рН	7.94		9252633			
Dissolved Sulphate (SO4)	mg/L	3.5	1.0	9251733	3.4	1.0	9251733
Alkalinity (Total as CaCO3)	mg/L	180	1.0	9252631			
Dissolved Chloride (Cl-)	mg/L	<1.0	1.0	9251730	<1.0	1.0	9251730
Nitrite (N)	mg/L	<0.010	0.010	9250717			
Nitrate (N)	mg/L	0.26	0.10	9250717			
Metals	•			•			
Aluminum (Al)	ug/L	<4.9	4.9	9247907			
Antimony (Sb)	ug/L	<0.50	0.50	9247907			
Arsenic (As)	ug/L	<1.0	1.0	9247907			
Barium (Ba)	ug/L	27	2.0	9247907			
Beryllium (Be)	ug/L	<0.40	0.40	9247907			
Boron (B)	ug/L	<10	10	9247907			
Cadmium (Cd)	ug/L	<0.090	0.090	9247907			
RDL = Reportable Detection Limit	+ *	I		<u>.</u>	I		<u> </u>
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Du	olicate						

N/A = Not Applicable



Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

RCAP - COMPREHENSIVE (DRINKING WATER)

Bureau Veritas ID		YNA332			YNA332		
Sampling Date		2024/02/28			2024/02/28		
		14:50			14:50		
COC Number	UNITS	977413-03-01 TW1	RDL	QC Batch	977413-03-01 TW1 Lab-Dup	RDL	QC Batch
Calcium (Ca)	ug/L	46000	200	9247907			
Chromium (Cr)	ug/L	<5.0	5.0	9247907			
Cobalt (Co)	ug/L	<0.50	0.50	9247907			
Copper (Cu)	ug/L	<0.90	0.90	9247907			
Iron (Fe)	ug/L	<100	100	9247907			
Lead (Pb)	ug/L	<0.50	0.50	9247907			
Lithium (Li)	ug/L	<5.0	5.0	9247907			
Magnesium (Mg)	ug/L	19000	50	9247907			
Manganese (Mn)	ug/L	<2.0	2.0	9247907			
Molybdenum (Mo)	ug/L	<0.50	0.50	9247907			
Nickel (Ni)	ug/L	<1.0	1.0	9247907			
Phosphorus (P)	ug/L	<100	100	9247907			
Potassium (K)	ug/L	650	200	9247907			
Selenium (Se)	ug/L	<2.0	2.0	9247907			
Silicon (Si)	ug/L	1600	50	9247907			
Silver (Ag)	ug/L	<0.090	0.090	9247907			
Sodium (Na)	ug/L	750	100	9247907			
Strontium (Sr)	ug/L	31	1.0	9247907			
Thallium (Tl)	ug/L	<0.050	0.050	9247907			
Titanium (Ti)	ug/L	<5.0	5.0	9247907			
Uranium (U)	ug/L	0.41	0.10	9247907			
Vanadium (V)	ug/L	<0.50	0.50	9247907			
Zinc (Zn)	ug/L	17	5.0	9247907			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Du	olicate						

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Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		YNA332								
Sampling Date		2024/02/28								
		14:50								
COC Number		977413-03-01								
	UNITS	TW1	RDL	QC Batch						
Inorganics										
Turbidity	NTU	<0.1	0.1	9251388						
RDL = Reportable Detection Limit										
QC Batch = Quality Control Batch										

Page 5 of 12 Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

MICROBIOLOGY (WATER)

Bureau Veritas ID		YNA332								
Sampling Date		2024/02/28 14:50								
COC Number		977413-03-01								
	UNITS	TW1	QC Batch							
Microbiological										
Fecal coliform	CFU/100mL	0	9250958							
Background	CFU/100mL	220	9250895							
Total Coliforms	CFU/100mL	27	9250895							
Escherichia coli	CFU/100mL	0	9250895							
QC Batch = Quality Control Ba	atch									

Page 6 of 12 Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

TEST SUMMARY

Bureau Veritas ID:	YNA332	Collected:	2024/02/28
Sample ID:	TW1	Shipped:	
Matrix:	Water	Received:	2024/03/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9252631	N/A	2024/03/05	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9250087	N/A	2024/03/04	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9251730	N/A	2024/03/04	Alina Dobreanu
Conductivity	AT	9252632	N/A	2024/03/02	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9248281	N/A	2024/03/01	Gyulshen Idriz
Hardness (calculated as CaCO3)		9250421	N/A	2024/03/05	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	9247907	N/A	2024/03/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	9250423	N/A	2024/03/05	Automated Statchk
Anion and Cation Sum	CALC	9250424	N/A	2024/03/05	Automated Statchk
Total Coliforms/ E. coli, CFU/100mL	PL	9250895	N/A	2024/03/01	Aayushi Patel
Fecal coliform, (CFU/100mL)	PL	9250958	N/A	2024/03/01	Aayushi Patel
Total Ammonia-N	LACH/NH4	9253581	N/A	2024/03/05	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	9250717	N/A	2024/03/04	Chandra Nandlal
рН	AT	9252633	2024/03/02	2024/03/02	Nachiketa Gohil
Orthophosphate	KONE	9251735	N/A	2024/03/04	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9250426	N/A	2024/03/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9250427	N/A	2024/03/05	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9251733	N/A	2024/03/04	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	9250422	N/A	2024/03/05	Automated Statchk
Turbidity	AT	9251388	N/A	2024/03/01	Leily Karimi

Bureau Veritas ID:	YNA332 Dup
Sample ID:	TW1
Matrix:	Water

Collected:	2024/02/28
Shipped:	
Received:	2024/03/01

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Chloride by Automated Colourimetry	SKAL	9251730	N/A	2024/03/04	Alina Dobreanu
Orthophosphate	KONE	9251735	N/A	2024/03/04	Alina Dobreanu
Sulphate by Automated Turbidimetry	SKAL	9251733	N/A	2024/03/04	Alina Dobreanu



Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

GENERAL COMMENTS

Each te	emperature is the ave	rage of up to th	ree cooler temperatures taken at receipt
	Package 1	5.7°C	

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

			Matrix	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	
9247907	Aluminum (Al)	2024/03/04	101	80 - 120	101	80 - 120	<4.9	ug/L	NC	20	
9247907	Antimony (Sb)	2024/03/04	105	80 - 120	104	80 - 120	<0.50	ug/L	NC	20	
9247907	Arsenic (As)	2024/03/04	101	80 - 120	99	80 - 120	<1.0	ug/L	NC	20	
9247907	Barium (Ba)	2024/03/04	97	80 - 120	101	80 - 120	<2.0	ug/L	1.1	20	
9247907	Beryllium (Be)	2024/03/04	101	80 - 120	102	80 - 120	<0.40	ug/L	NC	20	
9247907	Boron (B)	2024/03/04	98	80 - 120	97	80 - 120	<10	ug/L	7.0	20	
9247907	Cadmium (Cd)	2024/03/04	101	80 - 120	101	80 - 120	<0.090	ug/L	NC	20	
9247907	Calcium (Ca)	2024/03/04	NC	80 - 120	103	80 - 120	<200	ug/L	0.89	20	
9247907	Chromium (Cr)	2024/03/04	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20	
9247907	Cobalt (Co)	2024/03/04	99	80 - 120	99	80 - 120	<0.50	ug/L	NC	20	
9247907	Copper (Cu)	2024/03/04	101	80 - 120	102	80 - 120	<0.90	ug/L	3.5	20	
9247907	Iron (Fe)	2024/03/04	102	80 - 120	102	80 - 120	<100	ug/L	NC	20	
9247907	Lead (Pb)	2024/03/04	100	80 - 120	101	80 - 120	<0.50	ug/L	NC	20	
9247907	Lithium (Li)	2024/03/04	105	80 - 120	105	80 - 120	<5.0	ug/L	NC	20	
9247907	Magnesium (Mg)	2024/03/04	NC	80 - 120	100	80 - 120	<50	ug/L	0.53	20	
9247907	Manganese (Mn)	2024/03/04	98	80 - 120	98	80 - 120	<2.0	ug/L	4.7	20	
9247907	Molybdenum (Mo)	2024/03/04	105	80 - 120	104	80 - 120	<0.50	ug/L	2.4	20	
9247907	Nickel (Ni)	2024/03/04	98	80 - 120	97	80 - 120	<1.0	ug/L	NC	20	
9247907	Phosphorus (P)	2024/03/04	107	80 - 120	103	80 - 120	<100	ug/L	NC	20	
9247907	Potassium (K)	2024/03/04	100	80 - 120	101	80 - 120	<200	ug/L	0.23	20	
9247907	Selenium (Se)	2024/03/04	102	80 - 120	101	80 - 120	<2.0	ug/L	NC	20	
9247907	Silicon (Si)	2024/03/04	105	80 - 120	103	80 - 120	<50	ug/L	2.5	20	
9247907	Silver (Ag)	2024/03/04	103	80 - 120	103	80 - 120	<0.090	ug/L	NC	20	
9247907	Sodium (Na)	2024/03/04	101	80 - 120	101	80 - 120	<100	ug/L	0.73	20	
9247907	Strontium (Sr)	2024/03/04	101	80 - 120	101	80 - 120	<1.0	ug/L	0.82	20	
9247907	Thallium (TI)	2024/03/04	102	80 - 120	103	80 - 120	<0.050	ug/L	NC	20	
9247907	Titanium (Ti)	2024/03/04	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20	
9247907	Uranium (U)	2024/03/04	103	80 - 120	103	80 - 120	<0.10	ug/L	0.22	20	
9247907	Vanadium (V)	2024/03/04	101	80 - 120	100	80 - 120	<0.50	ug/L	NC	20	
9247907	Zinc (Zn)	2024/03/04	100	80 - 120	100	80 - 120	<5.0	ug/L	1.3	20	
9248281	Dissolved Organic Carbon	2024/03/01	NC	80 - 120	97	80 - 120	<0.40	mg/L	0.81	20	

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QUALITY ASSURANCE REPORT(CONT'D)

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

			Matrix Spike SPIKED BLANK			Method E	Blank	RPD		
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9250717	Nitrate (N)	2024/03/04	97	80 - 120	98	80 - 120	<0.10	mg/L	1.2	20
9250717	Nitrite (N)	2024/03/04	101	80 - 120	104	80 - 120	<0.010	mg/L	2.1	20
9251388	Turbidity	2024/03/01			100	80 - 120	<0.1	NTU	NC	20
9251730	Dissolved Chloride (Cl-)	2024/03/04	94	80 - 120	94	80 - 120	<1.0	mg/L	NC	20
9251733	Dissolved Sulphate (SO4)	2024/03/04	92	75 - 125	93	80 - 120	<1.0	mg/L	0.86	20
9251735	Orthophosphate (P)	2024/03/04	94	75 - 125	92	80 - 120	<0.010	mg/L	NC	20
9252631	Alkalinity (Total as CaCO3)	2024/03/05			94	85 - 115	<1.0	mg/L	0.96	20
9252632	Conductivity	2024/03/02			103	85 - 115	<1.0	umho/cm	0.33	10
9252633	рН	2024/03/02			102	98 - 103			0.71	N/A
9253581	Total Ammonia-N	2024/03/05	NC	75 - 125	103	80 - 120	<0.050	mg/L	0.54	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

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Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Aayushi Patel, B.sc in Biotechnology, Lab Technician

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1199		VOICE TO:					REPO	RT TO:						PROJEC	T INFORMATION:				NONT-2	2024-03-008	
Company Name	#17950 Cambiu	m Environmental	Inc	Comos	ny Name:	#26906	Cambium E	Invironment	al Inc			Quotation	4.	C263	18						der #:
Attention:	ACCOUNTS PAY			Attentio		Kyle Ho						P.O. #:	#.		112 Magain 1	- 14 - 1- 1 - 14 - 14 - 14 - 14 - 14 - 1					
Address:	194 Sophia Stree	et PO Box 325		Addres		31 Hype	erion Court, S	Suite 102				Project:		19387	7-001.	vier hit n	1				13
ridarooo.	Peterborough ON	N K9H 1E5			5.	Kingsto	n ON K7P 70	33				Project Na	me:	1.		the See			COC #:	1	Janager:
Tel:	(705) 742-7900	Fax	(705) 742-7907	Tel:		(613) 38	39-2323	Fax:				Site #:	me.		de ensiente		-				
Email:	accounting@cam			Email:		kyle.ho	mer@cambiu			att@ca	mbium-i	Sampled I	BV:	Ma	rencott	i la la			C#977413-03-01		Christine Gripton
MOERE	EGULATED DRINKING				CONSU	MPTION	MUSTRE		1		AN				BE SPECIFIC)				Turnaround Time	e (TAT) Require	d:
Regula Table 1 Table 2	SUBMITTED ON T ation 153 (2011) Res/Park Medium Ind/Comm Coarse Agri/Other For RS	n/Fine CCME	ITAS DRINKING W Other Regulations	ATER CHAI Bylaw aw	N OF CU	ISTODY Special Ins		Field Filtered (please circle): Metals / Hg / Cr VI	rms/ E. coli, CFU/100mL	coliform, (CFU/100mL)		mprehensive (Drinking			u.		(W St da J	rill be applied andard TAT lease note: S ays - contact	Please provide advance tandard) TAT: if Rush TAT is not specified = 5-7 Working days for most Standard TAT for certain tests your Project Manager for del Rush TAT (if applies to en): : tests : such as BOD and tails,	1 Dioxins/Furans are > 5
					-			Me	Colifo	colifo	4	Cor							ation Number:		in all the second second
		a on Certificate of A			_			- E	Fotal C	acal c	rbidi	RCAp . Water)					#	of Bottles		(call lab i Comments	or #)
Samp	ple Barcode Label	Sample (Location	n) Identification	Date Sampled	Time	Sampled	Matrix		P	Ľ.	P	223	/						PH:T.M	Comments	
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	RELINQUISHED BY: (Sig	gnature/Print)	Date: (YY/MM		Time		RECEIVED E	BY: (Signature/	Print)		Date: (YY/			ime	# jars used and not submitted	-		Laborat	tory Use Only		
Ma	wen Cott		24/02/	28 7	:30pm	51	× 9-	LGXN (SANI	SNI	024/	03/01	08.	· S1		Time Sens	sitive	Temperatu	ure (°C) on Recei	Present	Yes No
ACKNOWLEDGM • IT IS THE RESP	RWISE AGREED TO IN WR IENT AND ACCEPTANCE C PONSIBILITY OF THE RELII TAINER, PRESERVATION,	OF OUR TERMS WHICH NQUISHER TO ENSURE	ARE AVAILABLE FOR N E THE ACCURACY OF T	VIEWING AT WY	W.BVNA.C	COM/ENVIR	ONMENTAL-LABO	CRATORIES/RE	SOURCES/ ODY MAY F	COC-TER	MS-AND-CC	NDITIONS.	LAYS.	ODY DOCUN		S MUST BE KE UNTIL I	PT COOL) / (< 10° C) F TO BUREAU	FROM TIME OF SAMPLING	Intact White: Burea	J Veritas Yellow: Clien I IF PACIC



Your Project #: 19387-001. Your C.O.C. #: 977413-02-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/06 Report #: R8055485 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C460880 Received: 2024/02/29, 10:34

Sample Matrix: Ground Water # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Alkalinity (1)	1	N/A	2024/03/05	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide (1)	1	N/A	2024/03/04	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry (1)	1	N/A	2024/03/01	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity (1)	1	N/A	2024/03/02	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1, 2)	1	N/A	2024/03/01	CAM SOP-00446	SM 24 5310 B m
Hardness (calculated as CaCO3) (1)	1	N/A	2024/03/05	CAM SOP	SM 2340 B
				00102/00408/00447	
Metals Analysis by ICPMS (as received) (1, 3)	1	N/A	2024/03/04	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference) (1)	1	N/A	2024/03/05		
Anion and Cation Sum (1)	1	N/A	2024/03/05		
Total Coliforms/ E. coli, CFU/100mL (1)	1	N/A	2024/02/29	CAM SOP-00551	MECP-E3407
Fecal coliform, (CFU/100mL) (1)	1	N/A	2024/02/29	CAM SOP-00552	
Total Ammonia-N (1)	1	N/A	2024/03/01	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1, 4)	1	N/A	2024/03/01	CAM SOP-00440	SM 24 4500-NO3I/NO2B
рН (1)	1	2024/03/02	2024/03/02	CAM SOP-00413	SM 24th - 4500H+ B
Orthophosphate (1)	1	N/A	2024/02/29	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C) (1)	1	N/A	2024/03/05		Auto Calc
Sat. pH and Langelier Index (@ 4C) (1)	1	N/A	2024/03/05		Auto Calc
Sulphate by Automated Turbidimetry (1)	1	N/A	2024/03/01	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids (TDS calc) (1)	1	N/A	2024/03/05		Auto Calc
Turbidity (1)	1	N/A	2024/02/29	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or



Your Project #: 19387-001. Your C.O.C. #: 977413-02-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/06 Report #: R8055485 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C460880

Received: 2024/02/29, 10:34

implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8

(2) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(3) Metals analysis was performed on the sample 'as received'.

(4) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to: Christine Gripton, Senior Project Manager Email: Christine.Gripton@bureauveritas.com Phone# (519)652-9444 _____

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

Bureau Veritas ID		YMT605		
Sampling Date	2024/02/27			
		16:10		
COC Number		977413-02-01		
	UNITS	TW2	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	4.38	N/A	9247937
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	200	1.0	9247934
Calculated TDS	mg/L	230	1.0	9247933
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.4	1.0	9247934
Cation Sum	me/L	4.63	N/A	9247937
Hardness (CaCO3)	mg/L	210	1.0	9247935
Ion Balance (% Difference)	%	2.82	N/A	9247936
Langelier Index (@ 20C)	N/A	0.506		9247938
Langelier Index (@ 4C)	N/A	0.256		9247939
Saturation pH (@ 20C)	N/A	7.36		9247938
Saturation pH (@ 4C)	N/A	7.61		9247939
Inorganics		1	1	
Total Ammonia-N	mg/L	<0.050	0.050	9248977
Conductivity	umho/cm	420	1.0	9252632
Dissolved Organic Carbon	mg/L	1.5	0.40	9248281
Orthophosphate (P)	mg/L	<0.010	0.010	9248304
рН	рН	7.87		9252633
Dissolved Sulphate (SO4)	mg/L	6.8	1.0	9248305
Alkalinity (Total as CaCO3)	mg/L	200	1.0	9252631
Dissolved Chloride (Cl-)	mg/L	8.2	1.0	9248307
Nitrite (N)	mg/L	<0.010	0.010	9248650
Nitrate (N)	mg/L	0.30	0.10	9248650
Metals	•			
Aluminum (Al)	ug/L	8.5	4.9	9247907
Antimony (Sb)	ug/L	<0.50	0.50	9247907
Arsenic (As)	ug/L	<1.0	1.0	9247907
Barium (Ba)	ug/L	240	2.0	9247907
Beryllium (Be)	ug/L	<0.40	0.40	9247907
Boron (B)	ug/L	<10	10	9247907
Cadmium (Cd)	ug/L	<0.090	0.090	9247907
Calcium (Ca)	ug/L	54000	200	9247907
RDL = Reportable Detection Limit	•			
QC Batch = Quality Control Batch				
N/A = Not Applicable				

RCAP - COMPREHENSIVE (DRINKING WATER)



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

Bureau Veritas ID		YMT605		
Sampling Date	2024/02/27			
	16:10			
COC Number		977413-02-01		
	UNITS	TW2	RDL	QC Batch
Chromium (Cr)	ug/L	<5.0	5.0	9247907
Cobalt (Co)	ug/L	<0.50	0.50	9247907
Copper (Cu)	ug/L	1.5	0.90	9247907
Iron (Fe)	ug/L	<100	100	9247907
Lead (Pb)	ug/L	<0.50	0.50	9247907
Lithium (Li)	ug/L	<5.0	5.0	9247907
Magnesium (Mg)	ug/L	18000	50	9247907
Manganese (Mn)	ug/L	2.2	2.0	9247907
Molybdenum (Mo)	ug/L	0.59	0.50	9247907
Nickel (Ni)	ug/L	<1.0	1.0	9247907
Phosphorus (P)	ug/L	<100	100	9247907
Potassium (K)	ug/L	1400	200	9247907
Selenium (Se)	ug/L	<2.0	2.0	9247907
Silicon (Si)	ug/L	2800	50	9247907
Silver (Ag)	ug/L	<0.090	0.090	9247907
Sodium (Na)	ug/L	9800	100	9247907
Strontium (Sr)	ug/L	64	1.0	9247907
Thallium (TI)	ug/L	<0.050	0.050	9247907
Titanium (Ti)	ug/L	<5.0	5.0	9247907
Uranium (U)	ug/L	1.1	0.10	9247907
Vanadium (V)	ug/L	<0.50	0.50	9247907
Zinc (Zn)	ug/L	22	5.0	9247907
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				

RCAP - COMPREHENSIVE (DRINKING WATER)



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		YMT605		
Sampling Date		2024/02/27		
COC Number		16:10 977413-02-01		
	UNITS	TW2	RDL	QC Batch
Inorganics				
Turbidity	NTU	0.4	0.1	9248975
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

MICROBIOLOGY (GROUND WATER)

Bureau Veritas ID		YMT605	
Sampling Date		2024/02/27 16:10	
COC Number		977413-02-01	
	UNITS	TW2	QC Batch
Microbiological			
Fecal coliform	CFU/100mL	0	9248235
Background	CFU/100mL	610	9248199
Total Coliforms	CFU/100mL	0	9248199
Escherichia coli	CFU/100mL	0	9248199
QC Batch = Quality Control Batch			



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

TEST SUMMARY

Bureau Veritas ID:	YMT605
Sample ID:	TW2
Matrix:	Ground Water

Collected:	2024/02/27
Shipped: Received:	2024/02/29

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9252631	N/A	2024/03/05	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9247934	N/A	2024/03/04	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9248307	N/A	2024/03/01	Alina Dobreanu
Conductivity	AT	9252632	N/A	2024/03/02	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9248281	N/A	2024/03/01	Gyulshen Idriz
Hardness (calculated as CaCO3)		9247935	N/A	2024/03/05	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	9247907	N/A	2024/03/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	9247936	N/A	2024/03/05	Automated Statchk
Anion and Cation Sum	CALC	9247937	N/A	2024/03/05	Automated Statchk
Total Coliforms/ E. coli, CFU/100mL	PL	9248199	N/A	2024/02/29	Paramjit Paramjit
Fecal coliform, (CFU/100mL)	PL	9248235	N/A	2024/02/29	Paramjit Paramjit
Total Ammonia-N	LACH/NH4	9248977	N/A	2024/03/01	Chandra Nandlal
Nitrate & Nitrite as Nitrogen in Water	LACH	9248650	N/A	2024/03/01	Jinal Chavda
рН	AT	9252633	2024/03/02	2024/03/02	Nachiketa Gohil
Orthophosphate	KONE	9248304	N/A	2024/02/29	Massarat Jan
Sat. pH and Langelier Index (@ 20C)	CALC	9247938	N/A	2024/03/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9247939	N/A	2024/03/05	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9248305	N/A	2024/03/01	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	9247933	N/A	2024/03/05	Automated Statchk
Turbidity	AT	9248975	N/A	2024/02/29	Leily Karimi



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1 2.7°C

Results relate only to the items tested.


Bureau Veritas Job #: C460880 Report Date: 2024/03/06

QUALITY ASSURANCE REPORT

Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

			Matrix	Matrix Spike		BLANK	Method E	lank	RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9247907	Aluminum (Al)	2024/03/04	101	80 - 120	101	80 - 120	<4.9	ug/L	NC	20
9247907	Antimony (Sb)	2024/03/04	105	80 - 120	104	80 - 120	<0.50	ug/L	NC	20
9247907	Arsenic (As)	2024/03/04	101	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
9247907	Barium (Ba)	2024/03/04	97	80 - 120	101	80 - 120	<2.0	ug/L	1.1	20
9247907	Beryllium (Be)	2024/03/04	101	80 - 120	102	80 - 120	<0.40	ug/L	NC	20
9247907	Boron (B)	2024/03/04	98	80 - 120	97	80 - 120	<10	ug/L	7.0	20
9247907	Cadmium (Cd)	2024/03/04	101	80 - 120	101	80 - 120	<0.090	ug/L	NC	20
9247907	Calcium (Ca)	2024/03/04	NC	80 - 120	103	80 - 120	<200	ug/L	0.89	20
9247907	Chromium (Cr)	2024/03/04	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
9247907	Cobalt (Co)	2024/03/04	99	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
9247907	Copper (Cu)	2024/03/04	101	80 - 120	102	80 - 120	<0.90	ug/L	3.5	20
9247907	Iron (Fe)	2024/03/04	102	80 - 120	102	80 - 120	<100	ug/L	NC	20
9247907	Lead (Pb)	2024/03/04	100	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
9247907	Lithium (Li)	2024/03/04	105	80 - 120	105	80 - 120	<5.0	ug/L	NC	20
9247907	Magnesium (Mg)	2024/03/04	NC	80 - 120	100	80 - 120	<50	ug/L	0.53	20
9247907	Manganese (Mn)	2024/03/04	98	80 - 120	98	80 - 120	<2.0	ug/L	4.7	20
9247907	Molybdenum (Mo)	2024/03/04	105	80 - 120	104	80 - 120	<0.50	ug/L	2.4	20
9247907	Nickel (Ni)	2024/03/04	98	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
9247907	Phosphorus (P)	2024/03/04	107	80 - 120	103	80 - 120	<100	ug/L	NC	20
9247907	Potassium (K)	2024/03/04	100	80 - 120	101	80 - 120	<200	ug/L	0.23	20
9247907	Selenium (Se)	2024/03/04	102	80 - 120	101	80 - 120	<2.0	ug/L	NC	20
9247907	Silicon (Si)	2024/03/04	105	80 - 120	103	80 - 120	<50	ug/L	2.5	20
9247907	Silver (Ag)	2024/03/04	103	80 - 120	103	80 - 120	<0.090	ug/L	NC	20
9247907	Sodium (Na)	2024/03/04	101	80 - 120	101	80 - 120	<100	ug/L	0.73	20
9247907	Strontium (Sr)	2024/03/04	101	80 - 120	101	80 - 120	<1.0	ug/L	0.82	20
9247907	Thallium (Tl)	2024/03/04	102	80 - 120	103	80 - 120	<0.050	ug/L	NC	20
9247907	Titanium (Ti)	2024/03/04	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
9247907	Uranium (U)	2024/03/04	103	80 - 120	103	80 - 120	<0.10	ug/L	0.22	20
9247907	Vanadium (V)	2024/03/04	101	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
9247907	Zinc (Zn)	2024/03/04	100	80 - 120	100	80 - 120	<5.0	ug/L	1.3	20
9248281	Dissolved Organic Carbon	2024/03/01	NC	80 - 120	97	80 - 120	<0.40	mg/L	0.81	20
9248304	Orthophosphate (P)	2024/02/29	95	75 - 125	91	80 - 120	<0.010	mg/L	NC	20



Bureau Veritas Job #: C460880 Report Date: 2024/03/06

QUALITY ASSURANCE REPORT(CONT'D)

Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

			Matrix	Matrix Spike		BLANK	Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9248305	Dissolved Sulphate (SO4)	2024/03/01	94	75 - 125	97	80 - 120	<1.0	mg/L	6.3	20
9248307	Dissolved Chloride (Cl-)	2024/03/01	98	80 - 120	95	80 - 120	<1.0	mg/L	NC	20
9248650	Nitrate (N)	2024/03/01	105	80 - 120	100	80 - 120	<0.10	mg/L	NC	20
9248650	Nitrite (N)	2024/03/01	106	80 - 120	103	80 - 120	<0.010	mg/L	1.9	20
9248975	Turbidity	2024/02/29			100	80 - 120	<0.1	NTU	1.7	20
9248977	Total Ammonia-N	2024/03/01	100	75 - 125	100	80 - 120	<0.050	mg/L	NC	20
9252631	Alkalinity (Total as CaCO3)	2024/03/05			94	85 - 115	<1.0	mg/L	0.96	20
9252632	Conductivity	2024/03/02			103	85 - 115	<1.0	umho/cm	0.33	10
9252633	рН	2024/03/02			102	98 - 103			0.71	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



Cambium Environmental Inc Client Project #: 19387-001. Sampler Initials: MC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Paramjit Paramjit, Analyst I

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

		Bureau Veritas 6740 Campobello Road, N	tississauga, Ont	ario Canada L5N	2L8 Tel:(905	5) 817-5700		1771 - 11 (2. A. (1789))	905) 817-5	6777 www.t	ovna.com		Rec	des caracteristics	in Ott		CHAIN	Chr	29-Feb-24 istine Gripto	4 10:34 n	
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Your Project #: 19387-001 Your C.O.C. #: C#977413-01-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/05 Report #: R8054238 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C459276 Received: 2024/02/27, 09:19

Sample Matrix: Ground Water # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Alkalinity (1)	1	N/A	2024/03/05	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide (1)	1	N/A	2024/03/04	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry (1)	1	N/A	2024/02/29	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity (1)	1	N/A	2024/03/02	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1, 2)	1	N/A	2024/03/01	CAM SOP-00446	SM 24 5310 B m
Hardness (calculated as CaCO3) (1)	1	N/A	2024/03/05	CAM SOP	SM 2340 B
				00102/00408/00447	
Metals Analysis by ICPMS (as received) (1, 3)	1	N/A	2024/03/04	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference) (1)	1	N/A	2024/03/05		
Anion and Cation Sum (1)	1	N/A	2024/03/05		
Total Coliforms/ E. coli, CFU/100mL (1)	1	N/A	2024/02/28	CAM SOP-00551	MECP-E3407
Fecal coliform, (CFU/100mL) (1)	1	N/A	2024/02/28	CAM SOP-00552	
Total Ammonia-N (1)	1	N/A	2024/03/01	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (1, 4)	1	N/A	2024/02/29	CAM SOP-00440	SM 24 4500-NO3I/NO2B
рН (1)	1	2024/03/02	2024/03/02	CAM SOP-00413	SM 24th - 4500H+ B
Orthophosphate (1)	1	N/A	2024/02/29	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C) (1)	1	N/A	2024/03/05		Auto Calc
Sat. pH and Langelier Index (@ 4C) (1)	1	N/A	2024/03/05		Auto Calc
Sulphate by Automated Turbidimetry (1)	1	N/A	2024/02/29	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids (TDS calc) (1)	1	N/A	2024/03/05		Auto Calc
Turbidity (1)	1	N/A	2024/02/28	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or



Your Project #: 19387-001 Your C.O.C. #: C#977413-01-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/05 Report #: R8054238 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C459276

Received: 2024/02/27, 09:19

implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Bureau Veritas Mississauga, 6740 Campobello Rd , Mississauga, ON, L5N 2L8

(2) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(3) Metals analysis was performed on the sample 'as received'.

(4) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to: Christine Gripton, Senior Project Manager Email: Christine.Gripton@bureauveritas.com Phone# (519)652-9444

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



RCAP - COMPREHENSIVE (DRINKING WATER)

Bureau Veritas ID		YMK942			YMK942		
Sampling Date		2024/02/26 19:30			2024/02/26 19:30		
COC Number		C#977413-01-01			C#977413-01-01		
	UNITS	TW3	RDL	QC Batch	TW3 Lab-Dup	RDL	QC Batch
Calculated Parameters							
Anion Sum	me/L	6.19	N/A	9245116			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	270	1.0	9245030			
Calculated TDS	mg/L	320	1.0	9245119			
Carb. Alkalinity (calc. as CaCO3)	mg/L	1.4	1.0	9245030			
Cation Sum	me/L	6.43	N/A	9245116			
Hardness (CaCO3)	mg/L	300	1.0	9245031			
Ion Balance (% Difference)	%	1.86	N/A	9245115			
Langelier Index (@ 20C)	N/A	0.608		9245117			
Langelier Index (@ 4C)	N/A	0.359		9245118			
Saturation pH (@ 20C)	N/A	7.14		9245117			
Saturation pH (@ 4C)	N/A	7.39		9245118			
Inorganics	•						
Total Ammonia-N	mg/L	<0.050	0.050	9248977			
Conductivity	umho/cm	590	1.0	9252632	600	1.0	9252632
Dissolved Organic Carbon	mg/L	1.7	0.40	9248281			
Orthophosphate (P)	mg/L	<0.010	0.010	9246263	<0.010	0.010	9246263
рН	рН	7.75		9252633	7.80		9252633
Dissolved Sulphate (SO4)	mg/L	16	1.0	9246264	15	1.0	9246264
Alkalinity (Total as CaCO3)	mg/L	270	1.0	9252631	270	1.0	9252631
Dissolved Chloride (Cl-)	mg/L	15	1.0	9246265	15	1.0	9246265
Nitrite (N)	mg/L	<0.010	0.010	9246466			
Nitrate (N)	mg/L	0.64	0.10	9246466			
Metals							
Aluminum (Al)	ug/L	<4.9	4.9	9247907	<4.9	4.9	9247907
Antimony (Sb)	ug/L	<0.50	0.50	9247907	<0.50	0.50	9247907
Arsenic (As)	ug/L	<1.0	1.0	9247907	<1.0	1.0	9247907
Barium (Ba)	ug/L	460	2.0	9247907	450	2.0	9247907
Beryllium (Be)	ug/L	<0.40	0.40	9247907	<0.40	0.40	9247907
Boron (B)	ug/L	11	10	9247907	10	10	9247907
Cadmium (Cd)	ug/L	<0.090	0.090	9247907	<0.090	0.090	9247907
RDL = Reportable Detection Limit					· · · · · · · · · · · · · · · · · · ·		
QC Batch = Quality Control Batch							

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



RCAP - COMPREHENSIVE (DRINKING WATER)

Bureau Veritas ID		YMK942			YMK942		
Sampling Date		2024/02/26			2024/02/26		
		19:30			19:30		
COC Number		C#977413-01-01			C#977413-01-01		
	UNITS	тwз	RDL	QC Batch	TW3 Lab-Dup	RDL	QC Batch
Calcium (Ca)	ug/L	72000	200	9247907	72000	200	9247907
Chromium (Cr)	ug/L	<5.0	5.0	9247907	<5.0	5.0	9247907
Cobalt (Co)	ug/L	<0.50	0.50	9247907	<0.50	0.50	9247907
Copper (Cu)	ug/L	1.6	0.90	9247907	1.7	0.90	9247907
Iron (Fe)	ug/L	<100	100	9247907	<100	100	9247907
Lead (Pb)	ug/L	<0.50	0.50	9247907	<0.50	0.50	9247907
Lithium (Li)	ug/L	<5.0	5.0	9247907	<5.0	5.0	9247907
Magnesium (Mg)	ug/L	29000	50	9247907	29000	50	9247907
Manganese (Mn)	ug/L	4.1	2.0	9247907	4.3	2.0	9247907
Molybdenum (Mo)	ug/L	0.85	0.50	9247907	0.83	0.50	9247907
Nickel (Ni)	ug/L	<1.0	1.0	9247907	<1.0	1.0	9247907
Phosphorus (P)	ug/L	<100	100	9247907	<100	100	9247907
Potassium (K)	ug/L	6700	200	9247907	6700	200	9247907
Selenium (Se)	ug/L	<2.0	2.0	9247907	<2.0	2.0	9247907
Silicon (Si)	ug/L	2600	50	9247907	2700	50	9247907
Silver (Ag)	ug/L	<0.090	0.090	9247907	<0.090	0.090	9247907
Sodium (Na)	ug/L	7100	100	9247907	7100	100	9247907
Strontium (Sr)	ug/L	130	1.0	9247907	130	1.0	9247907
Thallium (Tl)	ug/L	0.15	0.050	9247907	0.11	0.050	9247907
Titanium (Ti)	ug/L	<5.0	5.0	9247907	<5.0	5.0	9247907
Uranium (U)	ug/L	1.8	0.10	9247907	1.8	0.10	9247907
Vanadium (V)	ug/L	<0.50	0.50	9247907	<0.50	0.50	9247907
Zinc (Zn)	ug/L	38	5.0	9247907	37	5.0	9247907
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Du	plicate						



Bureau Veritas Job #: C459276 Report Date: 2024/03/05 Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

RESULTS OF ANALYSES OF GROUND WATER

Bureau Veritas ID		YMK942							
Sampling Date		2024/02/26							
		19:30							
COC Number		C#977413-01-01							
	UNITS	TW3	RDL	QC Batch					
Inorganics									
Turbidity NTU 0.3 0.1 9245519									
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									



Bureau Veritas Job #: C459276 Report Date: 2024/03/05 Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

MICROBIOLOGY (GROUND WATER)

Bureau Veritas ID		YMK942						
Sampling Date		2024/02/26 19:30						
COC Number		C#977413-01-01						
	UNITS	TW3	QC Batch					
Microbiological								
Fecal coliform	CFU/100mL	0	9245734					
Background	CFU/100mL	70	9245714					
Total Coliforms	CFU/100mL	0	9245714					
Escherichia coli	CFU/100mL	0	9245714					
QC Batch = Quality Control Ba	atch	·						



TEST SUMMARY

Bureau Veritas ID:	YMK942
Sample ID:	TW3
Matrix:	Ground Water

Collected: Shipped:	2024/02/26
Received:	2024/02/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9252631	N/A	2024/03/05	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9245030	N/A	2024/03/04	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9246265	N/A	2024/02/29	Alina Dobreanu
Conductivity	AT	9252632	N/A	2024/03/02	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9248281	N/A	2024/03/01	Gyulshen Idriz
Hardness (calculated as CaCO3)		9245031	N/A	2024/03/05	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	9247907	N/A	2024/03/04	Prempal Bhatti
Ion Balance (% Difference)	CALC	9245115	N/A	2024/03/05	Automated Statchk
Anion and Cation Sum	CALC	9245116	N/A	2024/03/05	Automated Statchk
Total Coliforms/ E. coli, CFU/100mL	PL	9245714	N/A	2024/02/28	Paramjit Paramjit
Fecal coliform, (CFU/100mL)	PL	9245734	N/A	2024/02/28	Paramjit Paramjit
Total Ammonia-N	LACH/NH4	9248977	N/A	2024/03/01	Chandra Nandlal
Nitrate & Nitrite as Nitrogen in Water	LACH	9246466	N/A	2024/02/29	Jinal Chavda
рН	AT	9252633	2024/03/02	2024/03/02	Nachiketa Gohil
Orthophosphate	KONE	9246263	N/A	2024/02/29	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9245117	N/A	2024/03/05	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9245118	N/A	2024/03/05	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9246264	N/A	2024/02/29	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	9245119	N/A	2024/03/05	Automated Statchk
Turbidity	AT	9245519	N/A	2024/02/28	Vidhi Khatri



Collected: 2024/02/26 Shipped: Received: 2024/02/27

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9252631	N/A	2024/03/05	Nachiketa Gohil
Chloride by Automated Colourimetry	SKAL	9246265	N/A	2024/02/29	Alina Dobreanu
Conductivity	AT	9252632	N/A	2024/03/02	Nachiketa Gohil
Metals Analysis by ICPMS (as received)	ICP/MS	9247907	N/A	2024/03/04	Prempal Bhatti
рН	AT	9252633	2024/03/02	2024/03/02	Nachiketa Gohil
Orthophosphate	KONE	9246263	N/A	2024/02/29	Alina Dobreanu
Sulphate by Automated Turbidimetry	SKAL	9246264	N/A	2024/02/29	Alina Dobreanu



Report Date: 2024/03/05

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

GENERAL COMMENTS

Each te	emperature is the ave	rage of up to thr	ree cooler temperatures taken at receipt
	Package 1	2.0°C	

Results relate only to the items tested.



Bureau Veritas Job #: C459276 Report Date: 2024/03/05

QUALITY ASSURANCE REPORT

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

			Matrix	Matrix Spike		BLANK	Method E	Blank	RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9245519	Turbidity	2024/02/28			101	80 - 120	<0.1	NTU	0.30	20
9246263	Orthophosphate (P)	2024/02/29	101	75 - 125	95	80 - 120	<0.010	mg/L	NC	20
9246264	Dissolved Sulphate (SO4)	2024/02/29	94	75 - 125	97	80 - 120	<1.0	mg/L	0.85	20
9246265	Dissolved Chloride (Cl-)	2024/02/29	89	80 - 120	97	80 - 120	<1.0	mg/L	1.1	20
9246466	Nitrate (N)	2024/02/29	93	80 - 120	92	80 - 120	<0.10	mg/L	NC	20
9246466	Nitrite (N)	2024/02/29	101	80 - 120	100	80 - 120	<0.010	mg/L	NC	20
9247907	Aluminum (Al)	2024/03/04	101	80 - 120	101	80 - 120	<4.9	ug/L	NC	20
9247907	Antimony (Sb)	2024/03/04	105	80 - 120	104	80 - 120	<0.50	ug/L	NC	20
9247907	Arsenic (As)	2024/03/04	101	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
9247907	Barium (Ba)	2024/03/04	97	80 - 120	101	80 - 120	<2.0	ug/L	1.1	20
9247907	Beryllium (Be)	2024/03/04	101	80 - 120	102	80 - 120	<0.40	ug/L	NC	20
9247907	Boron (B)	2024/03/04	98	80 - 120	97	80 - 120	<10	ug/L	7.0	20
9247907	Cadmium (Cd)	2024/03/04	101	80 - 120	101	80 - 120	<0.090	ug/L	NC	20
9247907	Calcium (Ca)	2024/03/04	NC	80 - 120	103	80 - 120	<200	ug/L	0.89	20
9247907	Chromium (Cr)	2024/03/04	99	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
9247907	Cobalt (Co)	2024/03/04	99	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
9247907	Copper (Cu)	2024/03/04	101	80 - 120	102	80 - 120	<0.90	ug/L	3.5	20
9247907	Iron (Fe)	2024/03/04	102	80 - 120	102	80 - 120	<100	ug/L	NC	20
9247907	Lead (Pb)	2024/03/04	100	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
9247907	Lithium (Li)	2024/03/04	105	80 - 120	105	80 - 120	<5.0	ug/L	NC	20
9247907	Magnesium (Mg)	2024/03/04	NC	80 - 120	100	80 - 120	<50	ug/L	0.53	20
9247907	Manganese (Mn)	2024/03/04	98	80 - 120	98	80 - 120	<2.0	ug/L	4.7	20
9247907	Molybdenum (Mo)	2024/03/04	105	80 - 120	104	80 - 120	<0.50	ug/L	2.4	20
9247907	Nickel (Ni)	2024/03/04	98	80 - 120	97	80 - 120	<1.0	ug/L	NC	20
9247907	Phosphorus (P)	2024/03/04	107	80 - 120	103	80 - 120	<100	ug/L	NC	20
9247907	Potassium (K)	2024/03/04	100	80 - 120	101	80 - 120	<200	ug/L	0.23	20
9247907	Selenium (Se)	2024/03/04	102	80 - 120	101	80 - 120	<2.0	ug/L	NC	20
9247907	Silicon (Si)	2024/03/04	105	80 - 120	103	80 - 120	<50	ug/L	2.5	20
9247907	Silver (Ag)	2024/03/04	103	80 - 120	103	80 - 120	<0.090	ug/L	NC	20
9247907	Sodium (Na)	2024/03/04	101	80 - 120	101	80 - 120	<100	ug/L	0.73	20
9247907	Strontium (Sr)	2024/03/04	101	80 - 120	101	80 - 120	<1.0	ug/L	0.82	20
9247907	Thallium (TI)	2024/03/04	102	80 - 120	103	80 - 120	<0.050	ug/L	NC	20



Bureau Veritas Job #: C459276 Report Date: 2024/03/05

QUALITY ASSURANCE REPORT(CONT'D)

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

			Matrix	Matrix Spike		BLANK	Method E	Blank	RPI	D
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9247907	Titanium (Ti)	2024/03/04	101	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
9247907	Uranium (U)	2024/03/04	103	80 - 120	103	80 - 120	<0.10	ug/L	0.22	20
9247907	Vanadium (V)	2024/03/04	101	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
9247907	Zinc (Zn)	2024/03/04	100	80 - 120	100	80 - 120	<5.0	ug/L	1.3	20
9248281	Dissolved Organic Carbon	2024/03/01	NC	80 - 120	97	80 - 120	<0.40	mg/L	0.81	20
9248977	Total Ammonia-N	2024/03/01	100	75 - 125	100	80 - 120	<0.050	mg/L	NC	20
9252631	Alkalinity (Total as CaCO3)	2024/03/05			94	85 - 115	<1.0	mg/L	0.96	20
9252632	Conductivity	2024/03/02			103	85 - 115	<1.0	umho/cm	0.33	10
9252633	рН	2024/03/02			102	98 - 103			0.71	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



Bureau Veritas Job #: C459276 Report Date: 2024/03/05 Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Paramjit Paramjit, Analyst I

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Your Project #: 19387-001 Your C.O.C. #: C#977413-04-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/18 Report #: R8070487 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C471497 Received: 2024/03/09, 08:29

Sample Matrix: Water # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Alkalinity	1	N/A	2024/03/09	CAM SOP-00448	SM 24 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2024/03/11	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2024/03/11	CAM SOP-00463	SM 24 4500-Cl E m
Conductivity	1	N/A	2024/03/09	CAM SOP-00414	SM 24 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2024/03/12	CAM SOP-00446	SM 24 5310 B m
Hardness (calculated as CaCO3)	1	N/A	2024/03/12	CAM SOP	SM 2340 B
				00102/00408/00447	
Metals Analysis by ICPMS (as received) (2)	1	N/A	2024/03/12	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2024/03/12		
Anion and Cation Sum	1	N/A	2024/03/12		
Total Coliforms/ E. coli, CFU/100mL	1	N/A	2024/03/09	CAM SOP-00551	MECP-E3407
Fecal coliform, (CFU/100mL)	1	N/A	2024/03/09	CAM SOP-00552	
Total Ammonia-N	1	N/A	2024/03/14	CAM SOP-00441	USGS I-2522-90 m
Nitrate & Nitrite as Nitrogen in Water (3)	1	N/A	2024/03/11	CAM SOP-00440	SM 24 4500-NO3I/NO2B
рН	1	2024/03/09	2024/03/09	CAM SOP-00413	SM 24th - 4500H+ B
Orthophosphate	1	N/A	2024/03/11	CAM SOP-00461	SM 24 4500-P E
Sat. pH and Langelier Index (@ 20C)	1	N/A	2024/03/12		Auto Calc
Sat. pH and Langelier Index (@ 4C)	1	N/A	2024/03/12		Auto Calc
Sulphate by Automated Turbidimetry	1	N/A	2024/03/11	CAM SOP-00464	SM 24 4500-SO42- E m
Total Dissolved Solids (TDS calc)	1	N/A	2024/03/12		Auto Calc
Turbidity	1	N/A	2024/03/09	CAM SOP-00417	SM 24 2130 B

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Page 1 of 12

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Your Project #: 19387-001 Your C.O.C. #: C#977413-04-01

Attention: Kyle Horner

Cambium Environmental Inc 31 Hyperion Court, Suite 102 Kingston, ON Canada K7P 7G3

> Report Date: 2024/03/18 Report #: R8070487 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C471497

Received: 2024/03/09, 08:29

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Dissolved Organic Carbon (DOC) present in the sample should be considered as non-purgeable DOC.

(2) Metals analysis was performed on the sample 'as received'.

(3) Values for calculated parameters may not appear to add up due to rounding of raw data and significant figures.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to: Christine Gripton, Senior Project Manager Email: Christine.Gripton@bureauveritas.com Phone# (519)652-9444

This report has been generated and distributed using a secure automated process.

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> Total Cover Pages : 2 Page 2 of 12

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RCAP - COMPREHENSIVE (DRINKING WATER)

Bureau Veritas ID		YOW510			YOW510		
Sampling Date		2024/03/08 03:45			2024/03/08 03:45		
COC Number		C#977413-04-01			C#977413-04-01		
	UNITS	RW1	RDL	QC Batch	RW1 Lab-Dup	RDL	QC Batch
Calculated Parameters	•				•		•
Anion Sum	me/L	5.33	N/A	9265376			
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	210	1.0	9265372			
Calculated TDS	mg/L	280	1.0	9265371			
Carb. Alkalinity (calc. as CaCO3)	mg/L	<1.0	1.0	9265372			
Cation Sum	me/L	5.69	N/A	9265376			
Hardness (CaCO3)	mg/L	260	1.0	9265374			
Ion Balance (% Difference)	%	3.23	N/A	9265375			
Langelier Index (@ 20C)	N/A	0.387		9265377			
Langelier Index (@ 4C)	N/A	0.137		9265378			
Saturation pH (@ 20C)	N/A	7.28		9265377			
Saturation pH (@ 4C)	N/A	7.53		9265378			
Inorganics							
Total Ammonia-N	mg/L	<0.050	0.050	9268916			
Conductivity	umho/cm	540	1.0	9265752	540	1.0	9265752
Dissolved Organic Carbon	mg/L	1.5	0.40	9265829			
Orthophosphate (P)	mg/L	<0.010	0.010	9265797			
рН	рН	7.66		9265753	7.72		9265753
Dissolved Sulphate (SO4)	mg/L	14	1.0	9265796			
Alkalinity (Total as CaCO3)	mg/L	210	1.0	9265745	220	1.0	9265745
Dissolved Chloride (Cl-)	mg/L	22	1.0	9265795			
Nitrite (N)	mg/L	<0.010	0.010	9265766			
Nitrate (N)	mg/L	1.79	0.10	9265766			
Metals							
Aluminum (Al)	ug/L	<4.9	4.9	9267670			
Antimony (Sb)	ug/L	<0.50	0.50	9267670			
Arsenic (As)	ug/L	<1.0	1.0	9267670			
Barium (Ba)	ug/L	220	2.0	9267670			
Beryllium (Be)	ug/L	<0.40	0.40	9267670			
Boron (B)	ug/L	16	10	9267670			
Cadmium (Cd)	ug/L	<0.090	0.090	9267670			
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Lab-Dup = Laboratory Initiated Dur			-			-	

Lab-Dup = Laboratory Initiated Duplicate

N/A = Not Applicable



RCAP - COMPREHENSIVE (DRINKING WATER)

Bureau Veritas ID		YOW510			YOW510		
Sampling Date		2024/03/08 03:45			2024/03/08 03:45		
COC Number		C#977413-04-01			C#977413-04-01		
	UNITS	RW1	RDL	QC Batch	RW1 Lab-Dup	RDL	QC Batch
Calcium (Ca)	ug/L	64000	200	9267670			
Chromium (Cr)	ug/L	<5.0	5.0	9267670			
Cobalt (Co)	ug/L	<0.50	0.50	9267670			
Copper (Cu)	ug/L	2.8	0.90	9267670			
Iron (Fe)	ug/L	<100	100	9267670			
Lead (Pb)	ug/L	<0.50	0.50	9267670			
Lithium (Li)	ug/L	<5.0	5.0	9267670			
Magnesium (Mg)	ug/L	23000	50	9267670			
Manganese (Mn)	ug/L	3.0	2.0	9267670			
Molybdenum (Mo)	ug/L	0.83	0.50	9267670			
Nickel (Ni)	ug/L	<1.0	1.0	9267670			
Phosphorus (P)	ug/L	<100	100	9267670			
Potassium (K)	ug/L	1400	200	9267670			
Selenium (Se)	ug/L	<2.0	2.0	9267670			
Silicon (Si)	ug/L	2500	50	9267670			
Silver (Ag)	ug/L	<0.090	0.090	9267670			
Sodium (Na)	ug/L	12000	100	9267670			
Strontium (Sr)	ug/L	72	1.0	9267670			
Thallium (Tl)	ug/L	<0.050	0.050	9267670			
Titanium (Ti)	ug/L	<5.0	5.0	9267670			
Uranium (U)	ug/L	1.6	0.10	9267670			
Vanadium (V)	ug/L	<0.50	0.50	9267670			
Zinc (Zn)	ug/L	5.5	5.0	9267670			
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Lab-Dup = Laboratory Initiated Dup	licate						

Page 4 of 12 Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Bureau Veritas Job #: C471497 Report Date: 2024/03/18

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

RESULTS OF ANALYSES OF WATER

Bureau Veritas ID		YOW510						
Sampling Date		2024/03/08 03:45						
COC Number		C#977413-04-01						
	UNITS	RW1	RDL	QC Batch				
Inorganics								
Inorganics								
Inorganics Turbidity	NTU	0.2	0.1	9264888				

Page 5 of 12 Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Bureau Veritas Job #: C471497 Report Date: 2024/03/18 Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

MICROBIOLOGY (WATER)

Bureau Veritas ID		YOW510					
Sampling Date		2024/03/08 03:45					
COC Number		C#977413-04-01					
	UNITS	RW1	QC Batch				
Microbiological							
Fecal coliform	CFU/100mL	0	9265968				
Background	CFU/100mL	1300	9265967				
Total Coliforms	CFU/100mL	0	9265967				
Escherichia coli	CFU/100mL	0	9265967				
QC Batch = Quality Control Batch							

Page 6 of 12 Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, LSN 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



TEST SUMMARY

Bureau Veritas ID:	YOW510	Collected:	2024/03/08
Sample ID:	RW1	Shipped:	
Matrix:	Water	Received:	2024/03/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9265745	N/A	2024/03/09	Nachiketa Gohil
Carbonate, Bicarbonate and Hydroxide	CALC	9265372	N/A	2024/03/11	Automated Statchk
Chloride by Automated Colourimetry	SKAL	9265795	N/A	2024/03/11	Alina Dobreanu
Conductivity	AT	9265752	N/A	2024/03/09	Nachiketa Gohil
Dissolved Organic Carbon (DOC)	TOCV/NDIR	9265829	N/A	2024/03/12	Gyulshen Idriz
Hardness (calculated as CaCO3)		9265374	N/A	2024/03/12	Automated Statchk
Metals Analysis by ICPMS (as received)	ICP/MS	9267670	N/A	2024/03/12	Azita Fazaeli
Ion Balance (% Difference)	CALC	9265375	N/A	2024/03/12	Automated Statchk
Anion and Cation Sum	CALC	9265376	N/A	2024/03/12	Automated Statchk
Total Coliforms/ E. coli, CFU/100mL	PL	9265967	N/A	2024/03/09	Farhana Rahman
Fecal coliform, (CFU/100mL)	PL	9265968	N/A	2024/03/09	Farhana Rahman
Total Ammonia-N	LACH/NH4	9268916	N/A	2024/03/14	Prabhjot Kaur
Nitrate & Nitrite as Nitrogen in Water	LACH	9265766	N/A	2024/03/11	Chandra Nandlal
рН	AT	9265753	2024/03/09	2024/03/09	Nachiketa Gohil
Orthophosphate	KONE	9265797	N/A	2024/03/11	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	9265377	N/A	2024/03/12	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	9265378	N/A	2024/03/12	Automated Statchk
Sulphate by Automated Turbidimetry	SKAL	9265796	N/A	2024/03/11	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	9265371	N/A	2024/03/12	Automated Statchk
Turbidity	AT	9264888	N/A	2024/03/09	Vidhi Khatri

Bureau Veritas ID:	YOW510 Dup
Sample ID:	RW1
Matrix:	Water

Collected:	2024/03/08
Shipped:	
Received:	2024/03/09

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	9265745	N/A	2024/03/09	Nachiketa Gohil
Conductivity	AT	9265752	N/A	2024/03/09	Nachiketa Gohil
рН	AT	9265753	2024/03/09	2024/03/09	Nachiketa Gohil

Page 7 of 12



Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt	

Package 1 4.0°C

Results relate only to the items tested.

Page 8 of 12 Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Bureau Veritas Job #: C471497 Report Date: 2024/03/18

QUALITY ASSURANCE REPORT

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

			Matrix	Spike	SPIKED	BLANK	Method	Blank	RPD		
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	
9264888	Turbidity	2024/03/09			101	80 - 120	<0.1	NTU	0.64	20	
9265745	Alkalinity (Total as CaCO3)	2024/03/09			94	85 - 115	<1.0	mg/L	3.1	20	
9265752	Conductivity	2024/03/09			103	85 - 115	<1.0	umho/cm	0.55	10	
9265753	рН	2024/03/09			102	98 - 103			0.77	N/A	
9265766	Nitrate (N)	2024/03/11	100	80 - 120	96	80 - 120	<0.10	mg/L	NC	20	
9265766	Nitrite (N)	2024/03/11	73 (1)	80 - 120	100	80 - 120	<0.010	mg/L	NC	20	
9265795	Dissolved Chloride (Cl-)	2024/03/11	NC	80 - 120	90	80 - 120	<1.0	mg/L	1.6	20	
9265796	Dissolved Sulphate (SO4)	2024/03/08	NC	75 - 125	93	80 - 120	<1.0	mg/L	1.3	20	
9265797	Orthophosphate (P)	2024/03/11	95	75 - 125	94	80 - 120	<0.010	mg/L	NC	20	
9265829	Dissolved Organic Carbon	2024/03/12	119	80 - 120	96	80 - 120	<0.40	mg/L	1.3	20	
9267670	Aluminum (Al)	2024/03/12	103	80 - 120	100	80 - 120	<4.9	ug/L			
9267670	Antimony (Sb)	2024/03/12	111	80 - 120	104	80 - 120	<0.50	ug/L			
9267670	Arsenic (As)	2024/03/12	103	80 - 120	100	80 - 120	<1.0	ug/L			
9267670	Barium (Ba)	2024/03/12	102	80 - 120	95	80 - 120	<2.0	ug/L			
9267670	Beryllium (Be)	2024/03/12	105	80 - 120	99	80 - 120	<0.40	ug/L			
9267670	Boron (B)	2024/03/12	106	80 - 120	100	80 - 120	<10	ug/L			
9267670	Cadmium (Cd)	2024/03/12	105	80 - 120	99	80 - 120	<0.090	ug/L			
9267670	Calcium (Ca)	2024/03/12	NC	80 - 120	101	80 - 120	<200	ug/L			
9267670	Chromium (Cr)	2024/03/12	101	80 - 120	97	80 - 120	<5.0	ug/L			
9267670	Cobalt (Co)	2024/03/12	100	80 - 120	97	80 - 120	<0.50	ug/L			
9267670	Copper (Cu)	2024/03/12	100	80 - 120	97	80 - 120	<0.90	ug/L			
9267670	Iron (Fe)	2024/03/12	104	80 - 120	99	80 - 120	<100	ug/L			
9267670	Lead (Pb)	2024/03/12	103	80 - 120	98	80 - 120	<0.50	ug/L	NC	20	
9267670	Lithium (Li)	2024/03/12	107	80 - 120	101	80 - 120	<5.0	ug/L			
9267670	Magnesium (Mg)	2024/03/12	102	80 - 120	99	80 - 120	<50	ug/L			
9267670	Manganese (Mn)	2024/03/12	101	80 - 120	98	80 - 120	<2.0	ug/L			
9267670	Molybdenum (Mo)	2024/03/12	107	80 - 120	100	80 - 120	<0.50	ug/L			
9267670	Nickel (Ni)	2024/03/12	100	80 - 120	97	80 - 120	<1.0	ug/L			
9267670	Phosphorus (P)	2024/03/12	104	80 - 120	100	80 - 120	<100	ug/L			
9267670	Potassium (K)	2024/03/12	102	80 - 120	99	80 - 120	<200	ug/L			
9267670	Selenium (Se)	2024/03/12	104	80 - 120	101	80 - 120	<2.0	ug/L			

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Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com



Bureau Veritas Job #: C471497 Report Date: 2024/03/18

QUALITY ASSURANCE REPORT(CONT'D)

Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

			Matrix	Spike	SPIKED	BLANK	Method E	Blank	RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9267670	Silicon (Si)	2024/03/12	104	80 - 120	100	80 - 120	<50	ug/L		
9267670	Silver (Ag)	2024/03/12	104	80 - 120	99	80 - 120	<0.090	ug/L		
9267670	Sodium (Na)	2024/03/12	100	80 - 120	100	80 - 120	<100	ug/L		
9267670	Strontium (Sr)	2024/03/12	101	80 - 120	99	80 - 120	<1.0	ug/L		
9267670	Thallium (Tl)	2024/03/12	103	80 - 120	98	80 - 120	<0.050	ug/L		
9267670	Titanium (Ti)	2024/03/12	103	80 - 120	101	80 - 120	<5.0	ug/L		
9267670	Uranium (U)	2024/03/12	108	80 - 120	102	80 - 120	<0.10	ug/L		
9267670	Vanadium (V)	2024/03/12	103	80 - 120	98	80 - 120	<0.50	ug/L		
9267670	Zinc (Zn)	2024/03/12	103	80 - 120	100	80 - 120	<5.0	ug/L		
9268916	Total Ammonia-N	2024/03/14	97	75 - 125	101	80 - 120	<0.050	mg/L	20	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Cambium Environmental Inc Client Project #: 19387-001 Sampler Initials: MC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Rahman Farhana

Farhana Rahman, Senior Analyst

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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