Hydrogeological Assessment - 3358 Lakefield Road & Seaforth Crescent, Lakefield, Ontario

April 5, 2022

Prepared for:
Triple T Holdings

Cambium Reference: 11598-001

CAMBIUM INC.

866.217.7900

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Executive Summary

Cambium Inc. (Cambium) was retained by Triple T Holdings (Client) to complete a hydrogeological assessment in support of creating 4 new residential building lots located at 3358 Lakefield Road and Seaforth Crescent on the outskirts of Lakefield, Ontario. The hydrogeological assessment included an assessment of surficial soils, installation and hydraulic testing of three test wells, and nitrate attenuation calculations.

Pumping test results indicate that there are adequate groundwater resources available on the Site to support the proposed development and that water withdrawal associated with the development will not negatively influence surrounding groundwater users.

Water quality testing identified parameter concentrations which exceed the Ontario Drinking Water Quality Standards: hardness, sodium, total coliforms, and total dissolved solids (all wells); and chloride and turbidity (Test Well 1 and Test Well 3). These parameters can be readily treated with a residential water treatment system that includes water softening, filtering, and disinfection.

It is noted that it is the duty of Triple T Holdings to notify prospective buyers that sodium is present in the groundwater in the area at concentrations greater than 20 mg/L, which would affect individuals on sodium reduced diets, and that this notification should be added to the title deeds for each property where an exceedance was identified.

The nitrate attenuation calculations indicate that the Site could sustain up to 4 dwellings while maintaining a boundary concentration of nitrate at less than 10 mg/L. Therefore, the proposed development of 4 dwellings is within acceptable criteria.

Respectfully submitted,

Cambium Inc.

Kevin Warner, M.Sc., P.Geo. (Ltd)
Manager – Water & Wastewater

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1.0 Introduction

Cambium Inc. (Cambium) was retained by Triple T Holdings (Client) to complete a hydrogeological assessment in support of creating 4 new residential building lots located at Lakefield Road and Seaforth Crescent on the outskirts of Lakefield, Ontario.

There are no municipal services for water or wastewater near the property; therefore, the Site will require to be serviced on-site. As such, a hydrogeological assessment was undertaken for potable water supply and wastewater, in accordance with Ministry of the Environment, Conservation and Parks (MECP) Guidelines D-5-5 and D-5-4, respectively.

The hydrogeological assessment included the installation and hydraulic testing of three (3) test wells to characterize on-site groundwater resources, determine the impact of water withdrawal on surrounding groundwater users, and asses the potability of the supply aquifer. The assessment also included a characterization of the native soils on the property and evaluation of suitability for an on-site wastewater treatment system.

1.1 Site Description

At present, the Site exists as vacant land. Most of the Site is heavily vegetated with trees, shrubs and grasses. The Site is comprised of three parcels (northern, central, southern), with a combined area of 21,186 m^2. The northern parcel is bound to the north and south by residential properties, to the east by Rays Creek, and to the west by Seaforth Crescent. The central parcel is located at the end of Seaforth Crescent and is bound to the north and south by undeveloped property, to the east by undeveloped property and Rays Creek, and to the west by residential properties. The southern parcel is bound to the north by a residential property, to the south and east by undeveloped property and Rays Creek, and to the west by Lakefield Road. It is proposed that the Site be developed and severed into four residential properties which will be serviced by a private water supply well and an on-site wastewater system.

The regional location of the Site is outlined on Figure 1. A Site plan is outlined on Figure 2. The proposed development plan is included in Appendix A.

2.0 Methodology

This section describes the methodology undertaken to complete the hydrogeological assessment.

2.1 Background Information

A thorough review of the available relevant background information was undertaken for this study, which included the following:

- Ministry Water Well Information System (WWIS) website (MECP, 2022);
- Physiography of Southern Ontario (Chapman, L.J. and D.F. Putnam, 1984);
- Surficial geology of Southern Ontario, Miscellaneous Release - Data 128 revised, scale 1:50,000 (Ontario Geological Survey, 2010); and
- Paleozoic Geology of Southern Ontario, Miscellaneous Release - Data 219, scale 1:50,000 (Armstrong, D.K. and Dodge, J.E.P., 2007).

2.2 Test-Pit Investigation

On December 15, 2020, a test-pit investigation was completed by Cambium to determine the shallow subsurface conditions across the property. The test-pits were excavated using a tracked excavator or auger under the supervision of a Cambium technologist. A total of four test-pits, designated as TP101-20 through TP104-20, were advanced throughout the Site, with one test pit completed on each proposed lot. Each soil sample was handled only by the technologist using dedicated nitrile gloves. Soil samples were logged for soil colour, texture, structure, moisture content, and consistency/compactness. Open test-pits were backfilled with the excavated soils and compacted with the backhoe bucket. The test-pit logs are provided in Appendix B. Test-pit locations are identified on Figure 2.

Physical laboratory testing (particle size distribution analyses and moisture content testing) was also completed on three (3) selected soil samples (SS-21-0058, -0059, and -0060) to confirm textural classification identified during field logging. Analysis results are based on the

Unified Soil Classification System (USCS) scale. Copies of laboratory analysis reports for these samples are provided in Appendix B.

2.3 Test Well Installation

Three test wells were installed by Herb Lang Well Drilling Ltd. between September 17 - 27, 2021. Information from the Client indicates the proposed development will be less than 15 ha in size. As such, based on Section 4.2 of Procedure D-5-5 Technical Guideline for Private Wells: Water Supply Assessment (Ministry of the Environment, 1996b), three test wells were required at the Site. All drilled wells were characterized as clay overburden, with thicknesses ranging from 8.5 m to 9.8 m, overlying limestone bedrock. Total depths of wells ranged from 18.3 m below ground surface (mbgs) to 20.7 mbgs. The specific details of each individual well are given below.

Supply well A319332 (hereafter referred to as Test Well 1) was installed on September 23, 2021, on the central parcel of the Site. Overburden within the drilled well was characterized as clay with stones. Bedrock, starting at 9.1 mbgs, was characterized as limestone. Water bearing fractures were encountered within the limestone at 14.6 mbgs and 18.3 mbgs. The total well depth drilled was 19.8 m.

Supply well A319324 (hereafter referred to as Test Well 3) was installed on September 17, 2021, on the southern parcel of the Site. Overburden within the drilled well was characterized as clay with boulders. Bedrock, starting at 8.5 mbgs, was characterized as limestone. Water bearing fractures were encountered within the limestone at 9.8 m below ground surface (mbgs) and 18.3 mbgs. The total well depth drilled was 18.3 m.

Supply well A319334 (hereafter referred to as Test Well 2) was installed on September 27, 2021, on the northern parcel of the Site. Overburden within the drilled well was characterized as clay. Bedrock, starting at 9.8 mbgs, was characterized as limestone. A water bearing fracture was encountered within the limestone at 20.7 mbgs. The total well depth drilled was 21.3 m.

The on-site well records are included in Appendix D.

2.4 Hydraulic Pumping Tests

2.5 Test Well #1

On October 25, 2021, Cambium staff completed a pumping test at Test Well 1. Cambium installed a disinfected submersible pump in the well at a depth of approximately 15 mbgs. A pressure transducer level logger (logger) was installed in Test Well 1, and monitoring wells Test Well 2 and Test Well 3, to measure water level. Water level was also measured manually in a residential well (1268 Seaforth Crescent) for a portion of the test. Barometric pressure was measured by a separate logger and used for atmospheric compensation. The discharge outlet for the pump was placed to minimize potential groundwater recharge during the test.

According to the water well record for Test Well 1, the recommended yield of the well at the time of installation was 4.5 gpm, which is equivalent to 17.0 L/min.

At 11:40 the pumping test was commenced for Test Well 1 for a duration of 6 hours. The flow rate was set at approximately 14 L/min (3.1 igpm) for the duration of the constant–rate pumping test.

Water levels were monitored with manual equipment in Test Well 1 until 18:43 on October 25, 2021. The pump was removed from Test Well 1 at 18:45. The loggers installed in Test Well 1, 2, and 3 were left in place to monitor water levels until the following day. In total, 5,200 L of water was withdrawn from Test Well 1 during Pumping Test 1.

2.6 Test Well #2

On October 26, 2021, Cambium staff completed a pumping test at Test Well 2. Cambium installed a disinfected submersible pump in the well at a depth of approximately 16 mbgs. A pressure transducer level logger (logger) was installed in Test Well 2, and monitoring wells Test Well 1 and Test Well 3, to measure water level. Barometric pressure was measured by a separate logger and used for atmospheric compensation. The discharge outlet for the pump was placed to minimize potential groundwater recharge during the test.

According to the water well record for Test Well 2, the recommended yield of the well at the time of installation was 6 gpm, which is equivalent to 22.7 L/min.

At 10:08 the pumping test was commenced for Test Well 2 for a duration of 6 hours. The flow rate was set at approximately 12 L/min (2.6 igpm) for the duration of the constant–rate pumping test.

Water levels were monitored with manual equipment in Test Well 2 until 17:23 on October 26, 2021. The loggers installed in Test Well 1, 2, and 3 were left in place to monitor water levels until the following day. In total, 4,300 L of water was withdrawn from Test Well 2 during Pumping Test 2.

2.7 Test Well #3

On October 27, 2021, Cambium staff completed a pumping test at Test Well 3. Cambium removed the submersible pump from Test Well 2, disinfected it, and installed it into Test Well 3 at a depth of approximately 16 mbgs. A pressure transducer level logger (logger) was installed in Test Well 3, and monitoring wells Test Well 1 and Test Well 2, to measure water level. Barometric pressure was measured by a separate logger and used for atmospheric compensation. The discharge outlet for the pump was placed to minimize potential groundwater recharge during the test.

According to the water well record for Test Well 3, the recommended yield of the well at the time of installation was 7 gpm, which is equivalent to 26.5 L/min.

At 10:05 the pumping test was commenced for Test Well 3 for a duration of 6 hours. The pumping rate was initially set at 20 L/min (4.4 igpm), however due to significant increases in drawdown, the pumping rate was altered two times (reduced to 14 L/min and then increased to 18 L/min). Details regarding the pumping rates and durations employed during the test are provided in Table 1. In total, approximately 6,400 L of water was withdrawn from Test Well 3 during Pumping Test 3.

Table 1 Pumping Rates at Test Well 3

Step	Start Time	Stop Time	Flowrate (L/min)	Total Drawdown at End of Step (m)	Volume Pumped in Step (L)
1	10:05	10:15	20	4.43	200
2	10:15	10:26	14	3.16	154
3	10:26	16:05	18	5.50	6,102
				Total	6,456

Water levels were monitored with manual equipment until 17:17 on October 27, 2021. The logger installed in Test Well 3 was left in place to monitor water levels until 17:25 on October 27, 2021. The loggers installed in Test Well 1 and Test Well 2 were left in place until 19:00 On October 27, 2021.

2.8 Groundwater Quality Analysis

Groundwater quality samples were collected from Test Well 1, 2, and 3 during each pumping test, during the last 30 minutes of each test. Test Wells 1, 2, and 3 were additionally resampled on January 27, 2022, February 9, 2002, and February 18, 2022, respectively, to analyze for turbidity and bacteria exceedances. Prior to resampling, each well was shock chlorinated and a disinfected pump was installed at the bottom of the well. Water was recirculated within the well for 25-50 minutes and then pumped at a high rate (approximately 20 L) for 50-142 minutes. The high pumping rate was employed to clear accumulated sediment in the well and encourage well development. After the well development period, the pump was moved to a middle depth in the well, within the well casing, and a lower pumping rate (approximately 14 L/min) was sustained for 2.5-4.5 hours. After this time period, a water sample was collected from the well.

Collected samples were submitted to SGS Canada Inc. in Lakefield (SGS) for analysis of general organic and inorganic chemistry. SGS is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA). Samples were stored at a temperature between 0 °C and 10 °C prior and during transport. The certificates of analysis have been included in Appendix E.

3.0 Geological and Hydrogeological Setting

The Site is located within the physiographic region known as the Peterborough Drumlin Field, which is characterized as a rolling till plain with densely distributed drumlins. Drumlins are composed of highly calcareous till. Eskers comprised of sand and gravel are also present in the area. (Chapman, L.J. and D.F. Putnam, 1984).

According to Miscellaneous Release – Data 128 from the Ontario Geological Survey (Ontario Geological Survey, 2010), the Site is within an area where the following surficial deposits are present:

- Coarse textured glaciolacustrine deposits: sand, gravel, minor silt and clay.
- Till: stone-poor, sandy silt to silty sand.

According to Miscellaneous Release – Data 219 from the Ontario Geological Survey (Armstrong, D.K. and Dodge, J.E.P., 2007), the bedrock in the area of the Site consists of Middle Ordovician Simcoe Group rocks in the Verulam Formation. The Verulam Formation is described as thin-bedded, interbedded limestone, shaly limestone, and shale (Ontario Geological Survey, 1989). It is highly fossiliferous and may disintegrate easily (Chapman, L.J. and D.F. Putnam, 1984).

3.1 Test-Pit Investigation

The soils encountered during the test-pit investigation corroborate the surficial mapping described above. All four test-pits exhibited similar stratigraphy. Topsoil was present from surface to depths ranging from 0.41 to 0.91 mbgs. Underlying the topsoil was greyish-brown to brown silty sand or sand. In TP101-20 silty sand was underlain by moist greyish blue clayey silt from 2.13 to 2.48 mbgs. Water seepage was observed in this test pit at 1.30 mbgs. In TP104-20 silt and sand was underlain by sand, some silt, beginning at 1.19 mgbs. The completed depths of the test-pits ranged between 1.47 mbgs to 2.49 mbgs. Water was not observed in any test-pit except for TP101-20.

Bedrock was not encountered during test-pit investigation at the Site.

Results from the three samples submitted for laboratory grain size distribution analysis corroborate soil properties that were identified in the field. Soils range from silty sand to silt and sand, with variable amounts of clay and gravel. A summary of analysis results is presented in Table 2. Detailed laboratory analysis reports are provided in Appendix B.

Table 2 Summary of Grain Size Distribution Analysis Results

Depth (mbgs)	Test Pit ID	Soil Description	Gravel %	Sand %	Silt %	Clay %	Moisture Content %
0.9 – 2.1	TP101-20 GS1	Silty Sand some Gravel trace Clay	16	48	30	6	8.7
0.6 – 2.2	TP103-20 GS1	Silt and Sand some Gravel some Clay	15	37	36	12	7.1
0.4 – 1.2	TP104-20 GS1	Silt and Sand trace Clay	0	38	58	4	12.9

3.2 Water Well Records

According to the Ministry of Environment, Conservation and Parks (MECP) Water Well Information System (WWIS), there are 68 water well records located within approximately 500 m of the Site. Of these records, 44 describe the installation of drilled bedrock wells. The remainder are wells installed into overburden materials. All but one well is reported to be used for water supply. The wells records located within 500 m of the Site are depicted on Figure 3. A summary of water well information, including total depth, static water level, and recommended flow rate, are included below in Table 3. Further details are provided in Appendix C.

Table 3 Water Well Information Summary

		Depth (mbgs)	Static Water Level (mbgs)	Flow Rate (igpm)
Bedrock Wells Count = 44	Min	3.7	1	4
	Max	28.1	11	56
	Average (1)	20.1	6	21

1. The geometric mean of the recommended flow rate was calculated

The records indicate that all drilled bedrock water wells are installed in fractured limestone. Overburden wells are installed in either gravel or clay. Bedrock wells varied in depth from 6.7 mbgs to 38.7 mbgs and were on average 20.1 mbgs deep. The static water levels varied from 1 mbgs to 11 mbgs. The average static water level was 6 mbgs. The flow rates varied

from 5 to 68 gpm; the geometric mean was 25.5 gpm. The water bearing fractures were encountered between the depths of 8 and 24 mbgs. Higher recommended flow rates occurred for deeper fracture depths. The number of fractures encountered during the installation of bedrock wells, at various depth ranges, are summarized below in Table 4.

Table 4 Fracture Depths

Fracture Depth Ranges (mbgs)	Number of Fractures Encountered
0 - 10	8
10 - 20	28
20 - 30	8

3.3 Hydrogeological Conditions

The overburden at the Site consists of silty sand to sand and silt, with varying amounts of clay, based on excavated test pits extending to depths ranging between 1.5 mbgs and 2.5 mbgs. Water well record information suggests that two aquifers are present within the area surrounding the Site: an upper confined aquifer within gravel and clay overburden, and a lower confined aquifer within fractured limestone bedrock. Groundwater resources in the area of the Site are sourced from both aquifer types. Local groundwater flow within the upper aquifer is inferred to follow surficial topography towards Ray Creek in an easterly-southeasterly direction. The direction of groundwater flow within the lower limestone aquifer is unknown at this time; detailed groundwater elevation measurements would be required to verify groundwater flow directions and was not included in this scope of work.

4.0 Water Supply Assessment

Hydraulic testing and water quality sampling was completed to assess the suitability of test wells to provide a sufficient yield of potable water.

4.1 Hydraulic Testing of Test Wells

A total of three pumping tests, one for each test well, was completed at the Site between October 25 and October 27, 2021.

4.1.1 Test Well 1

The static water level in Test Well 1 was 2.26 mbgs on October 25, 2021, prior to the commencement of the pumping test. The pump was installed at a depth of approximately 15 mbgs. The available drawdown in the well was therefore approximately 12.7 m (height of static water level above pump). The maximum drawdown reported at the end of the test was 4.78 m, which equates to a water level of 7.04 mbgs. The remaining available drawdown at the end of the pumping test was approximately 7.9 m (which is 48% of the available drawdown at the start of the test).

The hydraulic testing commenced at 11:40 on October 25, 2021, and ran continuously for 6 hours. The discharge rate during the pumping test remained constant at 14 L/min for the duration of the test. The pumping test concluded at 17:40.

The total drawdown at the end of the pumping test was 4.78 m. Equilibrium conditions were not achieved during the pumping test. The water level in the Test Well recovered to 95% of static conditions within 140 minutes. A graphical representation of Test Well 1 water level response is outlined on Figure 4.

An influence on monitoring wells TW2 and the homeowner well at 1268 Seaforth Crescent was observed during the pumping test at TW1 (Figure 4). The total drawdown measured in TW2 at the end of the test was 0.69 m. The magnitude of drawdown in the homeowner well at 1268 Seaforth Crescent due to pumping at TW1 is not known as the static water level in the well

prior to test commencement in TW1 is not available. No drawdown due to TW1 pumping was observed in TW3.

A total of approximately 5,200 L was pumped from the well during the pumping test. Water levels in the well recovered to 95% of pre-test static water levels within 140 minutes. These results indicate that Test Well 1 can provide sufficient yield to satisfy the daily demand for a residence (2,000 L/day for a four-bedroom home based on Part 8 of the Ontario Building Code).

4.1.2 Test Well 2

The static water level in Test Well 2 was 1.95 mbgs on October 25, 2021, prior to the commencement of the pumping test. The pump was installed at a depth of approximately 16 mbgs. The available drawdown in the well was therefore approximately 14.0 m (height of static water level above pump). The maximum drawdown reported at the end of the test was 3.47 m, which equates to a water level of 5.42 mbgs. The remaining available drawdown at the end of the pumping test was approximately 10.5 m (which is 75% of the available drawdown at the start of the test).

The hydraulic testing commenced at 10:08 on October 26, 2021, and ran continuously for 6 hours. The discharge rate during the pumping test remained constant at 12 L/min for the duration of the test. The pumping test concluded at 16:09.

The total drawdown at the end of the pumping test was 3.47 m. Equilibrium conditions were not achieved during the pumping test. The water level in the Test Well recovered to 95% of static conditions within 208 minutes. A graphical representation of Test Well 2 water level response is outlined on Figure 4.

An influence on monitoring well TW1 was observed during the pumping test at TW2 (Figure 5). The total drawdown measured in TW2 at the end of the test was 0.36 m. No drawdown due to TW2 pumping was observed in TW3.

A total of approximately 4,300 L was pumped from the well during the pumping test. Water levels in the well recovered to 95% of pre-test static water levels within 208 minutes. These

results indicate that Test Well 2 can provide sufficient yield to satisfy the daily demand for a residence (2,000 L/day for a four-bedroom home based on Part 8 of the Ontario Building Code).

4.1.3 Test Well 3

The static water level in Test Well 3 was 0.24 mbgs on October 27, 2021, prior to the commencement of the pumping test. The pump was installed at a depth of approximately 16 mbgs. The available drawdown in the well was therefore approximately 15.7 m (height of static water level above pump). The maximum drawdown reported at the end of the test was 5.23 m, which equates to a water level of 5.47 mbgs. The remaining available drawdown at the end of the pumping test was approximately 10.4 m (which is 66% of the available drawdown at the start of the test).

The hydraulic testing commenced at 10:04 on October 27, 2021, and ran continuously for 6 hours. The discharge rate varied in during the first 20 minutes of the pumping test (from 20 L/min to 14L/min); after this time the discharge rate remained constant at 18L/min for the duration of the test. The pumping test concluded at 16:04.

The total drawdown at the end of the pumping test was 5.23 m. Equilibrium conditions were close to be being achieved during the pumping test. The water level in the Test Well recovered to 95% of static conditions within 33 minutes. A graphical representation of Test Well 3 water level response is outlined on Figure 4.

No drawdown due to TW3 pumping was observed monitoring wells TW1 or TW2 (Figure 6). It is possible that drawdown due to TW3 pumping occurred in the homeowner well at 3224 Lakefield Rd, however the variations in water levels measured in this well suggest the well was used by the homeowner during the test so the magnitude of potential drawdown due to TW3 pumping is not known.

A total of approximately 6,400 L was pumped from the well during the pumping test. Water levels in the well recovered to 95% of pre-test static water levels within 33 minutes. These results indicate that Test Well 2 can provide sufficient yield to satisfy the daily demand for a

residence (2,000 L/day for a four-bedroom home based on Part 8 of the Ontario Building Code).

4.1.4 Assessment of Interference Effects

TW1 and TW2 pumping test results indicate that there are fracture connections between TW1, TW2, and the homeowner well at 1268 Seaforth Crescent. Interference effects (drawdown due to pumping in TW1 and TW2) were observed in these wells. Interference effects on TW1 due to pumping in other wells are also evident during the pumping test at TW1. This is illustrated in Figure 4, where background noise (variable water levels) of a cyclical nature is visible within the plotted water level record.

The minimal amount of drawdown (< 1m) observed in monitoring wells and the rapid recovery of water levels in TW1, TW2, and TW3 after each well was pumped indicates that fractures within the aquifer are well connected and that the aquifer can provide high water yields. This is further demonstrated by the lack of observed interference effects in monitoring wells due to pumping in TW3. This well recovered to 95% of pretest static water levels within 33 minutes; it is interpreted that the fractures within this well have very high transmissivity and that the sustainable pumping level for this well is likely greater than the average 18 L/min pumped during the test at this well.

Based on this data, the interference effects on nearby wells due to pumping in TW1, TW2, and TW3 are expected to be minimal. The volumes of water removed during the pumping tests (4,300 to 6,400 L) are two to three times greater than the typical amount of water used by a residential dwelling according to Part 8 of the Ontario Building Code (i.e. a 4 bedroom house is estimated to use 2,000 L/day). The maximum water level drawdowns achieved during pumping tests were 25%-52% of total drawdown available. As such, the interference effects that may occur due to residential pumping at the Site are expected to be much less than those observed during the pumping tests. Additionally, due to the anticipated on/off pump cycles that will be employed in these wells, the interference impacts on surrounding water users are expected to be negligible in the long run.

4.2 Water Quality

Groundwater samples were collected from test wells during the last 30 minutes of their respective pumping tests. A second round of samples were also collected from each well at later dates; in these cases, sampling occurred after extended well development and pumping that lasted 4 hours to 6.5 hours. These samples were submitted to SGS Canada Inc. in Lakefield (SGS) for analysis of general organic and inorganic chemistry.

The water quality results were compared against the Ontario Drinking Water Quality Standards (ODWQS) (Ministry of the Environment, 2006). Those parameters reported at concentrations in excess of ODWQS criteria have been outlined in Table 5.

Table 5 ODWQS Exceedances

Parameter	Test Well 1		Test Well 2		Test Well 3		ODWQS Criteria
	25-Oct 2021	27-Jan 2022	26-Oct 2021	09-Feb 2022	27-Oct 2021	18-Feb 2022	
Chloride (mg/L)	220	**260**	210.0	210	**260**	**300**	250
Hardness (mg/L)	**387**	**477**	**366**	**407**	**337**	**391**	80-100
Sodium (mg/L)	**55.0**	**64.0**	**55.5**	**53.0**	**115**	**133**	20 (200)
Total Dissolved Solids (mg/L)	**634**	**663**	431	**583**	**674**	**811**	500
Total Coliform (cfu/100mL)	**100**	**320**	**5**	**4**	**3**	1	1
Turbidity (NTU)	**37.10**	**8.31**	2.32	2.05	**34.60**	**15.70 (4.35)**	5

1. *Bold entries indicate exceedances of ODWQS criteria.*

Hardness, sodium, total coliforms, and total dissolved solids (TDS) exceeded the ODWQS criteria in samples from all Test Wells. Chloride and turbidity concentrations exceeded ODWQS criteria in Test Wells 1 and 3. All other analyzed parameters were within acceptable ranges.

Hardness is a parameter which is typically elevated in limestone bedrock aquifers. This parameter can be treated with residential water softening units.

Sodium is also a parameter which is typically elevated in limestone aquifers. Measured concentrations of sodium are elevated above the limit which serves as a warning to individuals on sodium restricted diets (20 mg/L). The concentration of sodium is less than the aesthetic

limit however (200 mg/L), which indicates that the water is still potable at the measured concentrations.

It would be Triple T Holdings duty notify purchasers that sodium may be present in the groundwater in the area at concentrations greater than 20 mg/L which would affect individuals on sodium reduced diets and that this notification should be added to the title deeds for each applicable property.

Elevated TDS concentrations are a result of high hardness and sodium; mitigation measures discussed above will also address this parameter as well.

The source of total coliforms that are present in the water quality samples is unknown at this time. Resampling occurred at all three Test Wells to rule out potential sources of error (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 to the lack of measurable E.coli in any of the samples. It is inferred that other sources of background concentrations exist within the aquifer; possibly from surficial connections to the aquifer system. Elevated total coliforms can be effectively treated with a residential water disinfection system (i.e. UV treatment or chlorination).

The source of elevated chloride concentrations in TW1 and TW3 are also unknown at this time. It is noted that concentrations of this parameter were greater in the winter months, compared to the fall, which suggests that there may be surficial connections between fractures in the bedrock aquifer and sources of road salt.

Turbidity concentrations decreased in Test Well 1 and Test Well 3 during the second sampling event after extended well development occurred. Turbidity was also measured in the field during well development and values of this parameter were observed to decreased as well development progressed. It is expected that further reduction in turbidity will occur with continuing pumping from the wells. Additionally, a field filtered water sample from Test Well 3 reduced turbidity values to below ODWQS criteria (field filtering reduced the sample turbidity to 4.35 NTU). This demonstrates that this parameter will be able to be treated adequately with a residential treatment system which includes filtration.

5.0 Wastewater Assessment

As per Procedure D-5-4 Technical Guideline for Individual On-Site Sewage Systems: Water Quality Risk Assessment (Ministry of the Environment, 1996a), an assessment was completed to determine the feasibility of utilizing on-site sewage disposal for the development.

The creation of 4 new residential lots will increase wastewater effluent loading on the overburden soils in the area and subsequently the shallow overburden aquifer that is present regionally. Within the effluent, nitrate is considered the limiting contaminant due to human health concerns. Procedure D-5-4 requires that the effluent plume at the Site boundary be within the ODWQS limit of 10 mg/L for nitrate to prevent contamination of adjacent properties. Although natural processes and soil interaction can result in nitrate being attenuated in the receiving aquifer system, Procedure D-5-4 states that only dilution can be used as the principal attenuation mechanism to predict future nitrate concentrations. As such, a mass balance calculation is used to determine the impact of developing residential lots on the Site.

5.1 Available Dilution

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

$$Qi = A \times S \times I$$

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 Peterborough (Trent U) weather station was used. The data was accessed through the Environment Canada website (Environment Canada, 2020). The total yearly precipitation, on average, was 882 mm.

The Thornthwaite method was used to determine the amount of evapotranspiration that will occur at the Site (S. Lawrence Dingman, 2008). The calculated depth of evapotranspiration was 542 mm/year. The evapotranspiration calculations are attached in Appendix F. Therefore, the water surplus calculated to be 340 mm per year (0.932 mm/day).

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).

In addition to calculating the infiltration factor for the Site, the area of the Site was measured (via available mapping) to determine the total volume of available dilution water generated in each portion of the Site. The calculations of available dilution water for each portion of the Site have been outlined below in Table 6.

Table 6 Available Dilution Calculations

Infiltration Factor	
Topography	Rolling = 0.2
Soil	Till (silty sand) = 0.25
Cover	Grass/Shrub/Forested = 0.2
Infiltration Factor (I)	**0.65**
Volume of Precipitation Water	
Developable Portion Area (A) (m²)	21,186
Surplus (S) (m/day)	0.000932
Volume of Surplus Water Per Day (AxS)	**19.7 m³/day (19,745 L/day)**
Volume of Available Dilution Water Per Day ((AxS)xI)	**12.8 m³/day (12,834 L/day)**
Volume of Runoff Water Per Day ((AxS)x(1-I))	**6.9 m³/day (6,911 L/day)**

5.2 Predictive Assessment

The creation of the new residential lots will increase wastewater effluent loading on the shallow receiving aquifer system in the overburden. To assess the effect of the new septic systems, the concentration of nitrate added to the receiving aquifer from the proposed lots is calculated from the input of nitrate to be contributed by each on-site wastewater system and the volume of surplus water (determined by water balance calculations) which will infiltrate on the Site.

Based on Procedure D-5-4, each proposed lot is anticipated to generate an average discharge of 1,000 L/day of sewage effluent. Total nitrogen (all species) ultimately convert 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 normally used to determine the effluent loading from conventional septic systems on the receiving groundwater system.

Surplus water which infiltrates into the soils on-site will also provide groundwater recharge. As nitrate is not present in atmospheric precipitation, a value of 0.1 mg/L is used in the calculation for the concentration of nitrate in the surplus volume.

To determine the adequate lot density for the Site, a mass balance calculation is used to determine the sewage loading for nitrate on the property boundary. The mass balance calculations is outlined below as:

$$Q_tC_t = Q_eC_e + Q_iC_i$$

Where:

Q_t = Total volume ($Q_e + Q_i$)

C_t = Total concentration of nitrate at the property boundary

Q_e = Volume of septic effluent

C_e = Concentration of nitrate in effluent (40 mg/L)

Q_i = Volume of available dilution water

C_i = Concentration of nitrate in infiltration water (0.1 mg/L)

In order to determine the concentration of nitrate at the property boundary (C_t), the above mass balance equation is arranged as follows:

$$C_t = \frac{Q_eC_e + Q_iC_i}{Q_t}$$

This equation was used for the developable portion of the Site. The results of the equation have been outlined in Table 7 below:

Table 7 Predictive Assessment of Nitrate Concentration

Variable	Value
Number of Lots in Portion	4
Volume of Sewage Effluent (Q_e)	Lots x 1,000 L/day = 4,000 L/day
C_e	40 mg/L
Q_i	12,834 L/day
C_i	0.1 mg/L
Q_t	16,834 L/day
C_t	**9.7 mg/L**

The number of lots included in the equation was maximized, while still maintaining a nitrate concentration at the border of the developable area of the Site of less than 10 mg/L. The maximum number of lots that can theoretically be developed on the Site is 4. If 4 lots are to be developed on the Site, the concentration of nitrate at the Site boundary would be 9.7 mg/L. It should be noted that the down-gradient boundary of each of the proposed lots is Rays Creek to the east. Thus, there are no water users down-gradient of the Site as the proposed and existing residential development to the east of Rays Creek is serviced by Municipal water supply.

5.3 Conclusions

The wastewater assessment considers the construction of 4 residential dwellings. The nitrate loading calculations indicate that the concentration of nitrate at the boundary of the developable area will be 9.7 mg/L if 4 dwellings are constructed. Therefore, there is enough land area to accommodate the 4 lots according to Guideline D-5-4.

6.0 Summary

Cambium was retained by Triple T Holdings to complete a hydrogeological assessment in support of creating 4 new residential building lots located at Lakefield Road and Seaforth Crescent on the outskirts of Lakefield, Ontario. Three water wells were installed as per Guideline D-5-5. All three wells were installed into the underlying limestone bedrock formation and are sourced by water bearing fractures within the bedrock. The well yield was sufficient in all three wells to supply peak usage requirements for domestic purposes.

During each pumping test, water levels were monitored in the other on-site test wells and available nearby homeowner wells. Drawdown was observed in observation wells during pumping tests at Test Well 1 and Test Well 2. The magnitude of drawdown was minimal however (<1 m), and the large amounts of available drawdown remaining at the end of the tests, as well as rapid water level recovery times, indicate there are ample yields of water available in the aquifer. It is not expected that there will be negative impacts to surrounding well users due to pumping at the Site.

Water quality testing identified parameter concentrations which exceed the Ontario Drinking Water Quality Standards: hardness, sodium, total coliforms, and total dissolved solids (all wells); and chloride and turbidity (Test Well 1 and Test Well 3). Most parameters can be readily treated with a residential water treatment system that includes water softening, filtering, and disinfection.

It is noted that it is the duty of Triple T Holdings to notify prospective buyers that sodium is present in the groundwater in the area at concentrations greater than 20 mg/L, which would affect individuals on sodium reduced diets and that this notification should be added to the title deeds for each property where an exceedance was identified.

The wastewater assessment considers the construction of 4 residential dwellings. The nitrate loading calculations indicate that the concentration of nitrate at the boundary of the developable area will be 9.7 mg/L; therefore, there is enough land area to accommodate the 4 lots according to Guideline D-5-4.

Cambium concludes that the Site can sustain the development of 4 new residential lots without inducing a negative impact on the quality or quantity of on-site and off-site groundwater resources.

7.0 References

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8.0 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.

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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.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

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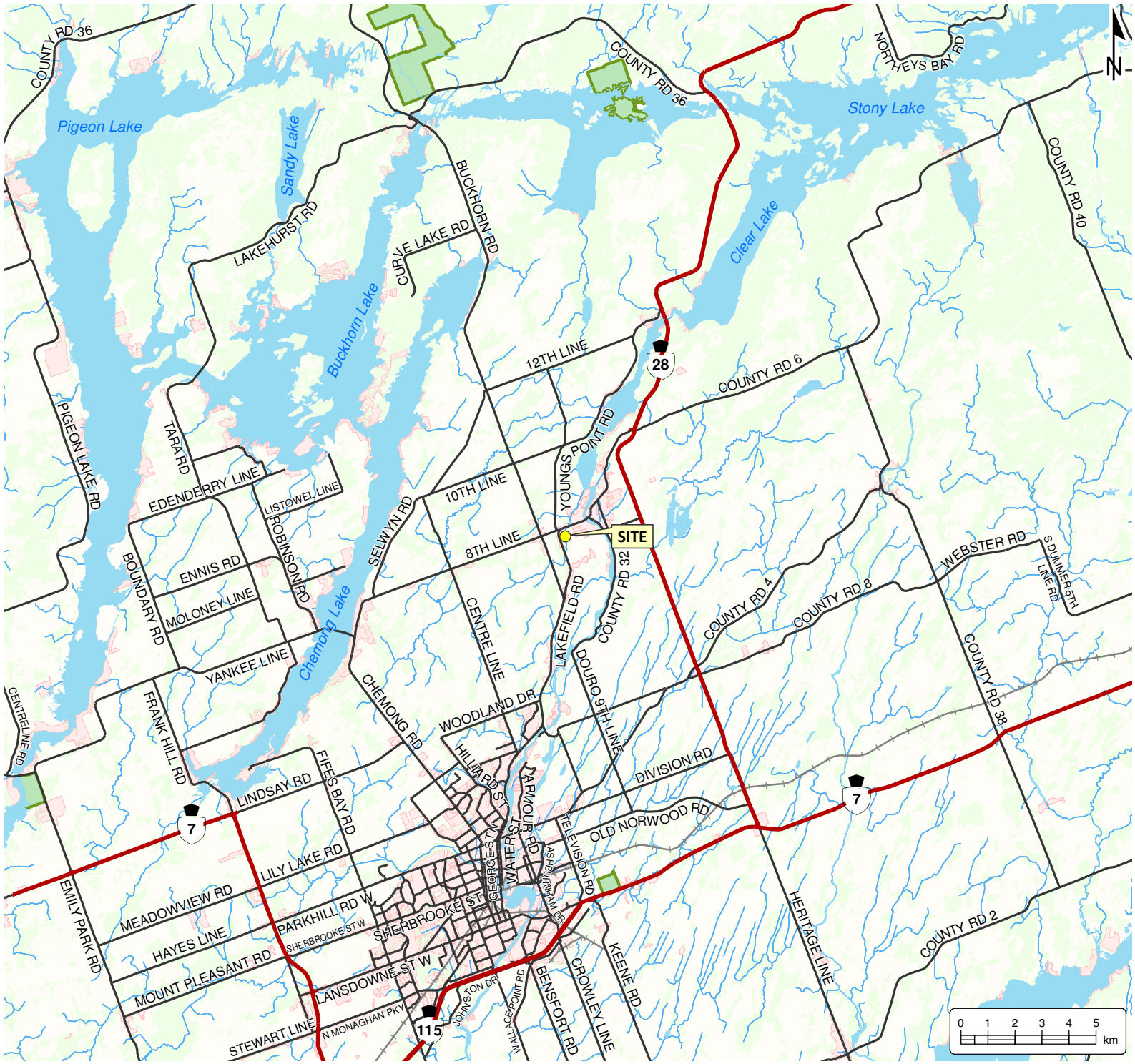
Appended Figures



HYDROGEOLOGICAL ASSESSMENT

TRIPLE T HOLDINGS
3358 Lakefield Rd
Lakefield, Ontario

LEGEND

- Highway
- Major Road
- Railroad
- Watercourse
- Water Area
- Provincial Park
- Wooded Area
- Built Up Area

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

REGIONAL LOCATION PLAN

Project No.:	11598-001	Date:	March 2022
		Rev.:	
Scale:	1:200,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	ACS	Checked by:	KW
Figure:	1		

O:\GIS\MXDs\11500-11599\11598-001 Triple T Holdings - Hydrogeological Assessment - 3358 Lakefield Rd, Lakefield\2022-02-28 FIG 1 - Regional Location Plan.mxd

HYDROGEOLOGICAL ASSESSMENT

TRIPLE T HOLDINGS
3358 Lakefield Rd
Lakefield, Ontario

LEGEND

- Test Well
- Test Pit
- Home Owner Well (1268 Seaford Cresent)
- Home Owner Well (3224 Lakefield Rd)
- Site (approximate)
- Subject Property

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2019 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
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Tel: (705) 742.7900 Fax: (705) 742.7907
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SITE PLAN

Project No.: 11598-001		Date: March 2022	Rev.:
Scale: 1:3,500		Projection: NAD 1983 UTM Zone 17N	
Created by: ACS	Checked by: KW	Figure: 2	

O:\GIS\MXDs\11500-11599\11598-001 Triple T Holdings - Hydrogeological Assessment - 3358 Lakefield Rd, Lakefield\2022-02-28 FIG 2 - Site Plan.mxd

HYDROGEOLOGICAL ASSESSMENT

TRIPLE T HOLDINGS
3358 Lakefield Rd
Lakefield, Ontario

LEGEND

- Water Well Records
- 500m Study Area
- Site (approximate)
- Subject Property

Notes:
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- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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SURROUNDING WELL RECORDS

Project No.: 11598-001		Date: March 2022	Rev.:
Scale: 1:8,500		Projection: NAD 1983 UTM Zone 17N	
Created by: ACS	Checked by: KW	Figure: 3	

O:\GIS\MXDs\11500-11599\11598-001 Triple T Holdings - Hydrogeological Assessment - 3358 Lakefield Rd, Lakefield\2022-02-28 FIG 3 - Surrounding Well Records.mxd

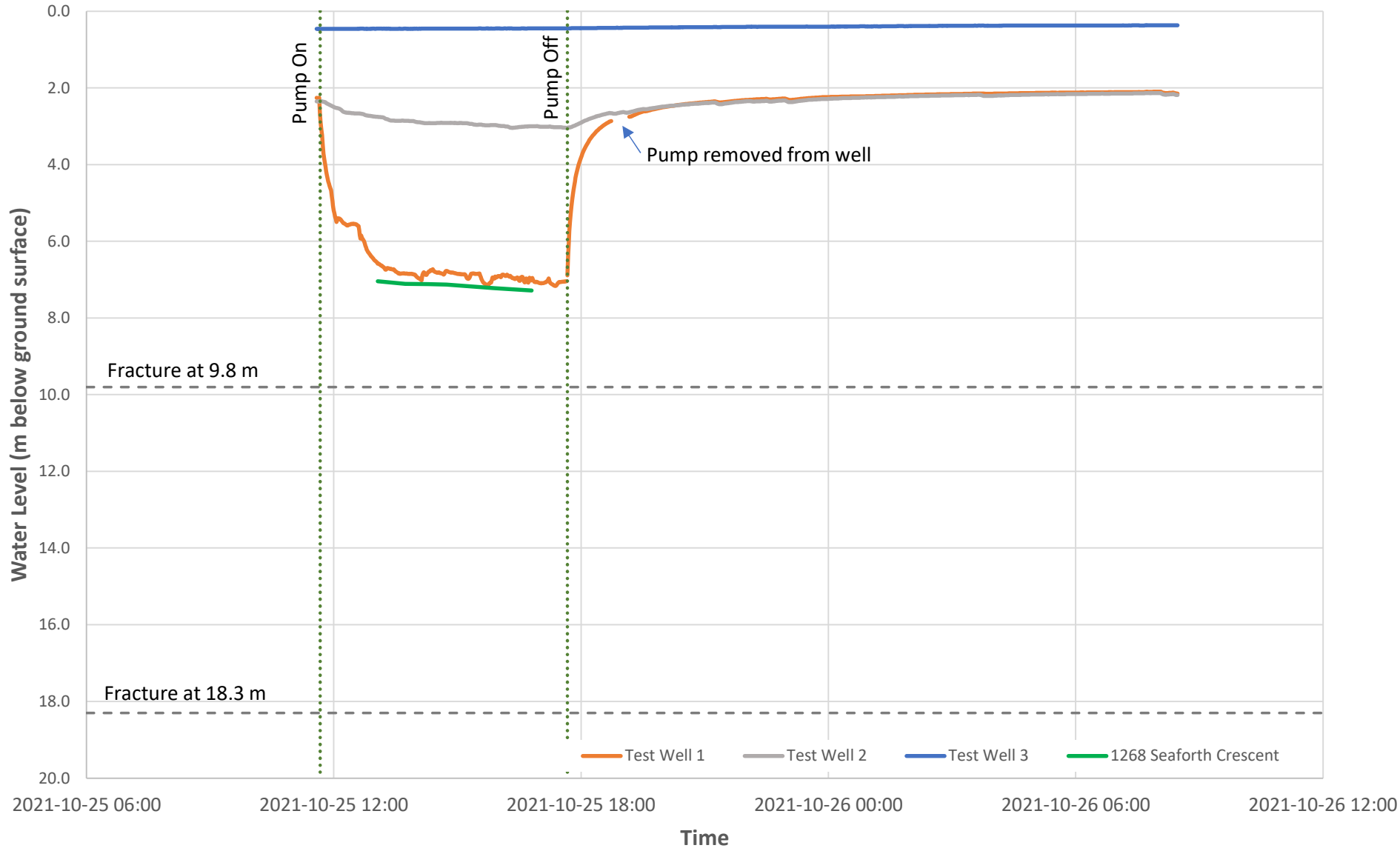


Figure 4: Pumping Test - Test Well 1

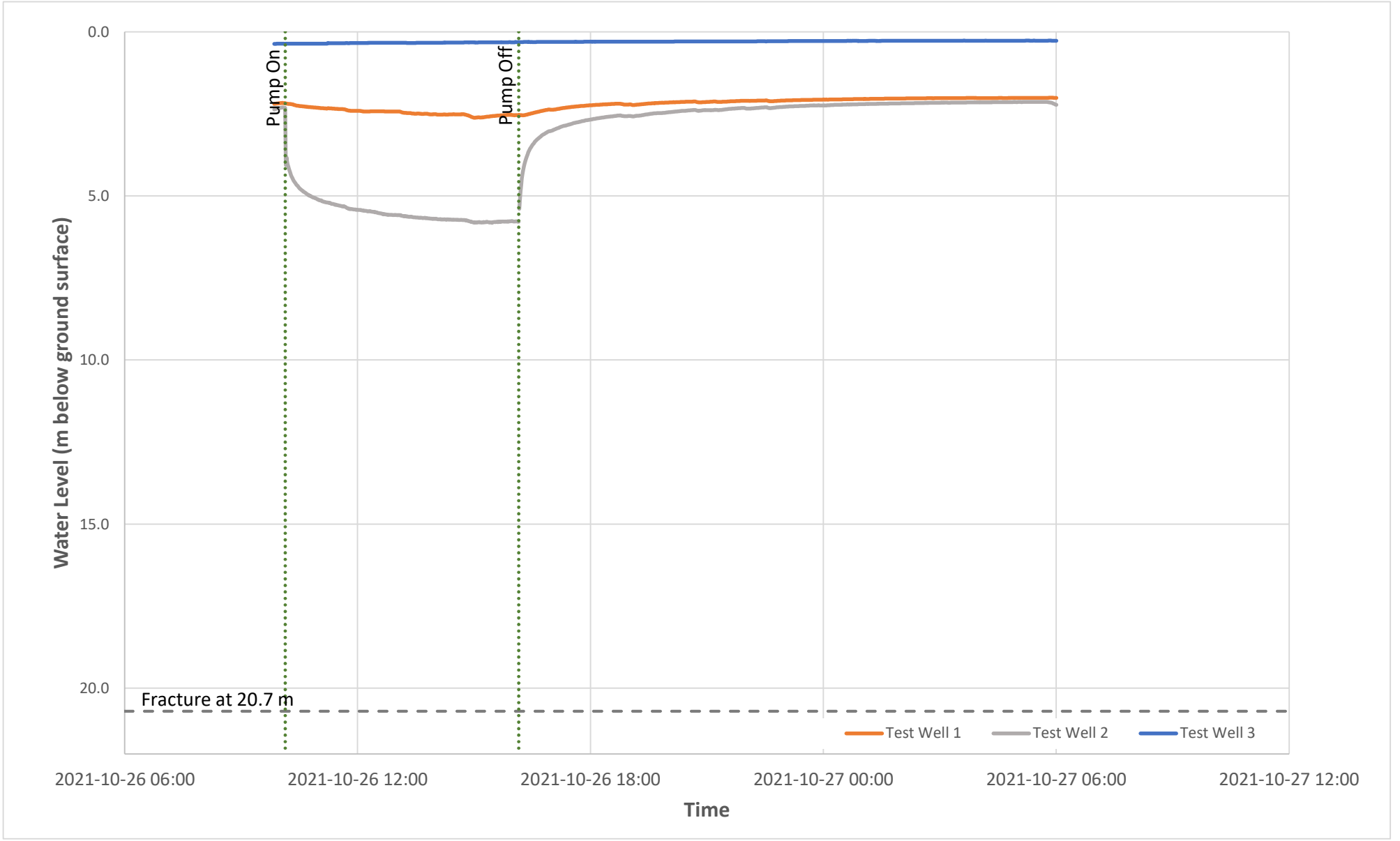


Figure 5: Pumping Test - Test Well 2

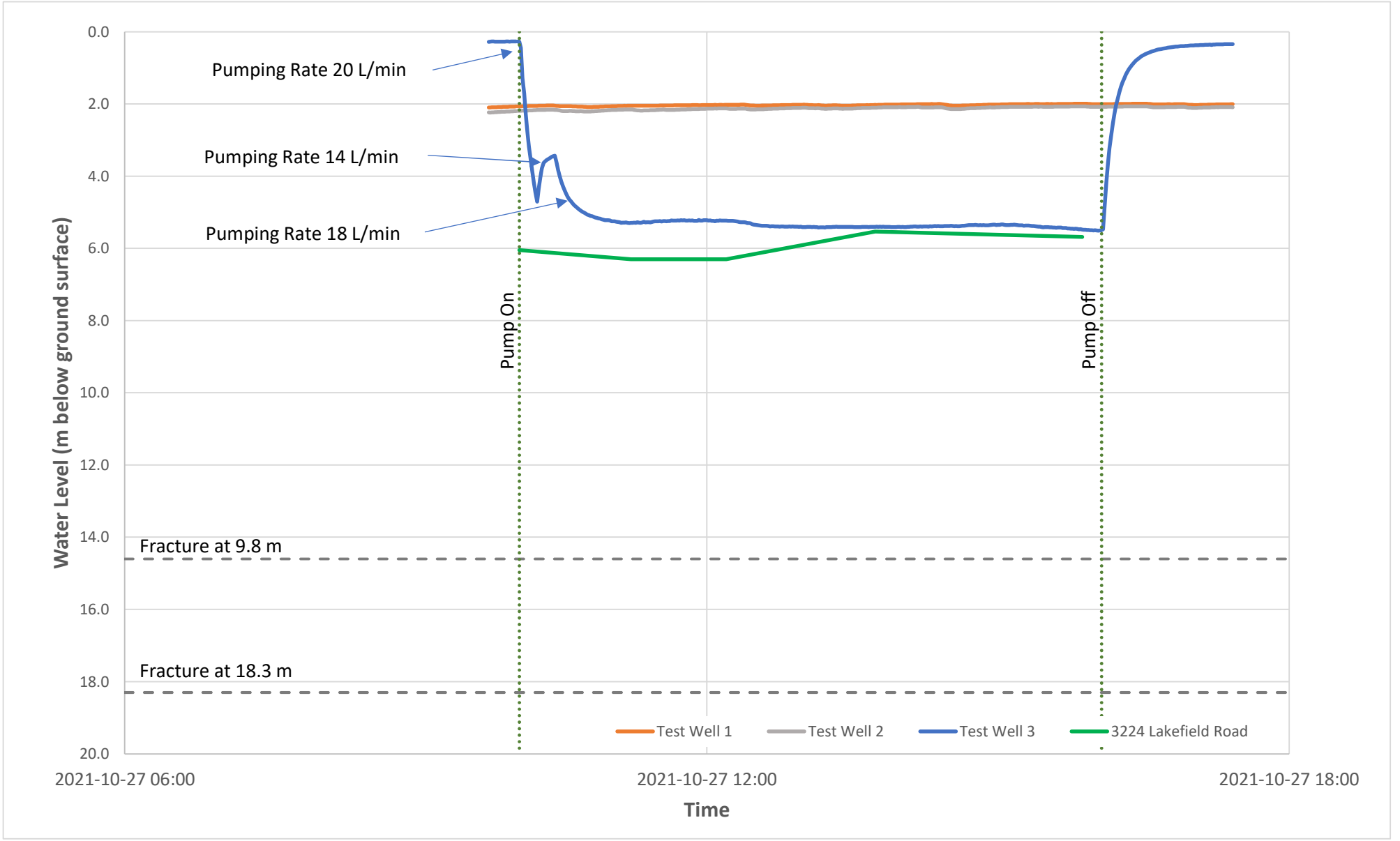


Figure 6: Pumping Test - Test Well 3

Appendix A

Proposed Development Plan

PEACOCK ROAD

WILLIAM STREET

MURRAY STREET

COYLE CRESCENT

TOWER ROAD

7TH LINE

LAKEFIELD ROAD

ONTARIO SPEED SKATING OVAL

RAYS CREEK

SEAFORTH CRESCENT

LAKEFIELD ROAD

3
AREA
2999m²

4
AREA
10319m²

1
AREA
3938m²

2
AREA
3930m²

LEGEND

- PROPERTY/DEVELOPMENT BOUNDARY
- ENVIRONMENTAL CONSTRAINST BOUNDARY
- FLOOD LINE BOUNDARY

No.	REVISION DESCRIPTION	DATE

ENGINEER STAMP

3358 LAKEFIELD ROAD
TOWNSHIP OF SELWYN
COUNTY OF PETERBOROUGH

SITE PLAN

TATHAM ENGINEERING

DESIGN: JA/HY	FILE: 517651	DWG: SP-1
DRAWN: HY	DATE: JULY 2020	
CHECK: JA	SCALE: 1:2000	

Appendix B

Test Pit Logs and Grain Size Distribution Analyses

TEST PIT LOGS

Project Name: Triple T Holdings - Hydro G - 3358 Lakefield Road - Test Pit Logs

Cambium Reference No. 11598-001

Date: December 15, 2020 Staff: J. Munro

Test Pit ID	Depth (mbgs[1])	Material Description	Sample
TP101-20	0 - 0.914 0.914 - 2.134 2.134 - 2.489 2.489	Topsoil/Organics Greyish-brown silty sand, some gravel, trace clay, trace cobble, loose, moist Greyish-blue, clayey silt, trace gravel, trace sand, trace cobble, moist Test pit completed at 2.489 mbgs with water seepage at 1.295mbgs and	 GS1 GS2
TP102-20	0 - 0.813 0.813 - 2.286 2.286	Topsoil/Organics Greyish-brown silty sand, trace clay, cobbles, trace boulders, loose, dry Test pit completed at 2.286 mbgs -No bedrock or water table was encountered	 GS1
TP103-20	0 - 0.635 0.635 - 2.235 2.235	Topsoil/Organics Greyish-brown sand and silt, some clay, some gravel, cobbles, trace boulders, loose dry Test pit completed at 2.235 mbgs -No bedrock or water table was encountered	 GS1
TP104-20	0 - 0.406 0.406 - 1.194 1.194 - 1.4732 1.4732	Topsoil/Organics Brown silt and fine sand, trace clay, tree roots, lightly compacted, dry Grey fine sand, some silt, trace gravel, trace cobble, loose, dry Test pit terminated on large cobble/boulder - No bedrock or water table was encountered	 GS1 GS2

[1] *mbgs = metres below ground surface*

Grain Size Distribution Chart

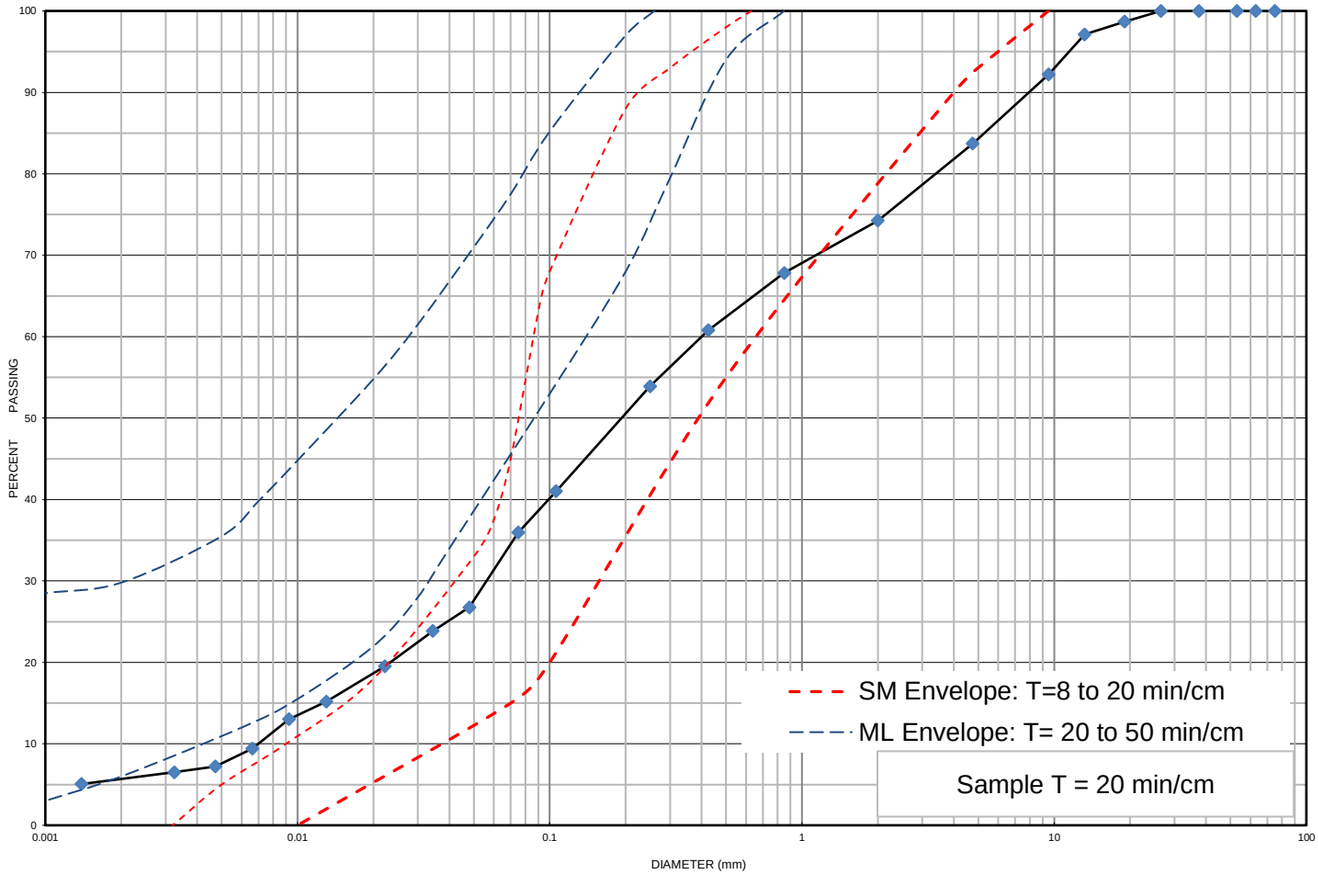
Project Number: *11598-001* **Client:** *Triple T Holdings*

Project Name: *3358 Lakefield Road - Hydrogeo Assessment*

Sample Date: *December 15, 2020* **Sampled By:** *Joshua Munro - Cambium Inc.*

Location: *TP 101-20 GS 1* **Depth:** **Lab Sample No:** *S-21-0058*

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								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
TP 101-20	GS 1		16	48	30	6	8.7

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silty Sand some Gravel trace Clay	SM	0.400	0.056	0.007	57.14	1.12

Additional information availabe upon request

Issued By: _____ *Date Issued:* *January 21, 2021*

(Senior Project Manager)

Cambium Inc. (Laboratory)

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Grain Size Distribution Chart

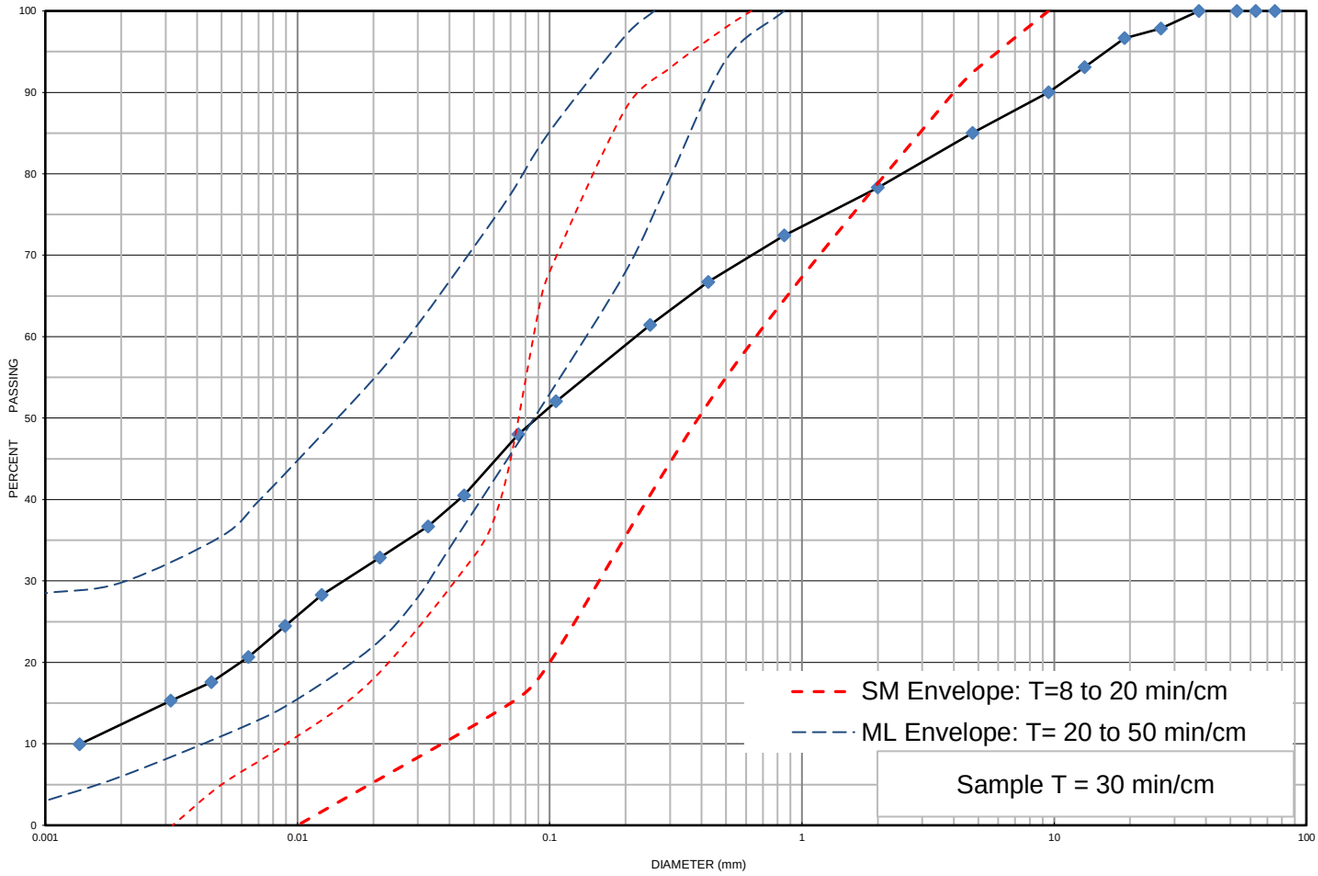
Project Number: *11598-001* **Client:** *Triple T Holdings*

Project Name: *3358 Lakefield Road - Hydrogeo Assessment*

Sample Date: *December 15, 2020* **Sampled By:** *Joshua Munro - Cambium Inc.*

Location: *TP 103-20 GS 1* **Depth:** **Lab Sample No:** *S-21-0059*

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								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
TP 103-20	GS 1		15	37	36	12	7.1

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Sand and Silt some Gravel some Clay	SM	0.0225	0.0155	0.0015	15.00	7.12

Additional information availabe upon request

Issued By: _____ *Date Issued:* *January 21, 2021*

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Grain Size Distribution Chart

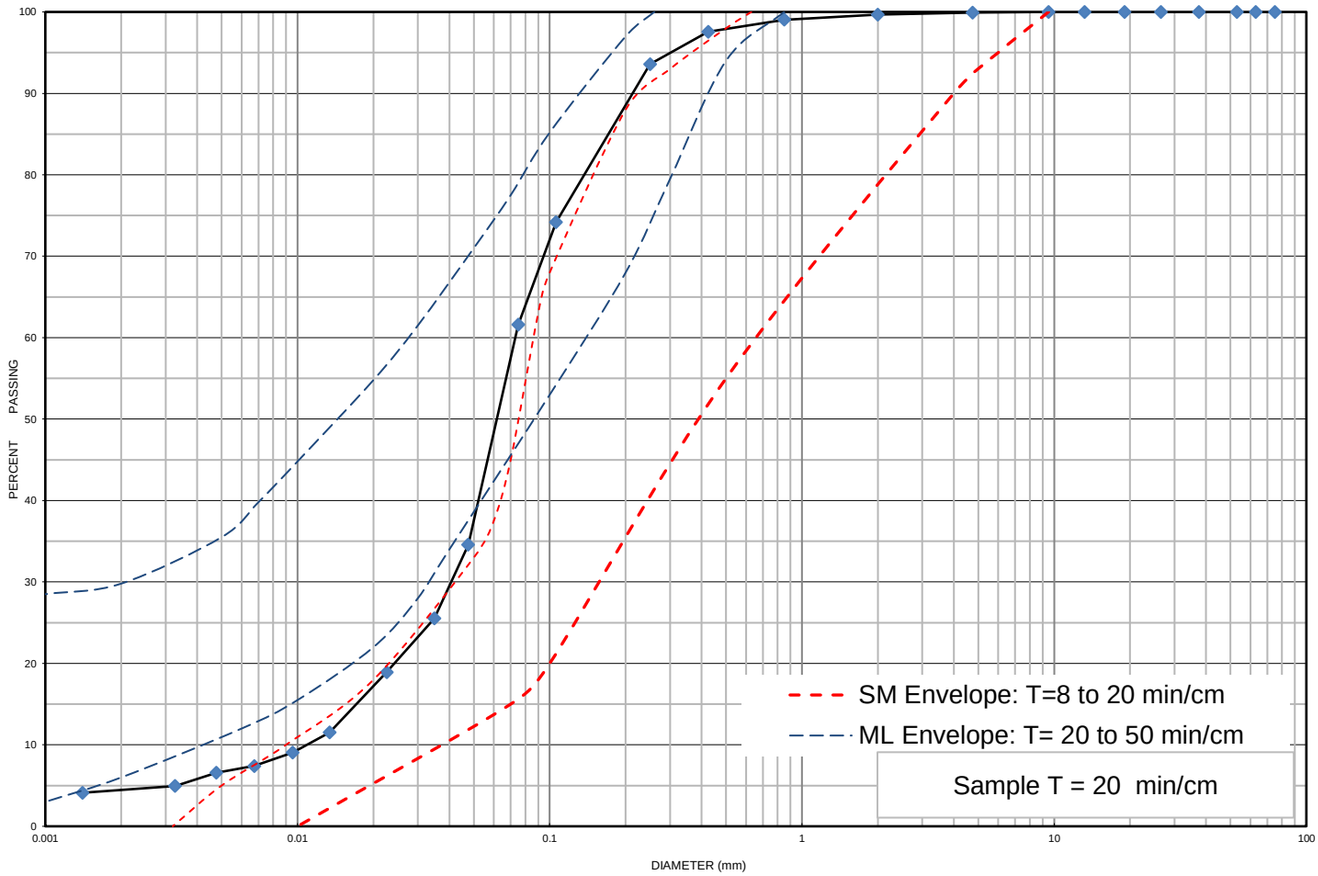
Project Number: *11598-001* **Client:** *Triple T Holdings*

Project Name: *3358 Lakefield Road - Hydrogeo Assessment*

Sample Date: *December 15, 2020* **Sampled By:** *Joshua Munro - Cambium Inc.*

Location: *TP 104-20 GS 1* **Depth:** **Lab Sample No:** *S-21-0060*

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								
CLAY	SILT	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	BOULDERS
		SAND			GRAVEL			

Borehole No.	Sample No.	Depth	Gravel	Sand	Silt	Clay	Moisture
TP 104-20	GS 1		0	38	58	4	12.9

Description	Classification	D_{60}	D_{30}	D_{10}	C_u	C_c
Silt and Sand trace Clay	ML	0.0730	0.0410	0.0120	6.08	1.92

Additional information availabe upon request

Issued By: _____ *Date Issued:* *January 21, 2021*

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Appendix C

Test Well Records

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 319332

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
Triple T Holdings	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	235	Lakefield Rd.	Lakefield

Country	Province	Postal Code	Telephone Number
Canada	Ontario	K0L 2H0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Seaforth Cres.	Smith

Lot	Concession	County/District/Municipality
26	7	PETERBOROUGH

City/Town	Province	Postal Code
Lakefield	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	716142	4921651	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 60 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Black	Topsoil		Soft	0	1
Grey	Clay	Boulders	Packed	1	28
Grey	Limestone		Hard	28	60

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	20	Bentonite chips (150 lbs)	150
0	20	Bentonite slurry (24 gal)	24

5. Method of Construction *

- [x] Cable Tool
- [ ] Rotary (Conventional)
- [ ] Rotary (Reverse)
- [ ] Boring
- [ ] Air percussion
- [ ] Diamond
- [ ] Jetting
- [ ] Driving
- [ ] Digging
- [ ] Rotary (Air)
- [ ] Augering
- [ ] Direct Push
- [ ] Other (specify) _____

6. Well Use *

- [ ] Public
- [ ] Industrial
- [ ] Cooling & Air Conditioning
- [x] Domestic
- [ ] Commercial
- [ ] Not Used
- [ ] Livestock
- [ ] Municipal
- [ ] Monitoring
- [ ] Irrigation
- [ ] Test Hole
- [ ] Dewatering
- [ ] Other (specify) _____

7. Status of Well *

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

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
6.25	Steel	0.188	-2	28
6	Open Hole		28	60

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)

10. Water Details

Water found at Depth 48 (ft)	☐ Gas	Kind of water	☐ Fresh	☑ Untested	☐ Other		
Water found at Depth 60	☐ Gas	Kind of water	☐ Fresh	☑ Untested	☐ Other		

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	20	8.75
20	28	6.58
28	60	6

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	12.5	17.8	18.7	19.9	21.0	21.9	25.9	27.8	29.4	29.5	33.2	41.2	42.5	43.5

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	31.4	31.4	31.0	31.0	25.7	22.0	20.2	18.8	17.7	16.5	13.2	13.0	12.9

After test of well yield, water was

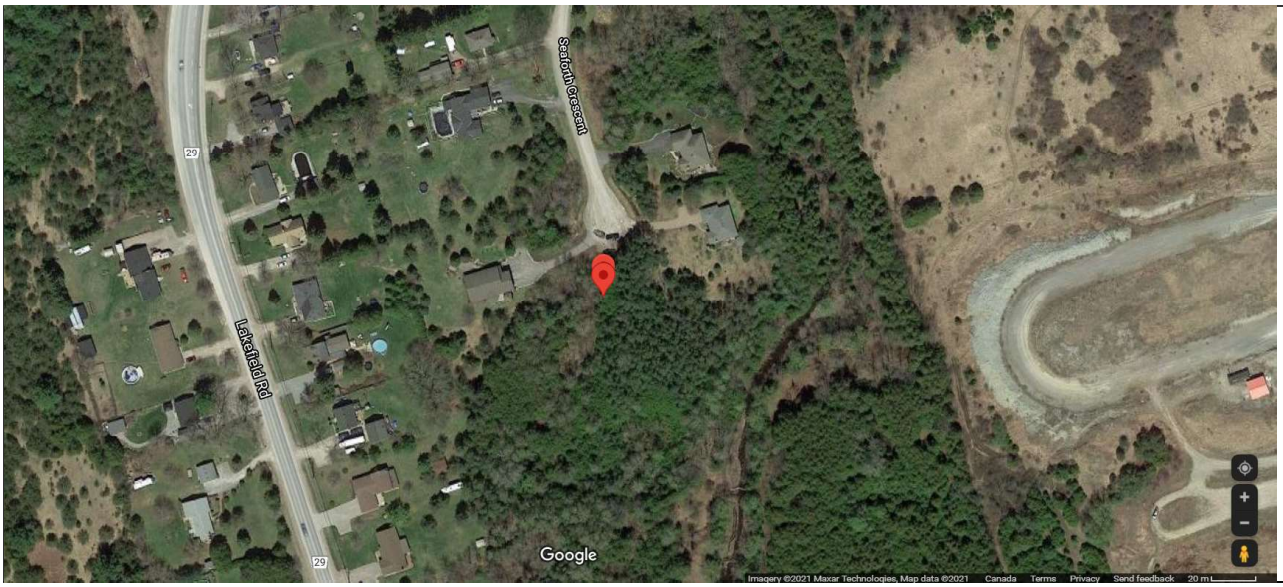
☑ Clear and sand free ☐ Other (specify)

Pump intake set at	Pumping rate	Duration of pumping	Final water level end of pumping	Disinfected? *
54 (ft)	7 (GPM)	2 hrs + 00 min	43.5 (ft)	☑ Yes ☐ No

Recommended pump depth	Recommended pump rate	Well production
57 (ft)	7 (GPM)	7 (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☑ Yes ☐ No	2021/08/05	2021/09/23

Comments
Breakaway guides @ 6' & 16'

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Herb Lang Well Drilling Ltd.	7560

Business Address

Unit Number	Street Number	Street Name *
	4852	Highway 7

City/Town/Village *	Province	Postal Code *
Omemee	ON	K0L 2W0

Business Telephone Number	Business Email Address
705-799-7088	hlwelldrilling@gmail.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
Kitchen	Todd	2336

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
Foster	Garry	hlwelldrilling@gmail.com

Signature		Date Submitted (yyyy/mm/dd)
Garry Foster	Digitally signed by Garry Foster Date: 2021.10.04 20:30:02 -04'00'	2021/10/04

17. Ministry Use Only

Audit Number
HJUD 8IKV

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 319334

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization	**Email Address**
Triple T Holdings	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village	
	235	Queen St.	Lakefield	
Country	**Province**		**Postal Code**	**Telephone Number**
Canada	Ontario		K0L 2H0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Seaforth Cres.	Smith

Lot	Concession	County/District/Municipality	
26	7	PETERBOROUGH	
City/Town		**Province**	**Postal Code**
Lakefield		Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	716147	4921731	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 70 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Black	Topsoil		Soft	0	1
Grey	Clay		Packed	1	32
Grey	Limestone		Hard	32	70

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	20	Bentonite chips (200 lbs)	200
0	20	Bentonite slurry (24 gal)	24

5. Method of Construction *

- [x] Cable Tool
- [ ] Rotary (Conventional)
- [ ] Rotary (Reverse)
- [ ] Boring
- [ ] Air percussion
- [ ] Diamond
- [ ] Jetting
- [ ] Driving
- [ ] Digging
- [ ] Rotary (Air)
- [ ] Augering
- [ ] Direct Push
- [ ] Other (specify) _____

6. Well Use *

- [ ] Public
- [ ] Industrial
- [ ] Cooling & Air Conditioning
- [x] Domestic
- [ ] Commercial
- [ ] Not Used
- [ ] Livestock
- [ ] Municipal
- [ ] Monitoring
- [ ] Irrigation
- [ ] Test Hole
- [ ] Dewatering
- [ ] Other (specify) _____

7. Status of Well *

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

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
6.25	Steel	0.188	-2	32
6	Open Hole		32	70

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)

10. Water Details

Water found at Depth 68 (ft) ☐ Gas Kind of water ☐ Fresh ☑ Untested ☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	20	8.75
20	70	6

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	12.5	23.1	23.5	23.8	24.6	24.8	25.5	25.9	26.3	26.5	26.7	26.8	27.0	27.1

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	26.7	26.7	26.5	25.9	25.0	20.9	19.8	16.7	15.4	13.2	12.5	12.5	12.5

After test of well yield, water was

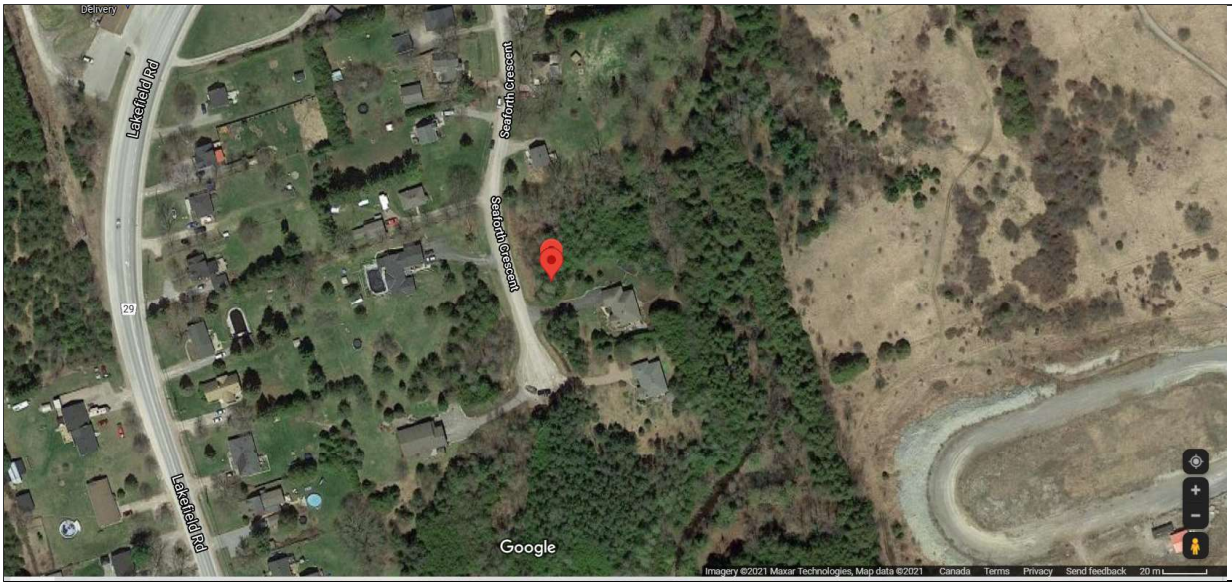
☑ Clear and sand free ☐ Other (specify)

Pump intake set at	Pumping rate	Duration of pumping	Final water level end of pumping	Disinfected? *
67 (ft)	6 (GPM)	2 hrs + 00 min	27.1 (ft)	☑ Yes ☐ No

Recommended pump depth	Recommended pump rate	Well production
67 (ft)	6 (GPM)	6 (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☑ Yes ☐ No	2021/08/05	2021/09/27

Comments
Breakaway guides @ 6' & 16'

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Herb Lang Well Drilling Ltd.	7560

Business Address

Unit Number	Street Number	Street Name *
	4852	Highway 7

City/Town/Village *	Province	Postal Code *
Omemee	ON	K0L 2W0

Business Telephone Number	Business Email Address
705-799-7088	hlwelldrilling@gmail.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
Kitchen	Todd	2336

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
Foster	Garry	hlwelldrilling@gmail.com

Signature		Date Submitted (yyyy/mm/dd)
Garry Foster	Digitally signed by Garry Foster Date: 2021.10.04 20:33:58 -04'00'	2021/10/04

17. Ministry Use Only

Audit Number
CLHP C2PV

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 319324

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name
Organization	**Email Address**
Triple T Holdings	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	235	Queen St.	Lakefield

Country	Province	Postal Code	Telephone Number
Canada	Ontario	K0L 2H0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
	0	Lakefield Rd,	Smith

Lot	Concession	County/District/Municipality
26	7	PETERBOROUGH

City/Town	Province	Postal Code
Lakefield	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	716163	4921189	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 65 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Black	Topsoil		Soft	0	1
Grey	Clay	Stones	Packed	1	30
Grey	Limestone		Hard	30	65

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	20	Bentonite chips (300 lbs)	300
0	20	Bentonite slurry (24 gal)	24

5. Method of Construction *

- [x] Cable Tool
- [ ] Rotary (Conventional)
- [ ] Rotary (Reverse)
- [ ] Boring
- [ ] Air percussion
- [ ] Diamond
- [ ] Jetting
- [ ] Driving
- [ ] Digging
- [ ] Rotary (Air)
- [ ] Augering
- [ ] Direct Push
- [ ] Other (specify) _____

6. Well Use *

- [ ] Public
- [ ] Industrial
- [ ] Cooling & Air Conditioning
- [x] Domestic
- [ ] Commercial
- [ ] Not Used
- [ ] Livestock
- [ ] Municipal
- [ ] Monitoring
- [ ] Irrigation
- [ ] Test Hole
- [ ] Dewatering
- [ ] Other (specify) _____

7. Status of Well *

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

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
6.25	Steel	0.188	-2	30
6	Open Hole		30	65

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)

10. Water Details

Water found at Depth 32 (ft)	☐ Gas	Kind of water	☐ Fresh	☑ Untested	☐ Other
Water found at Depth 60	☐ Gas	Kind of water	☐ Fresh	☑ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	20	8.75
20	65	6

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain

If flowing give rate

☐ Flowing (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	11.4	14.4	15.4	15.9	16.4	16.9	18.3	18.9	19.4	19.7	19.9	20.1	20.2	20.2

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)	16.7	15.3	14.7	13.2	12.9	11.9	11.4	11.4	11.4	11.4	11.4	11.4	11.4

After test of well yield, water was

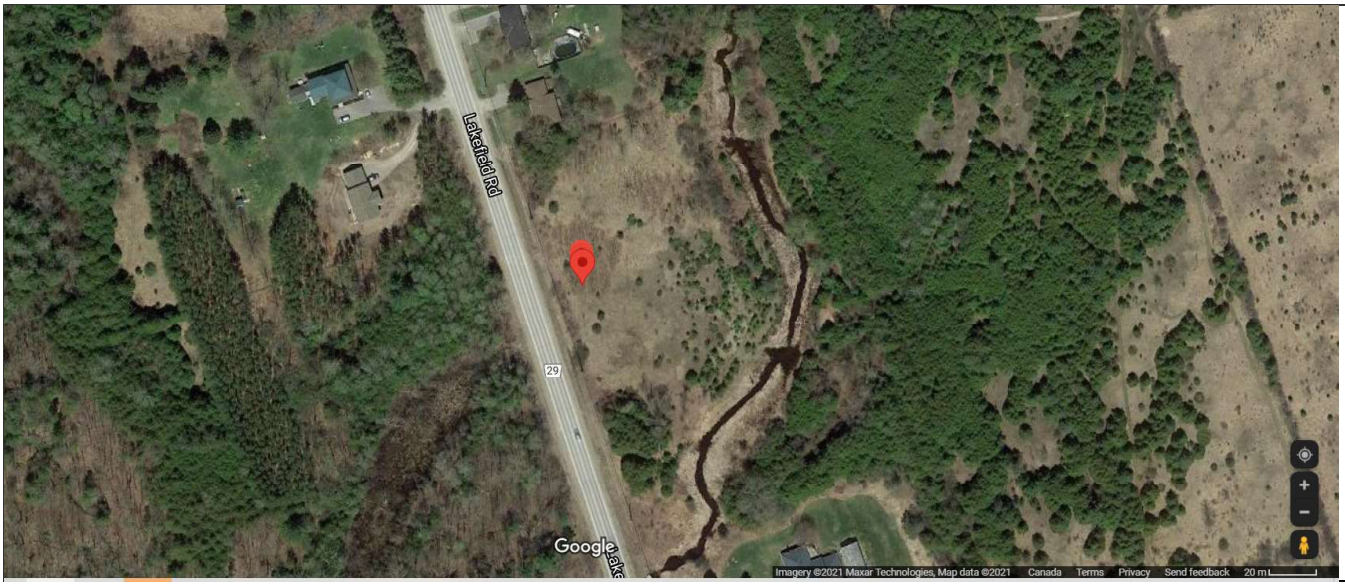
☑ Clear and sand free ☐ Other (specify)

Pump intake set at	Pumping rate	Duration of pumping	Final water level end of pumping	Disinfected? *
62 (ft)	4.5 (GPM)	2 hrs + 00 min	20.2 (ft)	☑ Yes ☐ No

Recommended pump depth	Recommended pump rate	Well production
62 (ft)	4.5 (GPM)	6 (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☑ Yes ☐ No	2021/08/05	2021/09/17

Comments
Breakaway guides @ 6' & 16'

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
Herb Lang Well Drilling Ltd.	7560

Business Address

Unit Number	Street Number	Street Name *
	4852	Highway 7

City/Town/Village *	Province	Postal Code *
Omemee	ON	K0L 2W0

Business Telephone Number	Business Email Address
705-799-7088	hlwelldrilling@gmail.com

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
Kitchen	Todd	2336

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
Foster	Garry	hlwelldrilling@gmail.com

Signature		Date Submitted (yyyy/mm/dd)
Garry Foster	Digitally signed by Garry Foster Date: 2021.10.04 20:26:53 -04'00'	2021/10/04

17. Ministry Use Only

Audit Number
ZFDY X4JS

Appendix D

Water Quality Analysis and Certificates of Analysis

Summary of Groundwater Quality Results

Parameter	Units	ODWQS	Test Well #1		Test Well #2		Test Well #3	
			25-Oct-21	27-Jan-22	26-Oct-21	09-Feb-22	27-Oct-21	18-Feb-22
Total Coliform	cfu/100mL	1	100	320	5	4	3	1
E. Coli	cfu/100mL	1	0	0	0	< 2	0	0
Alkalinity	mg/L as CaCO3	30-500	187	218	198	235	235	250
pH	No unit	6.5-8.5	8.08	8.15	8.17	8.37	8.06	8.19
Conductivity	uS/cm	-	1070	1090	1040	1040	1220	1300
Chloride	mg/L	250	220	260	210.0	210	260	300
Nitrite (as N)	as N mg/L	1	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Nitrate (as N)	as N mg/L	10	0.14	0.14	0.92	0.65	<0.06	< 0.06
Nitrate + Nitrite (as N)	as N mg/L	-	0.14	0.14	0.92	0.65	<0.06	< 0.06
Sulphate	mg/L	500	32	37	26	34	35	46
Colour	TCU	5	4	< 3	<3	< 3	<3	< 3
Turbidity	NTU	5	37.10	8.31	2.32	2.05	34.60	15.70
Fluoride	mg/L	1.5	0.20	0.18	0.28	0.25	0.24	0.38
Dissolved Organic Carbon	mg/L	5	1	1	1	1	2	1
Total Kjeldahl Nitrogen	as N mg/L	-	<0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Ammonia+Ammonium (N)	as N mg/L	10	< 0.1	< 0.1	0.2	0.2	0.2	0.3
Organic Nitrogen	mg/L	0.15	<0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5
Total Dissolved Solids	mg/L	500	634	663	431	583	674	811
Hardness (dissolved)	mg/L as CaCO3	80-100	387	477	366	407	337	391
Silver (dissolved)	mg/L	-	< 0.00005	0.00006	< 0.00005	< 0.00005	< 0.00005	< 0.00005
Aluminum (dissolved)	mg/L		0.138	0.188	0.011	0.002	0.001	0.135
Arsenic (dissolved)	mg/L	0.025	0.0004	0.0004	0.0008	0.0003	< 0.0002	< 0.0002
Barium (dissolved)	mg/L	1	0.25500	0.24300	0.26600	0.251	0.316	0.326
Beryllium (dissolved)	mg/L	-	0.000014	0.000012	< 0.000007	0.000008	< 0.000007	0.000009
Boron (dissolved)	mg/L		0.093	0.061	0.124	0.141	0.096	0.123
Bismuth (dissolved)	mg/L	-	<0.00001	0.00002	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Calcium (dissolved)	mg/L	-	94.8	135.0	88.6	111	109	130
Cadmium (dissolved)	mg/L	0.005	<0.000003	< 0.000003	<0.000003	0.000005	< 0.000003	0.000004
Cobalt (dissolved)	mg/L	-	0.000261	0.000288	0.000072	0.000092	0.000056	0.000088
Chromium (dissolved)	mg/L	0.05	0.00064	0.00124	0.00037	0.00011	< 0.00008	0.00099
Copper (dissolved)	mg/L	1	0.0007	0.0032	<0.0002	0.0004	0.0004	0.0031
Iron (dissolved)	mg/L	0.3	0.236	0.357	0.279	0.320	< 0.007	1.11
Potassium (dissolved)	mg/L	-	2.30	2.36	2.74	3.34	3.40	4.60
Lithium (dissolved)	mg/L		0.0151	0.0154	0.0219	0.0202	0.0254	0.0298
Magnesium (dissolved)	mg/L	-	36.60	34.10	35.10	31.3	15.7	16.0
Manganese (dissolved)	mg/L	0.05	0.02840	0.03330	0.01340	0.0164	0.00574	0.04360
Molybdenum (dissolved)	mg/L	-	0.00073	0.00080	0.00227	0.00154	0.00048	0.00043
Sodium (dissolved)	mg/L	20	55.00	64.00	55.5	53.0	115	133
Nickel (dissolved)	mg/L	-	0.0009	0.0013	0.0011	0.0010	0.0005	0.0006
Phosphorus (dissolved)	mg/L	-	0.022	0.021	0.009	0.006	< 0.003	0.116
Lead (dissolved)	mg/L	0.01	0.00019	0.00019	0.00012	0.00011	< 0.00009	0.00022
Antimony (dissolved)	mg/L	0.006	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009	< 0.0009
Selenium (dissolved)	mg/L	0.01	0.00011	0.00010	0.00009	0.00010	< 0.00004	< 0.00004
Silicon (dissolved)	mg/L	-	9.16	12.30	7.95	10.3	6.45	6.51
Tin (dissolved)	mg/L	-	<0.00006	0.00007	0.00037	< 0.00006	< 0.00006	0.00015
Strontium (dissolved)	mg/L	-	2.04	2.30	1.75	2.14	0.469	0.749
Titanium (dissolved)	mg/L	-	0.00847	0.01510	0.00082	0.00018	< 0.00005	0.0128
Thallium (dissolved)	mg/L	-	< 0.000005	0.000012	< 0.000005	0.000005	< 0.000005	< 0.000005
Uranium (dissolved)	mg/L	0.02	0.000403	0.000414	0.000538	0.000719	0.000061	0.000082
Vanadium (dissolved)	mg/L	-	0.00056	0.00082	0.00028	0.00023	0.00004	0.00033
Tungsten (dissolved)	mg/L		0.00007	0.00006	0.00012	0.00010	0.00002	0.00002
Yttrium (dissolved)	mg/L		0.00030	0.00030	0.00003	0.00002	< 0.00002	0.00085
Zinc (dissolved)	mg/L	5	0.004	0.009	0.003	0.003	< 0.002	0.017

FINAL REPORT

CA14434-OCT21 R1

11598-001

Prepared for

Cambium Inc.

FINAL REPORT

CA14434-OCT21 R1

First Page

CLIENT DETAILS

Client	Cambium Inc.
Address	194 Sophia Street, Peterborough Canada, K9H 1E5 Phone: 705-742-7900. Fax:
Contact	Kevin Warner
Telephone	705-742-7900
Facsimile	
Email	kevin.warner@cambium-inc.com
Project	11598-001
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA14434-OCT21
Received	10/26/2021
Approved	11/02/2021
Report Number	CA14434-OCT21 R1
Date Reported	11/02/2021

COMMENTS

Temperature of Sample upon Receipt: 12 degrees C
Cooling Agent Present: Yes
Custody Seal Present: No

Chain of Custody Number: 023159

Colour DUP % RPD appears high, but results are withing DL of each other

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA14434-OCT21 R1

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- General Chemistry** (WATER)

Sample Number	5
Sample Name	Test Well 1
Sample Matrix	Ground Water
Sample Date	25/10/2021

Parameter	Units	RL		Result
General Chemistry				
Alkalinity	mg/L as CaCO3	2		187
Conductivity	uS/cm	2		1070
Colour	TCU	3		4
Turbidity	NTU	0.10		37.1
Dissolved Organic Carbon	mg/L	1		1
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Ammonia+Ammonium (N)	as N mg/L	0.1		< 0.1
Organic Nitrogen	mg/L	0.5		< 0.5
Total Dissolved Solids	mg/L	30		634

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- Metals and Inorganics** (WATER)

Sample Number	5
Sample Name	Test Well 1
Sample Matrix	Ground Water
Sample Date	25/10/2021

Metals and Inorganics

Parameter	Units	RL		Result
Nitrite (as N)	as N mg/L	0.03		< 0.03
Nitrate (as N)	as N mg/L	0.06		0.14
Nitrate + Nitrite (as N)	as N mg/L	0.06		0.14
Sulphate	mg/L	2		32
Fluoride	mg/L	0.06		0.20
Hardness (dissolved)	mg/L as CaCO3	0.05		387
Silver (dissolved)	mg/L	0.00005		< 0.00005
Aluminum (dissolved)	mg/L	0.001		0.138
Arsenic (dissolved)	mg/L	0.0002		0.0004
Barium (dissolved)	mg/L	0.00002		0.255
Beryllium (dissolved)	mg/L	0.000007		0.000014
Boron (dissolved)	mg/L	0.002		0.093
Bismuth (dissolved)	mg/L	0.00001		< 0.00001
Calcium (dissolved)	mg/L	0.01		94.8
Cadmium (dissolved)	mg/L	0.000003		< 0.000003
Cobalt (dissolved)	mg/L	0.000004		0.000261
Chromium (dissolved)	mg/L	0.00008		0.00064
Copper (dissolved)	mg/L	0.0002		0.0007
Iron (dissolved)	mg/L	0.007		0.236
Potassium (dissolved)	mg/L	0.009		2.30

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- Metals and Inorganics** (WATER)

Sample Number	5
Sample Name	Test Well 1
Sample Matrix	Ground Water
Sample Date	25/10/2021

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Lithium (dissolved)	mg/L	0.0001		0.0151
Magnesium (dissolved)	mg/L	0.001		36.6
Manganese (dissolved)	mg/L	0.00001		0.0284
Molybdenum (dissolved)	mg/L	0.00004		0.00073
Sodium (dissolved)	mg/L	0.01		55.0
Nickel (dissolved)	mg/L	0.0001		0.0009
Phosphorus (dissolved)	mg/L	0.003		0.022
Lead (dissolved)	mg/L	0.00009		0.00019
Antimony (dissolved)	mg/L	0.0009		< 0.0009
Selenium (dissolved)	mg/L	0.00004		0.00011
Silicon (dissolved)	mg/L	0.02		9.16
Tin (dissolved)	mg/L	0.00006		< 0.00006
Strontium (dissolved)	mg/L	0.00002		2.04
Titanium (dissolved)	mg/L	0.00005		0.00847
Thallium (dissolved)	mg/L	0.000005		< 0.000005
Uranium (dissolved)	mg/L	0.000002		0.000403
Vanadium (dissolved)	mg/L	0.00001		0.00056
Tungsten (dissolved)	mg/L	0.00002		0.00007
Yttrium (dissolved)	mg/L	0.00002		0.00030
Zinc (dissolved)	mg/L	0.002		0.004

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- Microbiology** (WATER)

Sample Number	5
Sample Name	Test Well 1
Sample Matrix	Ground Water
Sample Date	25/10/2021

Parameter	Units	RL		Result
Microbiology				
Total Coliform	cfu/100mL	-		100
E. Coli	cfu/100mL	-		0

PACKAGE: **- Other (ORP)** (WATER)

Sample Number	5
Sample Name	Test Well 1
Sample Matrix	Ground Water
Sample Date	25/10/2021

Parameter	Units	RL		Result
Other (ORP)				
pH	No unit	0.05		8.08
Chloride	mg/L	1		220

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0608-OCT21	mg/L as CaCO3	2	< 2	0	20	100	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0288-OCT21	as N mg/L	0.1	<0.1	ND	10	101	90	110	97	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO5078-OCT21	mg/L	1	<1	3	20	96	80	120	96	75	125
Sulphate	DIO5078-OCT21	mg/L	2	<2	ND	20	97	80	120	115	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0592-OCT21	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0592-OCT21	mg/L	0.03	<0.03	ND	20	98	90	110	97	75	125
Nitrate (as N)	DIO0592-OCT21	mg/L	0.06	<0.06	10	20	102	90	110	105	75	125

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0025-NOV21	mg/L	1	<1	3	20	103	90	110	94	75	125

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0595-OCT21	TCU	3	< 3	29	10	100	80	120	NA		

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0608-OCT21	uS/cm	2	2	0	20	98	90	110	NA		

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0585-OCT21	mg/L	0.06	<0.06	4	10	99	90	110	89	75	125

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (dissolved)	EMS0194-OCT21	mg/L	0.00005	<0.00005	ND	20	98	90	110	104	70	130
Aluminum (dissolved)	EMS0194-OCT21	mg/L	0.001	<0.001	ND	20	104	90	110	115	70	130
Arsenic (dissolved)	EMS0194-OCT21	mg/L	0.0002	<0.0002	ND	20	106	90	110	118	70	130
Barium (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	2	20	101	90	110	87	70	130
Beryllium (dissolved)	EMS0194-OCT21	mg/L	0.000007	<0.00007	ND	20	93	90	110	99	70	130
Boron (dissolved)	EMS0194-OCT21	mg/L	0.002	<0.002	3	20	97	90	110	99	70	130
Bismuth (dissolved)	EMS0194-OCT21	mg/L	0.00001	<0.00001	ND	20	100	90	110	90	70	130
Calcium (dissolved)	EMS0194-OCT21	mg/L	0.01	<0.01	8	20	102	90	110	120	70	130
Cadmium (dissolved)	EMS0194-OCT21	mg/L	0.000003	<0.000003	ND	20	102	90	110	102	70	130
Cobalt (dissolved)	EMS0194-OCT21	mg/L	0.000004	<0.000004	ND	20	100	90	110	107	70	130
Chromium (dissolved)	EMS0194-OCT21	mg/L	0.00008	<0.00008	5	20	92	90	110	95	70	130
Copper (dissolved)	EMS0194-OCT21	mg/L	0.0002	<0.0002	ND	20	97	90	110	125	70	130
Iron (dissolved)	EMS0194-OCT21	mg/L	0.007	<0.007	0	20	108	90	110	100	70	130
Potassium (dissolved)	EMS0194-OCT21	mg/L	0.009	<0.009	ND	20	104	90	110	98	70	130
Lithium (dissolved)	EMS0194-OCT21	mg/L	0.0001	<0.0001	ND	20	101	90	110	96	70	130
Magnesium (dissolved)	EMS0194-OCT21	mg/L	0.001	<0.001	19	20	105	90	110	89	70	130
Manganese (dissolved)	EMS0194-OCT21	mg/L	0.00001	<0.00001	ND	20	102	90	110	102	70	130
Molybdenum (dissolved)	EMS0194-OCT21	mg/L	0.00004	<0.00004	ND	20	101	90	110	105	70	130
Sodium (dissolved)	EMS0194-OCT21	mg/L	0.01	<0.01	ND	20	106	90	110	114	70	130
Nickel (dissolved)	EMS0194-OCT21	mg/L	0.0001	<0.0001	ND	20	96	90	110	92	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Lead (dissolved)	EMS0194-OCT21	mg/L	0.00009	<0.00001	ND	20	102	90	110	97	70	130
Phosphorus (dissolved)	EMS0194-OCT21	mg/L	0.003	<0.003	ND	20	108	90	110	NV	70	130
Antimony (dissolved)	EMS0194-OCT21	mg/L	0.0009	<0.0009	ND	20	108	90	110	98	70	130
Selenium (dissolved)	EMS0194-OCT21	mg/L	0.00004	<0.00004	ND	20	95	90	110	75	70	130
Silicon (dissolved)	EMS0194-OCT21	mg/L	0.02	<0.02	0	20	109	90	110	NV	70	130
Tin (dissolved)	EMS0194-OCT21	mg/L	0.00006	<0.00006	ND	20	97	90	110	NV	70	130
Strontium (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	10	20	96	90	110	82	70	130
Titanium (dissolved)	EMS0194-OCT21	mg/L	0.00005	<0.00005	ND	20	98	90	110	NV	70	130
Thallium (dissolved)	EMS0194-OCT21	mg/L	0.000005	<0.000005	ND	20	103	90	110	83	70	130
Uranium (dissolved)	EMS0194-OCT21	mg/L	0.000002	<0.000002	0	20	99	90	110	98	70	130
Vanadium (dissolved)	EMS0194-OCT21	mg/L	0.00001	<0.00001	ND	20	99	90	110	119	70	130
Tungsten (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	ND	20	97	90	110	NV	70	130
Yttrium (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	ND	20	103	90	110	NV	70	130
Zinc (dissolved)	EMS0194-OCT21	mg/L	0.002	<0.002	ND	20	95	90	110	78	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9420-OCT21	cfu/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9420-OCT21	cfu/100mL	-	ACCEPTED	ACCEPTED							

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0608-OCT21	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0609-OCT21	mg/L	30	<30	1	20	99	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0290-OCT21	as N mg/L	0.5	<0.5	8	10	109	90	110	76	75	125

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0584-OCT21	NTU	0.10	< 0.10	9	10	97	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 023159 Page _____ of _____

Laboratory Information Section - Lab use only

Received By: Hillary N
Received Date: 10/25/21 (mm/dd/yy)
Received Time: 19:50 (hr : min)
Received By (signature): [signature]
Custody Seal Present: Yes ☐ No ☑
Custody Seal Intact: Yes ☐ No ☑
Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C) 12.12.12
LAB LIMS #: CA14434-OCT21

REPORT INFORMATION	INVOICE INFORMATION
Company: Cambium	☒ (same as Report Information)
Contact: Kevin Warner	Company:
Address: 194 Sophia Street Peterborough	Contact:
Phone:	Address:
Fax:	Phone:
Email: Kevin.Warner@cambium-inc.com	Email:

Quotation #: 11598-001
P.O. #:
Project #:
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table _____ Appx. _____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH (B(HWS), EC, SAR-soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs; ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: See attached email	Other	Other	Other	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	Test Well 1	10/25/21	17:15	7	GW																				
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions

Sampled By (NAME): [illegible] Willem Verduyn	**Signature:** Willem Verduyn	Date: 10/25/2021 (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): [illegible] Willem Verduyn	**Signature:** Willem Verduyn	Date: 10/25/2021 (mm/dd/yy)	Yellow & White Copy - SGS

FINAL REPORT

CA12675-JAN22 R1

11598-001

Prepared for

Cambium Inc.

FINAL REPORT

CA12675-JAN22 R1

First Page

CLIENT DETAILS

Client	Cambium Inc.
Address	194 Sophia Street, Peterborough Canada, K9H 1E5 Phone: 705-742-7900. Fax:
Contact	Kevin Warner
Telephone	705-742-7900
Facsimile	
Email	kevin.warner@cambium-inc.com
Project	11598-001
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA12675-JAN22
Received	01/27/2022
Approved	02/03/2022
Report Number	CA12675-JAN22 R1
Date Reported	02/03/2022

COMMENTS

Temperature of Sample upon Receipt:
Cooling Agent Present:
Custody Seal Present:

Chain of Custody Number:

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

MATRIX: WATER

Sample Number	5
Sample Name	TW1
Sample Matrix	Ground Water
Sample Date	27/01/2022

Parameter	Units	RL		Result
General Chemistry				
Alkalinity	mg/L as CaCO3	2		218
Conductivity	uS/cm	2		1090
Colour	TCU	3		< 3
Turbidity	NTU	0.10		8.31
Dissolved Organic Carbon	mg/L	1		1
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Ammonia+Ammonium (N)	as N mg/L	0.1		< 0.1
Organic Nitrogen	mg/L	0.5		< 0.5
Total Dissolved Solids	mg/L	30		663
Metals and Inorganics				
Nitrite (as N)	as N mg/L	0.03		< 0.03
Nitrate (as N)	as N mg/L	0.06		0.14
Nitrate + Nitrite (as N)	as N mg/L	0.06		0.14
Sulphate	mg/L	2		37
Fluoride	mg/L	0.06		0.18
Hardness (dissolved)	mg/L as CaCO3	0.05		477
Silver (dissolved)	mg/L	0.00005		0.00006
Aluminum (dissolved)	mg/L	0.001		0.188
Arsenic (dissolved)	mg/L	0.0002		0.0004
Barium (dissolved)	mg/L	0.00002		0.243
Beryllium (dissolved)	mg/L	0.000007		0.000012
Boron (dissolved)	mg/L	0.002		0.061

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

MATRIX: WATER

Sample Number	5
Sample Name	TW1
Sample Matrix	Ground Water
Sample Date	27/01/2022

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Bismuth (dissolved)	mg/L	0.00001		0.00002
Calcium (dissolved)	mg/L	0.01		135
Cadmium (dissolved)	mg/L	0.000003		< 0.000003
Cobalt (dissolved)	mg/L	0.000004		0.000288
Chromium (dissolved)	mg/L	0.00008		0.00124
Copper (dissolved)	mg/L	0.0002		0.0032
Iron (dissolved)	mg/L	0.007		0.357
Potassium (dissolved)	mg/L	0.009		2.36
Lithium (dissolved)	mg/L	0.0001		0.0154
Magnesium (dissolved)	mg/L	0.001		34.1
Manganese (dissolved)	mg/L	0.00001		0.0333
Molybdenum (dissolved)	mg/L	0.00004		0.00080
Sodium (dissolved)	mg/L	0.01		64.0
Nickel (dissolved)	mg/L	0.0001		0.0013
Phosphorus (dissolved)	mg/L	0.003		0.021
Lead (dissolved)	mg/L	0.00009		0.00019
Antimony (dissolved)	mg/L	0.0009		< 0.0009
Selenium (dissolved)	mg/L	0.00004		0.00010
Silicon (dissolved)	mg/L	0.02		12.3
Tin (dissolved)	mg/L	0.00006		0.00007
Strontium (dissolved)	mg/L	0.00002		2.30
Titanium (dissolved)	mg/L	0.00005		0.0151

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

MATRIX: WATER

Sample Number	5
Sample Name	TW1
Sample Matrix	Ground Water
Sample Date	27/01/2022

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Thallium (dissolved)	mg/L	0.000005		0.000012
Uranium (dissolved)	mg/L	0.000002		0.000414
Vanadium (dissolved)	mg/L	0.00001		0.00082
Tungsten (dissolved)	mg/L	0.00002		0.00006
Yttrium (dissolved)	mg/L	0.00002		0.00030
Zinc (dissolved)	mg/L	0.002		0.009
Microbiology				
Total Coliform	cfu/100mL	0		320
E. Coli	cfu/100mL	0		0
Other (ORP)				
pH	No unit	0.05		8.15
Chloride	mg/L	1		260

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0420-JAN22	mg/L as CaCO3	2	< 2	1	20	100	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0003-FEB22	as N mg/L	0.1	<0.1	ND	10	98	90	110	NV	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 375.4 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Sulphate	DIO5001-FEB22	mg/L	2	<2	8	20	109	80	120	85	75	125
Chloride	DIO5002-FEB22	mg/L	1	<1	0	20	111	80	120	82	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0415-JAN22	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0415-JAN22	mg/L	0.03	<0.03	14	20	100	90	110	102	75	125
Nitrate (as N)	DIO0415-JAN22	mg/L	0.06	<0.06	0	20	103	90	110	102	75	125

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0218-JAN22	mg/L	1	<1	ND	20	99	90	110	99	75	125

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0443-JAN22	TCU	3	< 3	ND	10	100	80	120	NA		

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0420-JAN22	uS/cm	2	4	0	20	99	90	110	NA		

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0436-JAN22	mg/L	0.06	<0.06	4	10	102	90	110	NV	75	125

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (dissolved)	EMS0019-FEB22	mg/L	0.00005	<0.00005	ND	20	104	90	110	74	70	130
Aluminum (dissolved)	EMS0019-FEB22	mg/L	0.001	<0.001	ND	20	98	90	110	98	70	130
Arsenic (dissolved)	EMS0019-FEB22	mg/L	0.0002	<0.0002	ND	20	104	90	110	109	70	130
Barium (dissolved)	EMS0019-FEB22	mg/L	0.00002	<0.00002	4	20	100	90	110	98	70	130
Beryllium (dissolved)	EMS0019-FEB22	mg/L	0.000007	<0.000007	ND	20	99	90	110	109	70	130
Boron (dissolved)	EMS0019-FEB22	mg/L	0.002	<0.002	5	20	107	90	110	108	70	130
Bismuth (dissolved)	EMS0019-FEB22	mg/L	0.00001	<0.00001	ND	20	91	90	110	84	70	130
Calcium (dissolved)	EMS0019-FEB22	mg/L	0.01	<0.01	7	20	100	90	110	109	70	130
Cadmium (dissolved)	EMS0019-FEB22	mg/L	0.000003	<0.000003	ND	20	102	90	110	113	70	130
Cobalt (dissolved)	EMS0019-FEB22	mg/L	0.000004	<0.000004	ND	20	104	90	110	111	70	130
Chromium (dissolved)	EMS0019-FEB22	mg/L	0.00008	<0.00008	ND	20	104	90	110	110	70	130
Copper (dissolved)	EMS0019-FEB22	mg/L	0.0002	<0.0002	ND	20	102	90	110	109	70	130
Iron (dissolved)	EMS0019-FEB22	mg/L	0.007	<0.007	ND	20	101	90	110	100	70	130
Potassium (dissolved)	EMS0019-FEB22	mg/L	0.009	<0.009	4	20	98	90	110	109	70	130
Lithium (dissolved)	EMS0019-FEB22	mg/L	0.0001	<0.0001	3	20	102	90	110	109	70	130
Magnesium (dissolved)	EMS0019-FEB22	mg/L	0.001	<0.001	3	20	94	90	110	107	70	130
Manganese (dissolved)	EMS0019-FEB22	mg/L	0.00001	<0.00001	ND	20	102	90	110	107	70	130
Molybdenum (dissolved)	EMS0019-FEB22	mg/L	0.00004	<0.00004	ND	20	102	90	110	100	70	130
Sodium (dissolved)	EMS0019-FEB22	mg/L	0.01	<0.01	4	20	101	90	110	97	70	130
Nickel (dissolved)	EMS0019-FEB22	mg/L	0.0001	<0.0001	ND	20	103	90	110	109	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Lead (dissolved)	EMS0019-FEB22	mg/L	0.00009	<0.00001	ND	20	98	90	110	97	70	130
Phosphorus (dissolved)	EMS0019-FEB22	mg/L	0.003	<0.003	ND	20	99	90	110	NV	70	130
Antimony (dissolved)	EMS0019-FEB22	mg/L	0.0009	<0.0009	ND	20	103	90	110	87	70	130
Selenium (dissolved)	EMS0019-FEB22	mg/L	0.00004	<0.00004	ND	20	101	90	110	93	70	130
Silicon (dissolved)	EMS0019-FEB22	mg/L	0.02	<0.02	8	20	98	90	110	NV	70	130
Tin (dissolved)	EMS0019-FEB22	mg/L	0.00006	<0.00006	ND	20	94	90	110	NV	70	130
Strontium (dissolved)	EMS0019-FEB22	mg/L	0.00002	<0.00002	2	20	102	90	110	106	70	130
Titanium (dissolved)	EMS0019-FEB22	mg/L	0.00005	<0.00005	ND	20	106	90	110	NV	70	130
Thallium (dissolved)	EMS0019-FEB22	mg/L	0.000005	<0.000005	ND	20	94	90	110	94	70	130
Uranium (dissolved)	EMS0019-FEB22	mg/L	0.000002	<0.000002	ND	20	95	90	110	91	70	130
Vanadium (dissolved)	EMS0019-FEB22	mg/L	0.00001	<0.00001	ND	20	103	90	110	112	70	130
Tungsten (dissolved)	EMS0019-FEB22	mg/L	0.00002	<0.00002	ND	20	101	90	110	NV	70	130
Yttrium (dissolved)	EMS0019-FEB22	mg/L	0.00002	<0.00002	ND	20	102	90	110	NV	70	130
Zinc (dissolved)	EMS0019-FEB22	mg/L	0.002	<0.002	ND	20	95	90	110	106	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9375-JAN22	cfu/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9375-JAN22	cfu/100mL	-	ACCEPTED	ACCEPTED							

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0420-JAN22	No unit	0.05	NA	2		100			NA		

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0408-JAN22	mg/L	30	<30	0	20	100	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0002-FEB22	as N mg/L	0.5	<0.5	1	10	109	90	110	NV	75	125

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0427-JAN22	NTU	0.10	< 0.10	0	10	100	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. “Temperature Upon Receipt” is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

-- End of Analytical Report --

SGS

Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Request for Laboratory Services and CHAIN OF CUSTODY

No: 024262

Page ______ of ______

Laboratory Information Section - Lab use only

Received By: Natasha
Received Date: 01 / 27 / 22 (mm/dd/yy)
Received Time: 18 : 00 (hr : min)

Received By (signature): Natasha
Custody Seal Present: Yes ☐ No ☑
Custody Seal Intact: Yes ☐ No ☑

Cooling Agent Present: Yes ☐ No ☑ Type: ______
Temperature Upon Receipt (°C): 7, 10, 8

LAB LIMS #: CA12675 Sarz2

REPORT INFORMATION

Company: Cambium Inc.
Contact: Kevin Warner
Address: 194 Sophia St, Peterborough
Phone: ______
Fax: ______
Email: Kevin.warner@cambium-inc.com

INVOICE INFORMATION

☒ (same as Report Information)
Company: ______
Contact: ______
Address: ______
Phone: ______
Email: ______

Quotation #: ______ P.O. #: ______
Project #: 11598-001 Site Location/ID: ______

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: ______

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19

☐ Table 1 ☐ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ______ Appx. ______
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other: ______
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality: ______

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

M & I: Field Filtered (Y/N); Metals & Inorganics (incl CrVI, CN, Hg pH, (B(HWS), EC, SAR-soil) (Cl, Na-water)); Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI); ICP Metals only (Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni,)
SVOC: PAHs only; SVOCs (all incl PAHs, ABNs, CPs)
PCB: PCBs Total ☐ Aroclor ☐
PHC: F1-F4 + BTEX; F1-F4 only (no BTEX)
VOC: VOCs (all incl BTEX); BTEX only
Pest: Pesticides (Organochlorine or specify other)
Other (please specify): Total Coliform, e.Coli; Alkalinity, PH, conductivity; chloride, nitrate, nitrite, sulphate, colour; turbidity, fluoride, DOC, organic nitrogen, metals; Sewer Use: (ICP), TDS, Hardness; Water Characterization Pkg General ☐ Extended ☐
SPLP (Specify tests): ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN
TCLP (Specify tests): ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	Metals & Inorganics	Full Metals Suite	ICP Metals only	PAHs only	SVOCs	PCBs	F1-F4 + BTEX	F1-F4 only	VOCs	BTEX only	Pesticides	Total Coliform, e.Coli	Alkalinity, PH, conductivity	chloride, nitrate, nitrite, sulphate, colour	turbidity, fluoride, DOC, organic nitrogen, metals	Sewer Use: (ICP), TDS, Hardness	Water Characterization Pkg	SPLP	TCLP	COMMENTS:
1	TW1	1/27/22	16:55	9	GW													X	X	X	X	X				
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions
There are 2 turbidity samples. One is marked field filtered on the bottle.

Sampled By (NAME): William Vardy?n Signature: [signature] Date: 1 / 27 / 22 (mm/dd/yy) Pink Copy - Client

Relinquished by (NAME): William Vardy?n Signature: [signature] Date: 1 / 27 / 22 (mm/dd/yy) Yellow & White Copy - SGS

Revision #: 1.5
Date of Issue: 11 June 2021

FINAL REPORT

CA14483-OCT21 R1

11598-001

Prepared for

Cambium Inc.

FINAL REPORT

CA14483-OCT21 R1

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Cambium Inc.	Project Specialist	Brad Moore Hon. B.Sc
		Laboratory	SGS Canada Inc.
Address	194 Sophia Street, Peterborough Canada, K9H 1E5 Phone: 705-742-7900. Fax:	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Kevin Warner	Telephone	705-652-2143
Telephone	705-742-7900	Facsimile	705-652-6365
Facsimile		Email	brad.moore@sgs.com
Email	kevin.warner@cambium-inc.com	SGS Reference	CA14483-OCT21
Project	11598-001	Received	10/27/2021
Order Number		Approved	11/02/2021
Samples	Ground Water (1)	Report Number	CA14483-OCT21 R1
		Date Reported	11/02/2021

COMMENTS

Temperature of Sample upon Receipt: 13
Cooling Agent Present:Yes
Custody Seal Present: Yes

Chain of Custody Number:023517

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **General Chemistry** (WATER)

Sample Number	5
Sample Name	Test Well 2
Sample Matrix	Ground Water
Sample Date	26/10/2021

Parameter	Units	RL		Result
General Chemistry				
Alkalinity	mg/L as CaCO3	2		198
Conductivity	uS/cm	2		1040
Colour	TCU	3		< 3
Turbidity	NTU	0.10		2.32
Dissolved Organic Carbon	mg/L	1		1
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Ammonia+Ammonium (N)	as N mg/L	0.1		0.2
Organic Nitrogen	mg/L	0.5		< 0.5
Total Dissolved Solids	mg/L	30		431
Metals and Inorganics				
Nitrite (as N)	as N mg/L	0.03		< 0.03
Nitrate (as N)	as N mg/L	0.06		0.92
Nitrate + Nitrite (as N)	as N mg/L	0.06		0.92
Sulphate	mg/L	2		26
Fluoride	mg/L	0.06		0.28
Hardness (dissolved)	mg/L as CaCO3	0.05		366
Silver (dissolved)	mg/L	0.00005		< 0.00005
Aluminum (dissolved)	mg/L	0.001		0.011
Arsenic (dissolved)	mg/L	0.0002		0.0008
Barium (dissolved)	mg/L	0.00002		0.266

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **Metals and Inorganics** (WATER)

Sample Number	5
Sample Name	Test Well 2
Sample Matrix	Ground Water
Sample Date	26/10/2021

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Beryllium (dissolved)	mg/L	0.000007		< 0.000007
Boron (dissolved)	mg/L	0.002		0.124
Bismuth (dissolved)	mg/L	0.00001		< 0.00001
Calcium (dissolved)	mg/L	0.01		88.6
Cadmium (dissolved)	mg/L	0.000003		< 0.000003
Cobalt (dissolved)	mg/L	0.000004		0.000072
Chromium (dissolved)	mg/L	0.00008		0.00037
Copper (dissolved)	mg/L	0.0002		< 0.0002
Iron (dissolved)	mg/L	0.007		0.279
Potassium (dissolved)	mg/L	0.009		2.74
Lithium (dissolved)	mg/L	0.0001		0.0219
Magnesium (dissolved)	mg/L	0.001		35.1
Manganese (dissolved)	mg/L	0.00001		0.0134
Molybdenum (dissolved)	mg/L	0.00004		0.00227
Sodium (dissolved)	mg/L	0.01		55.5
Nickel (dissolved)	mg/L	0.0001		0.0011
Phosphorus (dissolved)	mg/L	0.003		0.009
Lead (dissolved)	mg/L	0.00009		0.00012
Antimony (dissolved)	mg/L	0.0009		< 0.0009
Selenium (dissolved)	mg/L	0.00004		0.00009

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **Metals and Inorganics** (WATER)

Sample Number	5
Sample Name	Test Well 2
Sample Matrix	Ground Water
Sample Date	26/10/2021

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Silicon (dissolved)	mg/L	0.02		7.95
Tin (dissolved)	mg/L	0.00006		0.00037
Strontium (dissolved)	mg/L	0.00002		1.75
Titanium (dissolved)	mg/L	0.00005		0.00082
Thallium (dissolved)	mg/L	0.000005		< 0.000005
Uranium (dissolved)	mg/L	0.000002		0.000538
Vanadium (dissolved)	mg/L	0.00001		0.00028
Tungsten (dissolved)	mg/L	0.00002		0.00012
Yttrium (dissolved)	mg/L	0.00002		0.00003
Zinc (dissolved)	mg/L	0.002		0.003
Microbiology				
Total Coliform	cfu/100mL	0		5
E. Coli	cfu/100mL	0		0

Client: Cambium Inc.

Project: 11598-001

Project Manager: Kevin Warner

Samplers: Willem Verduyn

PACKAGE: **Other (ORP)** (WATER)

Sample Number	5
Sample Name	Test Well 2
Sample Matrix	Ground Water
Sample Date	26/10/2021

Parameter	Units	RL		Result
Other (ORP)				
pH	No unit	0.05		8.17
Chloride	mg/L	1		210

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0608-OCT21	mg/L as CaCO3	2	< 2	0	20	100	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0288-OCT21	as N mg/L	0.1	<0.1	ND	10	101	90	110	97	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO5003-NOV21	mg/L	1	<1	19	20	108	80	120	109	75	125
Sulphate	DIO5003-NOV21	mg/L	2	<2	ND	20	89	80	120	88	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0613-OCT21	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0613-OCT21	mg/L	0.03	<0.03	ND	20	99	90	110	93	75	125
Nitrate (as N)	DIO0613-OCT21	mg/L	0.06	<0.06	ND	20	101	90	110	100	75	125

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0300-OCT21	mg/L	1	<1	1	20	103	90	110	NV	75	125

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0624-OCT21	TCU	3	< 3	ND	10	100	80	120	NA		

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0608-OCT21	uS/cm	2	2	0	20	98	90	110	NA		

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0623-OCT21	mg/L	0.06	<0.06	5	10	100	90	110	96	75	125

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (dissolved)	EMS0194-OCT21	mg/L	0.00005	<0.00005	ND	20	98	90	110	104	70	130
Aluminum (dissolved)	EMS0194-OCT21	mg/L	0.001	<0.001	ND	20	104	90	110	115	70	130
Arsenic (dissolved)	EMS0194-OCT21	mg/L	0.0002	<0.0002	ND	20	106	90	110	118	70	130
Barium (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	2	20	101	90	110	87	70	130
Beryllium (dissolved)	EMS0194-OCT21	mg/L	0.000007	<0.00007	ND	20	93	90	110	99	70	130
Boron (dissolved)	EMS0194-OCT21	mg/L	0.002	<0.002	3	20	97	90	110	99	70	130
Bismuth (dissolved)	EMS0194-OCT21	mg/L	0.00001	<0.00001	ND	20	100	90	110	90	70	130
Calcium (dissolved)	EMS0194-OCT21	mg/L	0.01	<0.01	8	20	102	90	110	120	70	130
Cadmium (dissolved)	EMS0194-OCT21	mg/L	0.000003	<0.000003	ND	20	102	90	110	102	70	130
Cobalt (dissolved)	EMS0194-OCT21	mg/L	0.000004	<0.000004	ND	20	100	90	110	107	70	130
Chromium (dissolved)	EMS0194-OCT21	mg/L	0.00008	<0.00008	5	20	92	90	110	95	70	130
Copper (dissolved)	EMS0194-OCT21	mg/L	0.0002	<0.0002	ND	20	97	90	110	125	70	130
Iron (dissolved)	EMS0194-OCT21	mg/L	0.007	<0.007	0	20	108	90	110	100	70	130
Potassium (dissolved)	EMS0194-OCT21	mg/L	0.009	<0.009	ND	20	104	90	110	98	70	130
Lithium (dissolved)	EMS0194-OCT21	mg/L	0.0001	<0.0001	ND	20	101	90	110	96	70	130
Magnesium (dissolved)	EMS0194-OCT21	mg/L	0.001	<0.001	19	20	105	90	110	89	70	130
Manganese (dissolved)	EMS0194-OCT21	mg/L	0.00001	<0.00001	ND	20	102	90	110	102	70	130
Molybdenum (dissolved)	EMS0194-OCT21	mg/L	0.00004	<0.00004	ND	20	101	90	110	105	70	130
Sodium (dissolved)	EMS0194-OCT21	mg/L	0.01	<0.01	ND	20	106	90	110	114	70	130
Nickel (dissolved)	EMS0194-OCT21	mg/L	0.0001	<0.0001	ND	20	96	90	110	92	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Lead (dissolved)	EMS0194-OCT21	mg/L	0.00009	<0.00001	ND	20	102	90	110	97	70	130
Phosphorus (dissolved)	EMS0194-OCT21	mg/L	0.003	<0.003	ND	20	108	90	110	NV	70	130
Antimony (dissolved)	EMS0194-OCT21	mg/L	0.0009	<0.0009	ND	20	108	90	110	98	70	130
Selenium (dissolved)	EMS0194-OCT21	mg/L	0.00004	<0.00004	ND	20	95	90	110	75	70	130
Silicon (dissolved)	EMS0194-OCT21	mg/L	0.02	<0.02	0	20	109	90	110	NV	70	130
Tin (dissolved)	EMS0194-OCT21	mg/L	0.00006	<0.00006	ND	20	97	90	110	NV	70	130
Strontium (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	10	20	96	90	110	82	70	130
Titanium (dissolved)	EMS0194-OCT21	mg/L	0.00005	<0.00005	ND	20	98	90	110	NV	70	130
Thallium (dissolved)	EMS0194-OCT21	mg/L	0.000005	<0.000005	ND	20	103	90	110	83	70	130
Uranium (dissolved)	EMS0194-OCT21	mg/L	0.000002	<0.000002	0	20	99	90	110	98	70	130
Vanadium (dissolved)	EMS0194-OCT21	mg/L	0.00001	<0.00001	ND	20	99	90	110	119	70	130
Tungsten (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	ND	20	97	90	110	NV	70	130
Yttrium (dissolved)	EMS0194-OCT21	mg/L	0.00002	<0.00002	ND	20	103	90	110	NV	70	130
Zinc (dissolved)	EMS0194-OCT21	mg/L	0.002	<0.002	ND	20	95	90	110	78	70	130

QC SUMMARY

Microbiology

Method: OMOE MICROMFDC-E3407A | Internal ref.: ME-CA-IENVIMIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9451-OCT21	cfu/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9451-OCT21	cfu/100mL	-	ACCEPTED	ACCEPTED							

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0608-OCT21	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0637-OCT21	mg/L	30	<30	11	20	97	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0290-OCT21	as N mg/L	0.5	<0.5	8	10	109	90	110	76	75	125

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0634-OCT21	NTU	0.10	< 0.10	1	10	99	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

-- End of Analytical Report --

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Request for Laboratory Services and CHAIN OF CUSTODY

No: 023157
Page ______ of ______

Laboratory Information Section - Lab use only

Received By: Hillary N
Received Date: 10 / 26 / 21 (mm/dd/yy)
Received Time: 18 : 14 (hr : min)

Received By (signature): [signature]
Custody Seal Present: Yes ☐ No ☑
Custody Seal Intact: Yes ☐ No ☑

Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Temperature Upon Receipt (°C) 13, 12, 13

LAB LIMS #: CA14483-Oct21

REPORT INFORMATION

Company: @ Cambium
Contact: Kevin Warner
Address: 194 Sophia street, Peterborough
Phone:
Fax:
Email: Kevin.Warner@cambium-inc.com

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

Quotation #:
P.O. #:
Project #: ~~15~~ 11598-001
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)

TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table ______ Appx. ______
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M & I: Metals & Inorganics incl CrVI, CN,Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)	M & I: Full Metals Suite ICP metals plus B(HWS-soil only) Hg, CrVI	M & I: ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Total ☐ Aroclor	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify): See email (K. Wells)	Other	Other	Other	Sewer Use: Specify pkg:	Water Characterization Pkg ☐ General ☐ Extended	SPLP Specify tests ☐Metals ☐VOC ☐1,4-Dioxane ☐OCP ☐ABN	TCLP Specify tests ☐M&I ☐VOC ☐PCB ☐B(a)P ☐ABN ☐Ignit.	COMMENTS:
1	Test Well 2	10/26/21	~~3:4~~ 15:45	7	GW													X								
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

Observations/Comments/Special Instructions

Sampled By (NAME): Willem Verduyn Signature: [signature] Date: 10 / 26 / 21 (mm/dd/yy)
Relinquished by (NAME): Willem Verduyn Signature: [signature] Date: 10 / 26 / 21 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

FINAL REPORT

CA15171-FEB22 R1

11598-001

Prepared for

Cambium Inc.

FINAL REPORT

CA15171-FEB22 R1

First Page

CLIENT DETAILS

Client	Cambium Inc.
Address	194 Sophia Street, Peterborough Canada, K9H 1E5 Phone: 705-742-7900. Fax:
Contact	Kevin Warner
Telephone	705-742-7900
Facsimile	
Email	kevin.warner@cambium-inc.com
Project	11598-001
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Maarit Wolfe, Hon.B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2000
Facsimile	705-652-6365
Email	Maarit.Wolfe@sgs.com
SGS Reference	CA15171-FEB22
Received	02/09/2022
Approved	02/16/2022
Report Number	CA15171-FEB22 R1
Date Reported	02/16/2022

COMMENTS

Temperature of Sample upon Receipt: 6 degrees C
Cooling Agent Present: No
Custody Seal Present: No

Chain of Custody Number: 024536

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

MATRIX: WATER

Sample Number	5
Sample Name	TW2
Sample Matrix	Ground Water
Sample Date	09/02/2022

Parameter	Units	RL		Result
General Chemistry				
Alkalinity	mg/L as CaCO3	2		235
Conductivity	uS/cm	2		1040
Colour	TCU	3		< 3
Turbidity	NTU	0.10		2.05
Dissolved Organic Carbon	mg/L	1		1
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Ammonia+Ammonium (N)	as N mg/L	0.1		0.2
Organic Nitrogen	mg/L	0.5		< 0.5
Total Dissolved Solids	mg/L	30		583
Metals and Inorganics				
Nitrite (as N)	as N mg/L	0.03		< 0.03
Nitrate (as N)	as N mg/L	0.06		0.65
Nitrate + Nitrite (as N)	as N mg/L	0.06		0.65
Sulphate	mg/L	2		34
Fluoride	mg/L	0.06		0.25
Hardness (dissolved)	mg/L as CaCO3	0.05		407
Silver (dissolved)	mg/L	0.00005		< 0.00005
Aluminum (dissolved)	mg/L	0.001		0.002
Arsenic (dissolved)	mg/L	0.0002		0.0003
Barium (dissolved)	mg/L	0.00002		0.251
Beryllium (dissolved)	mg/L	0.000007		0.000008
Boron (dissolved)	mg/L	0.002		0.141

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

MATRIX: WATER

Sample Number	5
Sample Name	TW2
Sample Matrix	Ground Water
Sample Date	09/02/2022

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Bismuth (dissolved)	mg/L	0.00001		< 0.00001
Calcium (dissolved)	mg/L	0.01		111
Cadmium (dissolved)	mg/L	0.000003		0.000005
Cobalt (dissolved)	mg/L	0.000004		0.000092
Chromium (dissolved)	mg/L	0.00008		0.00011
Copper (dissolved)	mg/L	0.0002		0.0004
Iron (dissolved)	mg/L	0.007		0.320
Potassium (dissolved)	mg/L	0.009		3.34
Lithium (dissolved)	mg/L	0.0001		0.0202
Magnesium (dissolved)	mg/L	0.001		31.3
Manganese (dissolved)	mg/L	0.00001		0.0164
Molybdenum (dissolved)	mg/L	0.00004		0.00154
Sodium (dissolved)	mg/L	0.01		53.0
Nickel (dissolved)	mg/L	0.0001		0.0010
Phosphorus (dissolved)	mg/L	0.003		0.006
Lead (dissolved)	mg/L	0.00009		0.00011
Antimony (dissolved)	mg/L	0.0009		< 0.0009
Selenium (dissolved)	mg/L	0.00004		0.00010
Silicon (dissolved)	mg/L	0.02		10.3
Tin (dissolved)	mg/L	0.00006		< 0.00006
Strontium (dissolved)	mg/L	0.00002		2.14
Titanium (dissolved)	mg/L	0.00005		0.00018

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

MATRIX: WATER

Sample Number	5
Sample Name	TW2
Sample Matrix	Ground Water
Sample Date	09/02/2022

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Thallium (dissolved)	mg/L	0.000005		0.000005
Uranium (dissolved)	mg/L	0.000002		0.000719
Vanadium (dissolved)	mg/L	0.00001		0.00023
Tungsten (dissolved)	mg/L	0.00002		0.00010
Yttrium (dissolved)	mg/L	0.00002		0.00002
Zinc (dissolved)	mg/L	0.002		0.003
Microbiology				
Total Coliform	cfu/100mL	0		4
E. Coli	cfu/100mL	0		< 2↑
Other (ORP)				
pH	No unit	0.05		8.37
Chloride	mg/L	1		210

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0203-FEB22	mg/L as CaCO3	2	< 2	0	20	102	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0099-FEB22	as N mg/L	0.1	<0.1	ND	10	99	90	110	88	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO5035-FEB22	mg/L	1	<1	ND	20	108	80	120	113	75	125
Sulphate	DIO5035-FEB22	mg/L	2	<2	ND	20	110	80	120	103	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0202-FEB22	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0202-FEB22	mg/L	0.03	<0.03	ND	20	100	90	110	103	75	125
Nitrate (as N)	DIO0202-FEB22	mg/L	0.06	<0.06	ND	20	103	90	110	102	75	125

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0094-FEB22	mg/L	1	<1	3	20	96	90	110	100	75	125

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0178-FEB22	TCU	3	< 3	1	10	90	80	120	NA		

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0203-FEB22	uS/cm	2	< 2	0	20	99	90	110	NA		

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0166-FEB22	mg/L	0.06	<0.06	ND	10	94	90	110	101	75	125

Microbiology

Method: SM 9222D I Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9161-FEB22	cfu/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9161-FEB22	cfu/100mL	-	ACCEPTED	ACCEPTED							

QC SUMMARY

pH

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0203-FEB22	No unit	0.05	NA	0		101			NA		

Solids Analysis

Method: SM 2540C I Internal ref.: ME-CA-IENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0168-FEB22	mg/L	30	<30	0	20				NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F I Internal ref.: ME-CA-IENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0089-FEB22	as N mg/L	0.5	<0.5	0	10	102	90	110	91	75	125

QC SUMMARY

Turbidity

Method: SM 2130 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0162-FEB22	NTU	0.10	< 0.10	1	10	100	90	110	NA		

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 024536 Page ____ of ____

Laboratory Information Section - Lab use only

Received By: Mark Dopping
Received Date: 02/09/22 (mm/dd/yy)
Received Time: 15:54 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☐ No ☒
Custody Seal Intact: Yes ☐ No ☒
Cooling Agent Present: Yes ☐ No ☒ Type:
Temperature Upon Receipt (°C) 6.6.6
LAB LIMS #: CA15471/Feb22

REPORT INFORMATION

Company: Cambium Inc.
Contact: Kevin Warner
Address: 194 Sophia Street, Peterborough
Phone:
Fax:
Email: Kevin.Warner@cambium-inc.com

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

Quotation #: ~~H598-001~~
Project #: 11598-001
P.O. #:
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table ____ Appx. ____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA ____
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality:

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (Incl CrVI, CN,Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify)	Other	Other	Other	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	SPLP Specify tests	TCLP Specify tests	COMMENTS:
1	TW2	2/9/22	13:05	8	GW	N												X See comment below							
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									hardness,

Observations/Comments/Special Instructions
Total Coliform, E.coli, Alkalinity, pH, conductivity, chloride, nitrate, nitrite, sulphate, colour, turbidity, fluoride, DOC, organic N, metals, TDS,

Sampled By (NAME): Willem Verduyn Signature: Date: 02/09/22 (mm/dd/yy)
Relinquished by (NAME): Willem Verduyn Signature: Date: 02/09/22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.5
Date of Issue: 11 June 2021

FINAL REPORT

CA14499-OCT21 R1

11598-001

Prepared for

Cambium Inc.

FINAL REPORT

CA14499-OCT21 R1

First Page

CLIENT DETAILS

Client	Cambium Inc.
Address	194 Sophia Street, Peterborough Canada, K9H 1E5 Phone: 705-742-7900. Fax:
Contact	Kevin Warner
Telephone	705-742-7900
Facsimile	
Email	kevin.warner@cambium-inc.com
Project	11598-001
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Maarit Wolfe, Hon.B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2000
Facsimile	705-652-6365
Email	Maarit.Wolfe@sgs.com
SGS Reference	CA14499-OCT21
Received	10/27/2021
Approved	11/03/2021
Report Number	CA14499-OCT21 R1
Date Reported	11/03/2021

COMMENTS

Temperature of Sample upon Receipt: 11 degrees C
Cooling Agent Present: Yes
Custody Seal Present: No

Chain of Custody Number: 023158

SIGNATORIES

Maarit Wolfe, Hon.B.Sc

TABLE OF CONTENTS

FINAL REPORT

CA14499-OCT21 R1

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- General Chemistry** (WATER)

Sample Number	5
Sample Name	Test Well 3
Sample Matrix	Ground Water
Sample Date	27/10/2021

Parameter	Units	RL		Result
General Chemistry				
Alkalinity	mg/L as CaCO3	2		235
Conductivity	uS/cm	2		1220
Colour	TCU	3		< 3
Turbidity	NTU	0.10		34.6
Dissolved Organic Carbon	mg/L	1		2
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5
Ammonia+Ammonium (N)	as N mg/L	0.1		0.2
Organic Nitrogen	mg/L	0.5		< 0.5
Total Dissolved Solids	mg/L	30		674

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- Metals and Inorganics** (WATER)

Sample Number	5
Sample Name	Test Well 3
Sample Matrix	Ground Water
Sample Date	27/10/2021

Parameter	Units	RL		Result
Metals and Inorganics				
Nitrite (as N)	as N mg/L	0.03		< 0.03
Nitrate (as N)	as N mg/L	0.06		< 0.06
Nitrate + Nitrite (as N)	as N mg/L	0.06		< 0.06
Sulphate	mg/L	2		35
Fluoride	mg/L	0.06		0.24
Hardness (dissolved)	mg/L as CaCO3	0.05		337
Silver (dissolved)	mg/L	0.00005		< 0.00005
Aluminum (dissolved)	mg/L	0.001		0.001
Arsenic (dissolved)	mg/L	0.0002		< 0.0002
Barium (dissolved)	mg/L	0.00002		0.316
Beryllium (dissolved)	mg/L	0.000007		< 0.000007
Boron (dissolved)	mg/L	0.002		0.096
Bismuth (dissolved)	mg/L	0.00001		< 0.00001
Calcium (dissolved)	mg/L	0.01		109
Cadmium (dissolved)	mg/L	0.000003		< 0.000003
Cobalt (dissolved)	mg/L	0.000004		0.000056
Chromium (dissolved)	mg/L	0.00008		< 0.00008
Copper (dissolved)	mg/L	0.0002		0.0004
Iron (dissolved)	mg/L	0.007		< 0.007
Potassium (dissolved)	mg/L	0.009		3.40

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- Metals and Inorganics** (WATER)

Sample Number	5
Sample Name	Test Well 3
Sample Matrix	Ground Water
Sample Date	27/10/2021

Parameter	Units	RL		Result
Metals and Inorganics (continued)				
Lithium (dissolved)	mg/L	0.0001		0.0254
Magnesium (dissolved)	mg/L	0.001		15.7
Manganese (dissolved)	mg/L	0.00001		0.00574
Molybdenum (dissolved)	mg/L	0.00004		0.00048
Sodium (dissolved)	mg/L	0.01		115
Nickel (dissolved)	mg/L	0.0001		0.0005
Phosphorus (dissolved)	mg/L	0.003		< 0.003
Lead (dissolved)	mg/L	0.00009		< 0.00009
Antimony (dissolved)	mg/L	0.0009		< 0.0009
Selenium (dissolved)	mg/L	0.00004		< 0.00004
Silicon (dissolved)	mg/L	0.02		6.45
Tin (dissolved)	mg/L	0.00006		< 0.00006
Strontium (dissolved)	mg/L	0.00002		0.469
Titanium (dissolved)	mg/L	0.00005		< 0.00005
Thallium (dissolved)	mg/L	0.000005		< 0.000005
Uranium (dissolved)	mg/L	0.000002		0.000061
Vanadium (dissolved)	mg/L	0.00001		0.00004
Tungsten (dissolved)	mg/L	0.00002		0.00002
Yttrium (dissolved)	mg/L	0.00002		< 0.00002
Zinc (dissolved)	mg/L	0.002		< 0.002

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willem Verduyn

PACKAGE: **- Microbiology** (WATER)

Sample Number	5
Sample Name	Test Well 3
Sample Matrix	Ground Water
Sample Date	27/10/2021

Parameter	Units	RL		Result
Microbiology				
Total Coliform	cfu/100mL	-		3
E. Coli	cfu/100mL	-		0

PACKAGE: **- Other (ORP)** (WATER)

Sample Number	5
Sample Name	Test Well 3
Sample Matrix	Ground Water
Sample Date	27/10/2021

Parameter	Units	RL		Result
Other (ORP)				
pH	No unit	0.05		8.06
Chloride	mg/L	1		260

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0638-OCT21	mg/L as CaCO3	2	< 2	1	20	102	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0014-NOV21	as N mg/L	0.1	<0.1	4	10	100	90	110	106	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO5004-NOV21	mg/L	1	<1	1	20	103	80	120	107	75	125
Sulphate	DIO5004-NOV21	mg/L	2	<2	2	20	86	80	120	81	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0644-OCT21	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0644-OCT21	mg/L	0.03	<0.03	ND	20	98	90	110	98	75	125
Nitrate (as N)	DIO0644-OCT21	mg/L	0.06	<0.06	0	20	101	90	110	104	75	125

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0044-NOV21	mg/L	1	<1	5	20	91	90	110	90	75	125

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0010-NOV21	TCU	3	< 3	ND	10	95	80	120	NA		

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0638-OCT21	uS/cm	2	< 2	0	20	99	90	110	NA		

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0653-OCT21	mg/L	0.06	<0.06	0	10	100	90	110	96	75	125

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (dissolved)	EMS0007-NOV21	mg/L	0.00005	<0.00005	ND	20	105	90	110	106	70	130
Aluminum (dissolved)	EMS0007-NOV21	mg/L	0.001	<0.001	3	20	100	90	110	90	70	130
Arsenic (dissolved)	EMS0007-NOV21	mg/L	0.0002	<0.0002	0	20	104	90	110	109	70	130
Barium (dissolved)	EMS0007-NOV21	mg/L	0.00002	<0.00002	0	20	105	90	110	100	70	130
Beryllium (dissolved)	EMS0007-NOV21	mg/L	0.000007	<0.00007	ND	20	92	90	110	76	70	130
Boron (dissolved)	EMS0007-NOV21	mg/L	0.002	<0.002	1	20	102	90	110	101	70	130
Bismuth (dissolved)	EMS0007-NOV21	mg/L	0.00001	1e-005	ND	20	96	90	110	83	70	130
Calcium (dissolved)	EMS0007-NOV21	mg/L	0.01	<0.01	0	20	106	90	110	111	70	130
Cadmium (dissolved)	EMS0007-NOV21	mg/L	0.000003	<0.000003	13	20	104	90	110	119	70	130
Cobalt (dissolved)	EMS0007-NOV21	mg/L	0.000004	<0.000004	1	20	104	90	110	102	70	130
Chromium (dissolved)	EMS0007-NOV21	mg/L	0.00008	<0.00008	ND	20	105	90	110	126	70	130
Copper (dissolved)	EMS0007-NOV21	mg/L	0.0002	<0.0002	0	20	102	90	110	107	70	130
Iron (dissolved)	EMS0007-NOV21	mg/L	0.007	<0.007	2	20	107	90	110	125	70	130
Potassium (dissolved)	EMS0007-NOV21	mg/L	0.009	<0.009	1	20	107	90	110	115	70	130
Lithium (dissolved)	EMS0007-NOV21	mg/L	0.0001	<0.0001	2	20	103	90	110	116	70	130
Magnesium (dissolved)	EMS0007-NOV21	mg/L	0.001	<0.001	2	20	105	90	110	71	70	130
Manganese (dissolved)	EMS0007-NOV21	mg/L	0.00001	<0.00001	2	20	103	90	110	73	70	130
Molybdenum (dissolved)	EMS0007-NOV21	mg/L	0.00004	<0.00004	1	20	105	90	110	101	70	130
Sodium (dissolved)	EMS0007-NOV21	mg/L	0.01	<0.01	3	20	102	90	110	105	70	130
Nickel (dissolved)	EMS0007-NOV21	mg/L	0.0001	<0.0001	2	20	102	90	110	108	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Lead (dissolved)	EMS0007-NOV21	mg/L	0.00009	<0.00001	9	20	107	90	110	101	70	130
Phosphorus (dissolved)	EMS0007-NOV21	mg/L	0.003	<0.003	ND	20	100	90	110	NV	70	130
Antimony (dissolved)	EMS0007-NOV21	mg/L	0.0009	<0.0009	1	20	104	90	110	98	70	130
Selenium (dissolved)	EMS0007-NOV21	mg/L	0.00004	<0.00004	7	20	102	90	110	105	70	130
Silicon (dissolved)	EMS0007-NOV21	mg/L	0.02	<0.02	3	20	95	90	110	NV	70	130
Tin (dissolved)	EMS0007-NOV21	mg/L	0.00006	<0.00006	0	20	107	90	110	NV	70	130
Strontium (dissolved)	EMS0007-NOV21	mg/L	0.00002	<0.00002	0	20	100	90	110	104	70	130
Titanium (dissolved)	EMS0007-NOV21	mg/L	0.00005	<0.00005	3	20	105	90	110	NV	70	130
Thallium (dissolved)	EMS0007-NOV21	mg/L	0.000005	<0.000005	ND	20	104	90	110	101	70	130
Uranium (dissolved)	EMS0007-NOV21	mg/L	0.000002	<0.000002	1	20	102	90	110	90	70	130
Vanadium (dissolved)	EMS0007-NOV21	mg/L	0.00001	<0.00001	7	20	104	90	110	115	70	130
Tungsten (dissolved)	EMS0007-NOV21	mg/L	0.00002	<0.00002	4	20	102	90	110	NV	70	130
Yttrium (dissolved)	EMS0007-NOV21	mg/L	0.00002	<0.00002	ND	20	102	90	110	NV	70	130
Zinc (dissolved)	EMS0007-NOV21	mg/L	0.002	<0.002	ND	20	101	90	110	100	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9494-OCT21	cfu/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9494-OCT21	cfu/100mL	-	ACCEPTED	ACCEPTED							

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0638-OCT21	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0674-OCT21	mg/L	30	<30	1	20	98	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0016-NOV21	as N mg/L	0.5	<0.5	ND	10	101	90	110	81	75	125

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0634-OCT21	NTU	0.10	< 0.10	1	10	99	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No. 023158 Page ____ of ____

Laboratory Information Section - Lab use only

Received By: Hillary N | Received By (signature): [signature]
Received Date: 10 / 27 / 21 (mm/dd/yy) | Custody Seal Present: Yes ☐ No ☑ | Cooling Agent Present: Yes ☑ No ☐ Type: Ice
Received Time: 20 : 15 (hr : min) | Custody Seal Intact: Yes ☐ No ☑ | Temperature Upon Receipt (°C) 11 . 11 12 | LAB LIMS #: CA14499-Oct21

REPORT INFORMATION

Company: Cambium
Contact: Kevin Warner
Address: 194 Sophia Street Peterborough
Phone:
Fax:
Email: kevin.warner@cambium-inc.com

INVOICE INFORMATION

☒ (same as Report Information)
Company:
Contact:
Address:
Phone:
Email:

Quotation #: | P.O. #:
Project #: 11598-001 | Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☒ Regular TAT (5-7days) — TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: | *NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table _____ Appx. _____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other: _____
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary ☐ Storm
Municipality: _____

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics (Incl CrVI, CN, Hg pH;(B(HWS),EC,SAR-soil)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only (Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Aroclor ☐ Total	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other: X See email (K. Wells)	Other	Other: X Dissolved Metals	Other	Sewer Use: Specify pkg:	Water Characterization Pkg ☐ General ☐ Extended	SPLP Specify tests: ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP Specify tests: ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	Test Well 3	10/27/21	15:45	7	GW													X		X					
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions: * lab filter for dissolved metals

Sampled By (NAME): Willem Verduyn | Signature: [signature] | Date: 10/27/21 (mm/dd/yy)
Relinquished by (NAME): Willem Verduyn | Signature: [signature] | Date: 10/27/21 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.5
Date of Issue: 11 June 2021

FINAL REPORT

CA13580-FEB22 R1

11598-001

Prepared for

Cambium Inc.

FINAL REPORT

First Page

CLIENT DETAILS

Client	Cambium Inc.
Address	194 Sophia Street, Peterborough Canada, K9H 1E5 Phone: 705-742-7900. Fax:
Contact	Kevin Warner
Telephone	705-742-7900
Facsimile	
Email	kevin.warner@cambium-inc.com
Project	11598-001
Order Number	
Samples	Ground Water (2)

LABORATORY DETAILS

Project Specialist	Brad Moore Hon. B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2143
Facsimile	705-652-6365
Email	brad.moore@sgs.com
SGS Reference	CA13580-FEB22
Received	02/18/2022
Approved	02/28/2022
Report Number	CA13580-FEB22 R1
Date Reported	02/28/2022

COMMENTS

Temperature of Sample upon Receipt:11 degrees C
Cooling Agent Present: No
Custody Seal Present: Yes

Chain of Custody Number: 024523

SIGNATORIES

Brad Moore Hon. B.Sc

TABLE OF CONTENTS

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willam Verduyn

MATRIX: WATER

Sample Number	5	6
Sample Name	TW3	TW3 (Field Filtered Turb)
Sample Matrix	Ground Water	Ground Water
Sample Date	18/02/2022	18/02/2022

Parameter	Units	RL		Result	Result
General Chemistry					
Alkalinity	mg/L as CaCO3	2		250	---
Conductivity	uS/cm	2		1300	---
Colour	TCU	3		< 3	---
Turbidity	NTU	0.10		15.7	4.35
Dissolved Organic Carbon	mg/L	1		1	---
Total Kjeldahl Nitrogen	as N mg/L	0.5		< 0.5	---
Ammonia+Ammonium (N)	as N mg/L	0.1		0.3	---
Organic Nitrogen	mg/L	0.5		< 0.5	---
Total Dissolved Solids	mg/L	30		811	---
Metals and Inorganics					
Nitrite (as N)	as N mg/L	0.03		< 0.03	---
Nitrate (as N)	as N mg/L	0.06		< 0.06	---
Nitrate + Nitrite (as N)	as N mg/L	0.06		< 0.06	---
Sulphate	mg/L	2		46	---
Fluoride	mg/L	0.06		0.38	---
Hardness	mg/L as CaCO3	0.05		391	---
Silver (total)	mg/L	0.00005		< 0.00005	---
Aluminum (total)	mg/L	0.001		0.135	---
Arsenic (total)	mg/L	0.0002		< 0.0002	---
Barium (total)	mg/L	0.00002		0.326	---
Beryllium (total)	mg/L	0.000007		0.000009	---

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willam Verduyn

MATRIX: WATER

Sample Number	5	6
Sample Name	TW3	TW3 (Field Filtered Turb)
Sample Matrix	Ground Water	Ground Water
Sample Date	18/02/2022	18/02/2022

Parameter	Units	RL		Result	Result
Metals and Inorganics (continued)					
Boron (total)	mg/L	0.002		0.123	---
Bismuth (total)	mg/L	0.00001		< 0.00001	---
Calcium (total)	mg/L	0.01		130	---
Cadmium (total)	mg/L	0.000003		0.000004	---
Cobalt (total)	mg/L	0.000004		0.000088	---
Chromium (total)	mg/L	0.00008		0.00099	---
Copper (total)	mg/L	0.0002		0.0031	---
Iron (total)	mg/L	0.007		1.11	---
Potassium (total)	mg/L	0.009		4.60	---
Lithium (total)	mg/L	0.0001		0.0298	---
Magnesium (total)	mg/L	0.001		16.0	---
Manganese (total)	mg/L	0.00001		0.0436	---
Molybdenum (total)	mg/L	0.00004		0.00043	---
Sodium (total)	mg/L	0.01		133	---
Nickel (total)	mg/L	0.0001		0.0006	---
Phosphorus (total)	mg/L	0.003		0.116	---
Lead (total)	mg/L	0.00009		0.00022	---
Antimony (total)	mg/L	0.0009		< 0.0009	---
Selenium (total)	mg/L	0.00004		< 0.00004	---
Silicon (total)	mg/L	0.02		6.51	---
Tin (total)	mg/L	0.00006		0.00015	---

Client: Cambium Inc.
Project: 11598-001
Project Manager: Kevin Warner
Samplers: Willam Verduyn

MATRIX: WATER

Sample Number	5	6
Sample Name	TW3	TW3 (Field Filtered Turb)
Sample Matrix	Ground Water	Ground Water
Sample Date	18/02/2022	18/02/2022

Parameter	Units	RL		Result	Result
Metals and Inorganics (continued)					
Strontium (total)	mg/L	0.00002		0.749	---
Titanium (total)	mg/L	0.00005		0.0128	---
Thallium (total)	mg/L	0.000005		< 0.000005	---
Uranium (total)	mg/L	0.000002		0.000082	---
Vanadium (total)	mg/L	0.00001		0.00033	---
Tungsten (total)	mg/L	0.00002		0.00002	---
Yttrium (total)	mg/L	0.00002		0.00085	---
Zinc (total)	mg/L	0.002		0.017	---
Microbiology					
Total Coliform	cfu/100mL	0		1	---
E. Coli	cfu/100mL	0		0	---
Other (ORP)					
pH	No unit	0.05		8.19	---
Chloride	mg/L	1		300	---

QC SUMMARY

Alkalinity

Method: SM 2320 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Alkalinity	EWL0363-FEB22	mg/L as CaCO3	2	< 2	ND	20	100	80	120	NA		

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0203-FEB22	as N mg/L	0.1	<0.1	1	10	99	90	110	88	75	125

QC SUMMARY

Anions by discrete analyzer

Method: US EPA 325.2 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-026

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chloride	DIO5070-FEB22	mg/L	1	<1	0	20	110	80	120	94	75	125
Sulphate	DIO5070-FEB22	mg/L	2	<2	3	20	111	80	120	104	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0385-FEB22	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0385-FEB22	mg/L	0.03	<0.03	ND	20	94	90	110	103	75	125
Nitrate (as N)	DIO0385-FEB22	mg/L	0.06	<0.06	0	20	102	90	110	95	75	125

QC SUMMARY

Carbon by SFA

Method: SM 5310 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-009

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Dissolved Organic Carbon	SKA0201-FEB22	mg/L	1	<1	ND	20	98	90	110	89	75	125

Colour

Method: SM 2120 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Colour	EWL0361-FEB22	TCU	3	< 3	ND	10	105	80	120	NA		

Conductivity

Method: SM 2510 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0363-FEB22	uS/cm	2	3	0	20	101	90	110	NA		

QC SUMMARY

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-[ENV]EWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0380-FEB22	mg/L	0.06	<0.06	ND	10	99	90	110	105	75	125

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0151-FEB22	mg/L	0.00005	<0.00005	11	20	99	90	110	93	70	130
Aluminum (total)	EMS0151-FEB22	mg/L	0.001	<0.001	2	20	102	90	110	113	70	130
Arsenic (total)	EMS0151-FEB22	mg/L	0.0002	<0.0002	1	20	98	90	110	112	70	130
Barium (total)	EMS0151-FEB22	mg/L	0.00002	<0.00002	3	20	94	90	110	99	70	130
Beryllium (total)	EMS0151-FEB22	mg/L	0.000007	<0.000007	3	20	94	90	110	97	70	130
Boron (total)	EMS0151-FEB22	mg/L	0.002	<0.002	ND	20	99	90	110	104	70	130
Bismuth (total)	EMS0151-FEB22	mg/L	0.00001	<0.00001	ND	20	91	90	110	78	70	130
Calcium (total)	EMS0151-FEB22	mg/L	0.01	<0.01	1	20	102	90	110	112	70	130
Cadmium (total)	EMS0151-FEB22	mg/L	0.000003	<0.000003	4	20	98	90	110	111	70	130
Cobalt (total)	EMS0151-FEB22	mg/L	0.000004	<0.000004	2	20	97	90	110	110	70	130
Chromium (total)	EMS0151-FEB22	mg/L	0.00008	<0.00008	2	20	98	90	110	118	70	130
Copper (total)	EMS0151-FEB22	mg/L	0.0002	<0.0002	2	20	94	90	110	105	70	130
Iron (total)	EMS0151-FEB22	mg/L	0.007	<0.007	5	20	100	90	110	125	70	130
Potassium (total)	EMS0151-FEB22	mg/L	0.009	<0.009	1	20	104	90	110	114	70	130
Lithium (total)	EMS0151-FEB22	mg/L	0.0001	<0.0001	1	20	95	90	110	88	70	130
Magnesium (total)	EMS0151-FEB22	mg/L	0.001	<0.001	2	20	104	90	110	113	70	130
Manganese (total)	EMS0151-FEB22	mg/L	0.00001	<0.00001	1	20	101	90	110	115	70	130
Molybdenum (total)	EMS0151-FEB22	mg/L	0.00004	<0.00004	3	20	102	90	110	112	70	130
Sodium (total)	EMS0151-FEB22	mg/L	0.01	<0.01	5	20	105	90	110	125	70	130
Nickel (total)	EMS0151-FEB22	mg/L	0.0001	<0.0001	1	20	95	90	110	106	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS (continued)

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Lead (total)	EMS0151-FEB22	mg/L	0.00009	<0.00001	4	20	96	90	110	101	70	130
Phosphorus (total)	EMS0151-FEB22	mg/L	0.003	<0.003	9	20	101	90	110	NV	70	130
Antimony (total)	EMS0151-FEB22	mg/L	0.0009	<0.0009	ND	20	108	90	110	99	70	130
Selenium (total)	EMS0151-FEB22	mg/L	0.00004	<0.00004	11	20	107	90	110	113	70	130
Silicon (total)	EMS0151-FEB22	mg/L	0.02	<0.02	3	20	97	90	110	NV	70	130
Tin (total)	EMS0151-FEB22	mg/L	0.00006	<0.00006	14	20	92	90	110	NV	70	130
Strontium (total)	EMS0151-FEB22	mg/L	0.00002	<0.00002	1	20	95	90	110	110	70	130
Titanium (total)	EMS0151-FEB22	mg/L	0.00005	<0.00005	19	20	105	90	110	NV	70	130
Thallium (total)	EMS0151-FEB22	mg/L	0.000005	5e-006	6	20	93	90	110	103	70	130
Uranium (total)	EMS0151-FEB22	mg/L	0.000002	<0.000002	0	20	94	90	110	99	70	130
Vanadium (total)	EMS0151-FEB22	mg/L	0.00001	<0.00001	6	20	96	90	110	112	70	130
Tungsten (total)	EMS0151-FEB22	mg/L	0.00002	<0.00002	6	20	93	90	110	NV	70	130
Yttrium (total)	EMS0151-FEB22	mg/L	0.00002	<0.00002	2	20	96	90	110	NV	70	130
Zinc (total)	EMS0151-FEB22	mg/L	0.002	<0.002	1	20	96	90	110	113	70	130

QC SUMMARY

Microbiology

Method: SM 9222D | Internal ref.: ME-CA-IENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
E. Coli	BAC9314-FEB22	cfu/100mL	-	ACCEPTED	ACCEPTED							
Total Coliform	BAC9314-FEB22	cfu/100mL	-	ACCEPTED	ACCEPTED							

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High	Spike Recovery (%)	Recovery Limits (%) Low	Recovery Limits (%) High
pH	EWL0363-FEB22	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Solids Analysis

Method: SM 2540C | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Dissolved Solids	EWL0356-FEB22	mg/L	30	<30	2	20	99	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0191-FEB22	as N mg/L	0.5	<0.5	0	10	101	90	110	103	75	125

Turbidity

Method: SM 2130 | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0346-FEB22	NTU	0.10	< 0.10	ND	10	99	90	110	NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated. This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm. The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

No: 024523

Page _____ of _____

SGS Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

Laboratory Information Section - Lab use only

Received By: Nateshan
Received By (signature): Nateshan
Received Date: 02/18/22 (mm/dd/yy)
Received Time: 17:00 (hr : min)
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☑ No ☐
Cooling Agent Present: Yes ☐ No ☑ Type: _____
Temperature Upon Receipt (°C) 11.13.14
LAB LIMS #: CA13580-feb 22

REPORT INFORMATION

Company: Carbicium Inc
Contact: Kevin Warner
Address: 194 Sophia Street, Peterborough
Phone: _____
Fax: _____
Email: Kevin.warner@carbicium-inc.com

INVOICE INFORMATION

☒ (same as Report Information)
Company: _____
Contact: _____
Address: _____
Phone: _____
Email: _____

Quotation #: F
Project #: 11598-001
P.O. #: _____
Site Location/ID: _____

TURNAROUND TIME (TAT) REQUIRED

TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day

☒ Regular TAT (5-7days)

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days

PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date: _____

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture:
☐ Table 2 ☐ Ind/Com ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ Medium/Fine
☐ Table _____ Appx. _____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA _____
☐ ODWS Not Reportable *See note

Sewer By-Law:
☐ Sanitary
☐ Storm
Municipality: _____

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR-soil) (Cl, Na-water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only Sb,As,Ba,Be,B,Cd,Cr,Co,Cu,Pb,Mo,Ni,	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs ☐ Aroclor ☐ Total	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify): Petroleum Hydrocarbons, E.coli, Alkalinity, pH, Conductivity, Chloride, Nitrate, Nitrite	Other: Sulphate, Colour, Turbidity	Other: Fluoride, DOC, Cyanide	Other: Nitrogen, metals (CCME)	Other: Sample type: TDS, Hardness	Water Characterization Pkg ☐ Extended ☐ General	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	TW3	02/18/22	15:35	9	GW													X	X	X	X	X			
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions: There are 2 turbidity samples. One bottle is marked field filtered. Please analyze both.

Sampled By (NAME): Willem Verduyn Signature: _____ Date: 02/18/22 (mm/dd/yy)

Relinquished by (NAME): Willem Verduyn Signature: _____ Date: 02/18/22 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.5
Date of Issue: 11 June 2021

FINAL REPORT

CA14355-APR21 R---

Prepared for

Cambium Inc.

FINAL REPORT

CA14355-APR21 R---

First Page

CLIENT DETAILS		LABORATORY DETAILS	
Client	Cambium Inc.	Project Specialist	Jill Campbell, B.Sc.,GISAS
		Laboratory	SGS Canada Inc.
Address	52 Hunter Street East Peterborough, ON K9H 1G5. Canada	Address	185 Concession St., Lakefield ON, K0L 2H0
Contact	Kevin Warner	Telephone	2165
Telephone	705-742-7900	Facsimile	705-652-6365
Facsimile		Email	jill.campbell@sgs.com
Email	kevin.warner@cambium-inc.com; file@cambium-inc.com;jerem	SGS Reference	CA14355-APR21
Project		Received	04/13/2021
Order Number		Approved	04/19/2021
Samples	Sewage (4)	Report Number	CA14355-APR21 R---
		Date Reported	04/19/2021

COMMENTS

Temperature of Sample upon Receipt: 12 degrees C
Cooling Agent Present:Yes
Custody Seal Present:Yes

Chain of Custody Number:NA

SIGNATORIES

Jill Campbell, B.Sc.,GISAS

TABLE OF CONTENTS

Client: Cambium Inc.
Project:
Project Manager: Kevin Warner
Samplers: Josh Munro

PACKAGE: **- General Chemistry** (WATER)

			Sample Number	5	6	7	8
			Sample Name	1275 Seaforth	1271 Seaforth	3188 Lakefield Rd	3220 Lakefield Rd
			Sample Matrix	Sewage	Sewage	Sewage	Sewage
			Sample Date	13/04/2021	13/04/2021	13/04/2021	13/04/2021
Parameter	**Units**	**RL**		**Result**	**Result**	**Result**	**Result**
General Chemistry							
Ammonia+Ammonium (N)	as N mg/L	0.1		< 0.1	< 0.1	< 0.1	0.2

PACKAGE: **- Metals and Inorganics** (WATER)

			Sample Number	5	6	7	8
			Sample Name	1275 Seaforth	1271 Seaforth	3188 Lakefield Rd	3220 Lakefield Rd
			Sample Matrix	Sewage	Sewage	Sewage	Sewage
			Sample Date	13/04/2021	13/04/2021	13/04/2021	13/04/2021
Parameter	**Units**	**RL**		**Result**	**Result**	**Result**	**Result**
Metals and Inorganics							
Nitrite (as N)	as N mg/L	0.03		< 0.03	< 0.03	< 0.03	0.04
Nitrate (as N)	as N mg/L	0.06		0.15	0.30	2.10	0.48
Nitrate + Nitrite (as N)	as N mg/L	0.06		0.15	0.30	2.10	0.52

QC SUMMARY

Ammonia by SFA

Method: SM 4500 I Internal ref.: ME-CA-[ENV]SFA-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ammonia+Ammonium (N)	SKA0120-APR21	as N mg/L	0.1	<0.1	5	10	96	90	110	100	75	125

Anions by IC

Method: EPA300/MA300-Ions1.3 I Internal ref.: ME-CA-[ENV]IC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0231-APR21	mg/L	0.06	<0.06	NA		NA			NA		
Nitrite (as N)	DIO0231-APR21	mg/L	0.03	<0.03	5	20	94	80	120	99	75	125
Nitrate (as N)	DIO0231-APR21	mg/L	0.06	<0.06	0	20	99	80	120	88	75	125

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

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

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.
RL Reporting Limit.
↑ Reporting limit raised.
↓ Reporting limit lowered.
NA The sample was not analysed for this analyte
ND Non Detect

Samples analysed as received. Solid samples expressed on a dry weight basis. "Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act" published by the Ministry and dated March 9, 2004 as amended.

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-- End of Analytical Report --

SGS

Request for Laboratory Services and CHAIN OF CUSTODY (General)

SGS Environmental Services - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Toll Free: 877-747-7658 Fax: 705-652-6365 Web: www.ca.sgs.com {4}

SGS Environmental Services - London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361 Web: www.ca.sgs.com {4}

Laboratory Information Section

Received Date (mm/dd/yyyy):	04/13/21	LAB LIMS #:	~~Ca~~ CA 14335 Apr21
Received Time (After Hours Only):	11:30	Temperature Upon Receipt (°C):	12, 12, 13

Billing & Reporting Information

Invoice/Receipt to {3}:

Company:	Cambium - Inc
Attention:	Kevin Warner
Address:	52 Hunter St E, Peterborough, ON
Email:	Kevin.Warner@Cambium-Inc.com
Project Name/Number:	11548-001
P.O. #:	

Quote #: ______

Attached Parameter List: ☐ YES ☐ NO

Turnaround Time

Is *Rush Turnaround Time Required? ☐ YES ☐ NO

Specify: ______

* Rush TA Requests Require Lab Approval

Client Information/Report To:

Client Lab #:

Company Name:		Phone Number:	705-742-7900
Contact Name:	Same as above	Fax Number:	
Address:		E-mail:	
Copy to:			

Sample Information

Analysis Requested (please enter the analysis required below and check off which analysis applies to each sample)

Sample Identifier	Date Sampled (mm/dd/yy)	Time Sampled	# of Bottles	Ammonia	Nitrate2	Nitrite2					
1275 Seaforth	04/13/21	10:20	2	x	x	x					
1271 Seaforth	↓	10:30	2	x	x	x					
3188 Lakefield Road		10:40	2	x	x	x					
3220 Lakefield Road		10:50	2	x	x	x					

Sampled By {1}:	(Name) Josh Munro	(Signature) JM	Date: 04/13/21	(mm/dd/yy)
Relinquished by {2}:	(Name) Josh Munro	(Signature) JM	Date: 04/13/21	(mm/dd/yy)

Note: {1} Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. {4} Completion of work may require the subcontracting of samples between the London and Lakefield laboratories.

Appendix E

Water Well Records

Ontario
Ministry of the Environment and Climate Change

Water Well Records Summary Report

CAMBIUM

WELL ID (TAG):	5101930 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1952-01-22	Bedrock	PRDG 0002 CLAY MSND STNS 0003 LMSN 0016	WELL DEPTH (m):	15.85
UTM (ZONE): ERROR:	17 716622 4922210 W	Water Supply		STATIC LEVEL (m):	3
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5103901 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1966-02-02	Bedrock	PRDG 0002 GREY CLAY SHLE LMSN 0011 GREY LMSN 0017	WELL DEPTH (m):	17.37
UTM (ZONE): ERROR:	17 716143 4921870 W	Water Supply		STATIC LEVEL (m):	9
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	9

WELL ID (TAG):	5104020 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1958-06-09	Overburden	LOAM 0000 BRWN CLAY GRVL STNS 0004 GRVL MSND 0008 GREY CLAY GRVL 0013 GRVL MSND 0016 GRVL 0016	WELL DEPTH (m):	16.46
UTM (ZONE): ERROR:	17 715964 4921577 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104021 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1959-05-25	Bedrock	PRDR 0016 LMSN 0023	WELL DEPTH (m):	23.16
UTM (ZONE): ERROR:	17 715909 4921726 W	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5104023 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1962-07-04	Overburden	LOAM 0001 CLAY STNS 0005 GRVL CLAY 0014 GRVL 0014	WELL DEPTH (m):	14.33
UTM (ZONE): ERROR:	17 715931 4921645 W	Water Supply		STATIC LEVEL (m):	6
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5104024 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1963-10-07	Bedrock	CLAY STNS 0018 CLAY GRVL 0020 CLAY 0021 GREY LMSN 0024	WELL DEPTH (m):	24.38
UTM (ZONE): ERROR:	17 715975 4921523 W	Water Supply		STATIC LEVEL (m):	3
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5104024 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1963-10-07	Bedrock	CLAY STNS 0018 CLAY GRVL 0020 CLAY 0021 GREY LMSN 0024	WELL DEPTH (m):	24.38
UTM (ZONE): ERROR:	17 715975 4921523 W	Water Supply		STATIC LEVEL (m):	3
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5104025 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1967-01-31	Overburden	LOAM 0001 GREY CLAY MSND STNS 0009 BRWN CLAY MSND GRVL 0012	WELL DEPTH (m):	12.19
UTM (ZONE): ERROR:	17 715936 4921644 W	Water Supply		STATIC LEVEL (m):	6
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5104026 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1967-08-29	Overburden	BRWN CLAY STNS 0002 GRVL MSND CLAY 0011 MSND 0011 GRVL 0012	WELL DEPTH (m):	11.58
UTM (ZONE): ERROR:	17 715939 4921569 W	Water Supply		STATIC LEVEL (m):	3
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5104027 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1949-05-16	Bedrock	CLAY 0002 HPAN 0009 GREY LMSN 0014	WELL DEPTH (m):	13.72
UTM (ZONE): ERROR:	17 715995 4921859 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104028 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1949-11-30	Overburden	CLAY 0003 HPAN 0014	WELL DEPTH (m):	14.02
UTM (ZONE): ERROR:	17 715935 4921879 W	Water Supply		STATIC LEVEL (m):	8
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104029 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-02-11	Overburden	CLAY MSND STNS 0015 GRVL 0016	WELL DEPTH (m):	15.85
UTM (ZONE): ERROR:	17 716032 4921910 W	Water Supply		STATIC LEVEL (m):	3
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104029 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-02-11	Overburden	CLAY MSND STNS 0015 GRVL 0016	WELL DEPTH (m):	15.85
UTM (ZONE): ERROR:	17 716032 4921910 W	Water Supply		STATIC LEVEL (m):	3
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104030 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1951-01-24	Overburden	LOAM 0001 HPAN 0015 GRVL 0016	WELL DEPTH (m):	15.54
UTM (ZONE): ERROR:	17 716142 4921885 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104030 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1951-01-24	Overburden	LOAM 0001 HPAN 0015 GRVL 0016	WELL DEPTH (m):	15.54
UTM (ZONE): ERROR:	17 716142 4921885 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104031 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1951-06-05	Overburden	LOAM 0001 CLAY MSND STNS 0009 GRVL 0009	WELL DEPTH (m):	8.84
UTM (ZONE): ERROR:	17 716176 4921797 W	Water Supply		STATIC LEVEL (m):	2
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104032 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-12-06	Overburden	CLAY BLDR 0010	WELL DEPTH (m):	9.75
UTM (ZONE): ERROR:	17 716158 4921854 W	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104033 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-12-06	Overburden	CLAY SILT BLDR 0013	WELL DEPTH (m):	13.41
UTM (ZONE): ERROR:	17 716217 4921877 W	Water Supply		STATIC LEVEL (m):	3
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104034 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-12-06	Overburden	CLAY SILT BLDR 0009	WELL DEPTH (m):	8.53
UTM (ZONE): ERROR:	17 716226 4921862 W	Water Supply		STATIC LEVEL (m):	2
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104035 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-12-06	Overburden	CLAY SILT BLDR 0012	WELL DEPTH (m):	11.58
UTM (ZONE): ERROR:	17 716215 4921897 W	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104036 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-12-06	Overburden	CLAY BLDR SILT 0010	WELL DEPTH (m):	10.36
UTM (ZONE): ERROR:	17 716194 4921941 W	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104037 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1950-12-06	Overburden	CLAY SILT BLDR 0012	WELL DEPTH (m):	11.58
UTM (ZONE): ERROR:	17 716137 4921897 W	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104040 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1953-01-29	Overburden	CLAY MSND STNS 0015 GRVL 0017	WELL DEPTH (m):	17.07
UTM (ZONE): ERROR:	17 715990 4921679 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104045 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1954-02-09	Overburden	CLAY MSND STNS 0014 GRVL 0014	WELL DEPTH (m):	14.33
UTM (ZONE): ERROR:	17 715984 4921734 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104046 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1956-04-16	Overburden	LOAM 0001 STNS CLAY 0009 CSND GRVL 0012	WELL DEPTH (m):	12.5
UTM (ZONE): ERROR:	17 715986 4921835 W	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104048 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1959-11-16	Overburden	CLAY HPAN 0011 GREY GRVL 0012	WELL DEPTH (m):	12.19
UTM (ZONE): ERROR:	17 716256 4921758 W	Water Supply		STATIC LEVEL (m):	4
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	18

WELL ID (TAG):	5104049 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1961-11-20	Bedrock	CLAY STNS 0006 LMSN 0024	WELL DEPTH (m):	24.38
UTM (ZONE): ERROR:	17 716085 4921461 W	Water Supply		STATIC LEVEL (m):	3
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5104053 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1965-01-21	Bedrock	PRDR 0009 GREY CLAY 0015 GREY CLAY MSND STNS 0018 GREY LMSN 0020	WELL DEPTH (m):	20.42
UTM (ZONE): ERROR:	17 716164 4921805 W	Water Supply		STATIC LEVEL (m):	6
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5104054 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1965-11-23	Bedrock	LOAM 0000 GREY CLAY STNS 0015 GREY LMSN 0039	WELL DEPTH (m):	38.71
UTM (ZONE): ERROR:	17 716130 4921296 W	Water Supply		STATIC LEVEL (m):	6
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	5

WELL ID (TAG):	5104055 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1967-01-31	Bedrock	CLAY STNS 0017 GREY LMSN 0020	WELL DEPTH (m):	19.81
UTM (ZONE): ERROR:	17 716159 4921860 W	Water Supply		STATIC LEVEL (m):	9
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	32

WELL ID (TAG):	5104087 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1954-01-14	Bedrock	PRDG 0006 LMSN 0027	WELL DEPTH (m):	27.43
UTM (ZONE): ERROR:	17 715736 4922205 W	Water Supply		STATIC LEVEL (m):	6
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	5104105 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1967-12-19	Bedrock	LOAM 0001 CLAY STNS 0005 GREY LMSN 0007	WELL DEPTH (m):	6.71
UTM (ZONE): ERROR:	17 716328 4922099 W	Water Supply		STATIC LEVEL (m):	1
margin of error : 100 m - 300 m		Commerical		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5105182 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1970-10-15	Overburden	BRWN CLAY BLDR 0008 GREY CLAY GRVL 0012 GRVL SILT MSND 0014	WELL DEPTH (m):	13.72
UTM (ZONE): ERROR:	17 716015 4921373 W	Water Supply		STATIC LEVEL (m):	2
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	45

WELL ID (TAG):	5105363 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1971-02-04	Overburden	PRDR 0011 BRWN GRVL 0012	WELL DEPTH (m):	12.5
UTM (ZONE): ERROR:	17 716055 4921523 W	Water Supply		STATIC LEVEL (m):	6
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	18

WELL ID (TAG):	5105418 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1971-02-04	Bedrock	BRWN CLAY STNS 0015 GREY LMSN 0019	WELL DEPTH (m):	18.9
UTM (ZONE): ERROR:	17 716065 4921823 W	Water Supply		STATIC LEVEL (m):	9
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5106188 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1972-12-20	Bedrock	PRDG 0009 STNS GRVL 0015 GRVL SAND 0017 LMSN 0018	WELL DEPTH (m):	18.29
UTM (ZONE): ERROR:	17 716065 4921523 W	Water Supply		STATIC LEVEL (m):	11
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	68

WELL ID (TAG):	5106188 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1972-12-20	Bedrock	PRDG 0009 STNS GRVL 0015 GRVL SAND 0017 LMSN 0018	WELL DEPTH (m):	18.29
UTM (ZONE): ERROR:	17 716065 4921523 W	Water Supply		STATIC LEVEL (m):	11
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	68

WELL ID (TAG):	5106681 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1973-12-17	Overburden	GREY CLAY BLDR 0009 GREY CLAY GRVL 0017	WELL DEPTH (m):	17.37
UTM (ZONE): ERROR:	17 716074 4921671 W	Water Supply		STATIC LEVEL (m):	6
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5107662 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1975-12-08	Overburden	BRWN CLAY 0003 BRWN CLAY SAND 0013 BRWN GRVL 0014	WELL DEPTH (m):	14.33
UTM (ZONE): ERROR:	17 715915 4921573 W	Water Supply		STATIC LEVEL (m):	5
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	68

WELL ID (TAG):	5109858 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1980-06-02	Bedrock	PRDR 0014 GRVL FSND SILT 0020 GREY LMSN 0020	WELL DEPTH (m):	20.42
UTM (ZONE): ERROR:	17 716065 4921373 W	Water Supply		STATIC LEVEL (m):	5
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5110712 ()	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1983-03-09	Bedrock	BLCK LOAM 0000 GREY CLAY STNS 0013 GREY GRVL CLAY STNS 0019 GREY LMSN SHLE 0020	WELL DEPTH (m):	19.81
UTM (ZONE): ERROR:	17 716065 4921323 W	Water Supply		STATIC LEVEL (m):	5
margin of error : 100 m - 300 m		Domestic		RECOMMENDED PUMP RATE (LPM)	55

WELL ID (TAG):	5112296 (NA)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1987-04-28	Bedrock	BLCK LOAM 0000 GREY CLAY LMSN SHLE 0010 GREY CLAY SNDY 0021 GREY LMSN LYRD 0023	WELL DEPTH (m):	22.86
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	9
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5112593 (NA)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1987-09-16	Bedrock	BRWN FILL MGRD 0005 GREY LMSN PORS 0032	WELL DEPTH (m):	32.31
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	5

WELL ID (TAG):	5112832 (23887)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1987-12-18	Bedrock	GREY FILL SOFT 0010 GREY LMSN PORS 0017	WELL DEPTH (m):	17.07
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	36

WELL ID (TAG):	5112833 (23888)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1987-12-18	Bedrock	GREY FILL MGRD 0016 GREY LMSN PORS 0017	WELL DEPTH (m):	16.76
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	36

WELL ID (TAG):	5113263 (36512)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1988-08-17	Bedrock	GREY CLAY 0003 GREY LMSN SHLE 0006 GREY LMSN LYRD 0015	WELL DEPTH (m):	15.24
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	55

WELL ID (TAG):	5115104 (75055)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1991-03-12	Bedrock	BRWN LOAM 0000 BRWN CLAY STNS 0015 BRWN CLAY SHLE ROCK 0018 GREY LMSN ROCK 0020	WELL DEPTH (m):	20.12
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	8
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5115604 (104920)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1991-12-30	Bedrock	BRWN LOAM SAND SOFT 0000 BRWN CLAY SNDY STNS 0001 BRWN SHLE LMSN SAND 0004 GREY LMSN HARD 0018	WELL DEPTH (m):	17.68
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5115604 (104920)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1991-12-30	Bedrock	BRWN LOAM SAND SOFT 0000 BRWN CLAY SNDY STNS 0001 BRWN SHLE LMSN SAND 0004 GREY LMSN HARD 0018	WELL DEPTH (m):	17.68
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5115604 (104920)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1991-12-30	Bedrock	BRWN LOAM SAND SOFT 0000 BRWN CLAY SNDY STNS 0001 BRWN SHLE LMSN SAND 0004 GREY LMSN HARD 0018	WELL DEPTH (m):	17.68
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	4
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5115744 (105981)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1992-02-12	Bedrock	BRWN LOAM 0000 GREY SHLE ROCK BLDR 0005 GREY LMSN ROCK 0019	WELL DEPTH (m):	18.59
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	11
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5115744 (105981)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1992-02-12	Bedrock	BRWN LOAM 0000 GREY SHLE ROCK BLDR 0005 GREY LMSN ROCK 0019	WELL DEPTH (m):	18.59
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	11
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	5116411 (125463)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1993-12-21	Bedrock	BRWN CLAY STNS 0003 BRWN SAND STNS HARD 0006 GREY SAND CLAY STNS 0008 GREY LMSN ROCK 0016	WELL DEPTH (m):	15.54
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5116578 (144340)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1994-06-06	Bedrock	UNKN 0015 LMSN ROCK 0016	WELL DEPTH (m):	15.85
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	36

WELL ID (TAG):	5117479 (173589)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1997-06-13	Bedrock	GREY CLAY STNS 0015 GREY LMSN 0017	WELL DEPTH (m):	17.37
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	5
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	68

WELL ID (TAG):	5117484 (179563)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1997-06-25	Bedrock	BRWN LOAM LOOS 0000 BRWN SAND GRVL PCKD 0003 GREY CLAY GRVL PCKD 0014 GREY CLAY PCKD 0018 BLCK SHLE LMSN LYRD 0020	WELL DEPTH (m):	19.51
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	8
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5117484 (179563)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	1997-06-25	Bedrock	BRWN LOAM LOOS 0000 BRWN SAND GRVL PCKD 0003 GREY CLAY GRVL PCKD 0014 GREY CLAY PCKD 0018 BLCK SHLE LMSN LYRD 0020	WELL DEPTH (m):	19.51
UTM (ZONE): ERROR:	17 716401 4921311 L	Water Supply		STATIC LEVEL (m):	8
unknown UTM		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	5118710 (228776)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2001-05-17	Bedrock	BRWN LOAM LOOS 0000 BRWN CLAY GRVL PCKD 0004 GREY SHLE LMSN GRVL 0009 BLCK LMSN HARD 0012	WELL DEPTH (m):	11.89
UTM (ZONE): ERROR:	17 716166 4921968 W	Water Supply		STATIC LEVEL (m):	2
margin of error : 10 - 30 m		Domestic		RECOMMENDED PUMP RATE (LPM)	27

WELL ID (TAG):	5118710 (228776)	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2001-05-17	Bedrock	BRWN LOAM LOOS 0000 BRWN CLAY GRVL PCKD 0004 GREY SHLE LMSN GRVL 0009 BLCK LMSN HARD 0012	WELL DEPTH (m):	11.89
UTM (ZONE): ERROR:	17 716166 4921968 W	Water Supply		STATIC LEVEL (m):	2
margin of error : 10 - 30 m		Domestic		RECOMMENDED PUMP RATE (LPM)	27

WELL ID (TAG):	5120014 (Z04622) A004	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2004-09-28	Bedrock	BLCK LOAM SOFT 0001 BLCK LOAM SOFT 0002 BRWN SAND SOFT 0004 GREY CLAY STNS HARD 0011 GREY SILT SOFT 0012 GREY LMSN HARD 0015 BRWN LMSN FCRD 0015 GREY LMSN HARD 0016	WELL DEPTH (m):	16.15
UTM (ZONE): ERROR:	17 715948 4921944 W	Water Supply		STATIC LEVEL (m):	2
margin of error : 10 - 30 m		Commerical		RECOMMENDED PUMP RATE (LPM)	40

WELL ID (TAG):	7103867 (Z72824) A058	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2008-04-11	Bedrock	BRWN LOAM 0001 BRWN CLAY STNS 0005 GREY CLAY STNS 0018 GREY LMSN ROCK 0020	WELL DEPTH (m):	20.11
UTM (ZONE): ERROR:	17 716081 4921415 W	Water Supply		STATIC LEVEL (m):	8
margin of error : 10 - 30 m		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	7103867 (Z72824) A058	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2008-04-11	Bedrock	BRWN LOAM 0001 BRWN CLAY STNS 0005 GREY CLAY STNS 0018 GREY LMSN ROCK 0020	WELL DEPTH (m):	20.11
UTM (ZONE): ERROR:	17 716081 4921415 W	Water Supply		STATIC LEVEL (m):	8
margin of error : 10 - 30 m		Domestic		RECOMMENDED PUMP RATE (LPM)	14

WELL ID (TAG):	7177176 (Z139943) A11	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2012-02-23	Bedrock	BRWN LOAM 0000 BRWN CLAY STNS 0004 GREY LMSN 0018	WELL DEPTH (m):	18.29
UTM (ZONE): ERROR:	17 715701 4921723 W	Water Supply		STATIC LEVEL (m):	3
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	16

WELL ID (TAG):	7250980 (Z208221) A16	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2015-10-26	Bedrock	BRWN LOAM SAND 0000 GREY SAND SLTY WBRG 0003 GREY LMSN CLAY LYRD 0010	WELL DEPTH (m):	10.36
UTM (ZONE): ERROR:	17 716367 4921613 W			STATIC LEVEL (m):	
margin of error : 30 m - 100 m		Test Hole		RECOMMENDED PUMP RATE (LPM)	

WELL ID (TAG):	7305903 (Z244416) A21	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2018-02-15	Bedrock	PRDR 0014 GREY CLAY HPAN HARD 0016 GREY LMSN ROCK HARD 0018 GREY LMSN ROCK HARD 0027 GREY LMSN ROCK HARD 0030	WELL DEPTH (m):	30.48
UTM (ZONE): ERROR:	17 716112 4921344 W	Water Supply		STATIC LEVEL (m):	7
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	7305903 (Z244416) A21	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2018-02-15	Bedrock	PRDR 0014 GREY CLAY HPAN HARD 0016 GREY LMSN ROCK HARD 0018 GREY LMSN ROCK HARD 0027 GREY LMSN ROCK HARD 0030	WELL DEPTH (m):	30.48
UTM (ZONE): ERROR:	17 716112 4921344 W	Water Supply		STATIC LEVEL (m):	7
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	7305903 (Z244416) A21	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2018-02-15	Bedrock	PRDR 0014 GREY CLAY HPAN HARD 0016 GREY LMSN ROCK HARD 0018 GREY LMSN ROCK HARD 0027 GREY LMSN ROCK HARD 0030	WELL DEPTH (m):	30.48
UTM (ZONE): ERROR:	17 716112 4921344 W	Water Supply		STATIC LEVEL (m):	7
margin of error : 30 m - 100 m		Domestic		RECOMMENDED PUMP RATE (LPM)	23

WELL ID (TAG):	7305903 (Z244416) A21	WELL TYPE AND USAGE	REPORTED STRATIGRAPHY (m bgs)	WATER INFORMATION	
DATE COMPLETED:	2018-02-15	Bedrock	PRDR 0014 GREY CLAY HPAN HARD 0016 GREY LMSN ROCK HARD 0018 GREY LMSN ROCK HARD 0027 GREY LMSN ROCK HARD 0030	WELL DEPTH (m):	30.48
UTM (ZONE):	17 716112 4921344 W	Water Supply		STATIC LEVEL (m):	7
ERROR:	margin of error : 30 m - 100 m	Domestic		RECOMMENDED PUMP RATE (LPM)	23

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

2. Core Colour

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

Appendix F
Water Budget Calculations

	THORNTHWAITE-TYPE MONTHLY WATER-BALANCE MODEL												
	(modified from Dingman 2001: ex. 7-13, Box 7-3 using ET model of Hamon (1963))												
			Input Data				Computed Values				Surplus		340
													mm/yr
Location:	Peterborough, Trent		Lat. =		**44.2**	degree		*SOILmax* =		**150**	mm		
					0.77	rad							
Declination (deg)	-21.3	-13.3	-2.0	9.8	18.9	23.3	21.3	13.7	3.0	-9.0	-18.6	-23.3	
Declination (rad)	-0.37	-0.23	-0.03	0.17	0.33	0.41	0.37	0.24	0.05	-0.16	-0.32	-0.41	
DayLength (hr)*	9.0	10.2	11.7	13.3	14.6	15.3	15.0	13.8	12.4	10.8	9.5	8.7	
*For lat. > 66.5, replace #NUM! with 24 in summer; 0 in winter.													
					WATER BALANCE								
			Temperatures in C, water-balance terms in mm.										
Month:	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Year**
==========	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
P	57	49	57	66	89	83	74	87	92	77	86	66	882
T	-8	-7	-1	6.3	13	18	21	19	15	8.4	2.4	-4	
F	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.00	
RAIN	0	0	0	66	89	83	74	87	92	77	34	0	602
SNOW	57	49	57	0	0	0	0	0	0	0	51	66	280
PACK	154	203	259	0	0	0	0	0	0	0	31	97	
MELT	0	0	0	259	0	0	0	0	0	0	21	0	280
INPUT (W_m)	0	0	0	326	89	83	74	87	92	77	55	0	882
PET	0	0	0	42	70	100	115	99	68	39	23	0	556
W - PET	0	0	0	284	19	-17	-42	-12	25	38	32	0	
SOIL	150	150	150	150	150	134	101	94	118	150	150	150	
ΔSOIL	0	0	0	0	0	-16	-32	-8	25	32	0	0	
ET	0	0	0	42	70	99	106	95	68	39	23	0	542
W-ET-ΔSOIL	0	0	0	284	19	0	0	0	0	6	32	0	340
	57	49	57	24	19	-17	-42	-12	25	38	62	66	