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2060 Division Road

FUNCTIONAL SERVICING REPORT

South Shore Homes

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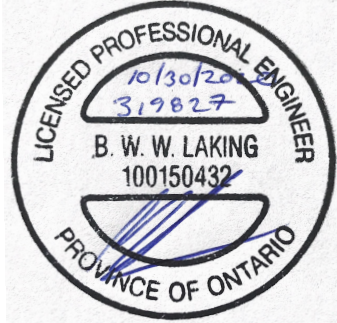

June
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Issue	Date	Description
1	June 18, 2020	Draft FSR
2	October 30, 2020	Final FSR

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1 Introduction

Tatham Engineering Limited (Tatham) has been retained by South Shore Homes to prepare a Functional Servicing Report (FSR) in support of a draft Plan of Subdivision for a twenty-three-lot rural residential subdivision located in the Township of Severn. A preliminary Stormwater Management (SWM) Report will be submitted under separate cover.

1.1 SITE DESCRIPTION

The Draft Plan of Subdivision is proposed for a 12.2 ha vacant partially wooded lot near the intersection of Division Road West and Highway 12. The property is located within the Bass Lake/Marchmont Settlement Area and is bound by commercial property to the west, existing rural residential to the east and south and residential and wood lot to the north. An overhead hydro transmission corridor crosses the north west corner of the site.

A Key Plan illustrating the site location is shown on the Overall Development Plan (ODP-1) included at the back of this report.

1.2 OBJECTIVES

The primary objectives of this report are to assess the feasibility of the proposed development with respect to servicing and to ensure satisfactory information on these items are presented in support of the proposed Draft Plan of Subdivision. This will involve an evaluation of potable water supply, sanitary sewage treatment and disposal, and drainage and stormwater management as well as traffic impacts.

1.3 GUIDELINES AND BACKGROUND REPORTS

This report was prepared recognizing provincial guidelines on water resources and the environment, and studies including the following publications:

- Engineering Design Criteria. Township of Severn, May 2014;
- Design Guidelines for Sewage Works. Ministry of the Environment, Conservation and Parks (2008); and
- Stormwater Management Planning and Design Manual. The Ministry of the Environment, Conservation and Parks, March 2003.

The following reports pertaining to the site have also been prepared in support of the proposed Draft Plan:



- Stage 1-2 Archaeological Property Assessment, Division Road (Amick Consultants Limited, 2019);
- Hydrogeological Assessment. Ian D. Wilson Associates Limited, November 15, 2019;
- Environmental Impact Statement. Terrastory Environmental Consulting Inc., October 2020;
- Preliminary Stormwater Management Report. Tatham Engineering Limited, June 2020; and
- Traffic Impact Brief. Tatham Engineering Limited, October 2020.

1.4 PROPOSED DEVELOPMENT SUMMARY

The proposed rural residential development consists of twenty-three residential lots located on the northwest of Division Road and Highway 12 in the Township of Severn. The Draft Plan of Subdivision has been prepared by Tatham Engineering Limited and Morgan Planning & Development.

A seasonal wetland area and significant woodlot bisects the property in a north-south direction which will be zoned for Environmental Protection. Accordingly, the development will consist of an east and a west development block comprising of 16 lots and 7 lots respectively.

Access to the site will be provided by internal roadways with separate entrances from Division Road and from Carriage Court to service the two development blocks. The west roadway will be along the west property limit which will provide access to 16 residential lots as well as shared future access to the adjacent commercial property. A reserve block will be maintained at the north limit of the roadway to provide future connection to the development at 3879 Town Line. The east roadway will provide access to 7 residential lots via a cul-de-sac with entry to Carriage Court. A utility corridor and pedestrian walkway will connect between the east and west development blocks.

Potable water will be drawn from individual private wells located on each lot.

Wastewater will be collected and treated via individual septic systems on each lot.

Both wells and septic systems will be developed and approved through the building permit process.



2 Background Information

Information regarding the existing topography, ground cover and drainage patterns was obtained through a review of relevant background studies, topographic survey and base mapping.

2.1 TOPOGRAPHY AND EXISTING DRAINAGE CONDITIONS

The existing drainage conditions for the subject property were determined from the available background documents, site visits and a topographic survey. Drainage from the site is described as follows:

- Ontario Soil Survey Map No. 29 for Simcoe County North characterizes the soils on-site as Tioga sand loam and hydrologic soil group A;
- The site coverage is primarily dominated by wooded areas, wetland and cultivated crops;
- All runoff from the site (Catchment 101) of approximately 12.8 ha drains as overland flow, at an approximate slope of 2.4% from northwest to southeast to the southwest corner and is conveyed across Carriage Court via existing 1300 mm diameter CSP twin culverts.

2.2 HYDROGEOLOGICAL INVESTIGATION

A hydrogeological investigation was undertaken by Ian D. Wilson Associates Limited during the summer and fall of 2019. The investigation included pumping test of an on-site well and off-site observation well.

Soil conditions from the well drilling log were reported as follows:

Table 1: Soil Conditions

DEPTH (M)	MATERIALS
0 - 0.3	Black Topsoil
0.3 - 3.4	Brown Clay
3.4 - 15.8	Blue Clay with Rocks, Hard
15.8 - 18.0	Blue Clay, Soft
18.0 - 21.0	Blue Clay, Medium
21.0 - 22.3	Blue Sand, Medium
22.3 - 24.1	Blue Sand, Coarse



Water was reported to be located in the coarse blue sand at a depth of 22.3m.

In addition, six test pits were excavated throughout the property to characterize soil and shallow groundwater conditions. The test pits were excavated to depths of 1.67m to 2.13m below existing grade. The soil profiles were logged and representative soil samples were collected for classification and further analysis.

In summary the upper native soil profile consists mainly of a fine sand to silty sand, which exhibited a percolation rate in the range of 12min/cm to 30min/cm, depending on silt content.

The seasonal water table was observed at varying depths from 0.61m to no observation within the depth of the test pit.

A copy of the hydrogeological investigation is included as Appendix A

2.3 GEOTECHNICAL INVESTIGATION

A geotechnical investigation is underway at this time in support of detailed design. Preliminary assumptions based on the soil conditions observed through the Hydrogeological investigation will include removal of topsoil, compaction of excavated materials, and engineered fill for site grading, foundations, underground services and pavement construction.

2.4 ENVIRONMENTAL IMPACT STATEMENT

An environmental impact statement was prepared by Terrastory Environmental Consultants Inc. Three environmentally significant areas have been identified on-site. The areas are located at the southwest corner, along Division Road West and in the centre of the property. The areas are comprised of seasonal wetlands and significant woodlots. Environmental buffers have been established for each of the environmentally significant areas respectively.

The complete environmental impact statement is provided under separate cover.

2.5 ARCHAEOLOGICAL INVESTIGATION

A Stage 1-2 Archaeological Property Assessment was undertaken by Amick Consultants Limited in March 2020. As a result of the Stage 2 property assessment, no archaeological resources were encountered and consequently the proposed development is clear of any archaeological concern. A copy of the draft Stage 1-2 Archaeological Assessment is included in Appendix C.



3 Grading and Drainage

Existing grading and drainage patterns will be generally maintained to the extent possible with all site drainage ultimately flowing to the outlet at Carriage Court and Division Road West. A stormwater management facility will be constructed in the southwest corner of the site to provide quantity and quality stormwater control. A detailed stormwater management report is provided under separate cover.

In general, proposed site grades raised above the existing topography to provide suitable lot development envelopes while achieving minimum Township lot grading standards.

- Split drainage will be used on Lots 1-13, 17-23; and
- Rear to front grading will be used on Lots 14-16.

Preliminary grading elevations and drainage patterns are shown on Drawing ODP-1.



4 Servicing

4.1 WATER SUPPLY

The hydrogeologic investigation provides an account of the observed hydrogeological conditions related to water supply.

The average well within 500m of the proposed development is of drilled construction, completed in the lower overburden aquifer to a depth of 37.2m and yields 36 litres of fresh-quality water per minute over an average period of 4.4 hours. This average yield exceeds the maximum water demand for a normal four-bedroom home specified by the MECP (18 L/min without inline storage.)

A test well was drilled on site in support of the hydrogeologic investigation to confirm the observations made from wells on surrounding properties. A total of about 5,040 litres of water were pumped from the well during the 6-hour pumping test. The OBC recommends a design flow of 1,600 L/day for a 3-bedroom home and 2,000L/day for a 4-bedroom home. Accordingly, the test well is capable of supplying these yields and the presence of upwards of four regional overburden aquifers confirm the likelihood of obtaining an adequate potable water supply is favorable. Individual drilled wells will be advanced on each lot during the building permit stage.

4.2 SEWAGE DISPOSAL

The hydrogeologic investigation concluded the development (according to MECP Guidelines) can support the proposed 23 lots on individual sewage disposal systems. This can be achieved with conventional sewage disposal systems.

In the western upland portion of the site, based on low water table conditions, fully in-ground tile beds are considered viable. Over the remaining lower portions of the site, partially raised tile beds will be required due to the observed emergent groundwater and evidence of seasonally elevated water table conditions.

For preliminary site design purposes, a conservative soil T-time of 35min/cm was recommended. Individual lot specific test pits will be excavated as part of the septic design and building permit process.

4.3 UTILITIES

Division Road is currently serviced with overhead hydro on the north side of the corridor. It is assumed the existing hydro supply is adequate to service the proposed development. This will



be confirmed at the final design stage. Hydro will be provided to each lot with underground servicing.

An overhead hydro transmission corridor crosses the north-west quadrant of the site. Hydro will be contacted during the detail design process to confirm any building and development restrictions within the limits of their easement however it is expected all structures will need to be clear of the transmission corridor.

Union Gas was contacted and confirmed gas is available on Division Road and Carriage Court. It is assumed the existing gas infrastructure is adequate to service the proposed development. This will be confirmed at the final design stage.

Bell and Rogers have been contacted but have not yet confirmed what existing plant is available to service the proposed development. Based on the proximity of other subdivisions in the Marchmont Settlement area it is anticipated both services will be available to the development.

As noted above a utility corridor will be provided between the east and west blocks of the development to provide connectivity between each side of the development.



5 Roadways and Transportation

Tatham undertook a Traffic Impact Study (TIS) to investigate impacts from the proposed development on surrounding roads.

Access to the site will be provided by internal roadways with separate entrances from Division Road and from Carriage Court to service the two development blocks. The west roadway will be along the west property limit which will provide access to 16 residential lots as well as shared access to the adjacent commercial property. A reserve block will be maintained at the north limit of the roadway to provide future connection to the development at 3879 Town Line. The east roadway will provide access to seven residential lots via a cul-de-sac with entry to Carriage Court.

The proposed roads have been designed with a rural cross section in accordance with the Township of Severn's typical rural road cross section detail (Std No. 201) which includes a 6.6m paved surface with 1.2m wide granular shoulders and open ditches. Entrances to Division Road and Carriage Court will be established in accordance with OPSD 300.010 (side road intersection).

A utility corridor and pedestrian walkway will connect between the east and west development blocks. The walkway will be designed in accordance with the Township of Severn asphalt walkway detail (Std No. 304).

The TIS is provided under separate cover.



6 Summary

The proposed development will consist of twenty-three rural residential lots. Existing drainage patterns will be generally maintained, with stormwater conveyed via open ditches to a stormwater management facility and ultimately the existing outlet at the south-east quadrant of the site.

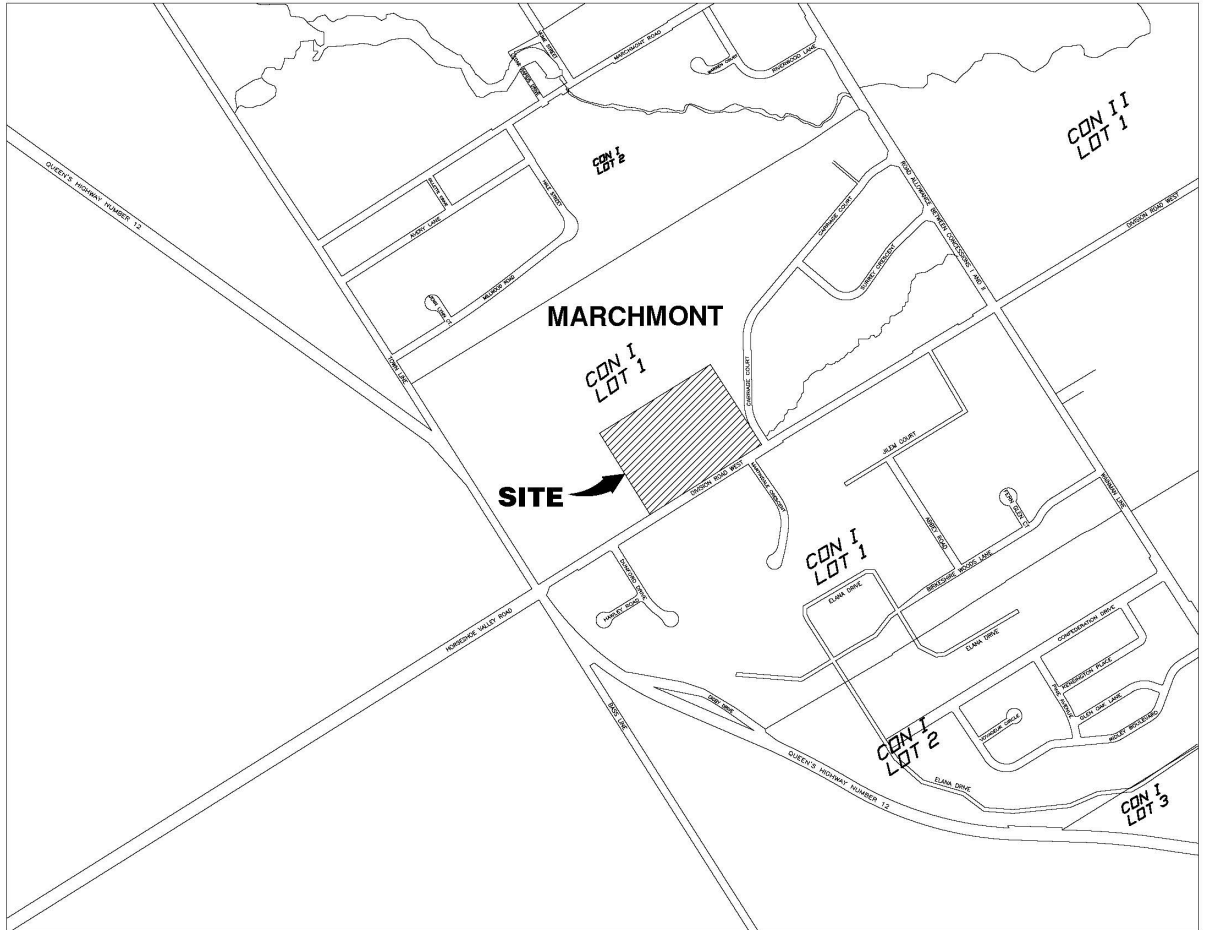
Water supply will be provided by individual drilled wells. The proposed development will be serviced with private individual sewage systems. The proposed wells, septic systems and lot grading will be developed on a lot by lot basis with their specific site development grading plans which will be approved through the building permit process.

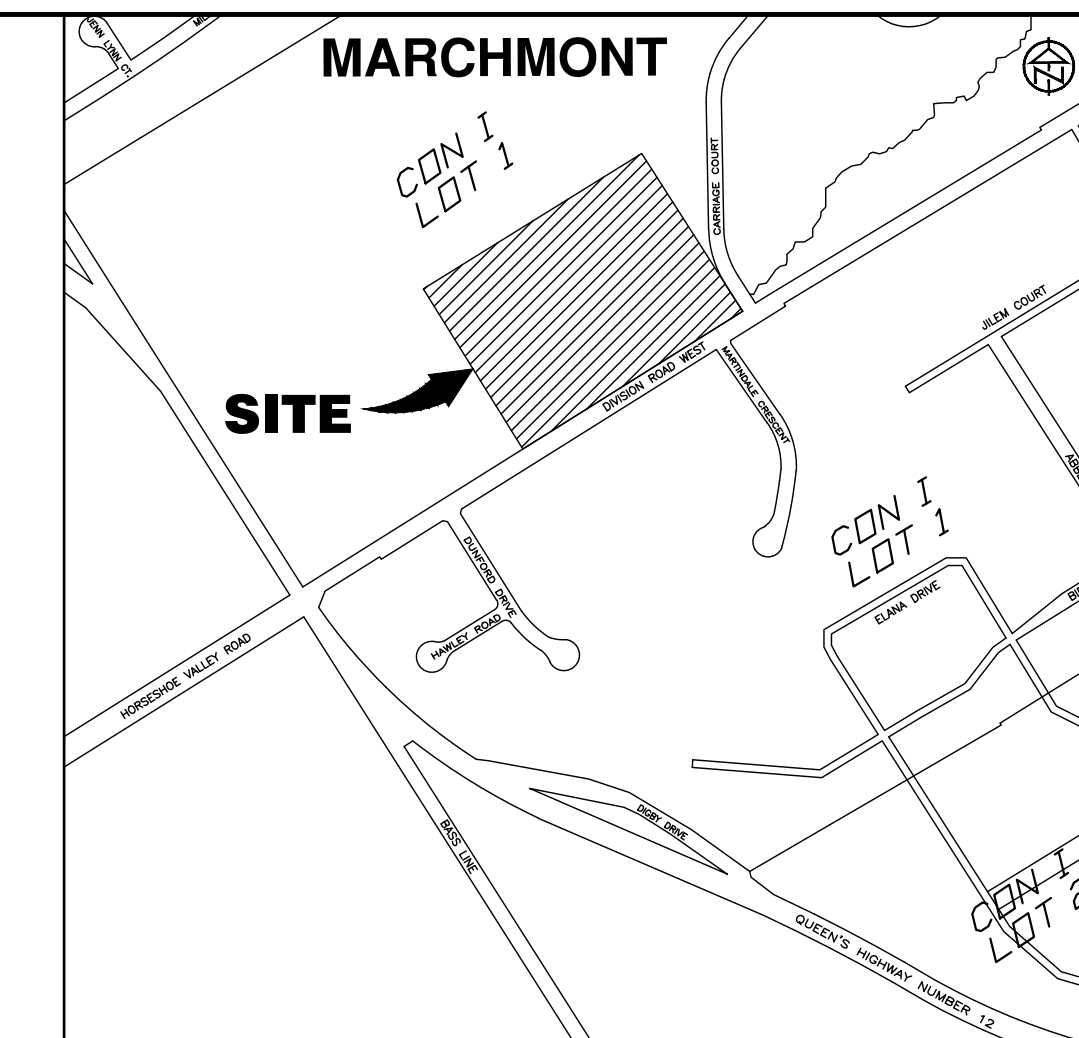
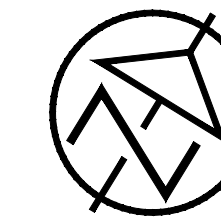
Existing hydro and gas are available on Division Road and the capacity of both to service the proposed development will be confirmed during final design. The availability of communications plant (i.e. telephone, cable TV, coaxial cable etc.) will also be confirmed during final design.

Detailed design of these systems will be provided at the final design stage, but the work completed to date confirms appropriate site servicing and stormwater management strategies can support the development without adverse impacts on the adjacent properties and roadways.

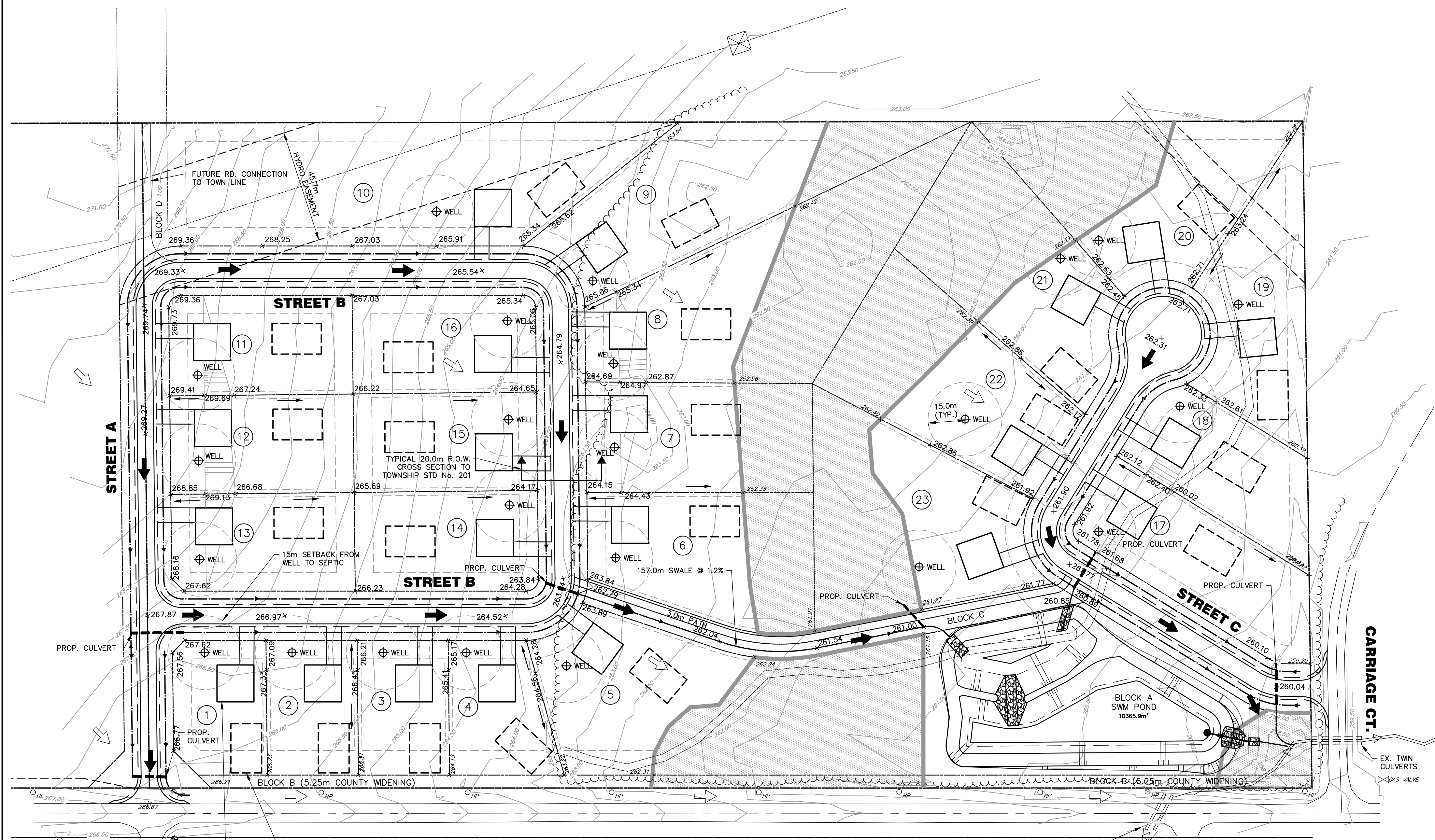
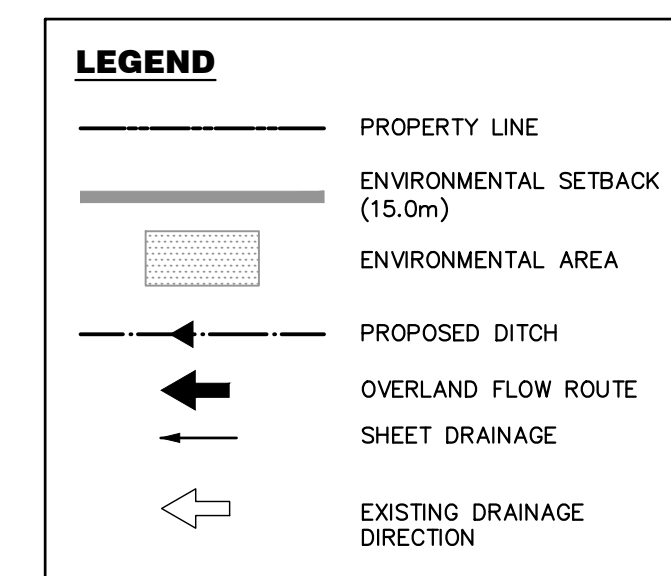


Figure 1: Key Plan





KEY PLAN - N.T.S.



CARRIAGE CT.

EX. TWIN CULVERTS

EX. TWIN CULVERTS

EX. TWIN CULVERTS

EX. TWIN CULVERTS

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EX. TWIN CULVERTS

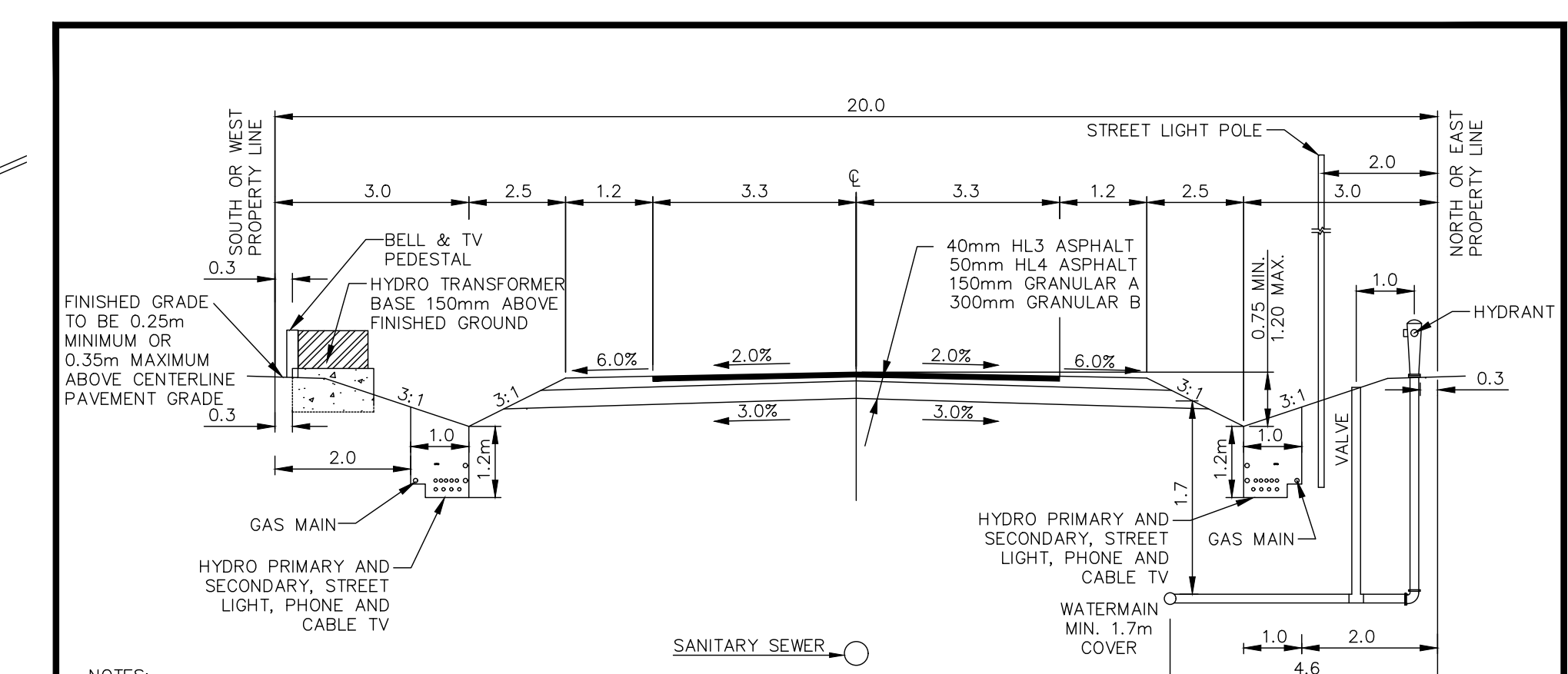
EX. TWIN CULVERTS

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EX. TWIN CULVERTS

EX. TWIN CULVERTS

EX. TWIN CULVERTS



- NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.
 2. MINIMUM PAVEMENT AND ROAD STRUCTURE DESIGN AS PER TOWNSHIP OF SEVERN ENGINEERING CRITERIA OR AS PER GEOTECHNICAL INVESTIGATION RECOMMENDATION.
 3. DITCH GRADE TO BE MIN. 0.5% MAX. 6.0% AND RESTORED WITH 100mm TOPSOIL & SOD.
 4. ALL SERVICE LOCATIONS SHOWN ARE FOR GUIDELINE PURPOSES ONLY AND MAY DEVIATE AS PER THE DIRECTION OF THE TOWNSHIP WHEN STANDARD LOCATION CANNOT BE ACHIEVED.
 5. ALL WATER CURB STOPS TO BE PLACED ON STREETLINE.
 6. A 3.0 m WIDE PLATFORM AREA SHALL BE CONSTRUCTED FOR EACH FIRE HYDRANT. THE MINIMUM CULVERT LENGTH SHALL BE 7.0 m AND THE MINIMUM DIAMETER SHALL BE 300mm. PLATFORM AREAS SHALL BE RESTORED WITH 100mm TOPSOIL AND SOD.
 7. SEE JOINT UTILITY TRENCH STANDARD DRAWING FOR 4 PARTY DETAILS.
 8. ALL HOUSE SERVICES TO BE MINIMUM 0.76m BELOW DITCH GRADE.

NO.	REVISION	APR'D	DATE	TOWNSHIP OF SEVERN	APR'D:	DATE: 2012
				SEMI-URBAN ROAD (OPEN DITCH)	DRAWN:	SCALE: NTS
				20.0m RIGHT OF WAY	STD. No.	201
				6.6m ASPHALT SURFACE		

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BENCHMARKS
TBM1 - ELEVATION 267.684m
COSINE MONUMENT LOCATED ROUGHLY 600m SOUTH OF THE SITE ALONG HIGHWAY 12.

NOTES

No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP
1.	1ST SUBMISSION	NOV. 2020	

2060 DIVISION ROAD
TOWNSHIP OF SEVERN

TATHAM ENGINEERING

DESIGN: CU FILE: 319827 DWG:
DRAWN: CU DATE: JUNE 2020 **ODP-1**
CHECK: BL SCALE: 1:1000

Appendix A: Hydrogeological Assessment

**HYDROGEOLOGICAL ASSESSMENT
PROPOSED SUBDIVISION
SOUTH SHORE CADEN ESTATES INC.
PART OF LOT 1, CONCESSION 1ND
TOWNSHIP OF SEVERN (ORILLIA)**

**Prepared For:
SOUTH SHORE CADEN ESTATES INC.**

Project 2019-21
November 15, 2019

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**HYDROGEOLOGICAL ASSESSMENT
PROPOSED SUBDIVISION
SOUTH SHORE CADEN ESTATES INC.
PART OF LOT 1, CONCESSION 1ND
TOWNSHIP OF SEVERN (ORILLIA)**

1.0 INTRODUCTION

It is proposed to develop a 23-Lot residential subdivision on a 12.2ha parcel of land located in Part of Lot 1, Concession 1ND, Geographic Township of Orillia, within the western periphery of the Community of Marchmont. Figure 1 shows the location and proposed layout of the proposed development.

It is proposed to service the subdivision with individual water wells and private subsurface sewage disposal systems.

This hydrogeological assessment has been prepared to summarize the geological and hydrogeological setting of the site, subsurface conditions, sewage system suitability, sewage impact potential and potable groundwater potential for the development.

2.0 SITE SETTING, GEOLOGY AND HYDROGEOLOGY

The subject lands are located on a rectangular parcel located on the north side of Division Road West, generally between the intersections of Dunford Drive to the west and Carriage Court to the east. Frontage along Division Road West is about 470m, and the depth of the site is about 270m. The western half of the lands are cleared and mainly in fallow, and the eastern half of the lands are mainly forested. A hydro easement crosses the northwest corner of the site. Lands surrounding the site are forested to the north, residential to the east, a mix of residential and forested lands to the south and commercial properties to the west. The site exhibits a rolling topography, with an overall slope to the east, and total site relief is in the range of 12 metres.

The proposed development is located within the Simcoe Uplands physiographic Region of southern Ontario, an area characterized by a series of broad, rolling till plains separated by steep-sided, flat-floored valleys. The Ontario Geological Survey Open File Map 200 "Quaternary Geology of the Eastern Half of the Barrie and Elmvalle Map Areas" describes the upper soils across the site as stony silty sand to sand glacial till.

According to the records of wells in the general area and the 2005 North Simcoe Municipal Groundwater Study, the overburden is approximately 40 to 55 metres thick in the vicinity of Marchmont, depending on relative land surface elevation. Local well records report the upper overburden to consist primarily of a surficial granular deposit overlying a relatively deep, fine-grained deposit described as hardpan or clay. An

intermediate depth granular deposit and a lower overburden granular deposit are commonly reported in local well records.

The bedrock beneath the site consists of limestone, minor dolostone and shale of the Middle Ordovician Simcoe Group of rock.

Local wells are typically completed in one of four aquifers. Several shallow dug/bored wells are reported to be completed in the upper granular deposit at depths of up to 9m, many of these wells deeper than the granular deposit to allow for in-well storage. A small number of local wells are reported to be completed in a intermediate depth aquifer at depths of 15 to 24m. Most wells are locally completed in a deep overburden aquifer atop the bedrock at a common depth range of 30 to 40m. A smaller number of wells are completed in the bedrock aquifer. The bedrock is known generally to yield lower quantities of often aesthetically poorer water.

3.0 LOCAL WATER WELLS

To establish well yield and basic water quality probabilities, up-to-date Ministry of the Environment, Conservation and Parks (MECP) records for water wells located within approximately 500 metres of the proposed development were reviewed. The MECP water well record database contains the records for 55 water wells within the review area, not including geotechnical/environmental well records or well upgrade/abandonment records. Copies of the MECP well records for the 55 water wells located within 500m of the proposed development are included in the appendix.

The following summarizes the reported well record information within the review area.

Number of well records:	55
Drilled Construction:	37
Dug/Bored Construction:	18, mostly completed by a local contractor prior to 1974
Sandpoint Construction:	0
Unknown Construction:	0
Completed in Overburden:	50 (91%)
Completed in Bedrock:	5 (9%)

The following summarizes the reported well performance data:

	Maximum	Minimum	Average
Well Depth (m)	85	6.1	37.2
Test Rate (L/min)	114	9	36
Test Period (Hours)	36	0.4	4.4

Reported Water Quality:

Fresh:	48 or 87% (no objectionable tastes or odours)
Sulphurous:	none
Mineralized/Saline:	1 or 2%
Quality Not Reported:	6 or 11% (becoming common for recent wells, as contractors increasingly refrain from reporting "fresh" quality without chemical analysis confirmation)
Dry Well:	none

The average well within about 500 metres of the proposed development is of drilled construction, completed in the lower overburden aquifer to a depth of 37.2 metres and yields 36 litres of fresh-quality water per minute over an average period of 4.4 hours. This average yield exceeds the maximum water demand of a normal four bedroom home specified by the MECP (i.e. 18L/min without inline storage).

It should be noted that the above summary and analysis is based solely on information contained in the MECP water well record database as reported by drilling contractors and is not subject to quality control, however the overall analytical summary is favourable.

4.0 GROUNDWATER SUPPLY

4.1 Test Well Construction - Test Well 1:

The following information was derived from the well record completed by the drilling contractor, Lone Star Drilling Services Ltd. Figure 1 shows the location of TW1. A copy of the water well record for TW1 is included in the appendix.

Contractor's Log of Formations Penetrated

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.3	black topsoil
0.3 - 3.4	brown clay
3.4 - 15.8	blue clay with rocks, hard
15.8 - 18.0	blue clay, soft
18.0 - 21.0	blue clay, medium
21.0 - 22.3	blue sand, medium
22.3 - 24.1	blue sand, coarse

Water was reported to have been located in the coarse blue sand at a depth of 22.3m below grade.

Casing Record:

Total Length:	23.2m
Setting:	0.6m above grade to 22.6m below grade
Diameter:	15.88cm ID
Wall Thickness:	0.48cm
Material:	steel
Well Screen:	12.7cm OD (5 inch telescopic), 10-slot stainless steel screen set from 22.6m to 24.1m
Annular Seal:	Bentonite - grade to 6.1m

4.2 Pumping Test - Test Well 1:

Test Well 1 was subjected to a 6 hour pumping test at a rate of 14 L/min on August 22, 2019, beginning at 11:30am. Water levels were observed in the test well on a regular basis during pumping and for an 848 minute period of recovery after pumping ceased. Water levels were also observed on a regular basis in nearby OW1, located about 200m southwest of TW1. Water levels were observed using an electronic water level meter. Pumping rates were controlled by an in-line valve and confirmed using a calibrated container. Water was discharged from the well about 20m to the south.

Figure 2 is a semi-logarithmic plot of the test results showing the drawdown of the water level in TW1 versus the elapsed time from the start of pumping and residual drawdown versus the ratio of time from the start of pumping to the time from the end of pumping (ratio t/t'). The raw pumping test data are included in the appendix.

The water level in Test Well 1 lowered 1.19m during the first minute of pumping, and assumed a steepening downward trend with minor fluctuations due to pumping rate corrections. After about ten minutes of pumping, a relatively stable, steep downward water level trend was established. After about sixty minutes, the downward trend of the of the water level began to slowly moderate, and continued to moderate until the conclusion of the pumping test.

The final water level in the well was 18.99m below grade. Final drawdown was 13.72m, which represents 79 percent of available drawdown (17.3m) in the well above the top of the well screen.

Following the conclusion of pumping, the water level rose to 5.88m below the original static water level (57% recovery) within 30 minutes of the conclusion of the pumping test, but recovered to 0.20m below the original static water level (98% recovery) after 848 minutes of recovery.

A total of about 5,040 litres of water were pumped from the well during the 6 hour pumping test. The Ontario Building Code recommends a design flow of 1,600L/day for a 3-bedroom home and 2,000L/day for a 4-bedroom home, and TW1 is more than capable of supplying these yields.

4.3 Interference Observations:

During the TW1 well testing program, water levels were observed on a regular basis in OW1 (MECP Well No. 57-7671), located approximately 200m southwest of TW1. OW1 is a 7.3m deep bored well, and is likely completed in the upper overburden aquifer, to a shallower depth than TW1. Attempts were made to obtain permission to observe other local wells completed in the same aquifer setting as TW1 (i.e. the intermediate-depth overburden aquifer), however only one other off-site well was made available for observation (due to other properties' access limitations, buried casings or inability to obtain observation permission) at 3978 Dunford Drive. This unrecorded drilled well was determined to have a static water level of 34m below grade and, based on other well record data in the vicinity, will be completed in the bedrock aquifer and was not observed as this well will be hydraulically isolated from TW1 by more than 40m of overburden deposits.

During the TW1 pumping test, the water level in OW1 lowered 0.06m by the conclusion of testing. OW1 was in occasional use, supplying the domestic requirements of the commercial office on the property immediately to the west. Figure 3 illustrates the water level observations at OW1. The observation data are included in the appendix.

There were no complaints of water level interference reported during the drilling program or the well testing period.

4.4 Well Testing Summary and Discussion:

The following provides a summary of the well testing results:

	Test Well 1
Date of Test	August 22, 2019
Static Water Level (m below grade)	5.27
Final Water Level Drawdown (m)	13.72
Final Pumping Water Level (m below grade)	18.99
Pumping Rate (L/min)	14
Duration	6 hours
Specific Capacity (L/min/m)	1.0
Available Drawdown Above Well Screen (m)	3.6
Percent Available Drawdown Used	79%
Coefficient of Transmissivity (m ² /day)	0.6
Safe Yield (L/min)	14L/min

- Notes:
1. The coefficient of transmissivity was calculated using the Cooper and Jacob modified non-equilibrium method using an assumed drawdown of 8.5m/log cycle for TW1 (based on an extrapolation of the drawdown trend between 7 and 20 minutes). A coefficient of storage was not determined as the minor water level change at OW1 was more likely a result of domestic withdrawals from OW1.

The above analysis indicates that TW1 is capable of supplying the normal domestic requirements of a 4-Bedroom home (2,000L/day, per Ontario Building Code), however MECP Procedure D-5-5 recommends that a water supply be capable of supplying 18.75L/min for a period of 120 minutes each day. In-line storage, such as an over-sized pressure tank, can be utilized to meet such peak demand if so required.

As discussed above, available information indicates that there are upwards of four aquifers (three overburden and one bedrock) present in the area, and TW1 has been completed in the intermediate-depth overburden aquifer. Based on known local conditions and the well record survey detailed in Section 3.0, it is anticipated that future on-site water wells will mainly be completed either in the intermediate or lower overburden aquifers, with a smaller number in the bedrock aquifer. As such, off-site interference potential and impact potential to each aquifer will be reduced.

4.5 Groundwater Quality:

Samples of water were collected from TW1 at the conclusion of the pumping test and were subjected to general chemistry and bacteriological analyses. The samples were collected in laboratory-supplied bottles, stored in ice-packed coolers and submitted to Bureau Veritas Laboratories for analysis under chain of custody.

The TW1 samples were reported to contain a Total Coliform count of 8CFU/100mL, no detectable E. Coli bacteria, and an acceptably low level of background bacteria (12 CFU/100mL). Low levels of Total Coliform bacteria in the water from newly-drilled water wells are not uncommon due to residual effects from the disruption of the drilling process, and in a properly-constructed well such as TW1, will diminish in a short period of time. Prior to placing TW1 into service and after duty pump installation, the well will be required to be re-disinfected. It is recommended that the well be re-sampled for bacteriological analysis after that time.

The water from TW1 was slightly alkaline with a pH value of 8.25. The water from TW1 is moderately hard, with a hardness value of 200mg/L as CaCO₃. The values are typical for groundwater in southern Ontario.

All chemical parameters determined were at acceptable levels under the current Ontario Drinking Water Quality Standards. Chemical parameters indicative of potential surface water influence (i.e. sodium, chloride, dissolved organic carbon, nitrite, nitrate) were all at non-detectable to low levels in the water from TW1.

A copy of the laboratory analytical results is included in the appendix.

5.0 SUBSURFACE ASSESSMENT

5.1 Test Pits:

To characterize soil and shallow groundwater conditions, six exploratory test pits were completed using excavating equipment within accessible portions of the subject lands on August 22, 2019. The test pits were completed to depths of 1.67 to 2.13m below grade. The soil profiles were logged and representative soil samples were collected for classification and further analysis. Figure 1 shows the approximate test pit locations.

Six representative soil samples were subjected to an analysis of grain size to provide estimates of soil permeability. The following summarizes the results of the analyses:

Sample	Depth (m)	Grain Size Distribution				Estimated Coefficient of Permeability (cm/sec)	Estimated T-time (minutes/cm)
		Clay %	Silt %	Sand %	Gravel %		
TP1 S1	0.5	3	23	69	5	1×10^{-4}	15
TP2 S2	1.2	15	46	35	4	8×10^{-6}	35
TP3 S3	0.5	3	8	89	0	2×10^{-3}	12
TP4 S4	1.2	15	44	41	0	1×10^{-5}	35
TP6 S5	0.5	11	27	62	0	1×10^{-5}	30

Note: The above coefficients of permeability and T-times are estimates based on field observation, grain-size analysis, experience with similar soils and guidelines published under the Ontario Building Code.

Copies of the grain-size curves and logs of the test pits are included in the appendix.

In summary, the upper native soil profile consists mainly of a fine sand to silty fine sand, which exhibits a percolation rate in the range of 12min/cm to 30min/cm, depending on silt content. The upper sand is underlain by a silt and sand with some clay glacial till which exhibits a percolation rate in the range of 35min/cm.

5.2 Watertable:

The following provides a summary of observed emergent groundwater and observed evidence of seasonally-elevated watertable conditions in the test pit soil profiles (i.e. soil discoloration and/or mottling):

	<u>Emergent Groundwater</u>	<u>Seasonal Watertable</u>
Test Pit 1	dry to 1.67m	None
Test Pit 2	dry to 1.83m	None
Test Pit 3	0.61m	0.61m
Test Pit 4	0.76m	0.76m
Test Pit 5	1.22m	1.22m
Test Pit 6	1.52m	1.52m

5.3 Preliminary Sewage System Design:

To support individual subsurface sewage disposal systems, the proposed lots must be physically large enough to allow the installation of sewage disposal systems under the current requirements of the Ontario Building Code. For a Class 4 subsurface sewage disposal system to operate effectively, the leaching bed must be located in soil with a percolation rate (T-time) of between 1 and 50 minutes per centimetre and the base of the absorption trenches must be situated at least 0.9m above the high ground water table, bedrock or a soil with a permeability of greater than 50 minutes per centimetre. To achieve a normal, in-ground installation, the high groundwater table, rock or soil with a permeability of greater than 50 min/cm must be situated at least 1.5 to 1.8 metres below grade.

In the western $\frac{1}{3}$ upland portion of the site, based on low watertable conditions, fully in-ground tile beds are considered viable. Over the remaining lower portions of the site, partially raised tile beds will be required due to observed emergent groundwater and evidence of seasonally elevated watertable conditions in the soil profile. In the central $\frac{1}{3}$ of the site, the bases of tile bed trenches should be set no lower than 0.29m above current grade. In the eastern $\frac{1}{3}$ of the site, the bases of tile bed trenches should be set no lower than 0.32m below current grade.

For preliminary site design purposes, a conservative soil T-time of 35min/cm is recommended, this based on the permeability of the underlying silt and sand glacial till.

Lot and sewage system envelope-specific test pits are recommended at sewage system/building permit stage, at the time of building permit application on each particular lot.

5.4 Sewage Impact Assessment:

Under the current Ministry of the Environment, Conservation and Parks (MECP) "Technical Guideline For Individual On-Site Sewage Systems : Water Quality Impact Risk Assessment" (Procedure D-5-4), each proposed development of five lots or greater utilizing individual on-site sewage systems requires an assessment of groundwater impact potential. The purpose of the assessment is to ensure that the discharge from the individual on-site sewage systems will have a minimal effect on groundwater and the present or potential use of adjacent properties. Following the determination of background shallow groundwater nitrate levels, the assessment involves a three-step process, with the need to advance to the next step dependant on the requirements of the previous step. Where the background nitrate content of shallow groundwater exceeds 10 mg/L, additional development cannot normally be supported.

The nitrate content of groundwater samples collected from TW1 was non-detectable.

Under Step 1 of the guideline, for developments where the lot size for each private residence within the development is one hectare or larger (with no lots being less than 0.8ha in area), the risk that the limits imposed by the guideline may be exceeded is

considered acceptable with no additional hydrogeologic assessment. As the proposed lots are less than 0.8ha in area, Step 1 of the guideline does not apply.

Step 2 of the guideline is applicable where groundwater resources can be confidently demonstrated to be hydraulically isolated from potential sewage pathways. As an upper overburden aquifer is present in the vicinity (but not recommended for potable groundwater purposes), Step 2 of the guideline does not apply.

Under Step 3 of the guideline, a mass-balance calculation is used to determine the minimum size of the proposed lots. Under the current MECP guideline only infiltrating precipitation and the volume of water contained in the sewage may be considered as dilutants for the nitrate contained in septic effluent. To establish the infiltration rate, the percentage of the local water surplus which may infiltrate is calculated using the Rational Method approach. According to the available information, the uppermost soil profile consists fine sand to silty fine sand (infiltration factor 30%), the overall relief is rolling to hilly (as defined by MECP) (infiltration factor 15%) and the cover will be a mix of cleared areas and woodland (infiltration factor 15%), all resulting in an infiltration factor of 60%. According to the 2015 Severn Sound Source Protection Area Approved Assessment Report, the water surplus for the North River sub-watershed is 405mm per year (978mm/year precipitation, 573mm/year actual evapotranspiration). As such, the annual infiltration rate will be 243mm (60% of 405mm), representing 25% of average annual precipitation in the sub-watershed (978mm/year). The infiltration rate is reduced by a factor of 10% over the entire property area to account for future impervious surfaces due to urbanization of the property, to 219mm/year. Based on a total site area of 12.2ha, annual infiltration will be 2.67×10^7 L/year.

The following mass-balance formula is used to calculate the impact of the proposed development under the MECP guideline:

$$Q_T C_T = Q_S C_S + Q_P C_P$$

Where:

- Q_T = Sum of Q_S and Q_P
- C_T = Maximum nitrate concentration (10mg/L)
- Q_S = Volume of sewage (1000 L/day/lot, per MECP guideline)
- C_S = Nitrate content of sewage (40 mg/L)
- Q_P = Infiltration (2.67×10^7 L/year)
- C_P = Nitrate content of shallow groundwater (effectively zero)

Therefore:

$$(Q_S + 2.67 \times 10^7 \text{ L/year}) \times 10 \text{ mg/L} = (Q_S \times 40 \text{ mg/L}) + (2.67 \times 10^7 \text{ L/year} \times 0 \text{ mg/L})$$

$$Q_S = 8.9 \times 10^6 \text{ L/year}$$

Based on the MECP-prescribed daily average sewage volume of 1,000L/day/lot (for the purposes of impact assessment), a total of 24.4 lots are supportable under the MECP guideline. As such, the current proposal for the development of 23 lots is considered acceptable under the criteria of MECP Procedure D-5-4.

The above assessment approach, conducted in accordance with MECP Guidelines, does not consider sewage dilution by groundwater flow-through nor does it consider denitrification processes in the subsurface. As such, the assessment will over-estimate the actual degree of groundwater impact of the proposed lots, this considered a safety factor.

6.0 CONCLUSIONS AND RECOMMENDATIONS

1. Based on regional hydrogeological information available for this assessment and local water well records, upwards of four regional overburden aquifers are likely present beneath the site and the likelihood of obtaining an adequate potable groundwater supply on the proposed subdivision is favourable.
2. The on-site test well, completed in the intermediate-depth overburden aquifer, has a safe yield of 14L/min, which exceeds MECP daily yield requirements for residential wells, and is suitable for domestic use. In-line storage (such as over-sized pressure tanks) may be required to meet peak water demand.
3. Regional hydrogeologic information indicates that the lower overburden and bedrock aquifers are also viable in the area. These deeper aquifers present alternative sources of potable groundwater for the on-site lots. Adequate water supplies can be obtained on each proposed lot from either of the intermediate or deep overburden aquifers or the bedrock aquifer.
4. Only drilled wells completed in accordance with Ontario Regulation 903 to either of the intermediate or deep overburden aquifers or the bedrock aquifer are recommended.
5. The bacteriological quality of water from properly constructed drilled wells will be acceptable. Due to low levels of Total Coliform bacteria in the water from newly-drilled TW1, prior to placing TW1 into service and after duty pump installation, the well will be required to be re-disinfected. It is recommended that the well be re-sampled for bacteriological analysis after that time.
6. The chemical quality of water from properly constructed drilled wells will be acceptable.
7. Based on an acceptable rate of recovery after testing, observed aquifer response during testing, and the likelihood that on-site wells will be divided between three aquifers, off-site interference potential is considered low. Widely-spaced drilled wells in normal domestic use represent an acceptable water supply with a low risk of disruptive water level interference.
8. Based on observed watertable conditions, in the western $\frac{1}{3}$ upland portion of the site, fully in-ground tile beds are considered viable. Over the remaining lower portions of the site, partially raised tile beds will be required due to observed emergent groundwater and evidence of seasonally elevated watertable

conditions in the soil profile. In the central $\frac{1}{3}$ of the site, the bases of tile bed trenches should be set no lower than 0.29m above current grade. In the eastern $\frac{1}{3}$ of the site, the bases of tile bed trenches should be set no lower than 0.32m below current grade.

9. For preliminary site design purposes, a conservative soil T-time of 35min/cm is recommended, this based on the permeability of the underlying silt and sand glacial till.
10. Lot and sewage system envelope-specific test pits are recommended at sewage system/building permit stage, at the time of building permit application on each particular lot.
11. Under MECP Procedure D-5-4, the impact of the currently proposed 23 lot subdivision will be acceptable using conventional subsurface sewage disposal systems.
12. From a groundwater supply and sewage disposal/impact perspectives, the proposed development of 23 single detached residential lots serviced by individual on-site wells and individual on-site sewage services, is considered appropriate, safe and viable subject to the conclusions, limitations and recommendations outlined in this report.

IAN D. WILSON ASSOCIATES LIMITED

Geoffrey Rether, B.Sc., P. Geo.

November 1, 2019



FIGURES AND APPENDIX



MARTINDALE DR.

DIVISION ROAD WEST

DUNFORD DR.

APPROXIMATE LOCATIONS OF TW1, OW1 AND TEST PITS
 SOUTH SHORE CADEN ESTATES INC. SUBDIVISION
 MARCHMONT, ON

SCALE 1:2,260 (approx.)

FIGURE 1

South Shore Caden Estates Inc. - TW1 Pumping Test

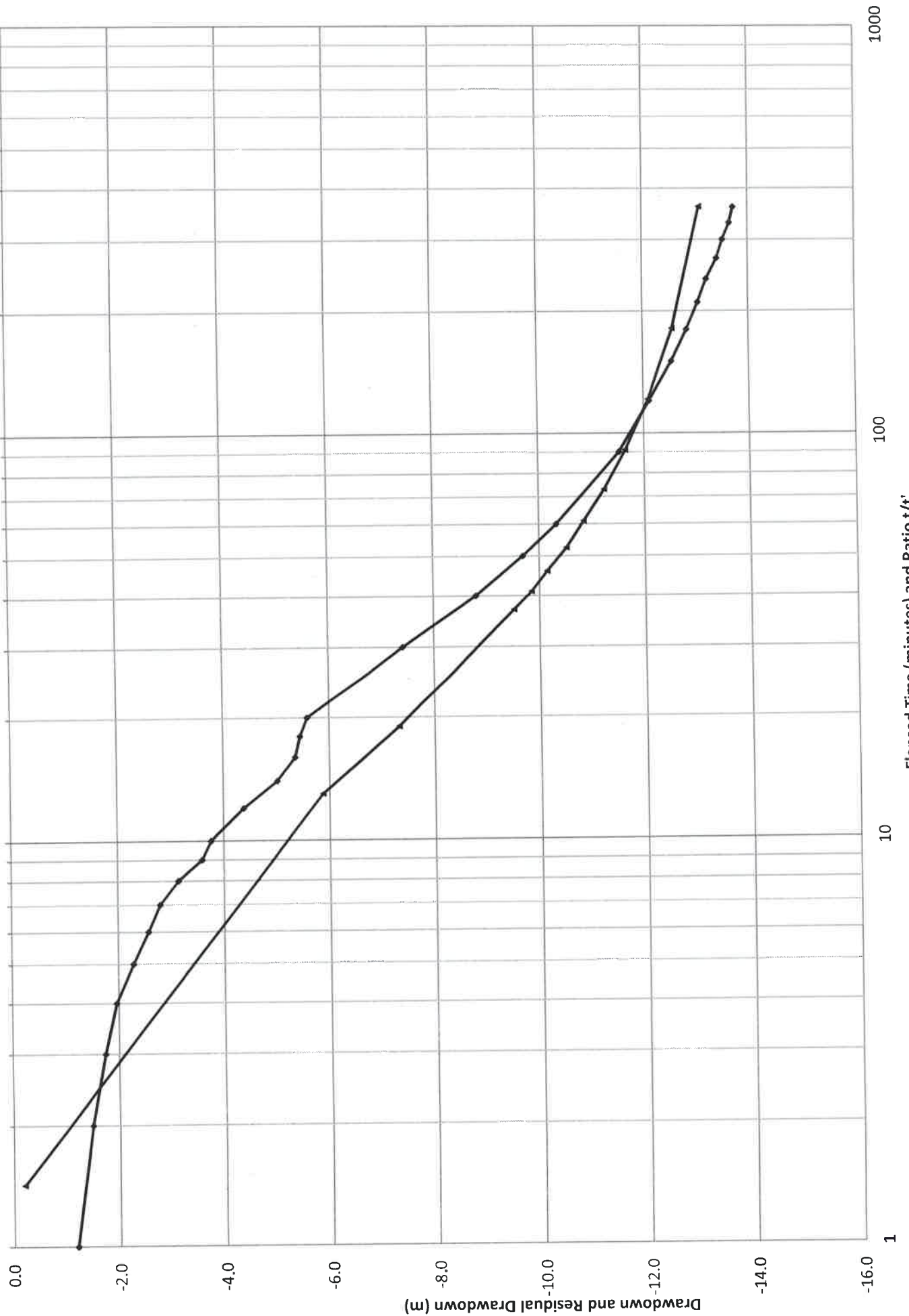


Figure 2

South Shore Caden Estates Inc. - OW1 Observations During TW1 Pumping Test

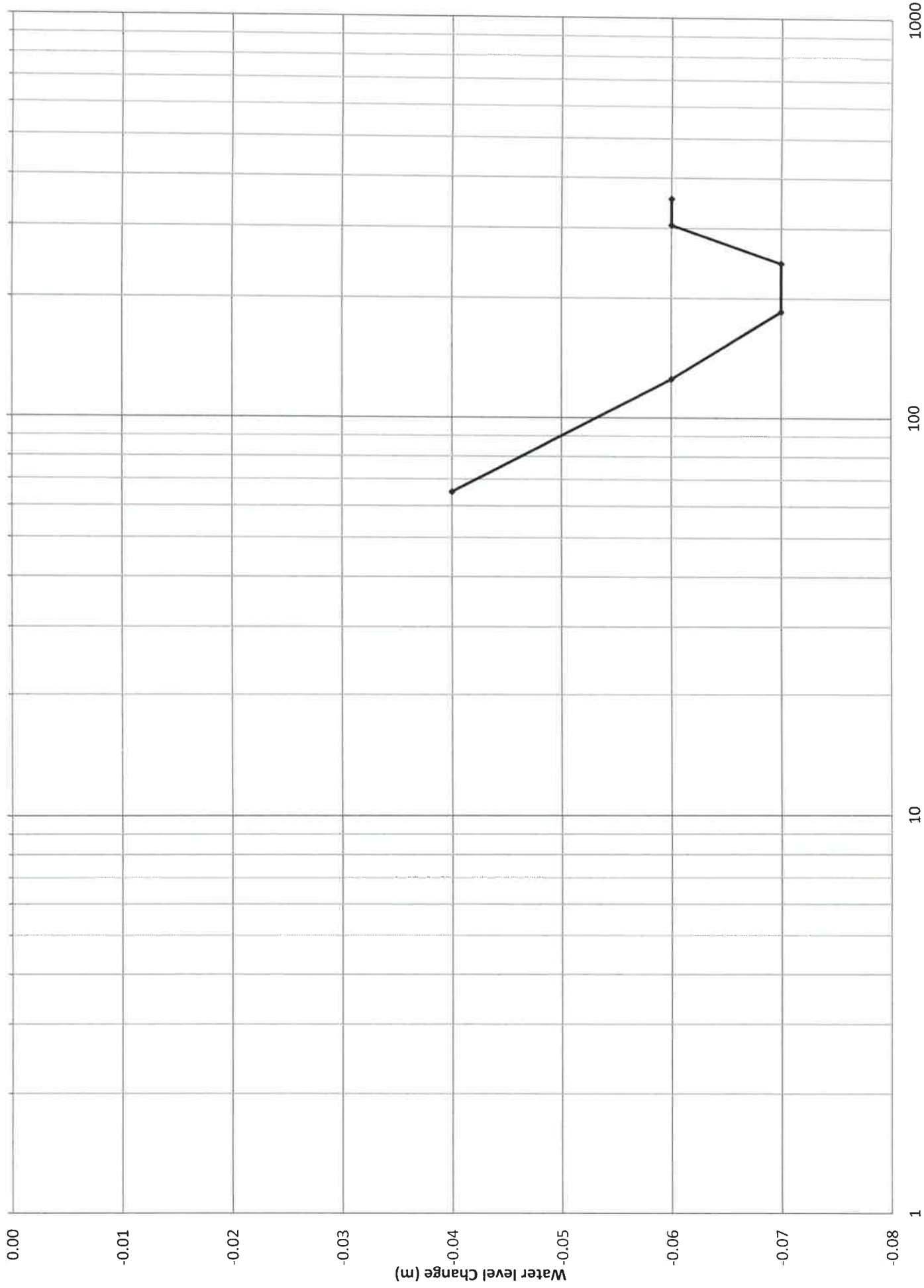


Figure 3

Pumping Test Data
South Shore Caden Estates Inc.
TW1

Date of Test: 22-Aug-19
 Static Water Level: 6.61m below top of casing
 Measuring Point Elevation: 1.34m above grade
 Pumping Rate: 14L/min

Note: * Recovery shown as ratio t/t'

Elapsed Time (min.)*	Recovery Elapsed Time (min.)	Pumping Water Level (m btoc)	Water Level Drawdown (m)	Recovery Water Level (m btoc)	Residual Drawdown (m)
0		6.61	0.00		
1		7.80	-1.19		
2		8.10	-1.49		
3		8.35	-1.74		
4		8.57	-1.96		
5		8.89	-2.28		
6		9.18	-2.57		
7		9.40	-2.79		
8		9.75	-3.14		
9		10.20	-3.59		
10		10.37	-3.76		
12		10.99	-4.38		
14		11.63	-5.02		
16		11.97	-5.36		
18		12.06	-5.45		
20		12.20	-5.59		
30		14.02	-7.41		
40		15.41	-8.80		
50		16.30	-9.69		
60		16.94	-10.33		
90		18.14	-11.53		
120		18.72	-12.11		
150		19.15	-12.54		
180		19.44	-12.83		
210		19.66	-13.05		
240		19.82	-13.21		
270		20.02	-13.41		
300		20.13	-13.52		
330		20.26	-13.65		
360		20.33	-13.72		
361	1			19.69	-13.08
181	2			19.17	-12.56
121	3			18.70	-12.09
91	4			18.26	-11.65

73	5			17.85	-11.24
61	6			17.46	-10.85
52.4	7			17.13	-10.52
46	8			16.76	-10.15
41	9			16.46	-9.85
37	10			16.13	-9.52
19	20			13.94	-7.33
13	30			12.49	-5.88
1.4	848			6.81	-0.20

Observation Well Data
South Shore Caden Estates inc.

OW1 Water Levels During TW1 Pumping Test

Elapsed Time (min.)	Water Level (m btoc)	Water Level Change (m)
-20	1.44	0.00
65	1.48	-0.04
125	1.50	-0.06
185	1.51	-0.07
245	1.51	-0.07
305	1.50	-0.06
355	1.50	-0.06

TEST PIT LOGS

Completed August 22, 2019

Test Pit 1

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.31	dark brown TOPSOIL
0.31 - 0.58	red-brown, lightly compact, dry silty fine SAND with traces of clay and gravel (estimated percolation rate 15 min/cm)
0.58 - 1.67	grey-brown, compact, dry sandy SILT and SAND till with some clay and traces of gravel, stony (estimated percolation rate 35 min/cm)

- No emergent groundwater or soil mottling.
 - Sample 1 - 0.5m
 - Clay = 3%
 - Silt = 23%
 - Sand = 69%
 - Gravel = 5%
-

Test Pit 2

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.31	dark brown TOPSOIL
0.31 - 0.64	red-brown, lightly compact, dry silty fine SAND with traces of clay and gravel (estimated percolation rate 15 min/cm)
0.64 - 1.82	grey-brown, compact, dry sandy SILT and SAND till with some clay and traces of gravel, stony (estimated percolation rate 35 min/cm)

- No emergent groundwater or soil mottling.
 - Sample 2 - 1.2m
 - Clay = 15%
 - Silt = 46%
 - Sand = 35%
 - Gravel = 4%
-

Test Pit 3

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.31	dark brown TOPSOIL
0.31 - 0.89	red-brown, lightly compact, dry to wet fine SAND with traces of silt and clay (estimated percolation rate 12 min/cm)
0.89 - 1.98	grey-brown, compact, wet sandy SILT and SAND till with some clay, stony (estimated percolation rate 35 min/cm)

- Emergent groundwater and soil mottling below 0.61m.
- Sample 3 - 0.5m
 - Clay = 3%
 - Silt = 8%
 - Sand = 89%
 - Gravel = 0%

TEST PIT LOGS**Completed August 22, 2019****Test Pit 4**

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.25	dark brown TOPSOIL
0.25 - 0.81	red-brown, lightly compact, dry to wet fine SAND with traces of silt and clay (estimated percolation rate 12 min/cm)
0.81 - 1.82	grey-brown, compact, wet sandy SILT and SAND till with some clay, stony (estimated percolation rate 35 min/cm)

- Emergent groundwater and soil mottling below 0.76m.
 - Sample 4 - 1.2m
 - Clay = 15%
 - Silt = 44%
 - Sand = 41%
 - Gravel = 0%
-

Test Pit 5

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.35	dark brown TOPSOIL
0.35 - 1.42	red-brown, lightly compact, dry to wet silty fine SAND with some clay (estimated percolation rate 30 min/cm)
1.42 - 2.13	grey-brown, compact, wet sandy SILT and SAND till with some clay, stony (estimated percolation rate 35 min/cm)

- Emergent groundwater and soil mottling below 1.22m.
-

Test Pit 6

<u>Depth (m)</u>	<u>Materials</u>
0 - 0.25	dark brown TOPSOIL
0.25 - 0.78	red-brown, lightly compact, dry silty fine SAND with some clay (estimated percolation rate 30 min/cm)
0.78 - 1.82	grey-brown, compact, dry to wet sandy SILT and SAND till with some clay, stony (estimated percolation rate 35 min/cm)

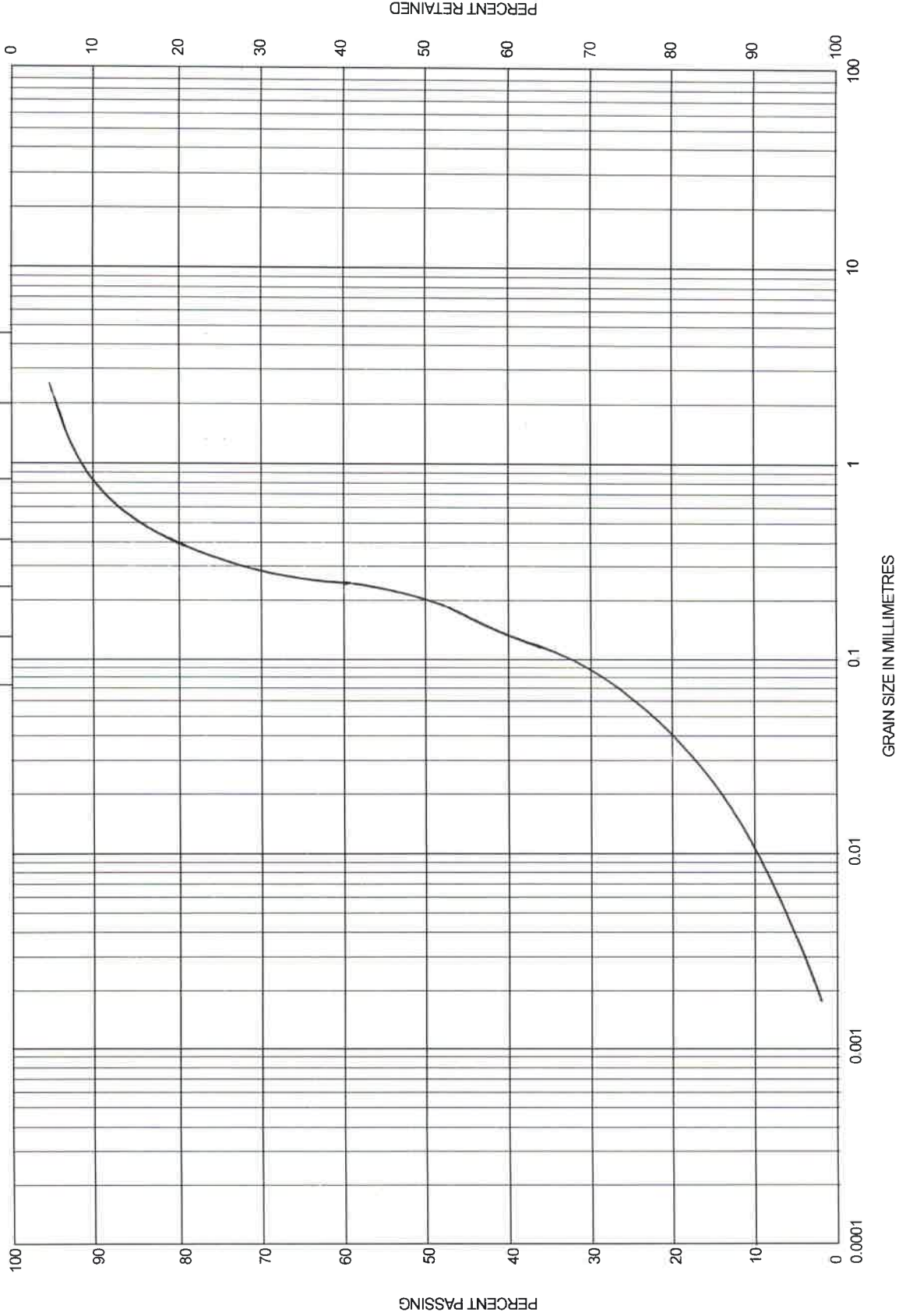
- Emergent groundwater and soil mottling below 1.52m.
- Sample 5 - 0.5m
 - Clay = 11%
 - Silt = 27%
 - Sand = 62%
 - Gravel = 0%

GRAIN SIZE DISTRIBUTION CHART

PROJECT / SAMPLE South Shore Caden Estates Inc. - Test Pit 1, Sample 1


 HYDROMETER ANALYSIS

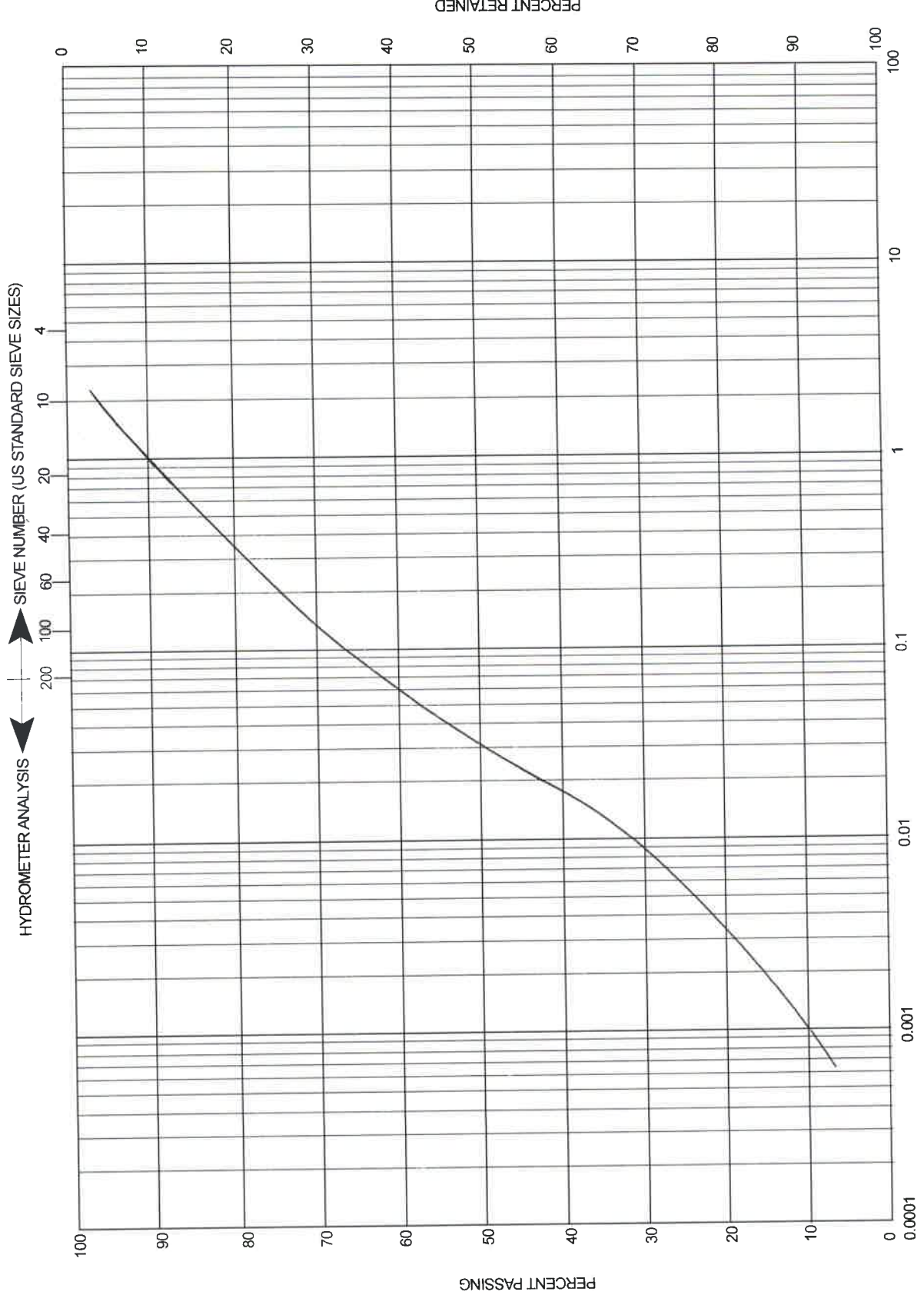

 SIEVE NUMBER (US STANDARD SIEVE SIZES)



CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
0.002	0.075	0.075 - 4.75	4.75 - 75	75 - 200

GRAIN SIZE DISTRIBUTION CHART

PROJECT / SAMPLE **South Shore Caden Estates Inc. - Test Pit 2, Sample 2**



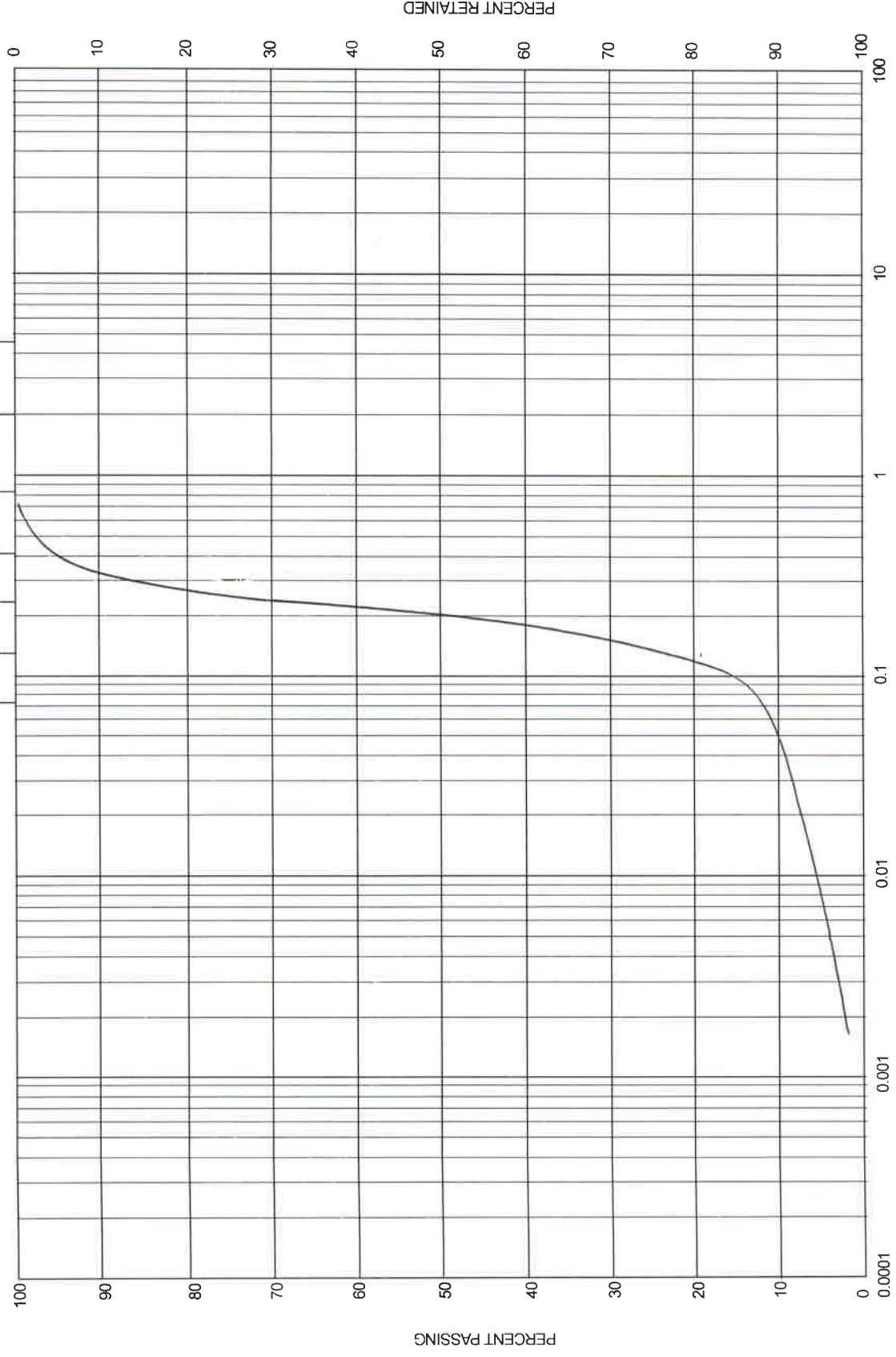
CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE
COBBLE SIZE			

GRAIN SIZE DISTRIBUTION CHART

PROJECT / SAMPLE South Shore Caden Estates Inc. - Test Pit 3, Sample 3


 HYDROMETER ANALYSIS


 SIEVE NUMBER (US STANDARD SIEVE SIZES)

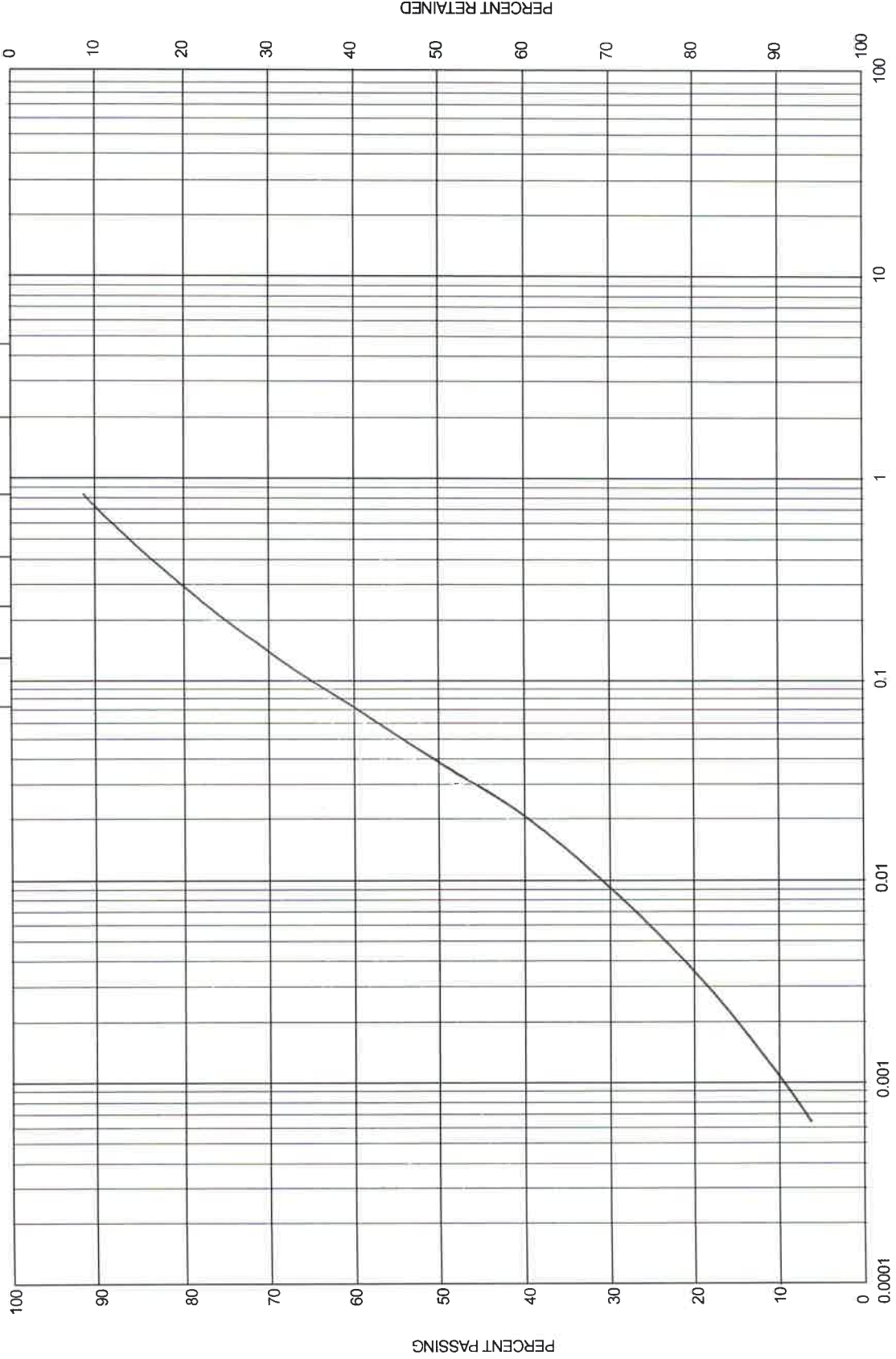


CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
-----------	-----------	-----------	-------------	-------------

GRAIN SIZE DISTRIBUTION CHART

PROJECT / SAMPLE South Shore Caden Estates Inc. - Test Pit 4, Sample 4

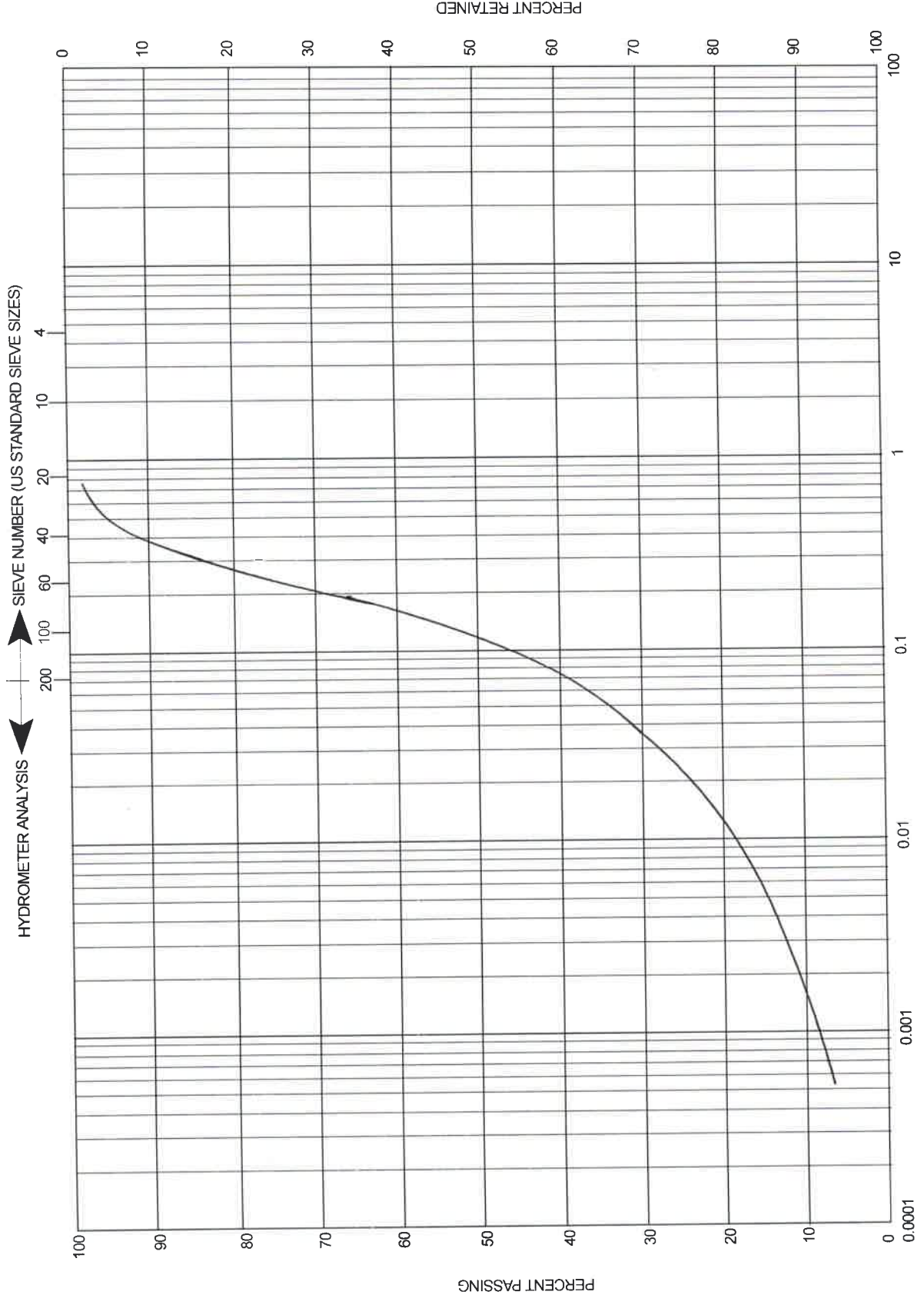
HYDROMETER ANALYSIS ← | → SIEVE NUMBER (US STANDARD SIEVE SIZES)



CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
-----------	-----------	-----------	-------------	-------------

GRAIN SIZE DISTRIBUTION CHART

PROJECT / SAMPLE South Shore Caden Estates Inc. - Test Pit 6, Sample 5



CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
-----------	-----------	-----------	-------------	-------------



Site Location: MARCHMONT

Your C.O.C. #: n/a

Attention: Geoff Rether

Ian D Wilson Associates Ltd
PO Box 299
76722 Airport Rd
Clinton, ON
CANADA NOM 1LO

Report Date: 2019/08/28

Report #: R5857619

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9N5854

Received: 2019/08/23, 10:37

Sample Matrix: Water

Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Reference
Alkalinity	1	N/A	2019/08/27	CAM SOP-00448	SM 23 2320 B m
Carbonate, Bicarbonate and Hydroxide	1	N/A	2019/08/27	CAM SOP-00102	APHA 4500-CO2 D
Chloride by Automated Colourimetry	1	N/A	2019/08/27	CAM SOP-00463	SM 4500-Cl E m
Colour	1	N/A	2019/08/26	CAM SOP-00412	SM 23 2120C m
Conductivity	1	N/A	2019/08/27	CAM SOP-00414	SM 23 2510 m
Dissolved Organic Carbon (DOC) (1)	1	N/A	2019/08/26	CAM SOP-00446	SM 23 5310 B m
Hardness (calculated as CaCO3)	1	N/A	2019/08/26	CAM SOP 00102/00408/00447	SM 2340 B
Lab Filtered Metals by ICPMS	1	2019/08/24	2019/08/26	CAM SOP-00447	EPA 6020B m
Ion Balance (% Difference)	1	N/A	2019/08/28		
Anion and Cation Sum	1	N/A	2019/08/27		
Total Coliforms/ E. coli, CFU/100mL	1	N/A	2019/08/23	CAM SOP-00551	MOE E3407
Total Ammonia-N	1	N/A	2019/08/27	CAM SOP-00441	USGS I-2522-90 m
Nitrate (NO3) and Nitrite (NO2) in Water (2)	1	N/A	2019/08/26	CAM SOP-00440	SM 23 4500-NO3I/NO2B
pH	1	2019/08/24	2019/08/27	CAM SOP-00413	SM 4500H+ B m
Orthophosphate	1	N/A	2019/08/26	CAM SOP-00461	EPA 365.1 m
Sat. pH and Langelier Index (@ 20C)	1	N/A	2019/08/28		
Sat. pH and Langelier Index (@ 4C)	1	N/A	2019/08/28		
Sulphate by Automated Colourimetry	1	N/A	2019/08/26	CAM SOP-00464	EPA 375.4 m
Total Dissolved Solids (TDS calc)	1	N/A	2019/08/28		
Turbidity	1	N/A	2019/08/26	CAM SOP-00417	SM 23 2130 B m

Remarks:

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

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Site Location: MARCHMONT
Your C.O.C. #: n/a

Attention: Geoff Rether

Ian D Wilson Associates Ltd
PO Box 299
76722 Airport Rd
Clinton, ON
CANADA N0M 1L0

Report Date: 2019/08/28
Report #: R5857619
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: B9N5854

Received: 2019/08/23, 10:37

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

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

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

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

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

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

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

Encryption Key



Bureau Veritas Laboratories

28 Aug 2019 11:54:07

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ashton Gibson, Project Manager

Email: Ashton.Gibson@bvlabs.com

Phone# (905)817-5765

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BUREAU VERITAS

BV Labs Job #: B9N5854
Report Date: 2019/08/28

Ian D Wilson Associates Ltd
Site Location: MARCHMONT
Sampler Initials: GR

RCAP - COMPREHENSIVE (LAB FILTERED)

BV Labs ID		KPH840		
Sampling Date		2019/08/22 17:15		
COC Number		n/a		
	UNITS	MM-TW1	RDL	QC Batch
Calculated Parameters				
Anion Sum	me/L	4.29	N/A	6296820
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	180	1.0	6296108
Calculated TDS	mg/L	230	1.0	6296824
Carb. Alkalinity (calc. as CaCO3)	mg/L	2.9	1.0	6296108
Cation Sum	me/L	4.38	N/A	6296820
Hardness (CaCO3)	mg/L	200	1.0	6297104
Ion Balance (% Difference)	%	1.01	N/A	6296110
Langelier Index (@ 20C)	N/A	0.690		6296821
Langelier Index (@ 4C)	N/A	0.441		6296822
Saturation pH (@ 20C)	N/A	7.56		6296821
Saturation pH (@ 4C)	N/A	7.80		6296822
Inorganics				
Total Ammonia-N	mg/L	ND	0.050	6300237
Conductivity	umho/cm	390	1.0	6298360
Dissolved Organic Carbon	mg/L	ND	0.50	6298352
Orthophosphate (P)	mg/L	ND	0.010	6298604
pH	pH	8.25		6298361
Dissolved Sulphate (SO4)	mg/L	21	1.0	6298603
Alkalinity (Total as CaCO3)	mg/L	180	1.0	6298358
Dissolved Chloride (Cl-)	mg/L	8.4	1.0	6298602
Nitrite (N)	mg/L	ND	0.010	6298353
Nitrate (N)	mg/L	ND	0.10	6298353
Metals				
Dissolved Aluminum (Al)	ug/L	ND	5.0	6296955
Dissolved Antimony (Sb)	ug/L	ND	0.50	6296955
Dissolved Arsenic (As)	ug/L	ND	1.0	6296955
Dissolved Barium (Ba)	ug/L	120	2.0	6296955
Dissolved Beryllium (Be)	ug/L	ND	0.50	6296955
Dissolved Boron (B)	ug/L	14	10	6296955
Dissolved Cadmium (Cd)	ug/L	ND	0.10	6296955
Dissolved Calcium (Ca)	ug/L	38000	200	6296955
Dissolved Chromium (Cr)	ug/L	ND	5.0	6296955
Dissolved Cobalt (Co)	ug/L	ND	0.50	6296955
RDL = Reportable Detection Limit QC Batch = Quality Control Batch N/A = Not Applicable ND = Not detected				



BUREAU
VERITAS

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RCAP - COMPREHENSIVE (LAB FILTERED)

BV Labs ID		KPH840		
Sampling Date		2019/08/22 17:15		
COC Number		n/a		
	UNITS	MM-TW1	RDL	QC Batch
Dissolved Copper (Cu)	ug/L	ND	1.0	6296955
Dissolved Iron (Fe)	ug/L	ND	100	6296955
Dissolved Lead (Pb)	ug/L	ND	0.50	6296955
Dissolved Magnesium (Mg)	ug/L	25000	50	6296955
Dissolved Manganese (Mn)	ug/L	16	2.0	6296955
Dissolved Molybdenum (Mo)	ug/L	1.0	0.50	6296955
Dissolved Nickel (Ni)	ug/L	ND	1.0	6296955
Dissolved Phosphorus (P)	ug/L	ND	100	6296955
Dissolved Potassium (K)	ug/L	1400	200	6296955
Dissolved Selenium (Se)	ug/L	ND	2.0	6296955
Dissolved Silicon (Si)	ug/L	7900	50	6296955
Dissolved Silver (Ag)	ug/L	ND	0.10	6296955
Dissolved Sodium (Na)	ug/L	9000	100	6296955
Dissolved Strontium (Sr)	ug/L	450	1.0	6296955
Dissolved Thallium (Tl)	ug/L	ND	0.050	6296955
Dissolved Titanium (Ti)	ug/L	ND	5.0	6296955
Dissolved Uranium (U)	ug/L	2.6	0.10	6296955
Dissolved Vanadium (V)	ug/L	ND	0.50	6296955
Dissolved Zinc (Zn)	ug/L	ND	5.0	6296955
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected				



BV Labs Job #: B9N5854
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Ian D Wilson Associates Ltd
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RESULTS OF ANALYSES OF WATER

BV Labs ID		KPH840		
Sampling Date		2019/08/22 17:15		
COC Number		n/a		
	UNITS	MM-TW1	RDL	QC Batch
Inorganics				
Colour	TCU	ND	2	6298401
Turbidity	NTU	1.8	0.1	6298417
RDL = Reportable Detection Limit QC Batch = Quality Control Batch ND = Not detected				



**BUREAU
VERITAS**

BV Labs Job #: B9N5854
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Sampler Initials: GR

MICROBIOLOGY (WATER)

BV Labs ID		KPH840	
Sampling Date		2019/08/22 17:15	
COC Number		n/a	
	UNITS	MM-TW1	QC Batch
Microbiological			
Background	CFU/100mL	12	6298046
Total Coliforms	CFU/100mL	8	6298046
Escherichia coli	CFU/100mL	0	6298046
QC Batch = Quality Control Batch			



BV Labs Job #: B9N5854
 Report Date: 2019/08/28

Ian D Wilson Associates Ltd
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TEST SUMMARY

BV Labs ID: KPH840
Sample ID: MM-TW1
Matrix: Water

Collected: 2019/08/22
Shipped:
Received: 2019/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Alkalinity	AT	6298358	N/A	2019/08/27	Surinder Rai
Carbonate, Bicarbonate and Hydroxide	CALC	6296108	N/A	2019/08/27	Automated Statchk
Chloride by Automated Colourimetry	KONE	6298602	N/A	2019/08/27	Deonarine Ramnarine
Colour	SPEC	6298401	N/A	2019/08/26	Christine Pham
Conductivity	AT	6298360	N/A	2019/08/27	Surinder Rai
Dissolved Organic Carbon (DOC)	TOCV/NDIR	6298352	N/A	2019/08/26	Mandeep Kaur
Hardness (calculated as CaCO3)		6297104	N/A	2019/08/26	Automated Statchk
Lab Filtered Metals by ICPMS	ICP/MS	6296955	2019/08/24	2019/08/26	John Bowman
Ion Balance (% Difference)	CALC	6296110	N/A	2019/08/28	Automated Statchk
Anion and Cation Sum	CALC	6296820	N/A	2019/08/27	Automated Statchk
Total Coliforms/ E. coli, CFU/100mL	PL	6298046	N/A	2019/08/23	Farhana Rahman
Total Ammonia-N	LACH/NH4	6300237	N/A	2019/08/27	Mazin Wakai
Nitrate (NO3) and Nitrite (NO2) in Water	LACH	6298353	N/A	2019/08/26	Amanpreet Sappal
pH	AT	6298361	2019/08/24	2019/08/27	Surinder Rai
Orthophosphate	KONE	6298604	N/A	2019/08/26	Alina Dobreanu
Sat. pH and Langelier Index (@ 20C)	CALC	6296821	N/A	2019/08/28	Automated Statchk
Sat. pH and Langelier Index (@ 4C)	CALC	6296822	N/A	2019/08/28	Automated Statchk
Sulphate by Automated Colourimetry	KONE	6298603	N/A	2019/08/26	Alina Dobreanu
Total Dissolved Solids (TDS calc)	CALC	6296824	N/A	2019/08/28	Automated Statchk
Turbidity	AT	6298417	N/A	2019/08/26	Kazzandra Adeva



**BUREAU
VERITAS**

BV Labs Job #: B9N5854
Report Date: 2019/08/28

Ian D Wilson Associates Ltd
Site Location: MARCHMONT
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GENERAL COMMENTS

Results relate only to the items tested.



BV Labs Job #: B9N5854
 Report Date: 2019/08/28

Ian D Wilson Associates Ltd
 Site Location: MARCHMONT
 Sampler Initials: GR

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6296955	JBW	Matrix Spike	Dissolved Aluminum (Al)	2019/08/26		99	%	80 - 120
			Dissolved Antimony (Sb)	2019/08/26		104	%	80 - 120
			Dissolved Arsenic (As)	2019/08/26		99	%	80 - 120
			Dissolved Barium (Ba)	2019/08/26		96	%	80 - 120
			Dissolved Beryllium (Be)	2019/08/26		102	%	80 - 120
			Dissolved Boron (B)	2019/08/26		95	%	80 - 120
			Dissolved Cadmium (Cd)	2019/08/26		102	%	80 - 120
			Dissolved Calcium (Ca)	2019/08/26		NC	%	80 - 120
			Dissolved Chromium (Cr)	2019/08/26		94	%	80 - 120
			Dissolved Cobalt (Co)	2019/08/26		96	%	80 - 120
			Dissolved Copper (Cu)	2019/08/26		100	%	80 - 120
			Dissolved Iron (Fe)	2019/08/26		100	%	80 - 120
			Dissolved Lead (Pb)	2019/08/26		98	%	80 - 120
			Dissolved Magnesium (Mg)	2019/08/26		NC	%	80 - 120
			Dissolved Manganese (Mn)	2019/08/26		100	%	80 - 120
			Dissolved Molybdenum (Mo)	2019/08/26		102	%	80 - 120
			Dissolved Nickel (Ni)	2019/08/26		95	%	80 - 120
			Dissolved Phosphorus (P)	2019/08/26		106	%	80 - 120
			Dissolved Potassium (K)	2019/08/26		100	%	80 - 120
			Dissolved Selenium (Se)	2019/08/26		99	%	80 - 120
			Dissolved Silicon (Si)	2019/08/26		94	%	80 - 120
			Dissolved Silver (Ag)	2019/08/26		91	%	80 - 120
			Dissolved Sodium (Na)	2019/08/26		NC	%	80 - 120
			Dissolved Strontium (Sr)	2019/08/26		NC	%	80 - 120
			Dissolved Thallium (Tl)	2019/08/26		100	%	80 - 120
			Dissolved Titanium (Ti)	2019/08/26		99	%	80 - 120
			Dissolved Uranium (U)	2019/08/26		95	%	80 - 120
			Dissolved Vanadium (V)	2019/08/26		99	%	80 - 120
Dissolved Zinc (Zn)	2019/08/26		99	%	80 - 120			
6296955	JBW	Spiked Blank	Dissolved Aluminum (Al)	2019/08/26		103	%	80 - 120
			Dissolved Antimony (Sb)	2019/08/26		103	%	80 - 120
			Dissolved Arsenic (As)	2019/08/26		102	%	80 - 120
			Dissolved Barium (Ba)	2019/08/26		101	%	80 - 120
			Dissolved Beryllium (Be)	2019/08/26		103	%	80 - 120
			Dissolved Boron (B)	2019/08/26		99	%	80 - 120
			Dissolved Cadmium (Cd)	2019/08/26		103	%	80 - 120
			Dissolved Calcium (Ca)	2019/08/26		102	%	80 - 120
			Dissolved Chromium (Cr)	2019/08/26		100	%	80 - 120
			Dissolved Cobalt (Co)	2019/08/26		101	%	80 - 120
			Dissolved Copper (Cu)	2019/08/26		103	%	80 - 120
			Dissolved Iron (Fe)	2019/08/26		103	%	80 - 120
			Dissolved Lead (Pb)	2019/08/26		99	%	80 - 120
			Dissolved Magnesium (Mg)	2019/08/26		102	%	80 - 120
			Dissolved Manganese (Mn)	2019/08/26		102	%	80 - 120
			Dissolved Molybdenum (Mo)	2019/08/26		105	%	80 - 120
			Dissolved Nickel (Ni)	2019/08/26		100	%	80 - 120
			Dissolved Phosphorus (P)	2019/08/26		115	%	80 - 120
			Dissolved Potassium (K)	2019/08/26		102	%	80 - 120
			Dissolved Selenium (Se)	2019/08/26		101	%	80 - 120
			Dissolved Silicon (Si)	2019/08/26		103	%	80 - 120
			Dissolved Silver (Ag)	2019/08/26		100	%	80 - 120
			Dissolved Sodium (Na)	2019/08/26		97	%	80 - 120



BUREAU
VERITAS

BV Labs Job #: B9N5854
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Ian D Wilson Associates Ltd
Site Location: MARCHMONT
Sampler Initials: GR

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits	
6296955	JBW	Method Blank	Dissolved Strontium (Sr)	2019/08/26		101	%	80 - 120	
			Dissolved Thallium (Tl)	2019/08/26		101	%	80 - 120	
			Dissolved Titanium (Ti)	2019/08/26		103	%	80 - 120	
			Dissolved Uranium (U)	2019/08/26		99	%	80 - 120	
			Dissolved Vanadium (V)	2019/08/26		100	%	80 - 120	
			Dissolved Zinc (Zn)	2019/08/26		104	%	80 - 120	
			Dissolved Aluminum (Al)	2019/08/26		ND, RDL=5.0		ug/L	
			Dissolved Antimony (Sb)	2019/08/26		ND, RDL=0.50		ug/L	
			Dissolved Arsenic (As)	2019/08/26		ND, RDL=1.0		ug/L	
			Dissolved Barium (Ba)	2019/08/26		ND, RDL=2.0		ug/L	
			Dissolved Beryllium (Be)	2019/08/26		ND, RDL=0.50		ug/L	
			Dissolved Boron (B)	2019/08/26		ND, RDL=10		ug/L	
			Dissolved Cadmium (Cd)	2019/08/26		ND, RDL=0.10		ug/L	
			Dissolved Calcium (Ca)	2019/08/26		ND, RDL=200		ug/L	
			Dissolved Chromium (Cr)	2019/08/26		ND, RDL=5.0		ug/L	
			Dissolved Cobalt (Co)	2019/08/26		ND, RDL=0.50		ug/L	
			Dissolved Copper (Cu)	2019/08/26		ND, RDL=1.0		ug/L	
			Dissolved Iron (Fe)	2019/08/26		ND, RDL=100		ug/L	
			Dissolved Lead (Pb)	2019/08/26		ND, RDL=0.50		ug/L	
			Dissolved Magnesium (Mg)	2019/08/26		ND, RDL=50		ug/L	
			Dissolved Manganese (Mn)	2019/08/26		ND, RDL=2.0		ug/L	
			Dissolved Molybdenum (Mo)	2019/08/26		ND, RDL=0.50		ug/L	
			Dissolved Nickel (Ni)	2019/08/26		ND, RDL=1.0		ug/L	
			Dissolved Phosphorus (P)	2019/08/26		ND, RDL=100		ug/L	
			Dissolved Potassium (K)	2019/08/26		ND, RDL=200		ug/L	
			Dissolved Selenium (Se)	2019/08/26		ND, RDL=2.0		ug/L	
			Dissolved Silicon (Si)	2019/08/26		ND, RDL=50		ug/L	
			Dissolved Silver (Ag)	2019/08/26		ND, RDL=0.10		ug/L	
			Dissolved Sodium (Na)	2019/08/26		ND, RDL=100		ug/L	



BUREAU VERITAS

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
			Dissolved Strontium (Sr)	2019/08/26	ND, RDL=1.0		ug/L	
			Dissolved Thallium (Tl)	2019/08/26	ND, RDL=0.050		ug/L	
			Dissolved Titanium (Ti)	2019/08/26	ND, RDL=5.0		ug/L	
			Dissolved Uranium (U)	2019/08/26	ND, RDL=0.10		ug/L	
			Dissolved Vanadium (V)	2019/08/26	ND, RDL=0.50		ug/L	
			Dissolved Zinc (Zn)	2019/08/26	ND, RDL=5.0		ug/L	
6296955	JBW	RPD	Dissolved Antimony (Sb)	2019/08/26	NC		%	20
			Dissolved Arsenic (As)	2019/08/26	NC		%	20
			Dissolved Barium (Ba)	2019/08/26	1.8		%	20
			Dissolved Beryllium (Be)	2019/08/26	NC		%	20
			Dissolved Boron (B)	2019/08/26	0.66		%	20
			Dissolved Cadmium (Cd)	2019/08/26	NC		%	20
			Dissolved Chromium (Cr)	2019/08/26	NC		%	20
			Dissolved Cobalt (Co)	2019/08/26	1.7		%	20
			Dissolved Copper (Cu)	2019/08/26	NC		%	20
			Dissolved Lead (Pb)	2019/08/26	NC		%	20
			Dissolved Molybdenum (Mo)	2019/08/26	4.0		%	20
			Dissolved Nickel (Ni)	2019/08/26	7.2		%	20
			Dissolved Selenium (Se)	2019/08/26	NC		%	20
			Dissolved Silver (Ag)	2019/08/26	NC		%	20
			Dissolved Sodium (Na)	2019/08/26	2.1		%	20
			Dissolved Thallium (Tl)	2019/08/26	NC		%	20
			Dissolved Uranium (U)	2019/08/26	1.3		%	20
			Dissolved Vanadium (V)	2019/08/26	NC		%	20
			Dissolved Zinc (Zn)	2019/08/26	NC		%	20
6298352	KRM	Matrix Spike	Dissolved Organic Carbon	2019/08/26		91	%	80 - 120
6298352	KRM	Spiked Blank	Dissolved Organic Carbon	2019/08/26		98	%	80 - 120
6298352	KRM	Method Blank	Dissolved Organic Carbon	2019/08/26	ND, RDL=0.50		mg/L	
6298352	KRM	RPD	Dissolved Organic Carbon	2019/08/26	0.81		%	20
6298353	ASP	Matrix Spike	Nitrite (N)	2019/08/26		103	%	80 - 120
			Nitrate (N)	2019/08/26		99	%	80 - 120
6298353	ASP	Spiked Blank	Nitrite (N)	2019/08/26		104	%	80 - 120
			Nitrate (N)	2019/08/26		101	%	80 - 120
6298353	ASP	Method Blank	Nitrite (N)	2019/08/26	ND, RDL=0.010		mg/L	
			Nitrate (N)	2019/08/26	ND, RDL=0.10		mg/L	
6298353	ASP	RPD	Nitrite (N)	2019/08/26	NC		%	20
			Nitrate (N)	2019/08/26	0.0066		%	20
6298358	SAU	Spiked Blank	Alkalinity (Total as CaCO3)	2019/08/26		95	%	85 - 115
6298358	SAU	Method Blank	Alkalinity (Total as CaCO3)	2019/08/26	ND, RDL=1.0		mg/L	
6298358	SAU	RPD	Alkalinity (Total as CaCO3)	2019/08/26	1.7		%	20
6298360	SAU	Spiked Blank	Conductivity	2019/08/26		101	%	85 - 115
6298360	SAU	Method Blank	Conductivity	2019/08/26	ND, RDL=1.0		umho/cm	



BUREAU VERITAS

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QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
6298360	SAU	RPD	Conductivity	2019/08/26	0.96		%	25
6298361	SAU	Spiked Blank	pH	2019/08/26		102	%	98 - 103
6298361	SAU	RPD	pH	2019/08/26	0.63		%	N/A
6298401	CP	Spiked Blank	Colour	2019/08/26		100	%	80 - 120
6298401	CP	Method Blank	Colour	2019/08/26	ND,RDL=2		TCU	
6298401	CP	RPD	Colour	2019/08/26	NC		%	25
6298417	KAD	Spiked Blank	Turbidity	2019/08/26		108	%	85 - 115
6298417	KAD	Method Blank	Turbidity	2019/08/26	ND, RDL=0.1		NTU	
6298417	KAD	RPD	Turbidity	2019/08/26	0.79		%	20
6298602	DRM	Matrix Spike	Dissolved Chloride (Cl-)	2019/08/27		111	%	80 - 120
6298602	DRM	Spiked Blank	Dissolved Chloride (Cl-)	2019/08/27		102	%	80 - 120
6298602	DRM	Method Blank	Dissolved Chloride (Cl-)	2019/08/27	ND, RDL=1.0		mg/L	
6298602	DRM	RPD	Dissolved Chloride (Cl-)	2019/08/27	0.98		%	20
6298603	ADB	Matrix Spike	Dissolved Sulphate (SO4)	2019/08/26		NC	%	75 - 125
6298603	ADB	Spiked Blank	Dissolved Sulphate (SO4)	2019/08/26		101	%	80 - 120
6298603	ADB	Method Blank	Dissolved Sulphate (SO4)	2019/08/26	ND, RDL=1.0		mg/L	
6298603	ADB	RPD	Dissolved Sulphate (SO4)	2019/08/26	0.27		%	20
6298604	ADB	Matrix Spike	Orthophosphate (P)	2019/08/26		109	%	75 - 125
6298604	ADB	Spiked Blank	Orthophosphate (P)	2019/08/26		100	%	80 - 120
6298604	ADB	Method Blank	Orthophosphate (P)	2019/08/26	ND, RDL=0.010		mg/L	
6298604	ADB	RPD	Orthophosphate (P)	2019/08/26	NC		%	25
6300237	MT4	Matrix Spike	Total Ammonia-N	2019/08/27		100	%	75 - 125
6300237	MT4	Spiked Blank	Total Ammonia-N	2019/08/27		99	%	80 - 120
6300237	MT4	Method Blank	Total Ammonia-N	2019/08/27	ND, RDL=0.050		mg/L	
6300237	MT4	RPD	Total Ammonia-N	2019/08/27	NC		%	20

N/A = Not Applicable

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

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

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

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

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

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



BUREAU
VERITAS

BV Labs Job #: B9N5854
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Ian D Wilson Associates Ltd
Site Location: MARCHMONT
Sampler Initials: GR

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

Farhana Rahman

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

**RECORD OF TW1 AND LOCAL
WELL RECORDS WITHIN 500m**

A256076

 Measurements recorded in: Metric Imperial

Page ___ of ___

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	<input type="checkbox"/> Well Constructed by Well Owner
	South Shore Cadaver Estates Inc.	roncheslock@live.ca	
Mailing Address (Street Number/Name)	Municipality	Province	Postal Code
34 Grace Crescent	Oro-Medonte	Ontario	L6K1R1
Telephone No. (inc. area code)		705 313 3470	

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
2022 Division Road West	Seven	Part 7101	
County/District/Municipality	City/Town/Village	Province	Postal Code
	Oroville	Ontario	L7V0X7
UTM Coordinates Zone	Eastings	Northing	Municipal Plan and Sublot Number
NAD 83	17811821264916321213	Part 514 41373	

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

General Colour	Most Common Material	Other Materials	General Description	Depth (mft)	
				From	To
Black	Top Soil			0	1
Brown	Clay		Soft	1	11
Blue	Clay	Rocks	Hard	11	52
Blue	Small cby		Soft	52	59
Blue	Clay		Medium	59	69
Blue	Sand		Medium	69	73
Blue	Sand		Coarse	73	79

Annular Space		
Depth Set at (mft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
From	To	
0	20 3/8 Bentonite	9

Method of Construction	Well Use
<input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary (Conventional) <input type="checkbox"/> Rotary (Reverse) <input type="checkbox"/> Boring <input checked="" type="checkbox"/> Air percussion <input type="checkbox"/> Other, specify	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Livestock <input type="checkbox"/> Industrial <input type="checkbox"/> Other, specify
<input type="checkbox"/> Diamond <input type="checkbox"/> Jetting <input type="checkbox"/> Driving <input type="checkbox"/> Digging	<input type="checkbox"/> Commercial <input type="checkbox"/> Municipal <input type="checkbox"/> Test Hole <input type="checkbox"/> Cooling & Air Conditioning
<input type="checkbox"/> Not used <input type="checkbox"/> Dewatering <input type="checkbox"/> Monitoring	

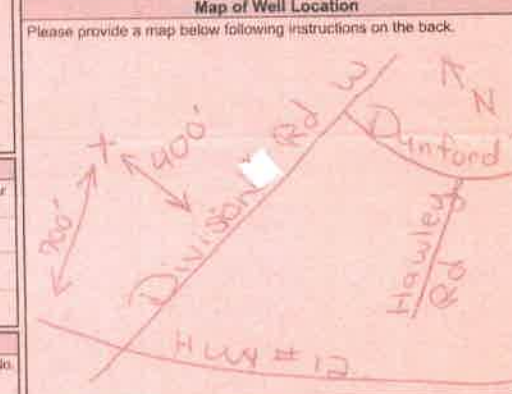
Construction Record - Casing		Status of Well		
Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Well Thickness (cm/in)	Depth (mft)	
		From		To
6	Steel	.188	+2	74

Construction Record - Screen				
Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (mft)	
		From		To
5	S. Steel	#10	74	79

Water Details		Hole Diameter	
Water found at Depth (mft)	Kind of Water: <input checked="" type="checkbox"/> Fresh <input type="checkbox"/> Untested <input type="checkbox"/> Gas <input type="checkbox"/> Other, specify	Depth (mft)	Diameter (cm/in)
		From	To
73		0	12
		20	6
		74	5

Well Contractor and Well Technician Information	
Business Name of Well Contractor	Well Contractor's Licence No.
Home Pro Drilling Services Ltd.	7161613
Business Address (Street Number/Name)	Municipality
P.O. Box 10043 Wilmot Road	Innisfil
Province	Postal Code
Ontario	L9R1S4
Business E-mail Address	
info@homeprodrilling.com	
Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
(705) 336-4359	Moore Steveson
Well Technician's Licence No.	Signature of Technician and/or Contractor
4101318	
	Date Submitted
	21st April 2010

Results of Well Yield Testing				
After test of well yield, water was: <input checked="" type="checkbox"/> Clear and sand free <input type="checkbox"/> Other, specify	Draw Down		Recovery	
	Time (min)	Water Level (mft)	Time (min)	Water Level (mft)
If pumping discontinued, give reason: Static Level	15			
	1	25.7	1	51.9
	Pump intake set at (mft)		2	50.2
	7.8		3	48.9
	Pumping rate (l/min / GPM)		4	47.6
	3.5		5	46.4
Duration of pumping	5 hrs + min	10	42.3	
Final water level end of pumping (mft)	60	15	38.7	
If flowing give rate (l/min / GPM)		20	36	
Recommended pump depth (mft)		25	33.9	
70		30	30.2	
Recommended pump rate (l/min / GPM)	3	40	29.5	
Well production (l/min / GPM)	2.5	50	27.9	
Disinfected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		60	26.5	



Comments:

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	21st April 2010	Audit No. Z296701
Date Work Completed		Received
21st April 2010		

UTM | 17 | 6 | 18 | 0 | 5 | 1 | E
 1774 618051E
 436

WATER RESOURCES DIVISION
 FEB 23 1967
 ONTARIO WATER RESOURCES COMMISSION
 WATER WELL RECORD

Basin County or District | Simcoe
 Township, Village, Town or City | RR#2
 Date completed | 29 / 09 / 1967
 Lot | 1

Casing and Screen Record
 Inside diameter of casing | 37
 Total length of casing | 30
 Type of screen | tiled
 Length of screen | 30
 Depth to top of screen | 30
 Diameter of finished hole | 30

Pumping Test
 Static level | 12
 Test-pumping rate | 2 G.P.M.
 Pumping level | 2
 Duration of test pumping | Clear
 Water clear or cloudy at end of test | Clear
 Recommended pumping rate | 2 G.P.M.
 with pump setting of | 30 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>top soil</u>	<u>0</u>	<u>1</u>	<u>12</u>	<u>Fresh</u>
<u>Brown clay</u>	<u>1</u>	<u>10</u>		
<u>grey clay stone</u>	<u>10</u>	<u>37</u>		

For what purpose(s) is the water to be used? | Home
 Is well on upland, in valley, or on hillside? | upland
 Drilling or Boring Firm | Rock Well Digging
 Address | RR#5 Barrie
 Licence Number | 116
 Name of Driller or Borer | B. Roth
 Address | Same
 Date | B. Roth
 (Signature of Licensed Drilling or Boring Contractor)
 Form 7 15M-60-4188
OWRC COPY

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

UTM | 17 | 6 | 17 | 6 | 8 | 0 | E
 1774 618051E
 436

WATER RESOURCES DIVISION
 FEB 23 1967
 ONTARIO WATER RESOURCES COMMISSION
 WATER WELL RECORD

Basin County or District | Simcoe
 Township, Village, Town or City | RR#2
 Date completed | 8 / 12 / 1967
 Lot | 1

Casing and Screen Record
 Inside diameter of casing | 67
 Total length of casing | 126
 Type of screen | CO.K. #18 slot
 Length of screen | 81
 Depth to top of screen | 172
 Diameter of finished hole | 51

Pumping Test
 Static level | 70
 Test-pumping rate | 10 G.P.M.
 Pumping level | 120
 Duration of test pumping | 2 hrs
 Water clear or cloudy at end of test | clear
 Recommended pumping rate | 10 G.P.M.
 with pump setting of | 120 feet below ground surface

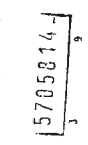
Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>top soil</u>	<u>0</u>	<u>2</u>	<u>120</u>	<u>fresh</u>
<u>old stream bed clay lens</u>	<u>2</u>	<u>120</u>	<u>176</u>	
<u>stony gravel</u>	<u>176</u>	<u>180</u>	<u>180</u>	

For what purpose(s) is the water to be used? | Farm supply
 Is well on upland, in valley, or on hillside? | upland
 Drilling or Boring Firm | New Farming
 Address | Puterbaugh
 Licence Number | 1325
 Name of Driller or Borer | J. Miller
 Address | New Farming
 Date | Jan 28 1965
 (Signature of Licensed Drilling or Boring Contractor)
 Form 7 15M-60-4188
OWRC COPY

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

31D/12E c.B.



JTM 1172 6117171910
14R 4941415810 CODED
5705814

WATER WELL RECORD

The Ontario Water Resources Commission Act
Township, Village, Town or City: Madoc
County or District: Simcoe
Con. No.: 1 Lot: 1 Date completed: 18 months 68 years

Casing and Screen Record
Inside diameter of casing: 3 3/8 in
Total length of casing: well till
Type of screen: well till
Length of screen: 36 in
Depth to top of screen: 56 in
Diameter of finished hole: 5 in

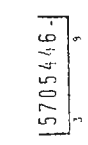
Pumping Test
Static level: 20 G.P.M.
Test-pumping rate: 2
Pumping level: ---
Duration of test pumping: ---
Water clear or cloudy at end of test: clear
Recommended pumping rate: 2 G.P.M.
with pump setting of: 20 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>Shale clay</u>	<u>0</u>	<u>3 1/2</u>	<u>20 ft.</u>	<u>fresh</u>
<u>Large Stones</u>				

For what purpose(s) is the water to be used? house
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm: Well Drilling R.R.# 5
Address: Barrie Ont.
Licence Number: 136
Name of Driller or Borer: B. Roth
Address: same
Date: Nov. 20/68
(Signature of Licensed Drilling or Boring Contractor)

31D/12E B



JTM 1172 6117171910
14R 4941415810 CODED
5705446

WATER WELL RECORD

The Ontario Water Resources Commission Act
Township, Village, Town or City: Madoc
County or District: Simcoe
Con. No.: 1 Lot: 1 Date completed: 18 months 68 years

Casing and Screen Record
Inside diameter of casing: 6 7/8 in
Total length of casing: 187'
Type of screen: steel pipe
Length of screen: 3'
Depth to top of screen: 182'
Diameter of finished hole: 5"

Pumping Test
Static level: 77' G.P.M.
Test-pumping rate: 10'
Pumping level: 100'
Duration of test pumping: 3 hrs
Water clear or cloudy at end of test: clear
Recommended pumping rate: 5' G.P.M.
with pump setting of: 100' feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Depth (s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>top sand clay stones</u>	<u>0</u>	<u>20</u>	<u>100'</u>	<u>fresh</u>
<u>sandy gravel sand layers</u>	<u>108</u>	<u>196</u>	<u>190'</u>	<u>fresh</u>
<u>---</u>				

For what purpose(s) is the water to be used? Domestic
Is well on upland, in valley, or on hillside? upland
Drilling or Boring Firm: Pitkinham
Address: Pitkinham
Licence Number: 2751
Name of Driller or Borer: J.C. Miller
Address: ---
Date: Nov 11/68
(Signature of Licensed Drilling or Boring Contractor)

31 D/12 E J.B

5706241



JIM 11/17/79 1010

14R 419 41 650

15R 0181715

WATER WELL RECORD

County or District: Simcoe Date completed: 11 April 1969
Town or City: Georgetown
Village: Georgetown
Municipality: Georgetown

Inside diameter of casing: 30 in
Total length of casing: 52 1/2
Type of screen: well tile
Length of screen: _____
Depth to top of screen: _____
Diameter of finished hole: 36 in

Casing and Screen Record

Static level: 35 ft
Test-pumping rate: 5 G.P.M.
Pumping level: _____
Duration of test pumping: _____
Water clear or cloudy at end of test: clear
Recommended pumping rate: 2 G.P.M.
with pump setting of 45 feet below ground surface

Well Log

Overburden and Bedrock Record	From ft.	To ft.	Water Record
<u>Brown stony clay large stones</u>	<u>0</u>	<u>27</u>	<u>35 ft fresh</u>
<u>Grey stony clay large stones</u>	<u>27</u>	<u>50</u>	<u>Bottom</u>

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

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

Drilling or Boring Firm: Roth Logging RR# 5, Barrie Ont.

Address: 16 St. B. Roth

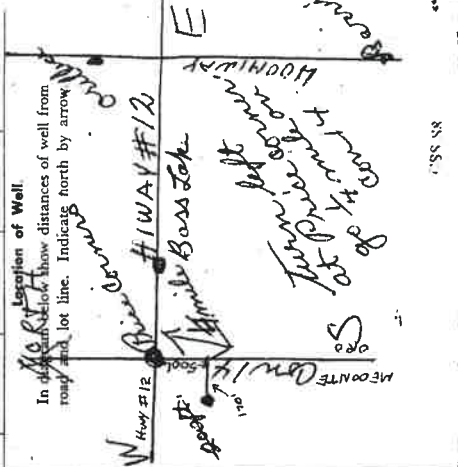
Licence Number: Same

Name of Driller or Borer: Same

Address: Same

Date: April 15, 1969

(Signature of Licensed Drilling or Boring Contractor)



WATER WELL RECORD

The Ontario Water Resources Commission Act

31 D/12 E

5706810

11

5706241

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5706241

LOG OF OVERBURDEN AND BEDROCK MATERIALS

DEPTH	GENERAL DESCRIPTION	DEPTH TO TOP OF MEMBER	DEPTH TO BOTTOM OF MEMBER
0	<u>Stony</u>	0	30
30	<u>base</u>	30	42

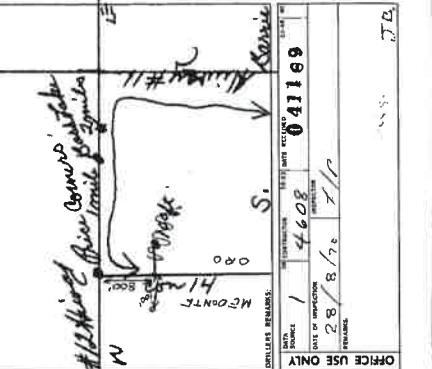
CHASING & OPEN HOLE RECORD

DEPTH SET AT FEET	MATERIAL AND TYPE	DEPTH TO TOP OF MEMBER	DEPTH TO BOTTOM OF MEMBER
0	<u>3/4 GALVANIZED STEEL</u>	0	22
22	<u>STEEL</u>	22	42

PLUGGING & SEALING RECORD

DEPTH SET AT FEET	MATERIAL AND TYPE	DEPTH TO TOP OF MEMBER	DEPTH TO BOTTOM OF MEMBER
0	<u>CONCRETE</u>	0	42

LOCATION OF WELL



PUMPING TEST

Final static water level: 30 ft
Water level during test: 35 ft
Pumping rate: 5 G.P.M.
Duration of test: 15 min

OWRC COPY

WATER WELL RECORD

The Ontario Water Resources Commission Act

Well ID: 5706890
 Well Audit Number: 57007
 Well Tag Number: 080170

Location: #2 Oullin Ont
 #2 Oullin Ont
 #2 Oullin Ont

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	FROM	TO
Brown Clay	String	hard		0	25	
Grey gravel	small stones	Round		25	27 1/2	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

31) 22.5' 0.25' 27 1/2'

32) 27 1/2' 0.25' 27 1/2'

33) 27 1/2' 0.25' 27 1/2'

TEST METHOD

34) PUMP TEST

35) STATIC

36) FLOW

37) PERMEABILITY

38) WATER LEVEL

39) WATER LEVEL

40) WATER LEVEL

PLUGGING & SEALING RECORD

41) PLUGGING

42) SEALING

43) SEALING

44) SEALING

45) SEALING

LOCATION OF WELL

46) LOCATION

47) LOCATION

48) LOCATION

49) LOCATION

50) LOCATION

Well ID

Well ID Number: 5706890
 Well Audit Number: 57007
 Well Tag Number: 080170

This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location: ORILLIA TOWNSHIP
 Township: ORILLIA TOWNSHIP
 Lot: 001
 Concession: ND 01
 County/District/Municipality: SIMCOE
 City/Town/Village: ON
 Province: ON
 Postal Code: n/a
 UTM Coordinates: NAD83 - Zone 17
 Easting: 618174.60
 Northing: 4942064.00
 Municipal Plan and Sublot Number:
 Other:

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN	CLAY	STNS		0 ft	15 ft
GREY	CLAY	STNS		15 ft	24 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed

Method of Construction & Well Use

Method of Construction: Well Use: Domestic
 Boring: Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
30 inch	CONCRETE		24 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 4608

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

1. PART 1 OF 2 SPACES PROVIDED
 2. CHECK OFF CORRECT INFORMATION

COUNTY OF BRANT: Simcoe DISTRICT: Simcoe TOWNSHIP: 14 VILLAGE: 14
 LOCALITY: 2 Parkhurst Ave Driller's NO. 11-20
 DATE OF RECORD: 14/12/2011 DATE OF INSPECTION: 11/20/2011
 PROJECT NO.: 5707678 CONTRACTOR: RR# 5 Sarnie Dr

GENERAL COLOR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION (SEE INSTRUCTIONS)	DEPTH - FEET	DEPTH - METERS	30% SHALLOWS	30% DEEPS	30% OTHER	30% TOTAL
Brown clay	clay	stones	hard	0	12				
Grey clay	clay	stones	hard	12	23				
Grey sand	sand	course	course	23	24				

31. 120140151A 120140151A
 32. 120140151A 120140151A
 33. 120140151A 120140151A

4. WATER RECORD
 END USE: DOMESTIC INDUSTRIAL AGRICULTURE OTHER
 RECOMMENDED PUMP TYPE: SUBMERSIBLE SURFACE OTHER

5. CASING & OPEN HOLE RECORD
 MATERIAL: STEEL GALVANIZED CONCRETE OTHER
 DEPTH SET AT - FEET: 25

6. PLUGGING & SEALING RECORD
 MATERIAL AND TYPE: Basaltake

7. PUMPING TEST
 PUMP TYPE: SHALLOW DEEP
 RECOMMENDED PUMP TYPE: SUBMERSIBLE SURFACE OTHER
 RECOMMENDED PUMP TYPE: SUBMERSIBLE SURFACE OTHER

8. FINAL STATUS OF WELL
 READY FOR USE NEEDS MAINTENANCE ABANDONED PUBLIC SUPPLY

9. WATER USE
 DOMESTIC INDUSTRIAL AGRICULTURE OTHER

10. METHOD OF DRILLING
 CABLE TOOL ROTARY (CONVENTIONAL) ROTARY (AIR-DRIVEN) AIR PERCUSSION

11. LOCATION OF WELL
 IS NEARBY BELOW SHOWN LIST OF FEATURES:
Basaltake
RR# 5 Sarnie Dr
West
Country Rd
23
 N

12. CONTRACTOR
 NAME OF WELL DRILLER OR CONTRACTOR: RR# 5 Sarnie Dr
 SIGNATURE OF WELL DRILLER OR CONTRACTOR: [Signature]
 DATE OF RECORD: 14/12/2011
 DATE OF INSPECTION: 11/20/2011
 CONTRACT NO.: 4608
 WELL NO.: 081270

OWRC COPY

Results of Well Yield Testing

After test of well yield, water was: CLOUDY
 If pumping discontinued, give reason: none
 Pump intake set at: 1.0 m
 Duration of Pumping: 5 GPM
 Final water level: 17 r
 If flowing give rate: 23 r
 Recommended pump depth: 5 GPM
 Recommended pump rate: BALLER
 Well Production: Disinfected?

Draw Down & Recovery

SWL	Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
1		9 R		
2				
3				
4				
5				
10				
15		9 R		
20				
25				
30		11 R		
40				
45		13 R		
50				
60		15 R		

Water Details

Water Found at Depth	Kind
15 R	Fresh
24 R	Fresh

Hole Diameter

Depth From To	Diameter

Audit Number:

Date Well Completed: November 04, 1970

Date Well Record Received by MOE: December 03, 1970

Updated: June 28, 2018

Rate/Rate

Share/facebook twitter Print

Tags

- Environment and energy
- Drinking water
- Environment maps
- Well water

3/10/25

WATER WELL RECORD



The Ontario Water Resources Commission Act

Water Management in Ontario: 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK CORRECT BOX WHERE APPLICABLE

COUNTY DISTRICT: Simcoe MUNICIPALITY: Windsor CITY, TOWN, VILLAGE: Windsor DATE RECEIVED: 01/14/25

WELL NUMBER: 5708633 DATE OF INSTALLATION: 01/14/25

OWNER: St. Michael's DATE COMPLETED: 01/14/25

ADDRESS: 10 University Ave. 2nd Fl. CITY: Windsor PROV: ON

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOR	MOIST COMMON MATERIAL	OTHER MATERIALS	DEPTH - FEET
FROM	TO		
0	48	Dry well	
48	63	clay, boulders	
63	177	grey clay sand, boulders	
174	232	grey clay silt, gravel, boulders fine	
	232		

31 CASING & OPEN HOLE RECORD

WELL NO: 5708633 DATE: 01/14/25

DEPTH SET AT - FEET: 0

WELL MATERIAL AND TYPE: STEEL

41 WATER RECORD

WELL NO: 5708633 DATE: 01/14/25

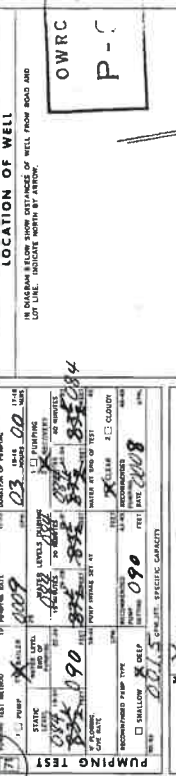
WATER LEVELS: 0.00 FEET BELOW GROUND SURFACE

61 PLUGGING & SEALING RECORD

WELL NO: 5708633 DATE: 01/14/25

DEPTH SET AT - FEET: 0

MATERIAL AND TYPE: CONCRETE



PUMPING TEST

WELL NO: 5708633 DATE: 01/14/25

FINAL STATUS OF WELL: ABANDONED, INSUFFICIENT SUPPLY

WATER USE: 01

METHOD OF DRILLING: ROTARY (CONVENTIONAL)

CONTRACTOR: H. HANNERS LICENSE NUMBER: 2514

DATE OF INSTALLATION: 01/14/25

3/10/25

WATER WELL RECORD



The Ontario Water Resources Commission Act

Water Management in Ontario: 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK CORRECT BOX WHERE APPLICABLE

COUNTY DISTRICT: Simcoe MUNICIPALITY: Windsor CITY, TOWN, VILLAGE: Windsor DATE RECEIVED: 01/28/25

WELL NUMBER: 5708300 DATE OF INSTALLATION: 01/28/25

OWNER: St. Michael's DATE COMPLETED: 01/28/25

ADDRESS: 10 University Ave. 2nd Fl. CITY: Windsor PROV: ON

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOR	MOIST COMMON MATERIAL	OTHER MATERIALS	DEPTH - FEET
FROM	TO		
0	12	Brown clay silt	
12	27	" "	

31 CASING & OPEN HOLE RECORD

WELL NO: 5708300 DATE: 01/28/25

DEPTH SET AT - FEET: 0

WELL MATERIAL AND TYPE: STEEL

41 WATER RECORD

WELL NO: 5708300 DATE: 01/28/25

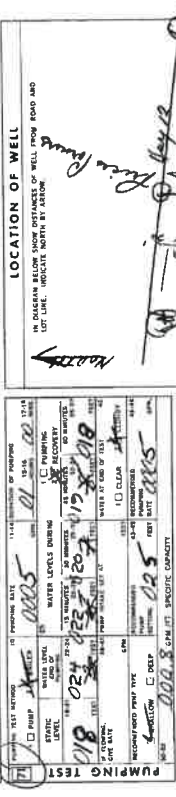
WATER LEVELS: 0.00 FEET BELOW GROUND SURFACE

61 PLUGGING & SEALING RECORD

WELL NO: 5708300 DATE: 01/28/25

DEPTH SET AT - FEET: 0

MATERIAL AND TYPE: CONCRETE



PUMPING TEST

WELL NO: 5708300 DATE: 01/28/25

FINAL STATUS OF WELL: ABANDONED, INSUFFICIENT SUPPLY

WATER USE: 01

METHOD OF DRILLING: ROTARY (CONVENTIONAL)

CONTRACTOR: H. HANNERS LICENSE NUMBER: 4608

DATE OF INSTALLATION: 01/28/25

OWRC COPY

OWRC COPY

3/10/25

WATER WELL RECORD



The Ontario Water Resources Commission Act

When completed in Ontario: 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK CORRECT FOR SPACES APPLICABLE

PROJECT: Medonte COUNTY: 11 DISTRICT: 14 DATE COMPLETED: 15-09-22

OWNER: Medonte ADDRESS: 2 Parkhurst Cr. CITY/TOWN/VILLAGE: Medonte COUNTY: 11 DISTRICT: 14 DATE COMPLETED: 15-09-22

CONTRACTOR: Edt's Well Drilling Ltd. LICENSE NO.: 4608 CONTRACT NO.: 4608

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH - FEET	GENERAL DESCRIPTION	OTHER MATERIALS
0 - 90	Brown Clay	
90 - 20	Sand mixed with clay & stones	

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 PUMPING TEST

35 LOCATION OF WELL

FINAL STATUS OF WELL

WATER USE

METHOD OF DRILLING

CONTRACTOR: Edt's Well Drilling Ltd. License No. 4608

DATE: 13-09-22

OFFICE USE ONLY: DATE RECEIVED: 25-09-22

OWRC COPY

3/10/25

WATER WELL RECORD



The Ontario Water Resources Commission Act

When completed in Ontario: 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK CORRECT FOR SPACES APPLICABLE

PROJECT: Medonte COUNTY: 11 DISTRICT: 14 DATE COMPLETED: 27-07-22

OWNER: Edt's Well Drilling Ltd. ADDRESS: 141, 140 & 142 Grand St. CITY/TOWN/VILLAGE: Medonte COUNTY: 11 DISTRICT: 14 DATE COMPLETED: 27-07-22

CONTRACTOR: Edt's Well Drilling Ltd. LICENSE NO.: 4608 CONTRACT NO.: 4608

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH - FEET	GENERAL DESCRIPTION	OTHER MATERIALS
0 - 22 1/2	Brown Clay mixed with sand	
22 1/2 - 30	Dark grey silt	

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 PUMPING TEST

35 LOCATION OF WELL

FINAL STATUS OF WELL

WATER USE

METHOD OF DRILLING

CONTRACTOR: Edt's Well Drilling Ltd. License No. 4608

DATE: 13-09-22

OFFICE USE ONLY: DATE RECEIVED: 13-09-22

OWRC COPY

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

PRINT ONLY IN SPACES PROVIDED
CHECK CORRECTLY

Ontario

COUNTY OF DISTRICT: **Simcoe** CITY/TOWN/VILLAGE: **MEDONTA** DISTRICT: **XIV** LOT: **144**

OWNER: **MR. & MRS. COLONIAIR** ADDRESS: **RR 2 COLONIAIR** MAP CO.: **11** DATE COMPLETED: **3/10/12** LOT AREA: **1144**

CONTRACTOR: **SIMCOE** WELL NO.: **5711058** DATE: **NOV 25 1975** WELL DEPTH: **20**

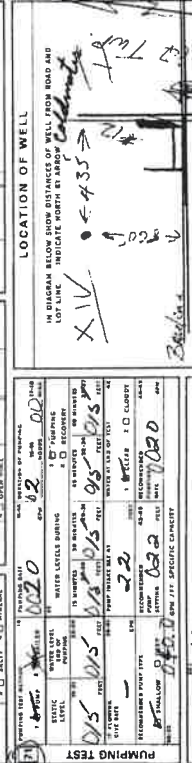
LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION
0 - 2	TOP SOIL
2 - 20	BROWN CLAY
20 - 25	CLAY SAND

31 **WATER RECORD**

32 **CASING & OPEN HOLE RECORD**

33 **PLUGGING & SEALING RECORD**



34 **PUMPING TEST**

35 **FINAL STATUS OF WELL**

36 **WATER USE**

37 **METHOD OF DRILLING**

CONTRACTOR: **John Mac Millan** ADDRESS: **RR 1676 - Lot 34-55-58 WI**

DATE: **NOV 19 1974** WELL NO.: **5711058** DATE OF RECORD: **NOV 19 1974**

OFFICE USE ONLY

MINISTRY OF THE ENVIRONMENT

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

PRINT ONLY IN SPACES PROVIDED
CHECK CORRECTLY

Ontario

COUNTY OF DISTRICT: **Simcoe** CITY/TOWN/VILLAGE: **MEDONTA** DISTRICT: **XIV** LOT: **144**

OWNER: **MR. & MRS. COLONIAIR** ADDRESS: **RR 2 COLONIAIR** MAP CO.: **11** DATE COMPLETED: **5/22/75** LOT AREA: **1144**

CONTRACTOR: **SIMCOE** WELL NO.: **5711562** DATE: **MAY 23 1975** WELL DEPTH: **21**

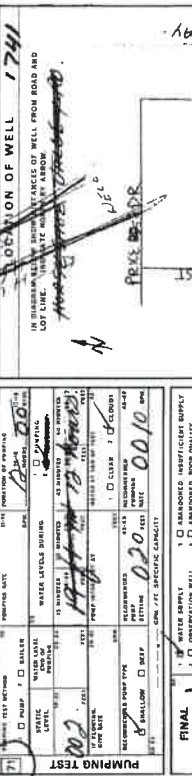
LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION
0 - 1	BLACK TOPSOIL
1 - 21	BROWN CLAY

31 **WATER RECORD**

32 **CASING & OPEN HOLE RECORD**

33 **PLUGGING & SEALING RECORD**



34 **PUMPING TEST**

35 **FINAL STATUS OF WELL**

36 **WATER USE**

37 **METHOD OF DRILLING**

CONTRACTOR: **Paul Keele** ADDRESS: **RR 1626 SUBD. 227 SP#1**

DATE: **JULY 1976** WELL NO.: **5711562** DATE OF RECORD: **JULY 1976**

OFFICE USE ONLY

MINISTRY OF THE ENVIRONMENT



Ontario

WATER WELL RECORD 31D12E

PRINT ONLY IN SPACES PROVIDED
CHECK CORRECT CITY OR TOWN
CHECK CORRECT CITY OR TOWN APPLICABLE

COMPANY OR DISTRICT: **SINCO**
 CITY OR TOWN: **Orillia**
 COUNTY: **Simcoe**
 DISTRICT: **Orillia**

PROVINCE: **ONT.**
 MUNICIPALITY: **Orillia**
 ADDRESS: **17 Elgin Str., Orillia, Ont.**

DATE OF RECORD: **17/09/80**
 DATE OF INSTALLATION: **26/08/76**

WELL NUMBER: **57009 RD**
 DATE OF SURVEY: **11/01/80**

WELL DEPTH: **117.00** METERS
 DATE OF COMPLETION: **26/08/76**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	DEPTH, FEET	DESCRIPTION
brown	0	Sand & gravel
gray	27	clay
gray	68	med. sand & gravel
gray	79	clay
gray	129	fine sandy clay
gray	131	clay
gray	129	silty sand
gray	131	clay-hard

WATER RECORD

WELL TYPE: **51**
 WATER SUPPLY: **1**
 WATER LEVEL: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

PLUGGING & SEALING RECORD

WELL TYPE: **51**
 PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

LOCATION OF WELL

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

WELL NUMBER: **57009 RD**
 DATE OF SURVEY: **11/01/80**

PUMPING TEST

WELL TYPE: **51**
 PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

CONTRACTOR

NAME OF WELL CONTRACTOR: **P & B Wells Inc.**
 ADDRESS: **Box 26, Longford Mills Ontario**
 PHONE: **4241**

DATE OF WELL CONTRACT: **18/10/76**



Ontario

WATER WELL RECORD 31D12E

PRINT ONLY IN SPACES PROVIDED
CHECK CORRECT CITY OR TOWN
CHECK CORRECT CITY OR TOWN APPLICABLE

COMPANY OR DISTRICT: **SINCO**
 CITY OR TOWN: **Orillia**
 COUNTY: **Simcoe**
 DISTRICT: **Orillia**

PROVINCE: **ONT.**
 MUNICIPALITY: **Orillia**
 ADDRESS: **17 Elgin Str., Orillia, Ont.**

DATE OF RECORD: **17/09/80**
 DATE OF INSTALLATION: **26/08/76**

WELL NUMBER: **57009 RD**
 DATE OF SURVEY: **11/01/80**

WELL DEPTH: **117.00** METERS
 DATE OF COMPLETION: **26/08/76**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	DEPTH, FEET	DESCRIPTION
gray	0	med. sand & gravel
gray	27	clay
gray	68	clay
gray	79	clay
gray	129	clay
gray	131	clay

WATER RECORD

WELL TYPE: **51**
 WATER SUPPLY: **1**
 WATER LEVEL: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

PLUGGING & SEALING RECORD

WELL TYPE: **51**
 PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

LOCATION OF WELL

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

WELL NUMBER: **57009 RD**
 DATE OF SURVEY: **11/01/80**

PUMPING TEST

WELL TYPE: **51**
 PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

CONTRACTOR

NAME OF WELL CONTRACTOR: **P & B Wells Inc.**
 ADDRESS: **Box 26, Longford Mills Ontario**
 PHONE: **4241**

DATE OF WELL CONTRACT: **18/10/76**



Ontario

WATER WELL RECORD 31D12E

PRINT ONLY IN SPACES PROVIDED
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CHECK CORRECT CITY OR TOWN APPLICABLE

COMPANY OR DISTRICT: **SINCO**
 CITY OR TOWN: **Orillia**
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 DISTRICT: **Orillia**

PROVINCE: **ONT.**
 MUNICIPALITY: **Orillia**
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DATE OF RECORD: **17/09/80**
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WELL NUMBER: **57009 RD**
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 DATE OF COMPLETION: **26/08/76**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	DEPTH, FEET	DESCRIPTION
gray	0	med. sand & gravel
gray	27	clay
gray	68	clay
gray	79	clay
gray	129	clay
gray	131	clay

WATER RECORD

WELL TYPE: **51**
 WATER SUPPLY: **1**
 WATER LEVEL: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

PLUGGING & SEALING RECORD

WELL TYPE: **51**
 PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

LOCATION OF WELL

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

WELL NUMBER: **57009 RD**
 DATE OF SURVEY: **11/01/80**

PUMPING TEST

WELL TYPE: **51**
 PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

CONTRACTOR

NAME OF WELL CONTRACTOR: **P & B Wells Inc.**
 ADDRESS: **Box 26, Longford Mills Ontario**
 PHONE: **4241**

DATE OF WELL CONTRACT: **18/10/76**



Ontario

WATER WELL RECORD 31D12E

PRINT ONLY IN SPACES PROVIDED
CHECK CORRECT CITY OR TOWN
CHECK CORRECT CITY OR TOWN APPLICABLE

COMPANY OR DISTRICT: **SINCO**
 CITY OR TOWN: **Orillia**
 COUNTY: **Simcoe**
 DISTRICT: **Orillia**

PROVINCE: **ONT.**
 MUNICIPALITY: **Orillia**
 ADDRESS: **17 Elgin Str., Orillia, Ont.**

DATE OF RECORD: **17/09/80**
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LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	DEPTH, FEET	DESCRIPTION
gray	0	med. sand & gravel
gray	27	clay
gray	68	clay
gray	79	clay
gray	129	clay
gray	131	clay

WATER RECORD

WELL TYPE: **51**
 WATER SUPPLY: **1**
 WATER LEVEL: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

WATER LEVELS: **0.130**
 WATER LEVEL DATE: **01/30**

PLUGGING & SEALING RECORD

WELL TYPE: **51**
 PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

PLUGGING MATERIAL: **CONCRETE**
 PLUGGING DATE: **01/30**

LOCATION OF WELL

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

WELL NUMBER: **57009 RD**
 DATE OF SURVEY: **11/01/80**

PUMPING TEST

WELL TYPE: **51**
 PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

PUMPING TEST DATE: **01/30**

CONTRACTOR

NAME OF WELL CONTRACTOR: **P & B Wells Inc.**
 ADDRESS: **Box 26, Longford Mills Ontario**
 PHONE: **4241**

DATE OF WELL CONTRACT: **18/10/76**

WATER WELL RECORD

Ministry of the Environment Ontario #1

5717264

DATE COMPLETED: 01/21/01

CONTRACTOR: ORILLIA

CONTRACT NO: 169216

DATE OF CONTRACT: 01/18/01

CONTRACT VALUE: \$0

LOT NO: 01

SECTION: 01

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION	STATE	FEET
0	top soil	0	3
3	brown sand,	30	30
30	grey clay	68	68
68	silt & clay	110	110
110	clay	134	134
134	silt	160	160
160	clay & silt	180	188
180	hardpan	188	191
188	fine sand & gravel		

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF DRILLING

39 CONTRACTOR

WATER WELL RECORD

Ministry of the Environment Ontario #1

5717890

DATE COMPLETED: 01/22/01

CONTRACTOR: ORILLIA

CONTRACT NO: 169216

DATE OF CONTRACT: 01/18/01

CONTRACT VALUE: \$0

LOT NO: 01

SECTION: 01

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION	STATE	FEET
0	top soil	0	3
3	brown sand,	30	30
30	grey clay	68	68
68	silt & clay	110	110
110	clay	134	134
134	silt	160	160
160	clay & silt	180	188
180	hardpan	188	191
188	fine sand & gravel		

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF DRILLING

39 CONTRACTOR

WATER WELL RECORD

Ministry of the Environment Ontario #1

5717890

DATE COMPLETED: 01/22/01

CONTRACTOR: ORILLIA

CONTRACT NO: 169216

DATE OF CONTRACT: 01/18/01

CONTRACT VALUE: \$0

LOT NO: 01

SECTION: 01

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION	STATE	FEET
0	top soil	0	3
3	brown sand,	30	30
30	grey clay	68	68
68	silt & clay	110	110
110	clay	134	134
134	silt	160	160
160	clay & silt	180	188
180	hardpan	188	191
188	fine sand & gravel		

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF DRILLING

39 CONTRACTOR

310122

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act



WATER WELL RECORD

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

CONTRACTOR NO. 5717893
DATE COMPLETED 03/07/88

LOG OF OVERBURDEN AND BEDROCK MATERIALS - SEE INSTRUCTIONS

DEPTH, FEET	GENERAL DESCRIPTION
0	140 ft
40	140 ft
140	140 ft
199	140 ft
203	203 ft
207	207 ft

OTHER MATERIALS
Block sand
Gravel
Miss 5-12

WATER RECORD

WATER LEVEL (FEET) 0.2
WATER LEVEL (FEET) 0.2

CASING & OPEN HOLE RECORD

WATER RECORD

PLUGGING & SEALING RECORD

PLUG SET AT FEET 0.2

PUMPING TEST

WATER SUPPLY WATER LEVEL SPRING

FINAL STATUS OF WELL 1

WATER USE 01

METHOD OF DRILLING 1

LOCATION OF WELL

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

Hwy 27N PROSCENER

Townline

MARKED OR

CON 2 OR 1/4

CONTRACTOR

NAME OF WELL CONTRACTOR
Wells Service Co. Ltd.

NAME OF OWNER
165 Cedar St. 1st Floor

DATE OF DRILLING
03/07/88

ADDRESS
165 Cedar St. 1st Floor

PHONE NO.
5717893

OFFICE USE ONLY

DATE 03/07/88

NO. OF INSPECTION 2653

ISSUE NO. 120282

CSS-ES

FORM NO. 508-11 (REV. 7)

310122

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act



WATER WELL RECORD

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

CONTRACTOR NO. 5717893
DATE COMPLETED 03/07/88

LOG OF OVERBURDEN AND BEDROCK MATERIALS - SEE INSTRUCTIONS

DEPTH, FEET	GENERAL DESCRIPTION
0	140 ft
40	140 ft
140	140 ft
199	140 ft
203	203 ft
207	207 ft

OTHER MATERIALS
Block sand
Gravel
Miss 5-12

WATER RECORD

WATER LEVEL (FEET) 0.2
WATER LEVEL (FEET) 0.2

CASING & OPEN HOLE RECORD

WATER RECORD

PLUGGING & SEALING RECORD

PLUG SET AT FEET 0.2

PUMPING TEST

WATER SUPPLY WATER LEVEL SPRING

FINAL STATUS OF WELL 1

WATER USE 01

METHOD OF DRILLING 1

LOCATION OF WELL

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

Hwy 27N PROSCENER

Townline

MARKED OR

CON 2 OR 1/4

CONTRACTOR

NAME OF WELL CONTRACTOR
Wells Service Co. Ltd.

NAME OF OWNER
165 Cedar St. 1st Floor

DATE OF DRILLING
03/07/88

ADDRESS
165 Cedar St. 1st Floor

PHONE NO.
5717893

OFFICE USE ONLY

DATE 03/07/88

NO. OF INSPECTION 2653

ISSUE NO. 120282

CSS-ES

FORM NO. 508-11 (REV. 7)

WATER WELL RECORD

5717920



MINISTRY OF THE ENVIRONMENT
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

5719607



MINISTRY OF THE ENVIRONMENT
Ontario

CONTRACTOR: **DRILLING**
 COUNTY OR DISTRICT: **BRANT**
 MUNICIPALITY: **BRANT**
 TOWNSHIP: **BRANT**
 RURAL: **BRANT**
 DATE COMPLETED: **17** DAY MONTH YEAR
 DATE OF PERMIT: **17** DAY MONTH YEAR
 PERMIT NO.: **10**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	DESCRIPTION
0 - 100	Hard grey Boulder
100 - 133	Grey & Shale
133 - 135	Shale

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF DRILLING

CONTRACTOR: **DRILLING**
 CONTRACT NO.: **12653**
 DATE OF CONTRACT: **11/02/82**
 CONTRACTOR'S SIGNATURE: **DRILLING**
 DATE: **11/02/82**
 COUNTY OR DISTRICT: **BRANT**
 MUNICIPALITY: **BRANT**
 TOWNSHIP: **BRANT**
 RURAL: **BRANT**
 DATE COMPLETED: **17** DAY MONTH YEAR
 DATE OF PERMIT: **17** DAY MONTH YEAR
 PERMIT NO.: **10**

CONTRACTOR: **DRILLING**
 COUNTY OR DISTRICT: **BRANT**
 MUNICIPALITY: **BRANT**
 TOWNSHIP: **BRANT**
 RURAL: **BRANT**
 DATE COMPLETED: **17** DAY MONTH YEAR
 DATE OF PERMIT: **17** DAY MONTH YEAR
 PERMIT NO.: **10**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	DESCRIPTION
0 - 18	Known Clay
18 - 49	Blue Clay
49 - 50	Fine Blue Sand

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF DRILLING

CONTRACTOR: **DRILLING**
 CONTRACT NO.: **12653**
 DATE OF CONTRACT: **11/02/82**
 CONTRACTOR'S SIGNATURE: **DRILLING**
 DATE: **11/02/82**
 COUNTY OR DISTRICT: **BRANT**
 MUNICIPALITY: **BRANT**
 TOWNSHIP: **BRANT**
 RURAL: **BRANT**
 DATE COMPLETED: **17** DAY MONTH YEAR
 DATE OF PERMIT: **17** DAY MONTH YEAR
 PERMIT NO.: **10**



Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT NAME IN SPACES PROVIDED
2. CHECK COMMERCIAL RESIDENTIAL

5720682

5720682

5720682

CONTRACTOR'S NAME: John St. Vallee
 COUNTY OR DISTRICT: Simcoe County
 MUNICIPALITY: Medonte Township
 DATE COMPLETED: SEP 17 1988
 DATE OF WELL TEST: SEP 17 1988
 DATE OF WELL RECORD: SEP 17 1988

LOG OF OVERBURDEN AND BEDROCK MATERIALS - SEE INSTRUCTIONS!

DEPTH (FEET)	GENERAL DESCRIPTION	DEPTH (FEET)	GENERAL DESCRIPTION
00	Stones	01	Soft
17	Clay	17	Soft
83	Clay	83	Soft
110	Sand	110	Soft
112	Gravel	112	Hard

31) WATER RECORD

32) CASING & OPEN HOLE RECORD

33) PLUGGING & SEALING RECORD

34) LOCATION OF WELL

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

FINAL STATUS OF WELL

WATER USE

METHOD OF DRILLING

NAME OF WELL CONTRACTOR: P & B Wells Inc.
 ADDRESS: RR #2 Coldwater
 PHONE: 5218
 CONTRACT NO.: 5218
 DATE OF WELL TEST: SEP 17 1988
 DATE OF WELL RECORD: SEP 17 1988

OFFICE USE ONLY

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0509-117 (FORM 1)



Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

1. PRINT NAME IN SPACES PROVIDED
2. CHECK COMMERCIAL RESIDENTIAL

5723747

5723747

5723747

CONTRACTOR'S NAME: [REDACTED]
 COUNTY OR DISTRICT: Simcoe County
 MUNICIPALITY: Medonte Township
 DATE COMPLETED: SEP 30 1988
 DATE OF WELL TEST: SEP 30 1988
 DATE OF WELL RECORD: SEP 30 1988

LOG OF OVERBURDEN AND BEDROCK MATERIALS - SEE INSTRUCTIONS!

DEPTH (FEET)	GENERAL DESCRIPTION	DEPTH (FEET)	GENERAL DESCRIPTION
00	Stones	01	Soft
15	Clay	15	Soft
75	Clay	75	Soft
115	Sand, gravel	115	Soft, layered
126	Sand	126	Soft

31) WATER RECORD

32) CASING & OPEN HOLE RECORD

33) PLUGGING & SEALING RECORD

34) LOCATION OF WELL

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

FINAL STATUS OF WELL

WATER USE

METHOD OF DRILLING

NAME OF WELL CONTRACTOR: P & B Wells Inc.
 ADDRESS: R.R. #2, Orillia, Ontario L0K 1E0
 PHONE: 5218
 CONTRACT NO.: 5218
 DATE OF WELL TEST: SEP 09 1988
 DATE OF WELL RECORD: SEP 09 1988

OFFICE USE ONLY

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0509-117 (FORM 1)

CONTRACT NO. **5723748** (11) 572907
 CONCESSION # **1**
 TOWNSHIP **Orillia** COUNTY **Simcoe**
 LOCATION **#2, Orillia, Ontario**
 DATE COMPLETED **NOV 15 1988**
 DATE OF INSPECTION **NOV 08 1988**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION	DEPTH (FEET)	GENERAL DESCRIPTION
00	soft	00	soft
01	soft	01	soft
13	stones	13	stones
113	soft	113	soft
117	soft	117	soft
	silt		layered

WATER RECORD

DEPTH (FEET)	WATER LEVEL (FEET)	DATE	TIME	WIND DIRECTION	WIND VELOCITY	WATER LEVEL TYPE	WELL TYPE
6	115	NOV 14	6:00			STAINLESS STEEL	61
113	113						

CASING & OPEN HOLE RECORD

DEPTH (FEET)	WATER RECORD	CASING & OPEN HOLE RECORD
6	115	113

PUMPING TEST

DEPTH (FEET)	WATER LEVEL (FEET)	DATE	TIME	WIND DIRECTION	WIND VELOCITY	WATER LEVEL TYPE	WELL TYPE
6	115	NOV 14	6:00			STAINLESS STEEL	61

LOCATION OF WELL

36m
 COUNTY ROAD 23
 HIGHWAY #12
 36332

OFFICE USE ONLY

DATE **5218** APR 05 1989
 WELL CONTRACTOR'S NO. **5218**
 WELL CONTRACTOR'S NAME **P & B WELLS INC.**
 WELL CONTRACTOR'S ADDRESS **15 Derby St., Orillia, Ont. L3V5R4**
 WELL CONTRACTOR'S PHONE NO. **709-0990**
 CONTRACTOR'S NAME **Shaun Vinson**
 CONTRACTOR'S ADDRESS **1111 Highway 12, Orillia, Ont. L3V5R4**
 CONTRACTOR'S PHONE NO. **709-0990**

CONTRACT NO. **5723748** (11) 57907
 CONCESSION # **1**
 TOWNSHIP **Orillia** COUNTY **Simcoe**
 LOCATION **#2, Orillia, Ontario**
 DATE COMPLETED **NOV 15 1988**
 DATE OF INSPECTION **NOV 08 1988**

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

DEPTH (FEET)	GENERAL DESCRIPTION	DEPTH (FEET)	GENERAL DESCRIPTION
00	soft	00	soft
01	soft	01	soft
13	stones	13	stones
113	soft	113	soft
117	soft	117	soft
	silt		layered

WATER RECORD

DEPTH (FEET)	WATER LEVEL (FEET)	DATE	TIME	WIND DIRECTION	WIND VELOCITY	WATER LEVEL TYPE	WELL TYPE
6	115	NOV 14	6:00			STAINLESS STEEL	61
113	113						

CASING & OPEN HOLE RECORD

DEPTH (FEET)	WATER RECORD	CASING & OPEN HOLE RECORD
6	115	113

PUMPING TEST

DEPTH (FEET)	WATER LEVEL (FEET)	DATE	TIME	WIND DIRECTION	WIND VELOCITY	WATER LEVEL TYPE	WELL TYPE
6	115	NOV 14	6:00			STAINLESS STEEL	61

LOCATION OF WELL

36m
 COUNTY ROAD 23
 HIGHWAY #12
 36332

OFFICE USE ONLY

DATE **5218** SEP 09 1988
 WELL CONTRACTOR'S NO. **5218**
 WELL CONTRACTOR'S NAME **P & B WELLS INC.**
 WELL CONTRACTOR'S ADDRESS **R.R.#2, Colgate, Ontario L0K 5L1**
 WELL CONTRACTOR'S PHONE NO. **709-0990**
 CONTRACTOR'S NAME **Shaun Vinson**
 CONTRACTOR'S ADDRESS **1111 Highway 12, Orillia, Ont. L3V5R4**
 CONTRACTOR'S PHONE NO. **709-0990**

The Ontario Water Resources Act
WATER WELL RECORD

Ministry of the Environment
Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT FOR WATER CONTAMINANTS
3. CHECK CORRECT FOR WATER PARTICULATES

PROPERTY ADDRESS (STREET, TOWN, VILLAGE, COUNTY) [REDACTED] RR#2 Orillia L3V-6H2
CITY/TOWN/VILLAGE: Orillia, Ontario
COUNTY: Simcoe
MATERIALS: 14
DATE COMPLETED: NOV 15 1989
WELL NO.: 5725824
WELL DEPTH: 1.4
WELL TYPE: 1
WELL STATUS: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1
WELL NO.: 5725824
WELL DEPTH: 1.4
WELL TYPE: 1
WELL STATUS: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	DEPTH (FEET)	DESCRIPTION
Black	0 - 2	Top Soil
Brown	2 - 15	Sand
Grey	15 - 68	Hardpan
Grey	68 - 77	Gravel

51. WATER RECORD

WATER LEVEL: 77
WATER LEVEL DATE: 12/77
WATER LEVEL TIME: 8:00
WATER LEVEL TYPE: 76
WATER LEVEL METER: 76
WATER LEVEL METER TYPE: 76
WATER LEVEL METER SERIAL: 76
WATER LEVEL METER MAKE: 76
WATER LEVEL METER MODEL: 76
WATER LEVEL METER YEAR: 76
WATER LEVEL METER NOTES: 76

52. CASING & OPEN HOLE RECORD

WATER RECORD: 77
CASING RECORD: 76
OPEN HOLE RECORD: 76
CASING MATERIAL: 76
CASING SIZE: 76
CASING WALL THICKNESS: 76
CASING JOINTS: 76
CASING COUPLERS: 76
CASING CONNECTIONS: 76
CASING CONNECTIONS TYPE: 76
CASING CONNECTIONS SERIAL: 76
CASING CONNECTIONS MAKE: 76
CASING CONNECTIONS MODEL: 76
CASING CONNECTIONS YEAR: 76
CASING CONNECTIONS NOTES: 76

53. PLUGGING & SEALING RECORD

PLUGGING MATERIAL: 76
PLUGGING SIZE: 76
PLUGGING WALL THICKNESS: 76
PLUGGING JOINTS: 76
PLUGGING COUPLERS: 76
PLUGGING CONNECTIONS: 76
PLUGGING CONNECTIONS TYPE: 76
PLUGGING CONNECTIONS SERIAL: 76
PLUGGING CONNECTIONS MAKE: 76
PLUGGING CONNECTIONS MODEL: 76
PLUGGING CONNECTIONS YEAR: 76
PLUGGING CONNECTIONS NOTES: 76

54. LOCATION OF WELL

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

55. PUMPING TEST

WELL NO.: 5725824
WELL DEPTH: 1.4
WELL TYPE: 1
WELL STATUS: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

56. FINAL STATUS OF WELL

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

57. WATER USE

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

58. METHOD OF CONSTRUCTION

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

59. CONTRACTOR

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

The Ontario Water Resources Act
WATER WELL RECORD

Ministry of the Environment
Ontario

1. PRINT ONLY IN SPACES PROVIDED
2. CHECK CORRECT FOR WATER CONTAMINANTS
3. CHECK CORRECT FOR WATER PARTICULATES

PROPERTY ADDRESS (STREET, TOWN, VILLAGE, COUNTY) [REDACTED] RR#2 Orillia L3V-6H2
CITY/TOWN/VILLAGE: Orillia, Ontario
COUNTY: Simcoe
MATERIALS: 14
DATE COMPLETED: OCT 10 1989
WELL NO.: 5725824
WELL DEPTH: 1.4
WELL TYPE: 1
WELL STATUS: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	DEPTH (FEET)	DESCRIPTION
Black	0 - 2	Top Soil
Brown	2 - 15	Sand
Grey	15 - 68	Hardpan
Grey	68 - 77	Gravel

51. WATER RECORD

WATER LEVEL: 77
WATER LEVEL DATE: 12/77
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WATER LEVEL TYPE: 76
WATER LEVEL METER: 76
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WATER LEVEL METER MODEL: 76
WATER LEVEL METER YEAR: 76
WATER LEVEL METER NOTES: 76

52. CASING & OPEN HOLE RECORD

WATER RECORD: 77
CASING RECORD: 76
OPEN HOLE RECORD: 76
CASING MATERIAL: 76
CASING SIZE: 76
CASING WALL THICKNESS: 76
CASING JOINTS: 76
CASING COUPLERS: 76
CASING CONNECTIONS: 76
CASING CONNECTIONS TYPE: 76
CASING CONNECTIONS SERIAL: 76
CASING CONNECTIONS MAKE: 76
CASING CONNECTIONS MODEL: 76
CASING CONNECTIONS YEAR: 76
CASING CONNECTIONS NOTES: 76

53. PLUGGING & SEALING RECORD

PLUGGING MATERIAL: 76
PLUGGING SIZE: 76
PLUGGING WALL THICKNESS: 76
PLUGGING JOINTS: 76
PLUGGING COUPLERS: 76
PLUGGING CONNECTIONS: 76
PLUGGING CONNECTIONS TYPE: 76
PLUGGING CONNECTIONS SERIAL: 76
PLUGGING CONNECTIONS MAKE: 76
PLUGGING CONNECTIONS MODEL: 76
PLUGGING CONNECTIONS YEAR: 76
PLUGGING CONNECTIONS NOTES: 76

54. LOCATION OF WELL

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

55. PUMPING TEST

WELL NO.: 5725824
WELL DEPTH: 1.4
WELL TYPE: 1
WELL STATUS: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

56. FINAL STATUS OF WELL

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

57. WATER USE

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

58. METHOD OF CONSTRUCTION

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

59. CONTRACTOR

WELL STATUS: 1
WELL TYPE: 1
WELL LOCATION: 1
WELL COORDINATES: 1
WELL OWNER: 1
WELL CONTRACTOR: 1

CONTRACT NO. 5729835
 TOWNSHIP: BRIDGTON CITY: YORK VILLAGE
 COUNTY: BRIDGTON
 DATE COMPLETED: 11/09/92
 CON. NO. 14
 WELL NO. 117007
 DATE OF WELL RECORD: 11/09/92

LOG OF OVERBURDEN AND BEDROCK MATERIALS - SEE INSTRUCTIONS.

DEPTH (FEET)	GENERAL DESCRIPTION	DEPTH (FEET)	GENERAL DESCRIPTION
0 - 1	Top Soil	11 - 11	Sand
1 - 11	Clay	11 - 28	Clay
11 - 28	Clay	28 - 136	Stoner
28 - 136	Clay	136 - 145	Clay
136 - 145	Clay	145 - 152	Stones, Boulders
145 - 152	Sand		Stoner

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF CONSTRUCTION

39 CONTRACTOR

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF CONSTRUCTION

39 CONTRACTOR

CONTRACT NO. 5729835
 TOWNSHIP: BRIDGTON CITY: YORK VILLAGE
 COUNTY: BRIDGTON
 DATE COMPLETED: 11/09/92
 CON. NO. 14
 WELL NO. 117007
 DATE OF WELL RECORD: 11/09/92

LOG OF OVERBURDEN AND BEDROCK MATERIALS - SEE INSTRUCTIONS.

DEPTH (FEET)	GENERAL DESCRIPTION	DEPTH (FEET)	GENERAL DESCRIPTION
0 - 1	Top Soil	11 - 11	Sand
1 - 11	Clay	11 - 28	Clay
11 - 28	Clay	28 - 136	Stoner
28 - 136	Clay	136 - 145	Clay
136 - 145	Clay	145 - 152	Stones, Boulders
145 - 152	Sand		Stoner

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF CONSTRUCTION

39 CONTRACTOR

31 WATER RECORD

32 CASING & OPEN HOLE RECORD

33 PLUGGING & SEALING RECORD

34 LOCATION OF WELL

35 PUMPING TEST

36 FINAL STATUS OF WELL

37 WATER USE

38 METHOD OF CONSTRUCTION

39 CONTRACTOR

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

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5736116

11

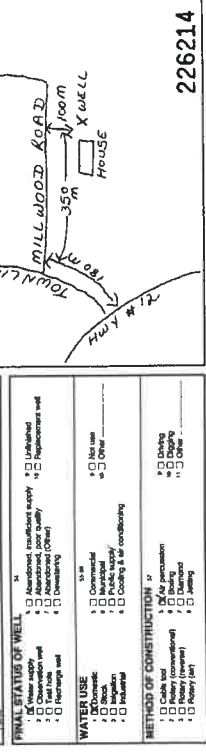
County of District SIMCOE
 Township/Village/Town/Village
 SEVERN
 Date completed 12 06 07
 Address BOX 102, ORILLIA, ONT L3V 6H9

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	Depth - feet	Remarks
BROWN	CLAY	STONE	0	25
BROWN	CLAY	SAND	25	35
GREY	CLAY		35	90
GREY	CLAY	GRAVEL	90	105
BROWN	CLAY	GRAVEL	105	150
BROWN	SAND	GRAVEL	150	155

31 WATER RECORD
 Well depth 155
 Kind of water 10
 Material and type 16
 6" STAINLESS STEEL 151
 51 PLUGGING & SEALING RECORD
 Material and type 107 BENTONITE

71 PUMPING TEST
 Static level 85
 Pumping level 100
 Water level during pumping 85
 Final status of well 10



MINISTRY USE ONLY
 Name of Well Contractor VINSON'S WELL DRILLING 5224
 Name of Well Location RR#2 COLDWATER, ONT L0K1E0
 Name of Well Technician DAVE VINSON 1956
 Date of Installation 30-8-01

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

5736116

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11

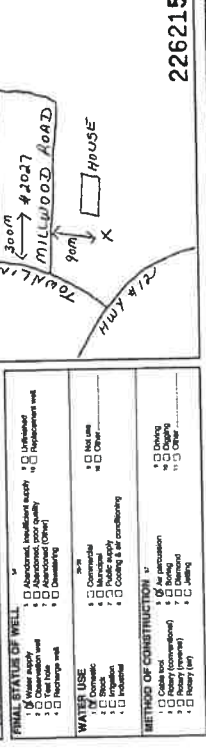
County of District SIMCOE
 Township/Village/Town/Village
 SEVERN
 Date completed 14 06 07
 Address BOX 102, ORILLIA, ONT L3V 6H9

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	Depth - feet	Remarks
BROWN	CLAY		0	25
BROWN	CLAY	SAND	25	28
GREY	CLAY		28	95
GREY	CLAY	GRAVEL	95	110
BROWN	CLAY	GRAVEL	110	155
BROWN	SAND	GRAVEL	155	160

31 WATER RECORD
 Well depth 160
 Kind of water 10
 Material and type 16
 6" STAINLESS STEEL 155
 51 PLUGGING & SEALING RECORD
 Material and type 107 BENTONITE

71 PUMPING TEST
 Static level 88
 Pumping level 90
 Water level during pumping 88
 Final status of well 10



MINISTRY USE ONLY
 Name of Well Contractor VINSON'S WELL DRILLING 5224
 Name of Well Location RR#2 COLDWATER, ONT L0K1E0
 Name of Well Technician DAVE VINSON 1956
 Date of Installation 30-8-01

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

5736341 11 57007 CON 14

County or District: SIMCOE
 Name: ST LUKE'S ANGLICAN CHURCH
 Address: 100 MEDONITE (MEDONITE) CHURCH PRICES CORNERS
 Date completed: 01/01/01

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

General colour	Most common material	Other materials	Depth - feet	From	To
GREY CLAY	TOPSOIL		0	1	10
GREY CLAY	STONES		10	185	
BROWN SAND	LAYERED SILT SAND		185	190	
GREY CLAY	GRAVEL		190	200	
	GRAVEL TIL				
	OLD CRIB WELL SEALED WITH BENTONITE BACKFILLED WITH CLAY - TOP STONES REMOVED 20 FEET BEHIND ST. LUKE'S HOUSE				

31 WATER RECORD

Kind of water	From	To	Depth - feet
1 Fresh	184	184	184
2 Salty	184	184	184
3 Other	184	184	184
4 Salty	184	184	184
5 Other	184	184	184
6 Salty	184	184	184
7 Other	184	184	184
8 Salty	184	184	184
9 Other	184	184	184
10 Salty	184	184	184
11 Other	184	184	184
12 Salty	184	184	184
13 Other	184	184	184
14 Salty	184	184	184
15 Other	184	184	184
16 Salty	184	184	184
17 Other	184	184	184
18 Salty	184	184	184
19 Other	184	184	184
20 Salty	184	184	184
21 Other	184	184	184
22 Salty	184	184	184
23 Other	184	184	184
24 Salty	184	184	184
25 Other	184	184	184
26 Salty	184	184	184
27 Other	184	184	184
28 Salty	184	184	184
29 Other	184	184	184
30 Salty	184	184	184
31 Other	184	184	184

32 CASING & SEALING RECORD

Material	From	To	Depth - feet
1 Steel	188	184	184
2 Concrete	188	184	184
3 Other	188	184	184
4 Steel	188	184	184
5 Concrete	188	184	184
6 Other	188	184	184
7 Steel	188	184	184
8 Concrete	188	184	184
9 Other	188	184	184
10 Steel	188	184	184
11 Concrete	188	184	184
12 Other	188	184	184
13 Steel	188	184	184
14 Concrete	188	184	184
15 Other	188	184	184
16 Steel	188	184	184
17 Concrete	188	184	184
18 Other	188	184	184
19 Steel	188	184	184
20 Concrete	188	184	184
21 Other	188	184	184
22 Steel	188	184	184
23 Concrete	188	184	184
24 Other	188	184	184
25 Steel	188	184	184
26 Concrete	188	184	184
27 Other	188	184	184
28 Steel	188	184	184
29 Concrete	188	184	184
30 Other	188	184	184
31 Steel	188	184	184
32 Concrete	188	184	184
33 Other	188	184	184

71 PUMPING TEST

Flowing rate: 3 GPM
 Water level during pumping: 175 feet
 Recommended pump setting: 175 feet
 Recovery: 175 feet

72 PLUGGING AND SEALING RECORD

Material and type: BENTONITE
 Kind of water: FRESH
 Depth: 185 feet

73 LOCATION OF WELL

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

74 FINAL STATUS OF WELL

Abandoned, insufficient supply:
 Abandoned, other quality:
 Abandoned, other reason:
 Recharge well:
 Other:

75 WATER USE

Domestic:
 Industrial:
 Irrigation:
 Other:

76 METHOD OF CONSTRUCTION

Excavation:
 Rotary (conventional):
 Rotary (reversible):
 Other:

77 ADDRESS INFORMATION

Address: 3174 LIME ST. AREA
 City: TORONTO
 Province: ONTARIO
 License No: 5224

Well No: A 004337

Ontario Ministry of the Environment

Instructions for Completing Form
 For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference. Back of this form
 All Sections must be completed in full to avoid delays in processing. Further instructions and explanations are in the back of this form
 Questions regarding completing the application can be directed to the Water Well Management Coordinator at 416-236-8203.
 All metre measurements shall be reported to 1/10 of a metre.

Address: 1717 COE ST. SEAVAN
 City/Town/Village: OAKVILLE
 Unit Name/Model: PROTECTION
 Mode of Operation: UNDERGROUND
 Well No: A 004337

Log of Overburden and Bedrock Materials (see instructions)

General Colour	Most common material	Other Materials	Depth - feet	From	To
BROWN SAND	GRAVEL		0	15	45
GREY SAND	GRAVEL/CLAY		15	45	76
BROWN HARDPAN			25	60	76
GREY CLAY		STONE	60	10	182
GREY CLAY			60	10	182
GREY LIMESTONE		BEDROCK	190	20	487
			190	20	603
			190	20	853

Construction Record

Head	Material	Size	Thickness	From	To	Depth - feet
153	Concrete	5mm	0	60	60	60
6	Fluegel	188	0	198	198	198

Test of Well Yield

Pumping test method	Draw Down	Recovery	
From	From	To	
Time	Time	Time	
Minutes	Minutes	Minutes	
Seconds	Seconds	Seconds	
1	35	1	50
2	38	2	30
3	40	3	30
4	44	4	30
5	47	5	30
10	55	10	30
15	55	15	30
20	55	20	30
25	55	25	30
30	55	30	30
40	55	40	30
50	55	50	30
60	55	60	30
80	55	80	30
100	55	100	30

04337

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0 99.0m

0 100.0m

Ministry Use Only

Class Source: 5224

Date of Inspection: 08/08/00

Well Record Number: 5738683

Contractor's Copy: Ministry's Copy: Well Owner's Copy:



Ministry of the Environment

Well Log Number (Please show and print number below)

A 039943

Well Record Regulation 803 Ontario Water Resources Act

Instructions for Completing Form

- For use in the Province of Ontario only. This document is a permanent legal document. Please retain for future reference.
All Sections must be completed in full to avoid delays in processing. Further instructions and regulations are available on the back of this form.
All measurements shall be reported to 1/16" of a metre.
Please print clearly in blue or black ink only.

Well Owner's Information and Location of Well Information

Well Owner's Information and Location of Well Information form fields including Well No., GPS Reading, Log of Overburden, etc.

Table with columns: Hole Diameter, Construction Record, Test of Well Yield, Water Record, and Location of Well. Includes handwritten data for well A 039943.

Method of Construction, Plugging and Sealing Record, and Well Contractor information sections.

Well Contractor information section including Name, Address, and License No.

Remarks section for well A 039943.

Date and Signature section for well A 039943.

Contractor's Copy and Ministry's Copy checkboxes.

Scale 1:1000 and other technical details.

Additional notes and signatures.

Final administrative and signature blocks.



Ministry of the Environment

Well Log Number (Please show and print number below)

A 042539

Well Record Regulation 803 Ontario Water Resources Act

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Please print clearly in blue or black ink only.

Well Owner's Information and Location of Well Information

Well Owner's Information and Location of Well Information form fields including Well No., GPS Reading, Log of Overburden, etc.

Table with columns: Hole Diameter, Construction Record, Test of Well Yield, Water Record, and Location of Well. Includes handwritten data for well A 042539.

Method of Construction, Plugging and Sealing Record, and Well Contractor information sections.

Well Contractor information section including Name, Address, and License No.

Remarks section for well A 042539.

Date and Signature section for well A 042539.

Contractor's Copy and Ministry's Copy checkboxes.

Additional notes and signatures.

Final administrative and signature blocks.

Scale 1:1000 and other technical details.

Well Location (Street/Highway/Rail)
4043 DINGBY DRIVE SEVEN (SERRAVALLE) 2

City/Town/Village
SEVEN

Province
Ontario

Postal Code
L3N 6H2

UTM Coordinates
MAD 8 3 171618 38214941699

Well Name
SINCOE

Well Number
06111A

Well Depth (m)
39.0

Well Diameter (mm)
152.4

Well Construction
152.4mm dia. 10m galv. steel

Well Completion
152.4mm dia. 10m galv. steel

Well Status
Active

Well Use
Water supply

Well Construction Record - Casing

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Screen

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 3.9	BROWN SAND	
3.9 - 11.3	CLAY	
11.3 - 24.7	CLAY	
24.7 - 33.5	SAND	
33.5 - 35.9	CLAY	
35.9 - 39.0	SILT	

Well Location (Street/Highway/Rail)
3900 Montclair cres

City/Town/Village
SEVEN

Province
Ontario

Postal Code
L3S 6S7

UTM Coordinates
MAD 8 3 171618 38214941699

Well Name
SINCOE

Well Number
06111A

Well Depth (m)
194

Well Diameter (mm)
152.4

Well Construction
152.4mm dia. 10m galv. steel

Well Completion
152.4mm dia. 10m galv. steel

Well Status
Active

Well Use
Water supply

Well Construction Record - Casing

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Screen

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

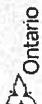
Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	

Well Construction Record - Well

Depth (m)	Material	Remarks
0 - 10.45	END OF TEST	
10.45 - 194	194	



Ministry of the Environment

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

Tag#: A129115

Well Record

Regulation 903 Ontario Water Resources Act

Page 1 of 1

Well Location: 4 DREGL DRIVE, SIMCOE COUNTY, ONTARIO

Address of Well Location: 22 BRIANNE CRESCENT, OKTO TOWNSHIP, ONTARIO

UTM Coordinates: Zone 18N, Easting 618011.00, Northing 4941508.00

Overburden and Bedrock Materials Interval: BRWN CLAY, BRWN SAND, GREY CLAY, GREY SILT, GREEN CLAY, GREEN GRAVEL

Table with 4 columns: Depth (m), Type of Sealant Used, Volume Record, Results of Well Yield Test(s)

Method of Construction: Gravel, Sand, Clay, Silt, LMSN

Annular Space/Abandonment Sealing Record: Details on sealant type and volume

Method of Construction & Well Use: Construction details and well use (Domestic)

Status of Well: Water Supply, Construction Record - Casing

Construction Record - Screen: Details on screen type and depth

Business Name of Well Contractor and Well Technician Information

This table contains information from the original well record and any subsequent updates.

Well ID

Well ID Number: 7269633, Well Asset Number: 2712636, Well Tag Number: A185845

Well Location

Address of Well Location: 22 BRIANNE CRESCENT, OKTO TOWNSHIP, ONTARIO

Overburden and Bedrock Materials Interval

Table with 4 columns: General Colour, Most Common Material, Other Materials, General Description, Depth From, Depth To

Annular Space/Abandonment Sealing Record

Depth, Type of Sealant Used, Volume From, To, Placed

Method of Construction & Well Use

Method of Construction, Well Use (Domestic)

Status of Well

Water Supply

Construction Record - Casing

Table with 3 columns: Inside Diameter, Open Hole or material, Depth From, Depth To

Construction Record - Screen

Table with 3 columns: Outside Diameter, Material, Depth From, Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 5528

Results of Well Yield Testing

After test of well yield, water was CLOUDY
 If pumping discontinued, give reason 49 m
 Pump intake set at 24 LPM
 Pumping Rate 1 h 0 m
 Duration of Pumping 37.4 m
 Final water level
 If flowing give rate 49 m
 Recommended pump depth 25 LPM
 Recommended pump rate
 Well Production Y
 Disinfected?

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	16.21 m		
1	17.91 m		
2	18.32 m		
3	18.7 m		
4	19.49 m		
5	20.35 m		
10	24.2 m		
15	27.48 m		
20	29.38 m		
25	31.3 m		
30	33.1 m		
40	35.05 m		
45			
50	36.5 m		
60	37.4 m		

Water Details

Water Found at Depth Kind
 61 m Unstested

Hole Diameter

Depth From	Depth To	Diameter
0 m	7 m	26 cm
7 m	56 m	22 cm
56 m	61.9 m	15 cm

Audit Number: Z212636

Date Well Completed: August 03, 2016

Date Well Record Received by MOE: August 19, 2016

Updated: June 28, 2018

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Page

Well ID

Well ID Number: 7285225
 Well Audit Number: Z240130
 Well Tag Number: A183890

This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location 12 BREANNA BLVD
 Township ORO TOWNSHIP
 Lot 001
 Concession CON 14
 County/District/Municipality SIMCOE
 City/Town/Village PRICES CORNER
 Province ON
 Postal Code n/a
 UTM Coordinates NAD83 - Zone 17
Easting: 617873.00
Northing: 4941666.00
 Municipal Plan and Sublot Number
 Other

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
GREY	TILL	STNS		0 m	47.2 m
GREY	SAND		HARD	47.2 m	48.8 m
GREY	TILL	STNS		48.8 m	60.7 m
GREY	LMSN			60.7 m	62.8 m

Annular Space/Abandonment Sealing Record

Depth From To Type of Sealant Used Volume Placed
 0 m 7 m BENTONITE-400

Method of Construction & Well Use

Method of Construction Well Use
 Rotary (Convent) Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
15.5 cm	STEEL	-6 m	61.5 m
	OPEN HOLE	61.5 m	62.8 m

Construction Record - Screen

Outside Diameter Material Depth From Depth To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 5528

Results of Well Yield Testing

After test of well yield, water was CLEAR
 If pumping discontinued, give reason
 Pump intake set at 49 m
 Pumping Rate 28 LPM
 Duration of Pumping 1 h 0 m
 Final water level 19 96 m
 If flowing, give rate
 Recommended pump depth 49 m
 Recommended pump rate 28 LPM
 Well Production
 Disinfected? Y

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	17 05 m		
1	18 m	1	18.57 m
2	18.3 m	2	18.36 m
3	18.53 m	3	18.25 m
4	18.68 m	4	18.18 m
5	18.79 m	5	18.15 m
10	19.04 m	10	
15	19.2 m	15	
20	19.33 m	20	
25	19.43 m	25	
30	19.54 m	30	
40	19.68 m	40	
45		45	
50	19.81 m	50	
60	19.96 m	60	

Water Details

Water Found at Depth Kind
 Unstated

Hole Diameter

Depth From	Depth To	Diameter
0 m	7 m	26 cm
7 m	61.7 m	22 cm
61.7 m	62.8 m	15 cm

Audit Number: 2240130

Date Well Completed: January 11, 2017

Date Well Record Received by MOE: April 13, 2017

Updated: June 28, 2018
 ShareGata
 Sharefacebook twitter Print
 Page

Well ID

Well ID Number: 7274447
 Well Audit Number: 22189098
 Well Tag Number: A210368

This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location 2073 HAWLEY ROAD
 Township ORILLIA TOWNSHIP
 Lot 001
 Concession SD-01
 County/District/Municipality SIMCOE
 City/Town/Village Orillia
 Province ON
 Postal Code n/a
 UTM Coordinates NAD83 - Zone 17
 Easting: 615002.00
 Northing: 4941895.00
 Municipal Plan and Sublot Number
 Other

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BRWN	SAND	CLAY		0 ft	18 ft
GREY	CLAY	GRVL		18 ft	75 ft
BRWN	HPAN	STNY		75 ft	192 ft
GREY	LMSN	ROCK		192 ft	220 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 ft	25 ft	E-Z SEAL BENTONITE	

Method of Construction & Well Use

Method of Construction Air Percussion Well Use

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL	0 ft	194 ft

Construction Record - Screen

Outside Diameter Material Depth From To

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 5224

Results of Well Yield Testing

After test of well yield, water was CLEAR
 If pumping discontinued, give reason END OF TEST
 Pump intake set at 190 ft
 Pumping Rate 12 GPM
 Duration of Pumping 2 h.0 m
 Final water level 185 ft
 If flowing give rate _____
 Recommended pump depth 180 ft
 Recommended pump rate 10 GPM
 Well Production _____
 Disinfected? Y

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	85.5 ft		
1	89.3 ft	1	178.8 ft
2	93.1 ft	2	172.6 ft
3	96.9 ft	3	166.4 ft
4	100.7 ft	4	161.1 ft
5	104.5 ft	5	155.8 ft
10	118 ft	10	129.3 ft
15	131.5 ft	15	114.8 ft
20	145 ft	20	100.3 ft
25	158.5 ft	25	93.2 ft
30	168.3 ft	30	87.5 ft
40	183.1 ft	40	85.5 ft
45		45	
50	185 ft	50	85.5 ft
60	185 ft	60	85.5 ft

Water Details

Water Found at Depth: _____ Kind Fresh
 220 ft

Hole Diameter

Depth _____
 From _____ Diameter _____
 To _____
 0 ft 220 ft 6 inch

Audit Number: Z239098

Date Well Completed:

Date Well Record Received by MOE: November 07, 2016

Updated: June 28, 2018

Rate/Site

Share/Feedback Twitter Print

Tags

A256076

Measurements recorded in: Metric Imperial

Page _____ of _____

Well Owner's Information

First Name _____ Last Name / Organization Earth Share Cedar Estates Inc rancheslocke@ua.ca E-mail Address _____ Well Constructed by Well Owner

Mailing Address (Street Number/Name) 34 Grace Crescent Municipality Oro-Medonte Province Ontario Postal Code L6H 4P6 Telephone No. (inc. area code) 705 333 3470

Well Location

Address of Well Location (Street Number/Name) 2032 Division Road West Township Seven Lot Part 7 of 1 Concession _____

County/District/Municipality _____ City/Town/Village Oakville Province **Ontario** Postal Code H3V 0X7

UTM Coordinates: Zone _____ Easting _____ Northing _____ Municipal Plan and Sublot Number _____ Other _____

NAD: 83 176118231649191213 Part 5 R 41373

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

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft)	
				From	To
Black	Top Soil			0	1
Brown	Clay		Soft	1	11
Blue	Clay	Rocks	Hard	11	52
Blue	Small Clay		Soft	52	59
Blue	Clay		Medium	59	69
Blue	Sand		Medium	69	73
Blue	Sand		Coarse	73	79

Annular Space

Depth Set at (m/ft)	Type of Sealant Used (Material and Type)	Volume Placed (m ³ /ft ³)
0 to 20	3/8 Bentonite	9

Results of Well Yield Testing

Time (min)	Water Level (m/ft)	Recovery	
		Time (min)	Water Level (m/ft)
Static Level	15		
1	25.1	1	51.9
2	26.9	2	50.2
3	28.5	3	48.9
4	30	4	47.6
5	31.5	5	46.4
10	37	10	42.3
15	41.3	15	38.7
20	43.3	20	36
25	44.9	25	33.9
30	48.1	30	32.2
40	49.8	40	29.5
50	53	50	27.9
60	54	60	26.5

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

If pumping discontinued, give reason: _____

Pump intake set at (m/ft) 78

Pumping rate (l/min / GPM) 3.5

Duration of pumping 5 hrs + _____ min

Final water level end of pumping (m/ft) 60

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

Recommended pump depth (m/ft) 70

Recommended pump rate (l/min / GPM) 3

Well production (l/min / GPM) 25

Disinfected? Yes No

Method of Construction

Cable Tool Diamond Public Commercial Not used

Rotary (Conventional) Jetting Domestic Municipal Dewatering

Rotary (Reverse) Drilling Livestock Test Hole Monitoring

Boring Digging Irrigation Cooling & Air Conditioning

Air percussion Industrial Other, specify _____

Other, specify _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft)		Status of Well
			From	To	
6	Steel	.188	+2	74	<input checked="" type="checkbox"/> Water Supply <input type="checkbox"/> Replacement Well <input type="checkbox"/> Test Hole <input type="checkbox"/> Recharge Well <input type="checkbox"/> Dewatering Well <input type="checkbox"/> Observation and/or Monitoring Hole <input type="checkbox"/> Alteration (Construction) <input type="checkbox"/> Abandoned: Insufficient Supply <input type="checkbox"/> Abandoned: Poor Water Quality <input type="checkbox"/> Abandoned: other, specify _____ <input type="checkbox"/> Other, specify _____

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft)	
			From	To
5	Steel	#10	74	79

Water Details

Water found at Depth (m/ft)	Kind of Water	Depth (m/ft)	To	Diameter (cm/in)
73	<input checked="" type="checkbox"/> Fresh <input checked="" type="checkbox"/> Untested	0	20	12
	<input type="checkbox"/> Gas <input type="checkbox"/> Other, specify _____	20	74	6
	<input type="checkbox"/> Fresh <input type="checkbox"/> Untested	74	79	5

Well Contractor and Well Technician Information

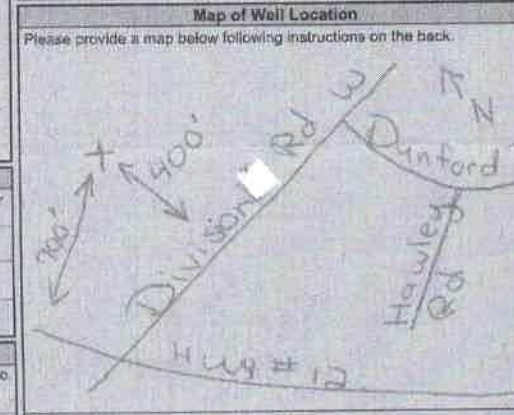
Business Name of Well Contractor Lane Star Drilling Services Ltd Well Contractor's Licence No. 716163

Business Address (Street Number/Name) PO Box 10043 Aurora Municipality Innisfil

Province Ontario Postal Code L4R 5H1 Business E-mail Address info@lanestar.com

Bus Telephone No. (inc. area code) _____ Names of Well Technician (Last Name, First Name) Thomas Stassen

Well Technician's Licence No. 410138 Signature of Technician and/or Contractor Thomas Stassen Date Submitted 2011 9 24 10



Comments: _____

Well owner's information package delivered <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Date Package Delivered <u>2011 9 24 10</u>	Ministry Use Only Audit No. <u>2296701</u>
Date Work Completed <u>2011 9 24 10</u>	Received _____	

**Appendix B:
Stage 1-2 Archaeological Property
Assessment**



1.0 PROJECT REPORT COVER PAGE

LICENSEE INFORMATION:

Contact Information:

Michael B. Henry CD BA FRAI FRSA
Marilyn E. Cornies BA CAHP
Southwestern District Office
553 Dufferin Avenue
London, ON N6B 2A5
Phone: (419) 432-4435
Email: mhenry@amick.ca/mcornies@amick.ca
www.amick.ca

Licensee:

Michael B. Henry CD BA FRAI FRSA
P058

Ontario Archaeology Licence:

PROJECT INFORMATION:

Corporate Project Number:

19803

MHSTCI Project Number:

P058-1760-2019

Investigation Type:

Stage 1-2 Archaeological Property Assessment

Project Name:

Division Road.

Project Location:

Parts 7, 8, 9, 10 & 11 of Plan 51R-41373, Part of Lot 1,
Concession 1 Northern Division (Geographic Township
of Orillia), Township of Severn, County of Simcoe

Project Designation Number:

Not Currently Available

MHSTCI FILING INFORMATION:

Site Record/Update Form(s):

N/A

Date of Report Filing:

TBD

Type of Report:

ORIGINAL

2.0 EXECUTIVE SUMMARY

This report describes the results of the 2019 Stage 1-2 Archaeological Assessment of Parts 7, 8, 9, 10 & 11 of Plan 51R-41373, Part of Lot 1, Concession 1 Northern Division (Geographic Township of Orillia), Township of Severn, County of Simcoe, conducted by AMICK Consultants Limited. This study was conducted under Professional Archaeologist License #P058 issued to Michael Henry by the Minister of Heritage, Sport, Tourism and Culture Industries for the Province of Ontario. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and the Provincial Policy Statement (2014) in order to support a Site Plan and companion Zoning By-law Amendment application as part of the pre-submission process. Within the land use planning and development context, Ontario Regulation 544/06 under the Planning Act (1990b) requires an evaluation of archaeological potential and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI). Policy 2.6 of the Provincial Policy Statement (PPS 2014) addresses archaeological resources. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011), the Ontario Heritage Act (RSO 1990a).

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment high intensity test pit methodology at a five-metre interval between individual test pits on 21 August 2019. All records, documentation, field notes, photographs and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) on behalf of the government and citizens of Ontario.

As a result of the Stage 2 Property Assessment of the study area, no archaeological resources were encountered. Consequently, the following recommendations are made:

- 1. No further archaeological assessment of the study area is warranted;*
- 2. The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed;*
- 3. The proposed undertaking is clear of any archaeological concern.*

3.0 TABLE OF CONTENTS

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4.0 PROJECT PERSONNEL

AMICK CONSULTANTS LIMITED PARTNERS

Michael Henry (MHSTCI Professional Archaeologist Licence #P058)

Marilyn Cornies (MHSTCI Professional Archaeologist Licence #P038)

AMICK CONSULTANTS LIMITED BUSINESS MANAGER

Melissa Maclean BBA email mmaclean@amick.ca

PROJECT COORDINATOR

Melissa Maclean

PROJECT LICENSEE ARCHAEOLOGIST

Michael Henry (MHSTCI Professional Archaeologist Licence #P058)

PROJECT FIELD DIRECTOR

Katrina Mason (MHSTCI Applied Research Archaeologist Licence #R1226)

PROJECT FIELD ASSISTANTS

Mary Watson

Michaela Swallows

Trent Swallows

PROJECT REPORT PREPARATION

Nick Kaluzny

PROJECT GRAPHICS

Nick Kaluzny

PROJECT PHOTOGRAPHY

Katrina Mason (MHSTCI Applied Research Archaeologist Licence #R1226)

5.0 PROJECT CONTEXT

5.1 DEVELOPMENT CONTEXT

This report describes the results of the 2019 Stage 1-2 Archaeological Assessment of Parts 7, 8, 9, 10 & 11 of Plan 51R-41373, Part of Lot 1, Concession 1 Northern Division (Geographic Township of Orillia), Township of Severn, County of Simcoe, conducted by AMICK Consultants Limited. This study was conducted under Professional Archaeologist License #P058 issued to Michael Henry by the Minister of Heritage, Sport, Tourism and Culture Industries for the Province of Ontario. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and the Provincial Policy Statement (2014) in order to support a Site Plan and companion Zoning By-law Amendment application as part of the pre-submission process. Within the land use planning and development context, Ontario Regulation 544/06 under the Planning Act (1990b) requires an evaluation of archaeological potential and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI). Policy 2.6 of the Provincial Policy Statement (PPS 2014) addresses archaeological resources. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011), the Ontario Heritage Act (RSO 1990a).

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At the time of preparing this report a development plan had not been made available to AMICK Consultants Limited. Instead, a plan of survey showing the limits of the study area has been submitted together with this report to MHSTCI for review and reproduced within this report as Map 4.

5.2.1 GENERAL PRECONTACT OUTLINE

What follows is an outline of Aboriginal occupation in the area during the Pre-Contact Era from the earliest known period, about 9000 B.C. up to approximately 1650 AD. A larger regional synthesis of archaeological data that would include much of Simcoe County has not been undertaken at the time this report was completed (Ellis and Deller, 1990).

5.2.1.1 PALAEO-INDIAN PERIOD (APPROXIMATELY 9000-7500 B.C.)

North of Lake Ontario, evidence suggests that early occupation began around 9000 B.C. People probably began to move into this area as the glaciers retreated and glacial lake levels began to recede. The early occupation of the area probably occurred in conjunction with environmental conditions that would be comparable to modern Sub-Arctic conditions. Due to the great antiquity of these sites, and the relatively small populations likely involved, evidence of these early inhabitants is sparse and generally limited to tools produced from stone or to by-products of the manufacture of these implements. Some sites of this earliest period of First Nations occupation of Simcoe County have been documented to the south and to the west of Kempenfelt Bay.

5.2.1.2 ARCHAIC PERIOD (APPROXIMATELY 8000-1000 B.C.)

By about 8000 B.C. the gradual transition from a post glacial tundra-like environment to an essentially modern environment was largely complete. Prior to European clearance of the landscape for timber and cultivation, the area was characterized by forest. The Archaic Period is the longest and the most apparently stable of the cultural periods identified through archaeology. The Archaic Period is divided into the Early, Middle and Late Sub-Periods, each represented by specific styles in projectile point manufacture. Many more sites of this period are found throughout Ontario, than of the Palaeo-Indian Period. This is probably a reflection of two factors: the longer period of time reflected in these sites, and a greater population density. The greater population was likely the result of a more diversified subsistence strategy carried out in an environment offering a greater variety of abundant resources. (Smith 2002:58-59)

Current interpretations suggest that the Archaic Period populations followed a seasonal cycle of resource exploitation. Although similar in concept to the practices speculated for the big game hunters of the Palaeo-Indian Period, the Archaic populations utilized a much broader range of resources, particularly with respect to plants. It is suggested that in the spring and early summer, bands would gather at the mouths of rivers and at rapids to take advantage of fish spawning runs. Later in the summer and into the fall season, smaller groups would move to areas of wetlands to harvest nuts and wild rice. During the winter, they would break into yet smaller groups probably based on the nuclear family and perhaps some additional relatives to move into the interior for hunting. The result of such practices would be to create a distribution of sites across much of the landscape. (Smith 2002: 59-60).

The material culture of this period is much more extensive than that of the Palaeo-Indians. Stylistic changes between Sub-Periods and cultural groups are apparent, although the overall quality in production of chipped lithic tools seems to decline. This period sees the introduction of ground stone technology in the form of celts (axes and adzes), manos and metates for grinding nuts and fibres, and decorative items like gorgets, pendants, birdstones, and bannerstones. Bone tools are also evident from this time period. Their presence may be a result of better preservation from these more recent sites rather than a lack of such items in

earlier occupations. In addition, copper and exotic chert types appear during the period and are indicative of extensive trading (Smith 2002: 58-59).

Three First Nations trails known as the Rouge Trail, the Don Trail, and the Humber Trail began on the north shore of Lake Ontario in the Toronto area and terminated on the two branches of the Holland River (Myers 1977: 2). These trails form part of a long established trade and communications network that linked the upper and lower Great Lakes. The route followed the Holland River into the southern end of Lake Simcoe. Also, the route followed the western shore of Lake Simcoe northward to Kempenfelt Bay, and then westward to the end of the bay. A portage was then undertaken to the Nottawasaga River and this river was followed into Georgian Bay at the present location of the Town of Wasaga Beach. This network of trade and communication had been long established by the time Europeans began to operate in the area. The presence of artifacts dating to the Early Archaic Period in close proximity to the upper and lower landings on the Holland River east branch suggests that the use of this system most likely dates back to at least that period.

5.2.1.3 WOODLAND PERIOD (APPROXIMATELY 1000 B.C.-1650 A.D.)

The primary difference in archaeological assemblages that differentiates the beginning of the Woodland Period from the Archaic Period is the introduction of ceramics to Ontario populations. This division is probably not a reflection of any substantive cultural changes, as the earliest sites of this period seem to be in all other respects a continuation of the Archaic mode of life with ceramics added as a novel technology. The seasonally based system of resource exploitation and associated population mobility persists for at least 1500 years into the Woodland Period. (Smith 2002: 61-62)

The Early Woodland Sub-Period dates from about 1000-400 B.C. Many of the artifacts from this time are similar to the late Archaic and suggest a direct cultural continuity between these two temporal divisions. The introduction of pottery represents an entirely new technology that was probably acquired through contact with more southerly populations from which it likely originates. (Smith 2002:62)

The Middle Woodland Sub-Period dates from about 400 B.C.-800 A.D. Within the region including the study area, a complex emerged at this time termed "Point Peninsula". Point Peninsula pottery reflects a greater sophistication in pottery manufacture compared with the earlier industry. The paste and temper of the new pottery is finer and new decorative techniques such as dentate and pseudo-scallop stamping appear. There is a noted Hopewellian influence in southern Ontario populations at this time. Hopewell influences from south of the Great Lakes include a widespread trade in exotic materials and the presence of distinct Hopewell style artifacts such as platform pipes, copper or silver panpipe covers and shark's teeth. The populations of the Middle Woodland participated in a trade network that extended well beyond the Great Lakes Region.

The Late Woodland Sub-Period dates from about 500-1650 A.D. The Late Woodland includes four separate phases: Princess Point, Early Ontario Iroquoian, Middle Ontario Iroquoian and Late Ontario Iroquoian.

The Princess Point phase dates to approximately 500-1000 A.D. Pottery of this phase is distinguished from earlier technology in that it is produced by the paddle method instead of coil and the decoration is characterized by the cord wrapped stick technique. Ceramic smoking pipes appear at this time in noticeable quantities. Princess Point sites cluster along major stream valleys and wetland areas. Maize cultivation is introduced by these people to Ontario. These people were not fully committed to horticulture and seemed to be experimenting with maize production. They generally adhere to the seasonal pattern of occupation practiced by earlier occupations, perhaps staying at certain locales repeatedly and for a larger portion of each year (Smith 2002: 65-66)

The Early Ontario Iroquoian stage dates to approximately 950-1050 A.D. This stage marks the beginning of a cultural development that led to the historically documented Ontario Iroquoian groups that were first contacted by Europeans during the early 1600s (Petun, Neutral, and Huron). At this stage formal semi-sedentary villages emerge. The Early stage of this cultural development is divided into two cultural groups in southern Ontario. The areas occupied by each being roughly divided by the Niagara Escarpment. To the west were located the Glen Meyer populations, and to the east were situated the Pickering people (Smith 2002: 67).

The Middle Ontario Iroquoian stage dates to approximately 1300-1400 A.D. This stage is divided into two sub-stages. The first is the Uren sub-stage lasting from approximately 1300-1350 A.D. The second of the two sub-stages is known as the Middleport sub-stage lasting from roughly 1350-1400 A.D. Villages tend to be larger throughout this stage than formerly (Smith 2002: 67).

The Late Ontario Iroquoian stage dates to approximately 1400-1650 A.D. During this time the cultural divisions identified by early European explorers are under development and the geographic distribution of these groups within southern Ontario begins to be defined. During this period the Huron and Petun become established in their respective homelands familiar to early explorers, traders and missionaries.

5.2.2 GENERAL HISTORICAL OUTLINE

In the seventeenth century Simcoe County was home to the Huron. With the arrival of French priests and Jesuits, missions were established near Georgian Bay. After the destruction of the missions by the Iroquois and the British, Algonquin speaking peoples occupied the area. After the war of 1812, the government began to invest in the military defences of Upper Canada, through the extension of Simcoe's Yonge Street from Lake Simcoe to Penetanguishene on Georgian Bay (Garbutt 2010).

The township of Severn was created on January 1, 1994 through a restructuring of Simcoe County. The new township now encompasses the Village of Coldwater and parts of the Townships of Orillia, Tay, and Medonte (Township of Severn 2013).

Map 2 is a facsimile segment from Hogg's Map of the County of Simcoe (Hogg 1871). Map 2 illustrates the location of the study area and environs as of 1871. The study area is not shown to belong to anyone and there are no structures within or near the study area. However, the settlement of Prices Corners is nearby to the southwest. In addition, a settlement road is depicted as adjacent to the study area to the south. This road is the current Division Road West.

Map 3 is a facsimile segment of the Township of Orillia map reproduced from The Simcoe Supplement in Illustrated Atlas of the Dominion of Canada (Belden, H. & Co. 1881). Map 3 illustrates the location of the study area and environs as of 1881. The study area is not shown to belong to anyone and there are no structures within or near the study area. However, the settlement of Prices Corners is shown to be nearby to the southwest. In addition, this map illustrates an unnamed stream channel situated nearby to the northeast of the study area and a settlement road is depicted as adjacent to the study area to the south. This road is the current Division Road West and the stream channel is a branch of the North River.

It must be borne in mind that inclusion of names of property owners and depictions of structures and other features within properties on these maps were sold by subscription. Property owners paid to include information or details about their properties. While information included within these maps may provide information about the occupation of a property at a specific moment in time when the information was collected, the absence of such information does not necessarily indicate that the property was not occupied.

5.2.3 CURRENT CONDITIONS

The present use of the study area is as an empty lot. The study area is roughly 12.64 hectares in area. The study area includes within it open meadow and woodlot. The western and central portion of the study area had previously been assessed before the client halted the project in 2018. The eastern part of the study area assessed this year is entirely an open meadow. The study area is bounded on the north by woodlot, on the east by residential properties and Carriage Court, on the west by an open field and on the south by Division Road West. The study area is adjacent and to the northeast of the intersection of Division Road West and Dunford Drive. A plan of the study area is included within this report as Map 4. Current conditions encountered during the Stage 1-2 Property Assessment are illustrated in Maps 5 & 6.

5.2.4 SUMMARY OF HISTORICAL CONTEXT

The brief overview of readily available documentary evidence indicates that the study area is situated within an area that was close to historic transportation routes and in an area well populated during the nineteenth century and therefore has potential for sites relating to early

Post-Contact settlement in the region. Background research also indicates the property has potential for significant archaeological resources of Native origins based on proximity to a natural source of potable water in the past.

5.3 ARCHAEOLOGICAL CONTEXT

The Archaeological Sites Database administered by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) indicates that there are eight (8) previously documented sites within 1 kilometre of the study area. However, it must be noted that this is based on the assumption of the accuracy of information compiled from numerous researchers using different methodologies over many years. AMICK Consultants Limited assumes no responsibility for the accuracy of site descriptions, interpretations such as cultural affiliation, or location information derived from the Archaeological Sites Database administered by MHSTCI. In addition, it must also be noted that a lack of formerly documented sites does not indicate that there are no sites present as the documentation of any archaeological site is contingent upon prior research having been conducted within the study area.

Background research shows that one (1) previous study has taken place within 50m of the study area. For further information see:

AMICK Consultants Limited. (2018). *Stage 1-2 Archaeological Assessment of Part of Lot 1, Concession 1, Northern Division (Geographic Township of Orillia), Township of Severn, County of Simcoe*. Port McNicoll, Ontario. Archaeological License Report on File With the Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto, Ontario. Filed Under PIF # P038-0939-2017.

Data contained in previous archaeological reports in close proximity to the study area that is relevant to Stage 1 Background Study is defined within the Standards and Guidelines for Consultant Archaeologists in Section 7.5.8 Standard 4 as follows:

*“Provide descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the project area, **as documented by all available reports that include archaeological fieldwork carried out on the lands to be impacted by this project, or where reports document archaeological sites immediately adjacent (i.e., within 50 m) to those lands.**”*

(MTCS 2011: 126 Emphasis Added)

In accordance with data supplied by MHSTCI for the purposes of completing this study, the above noted report details, *“archaeological fieldwork carried out on the lands to be impacted by this project”*, but the above noted report does not document any known archaeological sites within 50 metres of the study area.

The Standards and Guidelines for Consultant Archaeologists stipulates that the necessity to summarize the results of previous archaeological assessment reports, or to cite MHSTCI File Numbers in references to other archaeological reports, is reserved for reports that are directly

relevant to the fieldwork and recommendations for the study area (S & Gs 7.5.7, Standard 2, MTC 2011: 125). This is further refined and elaborated upon in Section 7.5.8, Standards 4 & 5, MTC 2011:

“4. Provide descriptions of previous archaeological fieldwork carried out within the limits of, or immediately adjacent to the project area, as documented by all available reports that include archaeological fieldwork carried out on the lands to be impacted by this project, or where reports document archaeological sites immediately adjacent (i.e., within 50m) to those lands.”

“5. If previous findings and recommendations are relevant to the current stage of work, provide the following:

- a. a brief summary of previous findings and recommendations*
- b. documentation of any differences in the current work from the previously recommended work*
- c. rationale for the differences from the previously recommended work”*

(Emphasis Added)

The above-noted report does have relevance to the lands to be potentially impacted by the proposed undertaking, it does include fieldwork or recommendations relevant to the study area, but it does not document any sites within 50 metres of the study area. Therefore, there is a requirement to include any summary data for the previous reports.

The study area is situated within an area subject to an archaeological master plan or a similar regional overview study. *The County of Simcoe Official Plan* was fully consolidated on the 7th of August, 2007. This official plan provides guidance on considering the economic, social and environmental impacts of any land use or development decisions. This includes consideration for cultural heritage resources, including archaeological artifacts and sites. The plan details how any area thought to hold archaeological potential must undergo an archaeological assessment, and how any cultural heritage resources should be conserved, either in situ, or via removal from the site to preserve any artifacts. However this plan did not include any mapping detailing areas thought to hold archaeological potential within the county (County of Simcoe 2007).

It must be further noted that there are no relevant plaques associated with the study area, which would suggest an activity or occupation within, or in close proximity to, the study area that may indicate potential for associated archaeological resources of significant CHVI.

5.3.1 PRE-CONTACT REGISTERED SITES

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MHSTCI. As a result it was determined that two (2) archaeological sites relating directly to Pre-Contact habitation/activity had been formally registered within the immediate vicinity of

the study area. However, the lack of formally documented archaeological sites does not mean that Pre-Contact people did not use the area; it more likely reflects a lack of systematic archaeological research in the immediate vicinity. Even in cases where one or more assessments may have been conducted in close proximity to a proposed landscape alteration, an extensive area of physical archaeological assessment coverage is required throughout the region to produce a representative sample of all potentially available archaeological data in order to provide any meaningful evidence to construct a pattern of land use and settlement in the past. One (1) of these sites (BdGv-22) is a multi-component site listed as both a Pre-contact and a Post-contact site. All previously registered Pre-Contact sites are briefly described below in Table 1:

TABLE 1 PRE-CONTACT SITES WITHIN 1KM

Site Name	Borden #	Site Type	Cultural Affiliation
Sopher	BdGu-1	Not Determined	Late Woodland
Mina Ball	BdGv-22	Not Determined	Late Woodland

None of the above noted archaeological sites are situated within 300 metres of the study area. Therefore, they have no impact on determinations of archaeological potential for further archaeological resources related to Pre-Contact activity and occupation with respect to the archaeological assessment of the proposed undertaking.

The southeastern corner of the study area contains a branch of the North River, which is a source of potable water. The distance to water criteria used to establish potential for archaeological sites suggests potential for Pre-Contact occupation and land use in the area in the past.

Table 2 illustrates the chronological development of cultures within southern Ontario prior to the arrival of European cultures to the area at the beginning of the 17th century. This general cultural outline is based on archaeological data and represents a synthesis and summary of research over a long period of time. It is necessarily generalizing and is not necessarily representative of the point of view of all researchers or stakeholders. It is offered here as a rough guideline and as a very broad outline to illustrate the relationships of broad cultural groups and time periods.

TABLE 2 PRE-CONTACT CULTURAL CHRONOLOGY FOR SOUTHERN ONTARIO

Years ago	Period	Southern Ontario
250	Terminal Woodland	Ontario and St. Lawrence Iroquois Cultures
1000 2000	Initial Woodland	Princess Point, Saugeen, Point Peninsula, and Meadowood Cultures
3000 4000 5000 6000	Archaic	Laurentian Culture
7000		

8000 9000 10000 11000	Palaeo-Indian	Plano and Clovis Cultures
		(Wright 1972)

5.3.2 POST-CONTACT REGISTERED SITES

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MHSTCI. As a result it was determined that four (4) archaeological sites relating directly to Post-contact habitation/activity had been formally registered within the immediate vicinity of the study area. One (1) of these sites (BdGv-22) is a multi-component site listed as both a Pre-contact and a Post-contact site. All previously registered Post-contact sites are briefly described below in Table 3:

TABLE 3 POST-CONTACT SITES WITHIN 1KM

Site Name	Borden #	Site Type	Cultural Affiliation
Plough Inn	BdGv-19	Not Determined	Post-Contact
Three Sisters	BdGv-20	Not Determined	Post-Contact
Liefhond	BdGv-21	Not Determined	Post-Contact
Mina Ball	BdGv-22	Not Determined	Post-Contact

Two of the above noted archaeological sites are situated within 300 metres of the study area. Therefore, they demonstrate archaeological potential for further archaeological resources related to Post-Contact activity and occupation with respect to the archaeological assessment of the proposed undertaking.

5.3.3 REGISTERED SITES OF UNKNOWN CULTURAL AFFILIATION

A summary of registered and/or known archaeological sites within a 1-kilometre radius of the study area was gathered from the Archaeological Sites Database, administered by MHSTCI. As a result, it was determined that three (3) archaeological sites relating directly to an unknown cultural affiliation habitation/activity had been formally registered within the immediate vicinity of the study area. All previously registered sites of unknown cultural affiliation are briefly described below in Table 4:

TABLE 4 REGISTERED SITES WITHIN 1KM

Site Name	Borden #	Site Type	Cultural Affiliation
Squire	BdGu-28	Not Determined	Other
Marchmont II	BdGu-29	Not Determined	Other
Marchmont III	BdGu-30	Not Determined	Other

None of the above noted archaeological sites are situated within 300 metres of the study area. Therefore, they have no impact on determinations of archaeological potential for further archaeological resources related to Pre- or Post-contact activity and occupation with respect to the archaeological assessment of the proposed undertaking.

5.3.4 PREVIOUS INVESTIGATIONS

AMICK Consultants Limited in December 2017 & June 2018 completed a Stage -21 Archaeological Assessment on the same lands as the study area. The assessment was halted by the client before the entire area could be assessed. Below is a summary of the assessment and the resulting recommendations:

This report describes the results of the 2017 Stage 1-2 Archaeological Assessment of Part of Lot 1, Concession 1, Northern Division (Geographic Township of Orillia), Township of Severn, County of Simcoe, conducted by AMICK Consultants Limited. This study was conducted under Professional Archaeologist License #P038 issued to Marilyn Cornies by the Minister of Tourism, Culture and Sport for the Province of Ontario. This assessment was undertaken as a requirement under the Planning Act (RSO 1990b) and the Provincial Policy Statement (2014) in order to support a Land Retention application and companion Zoning By-law Amendment application as part of the pre-submission process. Within the land use planning and development context, Ontario Regulation 544/06 under the Planning Act (1990b) requires an evaluation of archaeological potential and, where applicable, an archaeological assessment report completed by an archaeologist licensed by the Ministry of Tourism, Culture and Sport (MTC). Policy 2.6 of the Provincial Policy Statement (PPS 2014) addresses archaeological resources. All work was conducted in conformity with Ontario Ministry of Tourism and Culture (MTC) Standards and Guidelines for Consultant Archaeologists (MTC 2011), the Ontario Heritage Act (RSO 1990a).

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The majority of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment by high intensity test pit methodology at a five-metre interval between individual test pits and by test pit survey at an interval of ten metres to confirm disturbance on 1 December 2017 and 4-6 June 2018. However, partway through the fieldwork, the client decided they no longer wished to proceed with fieldwork, and so a portion of the study area was not assessed. All records, documentation, field notes, photographs and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Tourism, Culture and Sport (MTC) on behalf of the government and citizens of Ontario.

As a result of the Stage 2 Property Assessment of the study area, no archaeological resources were encountered. Consequently, the following recommendations are made:

- 1. No further archaeological assessment of the assessed portion of the study area is warranted;*
- 2. The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed within the assessed area;*
- 3. The proposed undertaking is clear of any archaeological concern within the assessed area.*

[AMICK 2018: 2]

5.3.5 LOCATION AND CURRENT CONDITIONS

The study area is described as Parts 7, 8, 9, 10 & 11 of Plan 51R-41373, Part of Lot 1, Concession 1 Northern Division (Geographic Township of Orillia), Township of Severn, County of Simcoe, conducted by AMICK Consultants Limited. This assessment was undertaken as a requirement under the Planning Act (RSO 1990) and the Provincial Policy Statement (2014) in order to support a Site Plan and companion Zoning By-law Amendment application as part of the pre-submission process.

The present use of the study area is as an empty lot. The study area is roughly 12.64 hectares in area. The study area includes within it open meadow and woodlot. The western and central portion of the study area had previously been assessed before the client halted the project in 2018. The eastern part of the study area assessed this year is entirely an open meadow. The study area is bounded on the north by woodlot, on the east by residential properties and Carriage Court, on the west by an open field and on the south by Division Road West. The study area is adjacent and to the northeast of the intersection of Division Road West and Dunford Drive. A plan of the study area is included within this report as Map 4. Current conditions encountered during the Stage 1-2 Property Assessment are illustrated in Maps 5 & 6.

5.3.6 PHYSIOGRAPHIC REGION

The study area is situated within the Simcoe Lowlands physiographic region. For the most part, at one time, this restricted basin was part of the floor of glacial Lake Algonquin, and its surface beds are deposits of deltaic and lacustrine origin, and not glacial outwash. As a small basin shut in by the Edenvale Moraine, the Minesing flats represent an annex of the glacial Lake Nipissing plains. (Chapman and Putnam 1984: 177-182).

5.3.7 SURFACE WATER

Sources of potable water, access to waterborne transportation routes, and resources associated with watersheds are each considered, both individually and collectively to be the highest criteria for determination of the potential of any location to support extended human activity, land use, or occupation. Accordingly, proximity to water is regarded as the primary

indicator of archaeological resource potential. The Standards and Guidelines for Consultant Archaeologists stipulates that undisturbed lands within 300 metres of a water source are considered to have archaeological potential (MTC 2011: 21).

The southeastern corner of the study area contains a branch of the North River, which is a source of potable water.

5.3.8 CURRENT PROPERTY CONDITIONS CONTEXT

Current characteristics encountered within an archaeological research study area determine if property Assessment of specific portions of the study area will be necessary and in what manner a Stage 2 Property Assessment should be conducted, if necessary. Conventional assessment methodologies include pedestrian survey on ploughable lands and test pit methodology within areas that cannot be ploughed. For the purpose of determining where property Assessment is necessary and feasible, general categories of current landscape conditions have been established as archaeological conventions. These include:

5.3.8.1 BUILDINGS AND STRUCTURAL FOOTPRINTS

A building, for the purposes of this particular study, is a structure that exists currently or has existed in the past in a given location. The footprint of a building is the area of the building formed by the perimeter of the foundation. Although the interior area of building foundations would often be subject to property Assessment when the foundation may represent a potentially significant historic archaeological site, the footprints of existing structures are not typically assessed. Existing structures commonly encountered during archaeological assessments are often residential-associated buildings (houses, garages, sheds), and/or component buildings of farm complexes (barns, silos, greenhouses). In many cases, even though the disturbance to the land may be relatively shallow and archaeological resources may be situated below the disturbed layer (e.g. a concrete garage pad), there is no practical means of assessing the area beneath the disturbed layer. However, if there were evidence to suggest that there are likely archaeological resources situated beneath the disturbance, alternative methodologies may be recommended to study such areas.

The study area contains no buildings or structural footprints.

5.3.8.2 DISTURBANCE

Areas that have been subjected to extensive and deep land alteration that has severely damaged the integrity of archaeological resources are known as land disturbances. Examples of land disturbances are areas of past quarrying, major landscaping, and sewage and infrastructure development (MTC 2011: 18), as well as driveways made of gravel or asphalt or concrete, in-ground pools, and wells or cisterns. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering

values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Major utility lines are conduits that provide services such as water, natural gas, hydro, communications, sewage, and others. These major installations should not be confused with minor below ground service installations not considered to represent significant disturbances removing archaeological potential, such as services leading to individual structures which tend to be comparatively very shallow and vary narrow corridors. Areas containing substantial and deeply buried services or clusters of below ground utilities are considered areas of disturbance, and may be excluded from Stage 2 Property Assessment. Disturbed areas are excluded from Stage 2 Property Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology.

*“Earthwork is one of the major works involved in road construction. This process includes excavation, material removal, filling, compaction, and construction. Moisture content is controlled, and compaction is done according to standard design procedures. Normally, rock explosion at the road bed is not encouraged. While filling a depression to reach the road level, **the original bed is flattened after the removal of the topsoil.** The fill layer is distributed and compacted to the designed specifications. This procedure is repeated until the compaction desired is reached. **The fill material should not contain organic elements, and possess a low index of plasticity.** Fill material can include gravel and decomposed rocks of a particular size, but should not consist of huge clay lumps. Sand clay can be used. The area is considered to be adequately compacted when the roller movement does not create a noticeable deformation. **The road surface finish is reliant on the economic aspects, and the estimated usage.**” [Emphasis Added]*

(Goel 2013)

The supporting matrix of a hard paved surface cannot contain organic material which is subject to significant compression, decay and moisture retention. Topsoil has no engineering value and must be removed in any construction application where the surface finish at grade requires underlying support.

Installation of sewer lines and other below ground services associated with infrastructure development often involves deep excavation that can remove archaeological potential. This consideration does not apply to relatively minor below ground services that connect structures and facilities to services that support their operation and use. Major servicing corridors will be situated within adjacent road allowances with only minor, narrow and relatively shallow underground services entering into the study area to connect existing structures to servicing mainlines. The relatively minor, narrow and shallow services buried within a residential property do not require such extensive ground disturbance to remove or minimize archaeological potential within affected areas.

The study area does not contain previous disturbances.

5.3.8.3 LOW-LYING AND WET AREAS

Landscape features that are covered by permanently wet areas, such as marshes, swamps, or bodies of water like streams or lakes, are known as low-lying and wet areas. Low-lying and wet areas are excluded from Stage 2 Property Assessment due to inaccessibility.

The study area does not contain low-lying and wet areas.

5.3.8.4 STEEP SLOPE

Landscape which slopes at a greater than (>) 20 degree change in elevation, is known as steep slope. Areas of steep slope are considered uninhabitable, and are excluded from Stage 2 Property Assessment.

Generally, steep slopes are not assessed because steep slopes are interpreted to have low potential, not due to viability to assess, except in cases where the slope is severe enough to become a safety concern for archaeological field crews. In such cases, the Occupational Health and Safety Act takes precedence as indicated in the introduction to the Standards and Guidelines. AMICK Consultant Limited policy is to assess all slope areas whenever it is safe to do so. Assessment of slopes, except where safety concerns arise, eliminates the invariably subjective interpretation of what might constitute a steep slope in the field. This is done to minimize delays due to conflicts in such interpretations and to increase the efficiency of review.

The study area does not contain areas of steep slope.

5.3.8.5 WOODED AREAS

Areas of the property that cannot be ploughed, such as natural forest or woodlot, are known as wooded areas. These wooded areas qualify for Stage 2 Property Assessment, and are required to be assessed using test pit survey methodology.

The study area does not contain any wooded areas.

5.3.8.6 PLOUGHABLE AGRICULTURAL LANDS

Areas of current or former agricultural lands that have been ploughed in the past are considered ploughable agricultural lands. Ploughing these lands regularly turns the soil, which in turn brings previously buried artifacts to the surface, which are then easily identified during visual inspection. Furthermore, by allowing the ploughed area to weather sufficiently through rainfall, soil is washed off of exposed artifacts at the surface and the visibility of artifacts at the surface of recently worked field areas is enhanced markedly. Pedestrian survey of ploughed agricultural lands is the preferred method of physical assessment because of the greater potential for finding evidence of archaeological resources if present.

The study area does not contain any ploughable lands.

5.3.8.7 LAWN, PASTURE, MEADOW

Landscape features consisting of former agricultural land covered in low growth, such as lawns, pastures, meadows, shrubbery, and immature trees. These are areas that may be considered too small to warrant ploughing, (i.e. less than one hectare in area), such as yard areas surrounding existing structures, and land-locked open areas that are technically workable by a plough but inaccessible to agricultural machinery. These areas may also include open area within urban contexts that do not allow agricultural tillage within municipal or city limits or the use of urban roadways by agricultural machinery. These areas are required to be assessed using test pit survey methodology.

The eastern part of the study area is an open meadow. Maps 5 & 6 of this report illustrate the locations of these features.

5.3.9 SUMMARY

Background research indicates the vicinity of the study area has potential for archaeological resources of Native origins based on proximity to a source of potable water. Background research also suggests potential for archaeological resources of Post-Contact origins based on proximity to previously registered archaeological sites of Post-Contact origins, proximity to a historic roadway, and proximity to areas of documented historic settlement.

The entirety of the study area does exhibit archaeological potential and therefore a Stage 2 Property Assessment is required.

Archaeological potential does not indicate that there are necessarily sites present, but that environmental and historical factors suggest that there may be as yet undocumented archaeological sites within lands that have not been subject to systematic archaeological research in the past.

6.0 FIELD WORK METHODS AND WEATHER CONDITIONS

This report confirms that the study area was subject to Stage 2 Property Assessment by high intensity test pit methodology at a five-metre interval between individual test pits on 21 August 2019.

The fieldwork undertaken as a component of this study was conducted according to the archaeological fieldwork standards and guidelines (including weather and lighting conditions). Weather conditions were appropriate for the necessary fieldwork required to complete the Stage 2 Property Assessment and to create the documentation appropriate to this study. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Maps 5 & 6 of this report.

Upon completion of the property inspection of the study area, it was determined that select areas would require Stage 2 Property Assessment.

It must be noted that the proponent made a number of efforts to contract local farmers to plough the meadow area that was assessed under the current PIF. However, all farmers who were contacted refused the work because the land had been left fallow for an extended period of time which could pose a risk to their equipment. AMICK Consultants Limited advised the proponent that since there was no one willing to plough the fallowed field, a test pit survey at 5 metre intervals would meet MHSTCI standards in lieu of overgrown vegetation that does not allow ploughing (MTC 2011: Sections 1.2.5 and 2.1.2.1c).

AMICK Consultants Limited has been retained to assess lands as specified by the proponent. As such, AMICK Consultants Limited is constrained by the terms of the contract in place at the time of the Archaeological Assessment and can only enter into lands for which AMICK Consultants Limited has received consent from the owner or their agent(s). The proponent has been advised that the entire area within the planning application must be subject to archaeological assessment and that portions of the planning application may only be excluded if they are of low potential, are not viable to assess, or are subject to planning provisions that would restrict any such areas from any form of ground altering activities.

6.1 PROPERTY INSPECTION

A detailed examination and photo documentation was carried out on the study area in order to document the existing conditions of the study area to facilitate the Stage 2 Property Assessment. All areas of the study area were visually inspected and select features were photographed as a representative sample of each area defined within Maps 5 & 6. Observations made of conditions within the study area at the time of the inspection were used to inform the requirement for Stage 2 Property Assessment for portions of the study area as well as to aid in the determination of appropriate Stage 2 Property Assessment strategies. The locations from which photographs were taken and the directions toward which the camera was aimed for each photograph are illustrated in Maps 5 & 6 of this report.

6.2 TEST PIT SURVEY

In accordance with the Standards and Guidelines for Consultant Archaeologists, test pit survey is required to be undertaken for those portions of the study area where deep prior disturbance had not occurred prior to assessment or which were accessible to survey. Test pit survey is only used in areas that cannot be subject to ploughing or cultivation. This report confirms that the conduct of test pit survey within the study area conformed to the following standards:

1. Test pit survey only on terrain where ploughing is not possible or viable, as in the following examples:

a. wooded areas

[Not Applicable – The study area does not contain any wooded areas]

b. pasture with high rock content

[Not Applicable - The study area does not contain any pastures with high rock content]

c. abandoned farmland with heavy brush and weed growth

[As noted in Section 6.0, the proponent was unable to contract a local farmer to plough the meadow due to the risk of equipment damage in a field left to fallow too long. After consultation between AMICK Consultants Limited and the proponent, it was decided that a test pit survey must be conducted as per Standards 1.2.5 and 2.1.2.1c (MTCS 2011).]

d. orchards and vineyards that cannot be strip ploughed (planted in rows 5 m apart or less), gardens, parkland or lawns, any of which will remain in use for several years after the survey

[The study area contained an open meadow that could not be ploughed and was test pit surveyed at an interval of 5m between individual test pits.]

e. properties where existing landscaping or infrastructure would be damaged. The presence of such obstacles must be documented in sufficient detail to demonstrate that ploughing or cultivation is not viable.

[Not Applicable - The study area does not contain the above-mentioned circumstances]

f. narrow (10 m or less) linear survey corridors (e.g., water or gas pipelines, road widening). This includes situations where there are planned impacts 10 m or less beyond the previously impacted limits on both sides of an existing linear corridor (e.g., two linear survey corridors on either side of an existing roadway). Where at the time of fieldwork the lands within the linear corridor meet the standards as stated under the above section on pedestrian survey land preparation, pedestrian survey must be carried out. Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential.

[Not Applicable – The study area does not contain any linear corridors]

2. *Space test pits at maximum intervals of 5 m (400 test pits per hectare) in areas less than 300 m from any feature of archaeological potential.*

[All test pits were spaced at an interval of 5m between individual test pits]

3. *Space test pits at maximum intervals of 10 m (100 test pits per hectare) in areas more than 300 m from any feature of archaeological potential.*

[The entirety of the test pitted areas of the study area were assessed using high intensity test pit methodology at an interval of 5 metres between individual test pits]

4. *Test pit to within 1 m of built structures (both intact and ruins), or until test pits show evidence of recent ground disturbance.*
[Not Applicable]
5. *Ensure that test pits are at least 30 cm in diameter.*
[All test pits were at least 30 cm in diameter]
6. *Excavate each test pit, by hand, into the first 5 cm of subsoil and examine the pit for stratigraphy, cultural features, or evidence of fill.*
[Regardless of the interval between individual test pits, all test pits were excavated by hand into the first 5 cm of subsoil where possible and examined for stratigraphy, cultural features, or evidence of fill. In areas where topsoil was not present, test pits were excavated to a minimum of 30cm in depth to ensure that suspected subsoils, if present, were not layers of fill or waterborne materials overlying buried topsoil. If these areas consisted of fill soils, test pits were also excavated a minimum of 30 cm below grade in order to ensure disturbance extended below even deep topsoil layers such as those encountered in agricultural fields to ensure that the depth of disturbance was sufficient to remove archaeological potential in most contexts. Where other evidence indicates locations of potentially significant archaeological sites that may include cultural deposits below fill soils, alternative strategies to explore beneath the fill layers found in some areas may be necessary to complete the Stage 2 Property Assessment. In such cases, further Stage 2 Property Assessment may be recommended following completion of the property survey under conventional methodologies.]
7. *Screen soil through mesh no greater than 6 mm.*
[All soil was screened through mesh no greater than 6 mm]
8. *Collect all artifacts according to their associated test pit.*
[Not Applicable - No archaeological resources were encountered]
9. *Backfill all test pits unless instructed not to by the landowner.*
[All test pits were backfilled]

(MTC 2011: 31-32)

Approximately 23% of the study area consisted of open meadow that was test pit surveyed at an interval of 5 metres between individual test pits. Approximately 77% of the study area had previously been assessed in 2017 and 2018.

7.0 RECORD OF FINDS

Section 7.8.2 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 137-138) outlines the requirements of the Record of Finds component of a Stage 2 report:

1. *For all archaeological resources and sites that are identified in Stage 2, provide the following:*
 - a. *a general description of the types of artifacts and features that were identified*
 - b. *a general description of the area within which artifacts and features were identified, including the spatial extent of the area and any relative variations in density*
 - c. *a catalogue and description of all artifacts retained*
 - d. *a description of the artifacts and features left in the field (nature of material, frequency, other notable traits).*
2. *Provide an inventory of the documentary record generated in the field (e.g. photographs, maps, field notes).*
3. *Submit information detailing exact site locations on the property separately from the project report, as specified in section 7.6. Information on exact site locations includes the following:*
 - a. *table of GPS readings for locations of all archaeological sites*
 - b. *maps showing detailed site location information.*

7.1 ARCHAEOLOGICAL RESOURCES

No archaeological resources of any description were encountered anywhere within the study area.

7.2 ARCHAEOLOGICAL FIELDWORK DOCUMENTATION

The documentation produced during the field investigation conducted in support of this report includes: one sketch map, one page of photo log, one page of field notes, and 11 digital photographs.

8.0 ANALYSIS AND CONCLUSIONS

AMICK Consultants Limited was engaged by the proponent to undertake a Stage 1-2 Archaeological Assessment of lands potentially affected by the proposed undertaking and was granted permission to carry out archaeological fieldwork. The entirety of the study area was subject to property inspection and photographic documentation concurrently with the Stage 2 Property Assessment on 21 August 2019, consisting of high-intensity test pit survey at an interval of five metres between individual test pits. All records, documentation, field notes, photographs and artifacts (as applicable) related to the conduct and findings of these investigations are held at the Lakelands District corporate offices of AMICK Consultants Limited until such time that they can be transferred to an agency or institution approved by the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) on behalf of the government and citizens of Ontario.

8.1 STAGE 1 ANALYSIS AND CONCLUSIONS

As part of the present study, background research was conducted in order to determine the archaeological potential of the proposed project area.

“A Stage 1 background study provides the consulting archaeologist and Ministry report reviewer with information about the known and potential cultural heritage resources within a particular study area, prior to the start of the field assessment.” (OMCzCR 1993)

The evaluation of potential is further elaborated Section 1.3 of the Standards and Guidelines for Consultant Archaeologist (2011) prepared by the Ontario Ministry of Tourism and Culture:

“The Stage 1 background study (and, where undertaken, property inspection) leads to an evaluation of the property’s archaeological potential. If the evaluation indicates that there is archaeological potential anywhere on the property, the next step is a Stage 2 assessment.” (MTC 2011: 17)

Features or characteristics that indicate archaeological potential when documented within the study area, or within close proximity to the study area (as applicable), include:

- “ - *previously identified archaeological sites*
 - *water sources (It is important to distinguish types of water and shoreline, and to distinguish natural from artificial water sources, as these features affect site locations and types to varying degrees.):*
 - *primary water sources (lakes, rivers, streams, creeks)*
 - *secondary water sources (intermittent streams and creeks, springs, marshes, swamps)*
 - *features indicating past water sources (e.g., glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches)*
 - *accessible or inaccessible shoreline (e.g., high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh)*
 - *elevated topography (e.g., eskers, drumlins, large knolls, plateaux)*
 - *pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground*
 - *distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings.*
 - *resource areas, including:*
 - *food or medicinal plants (e.g., migratory routes, spawning areas, prairie)*
 - *scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert)*
 - *early Post-contact industry (e.g., fur trade, logging, prospecting, mining)*
 - *areas of early Post-contact settlement. These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, farmstead complexes),*

early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.

- *Early historical transportation routes (e.g., trails, passes, roads, railways, portage routes)*
- *property listed on a municipal register or designated under the Ontario Heritage Act that is a federal, provincial or municipal historic landmark or site*
- *property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations”*

(MTC 2011: 17-18)

The evaluation of potential does not indicate that sites are present within areas affected by proposed development. Evaluation of potential considers the possibility for as yet undocumented sites to be found in areas that have not been subject to systematic archaeological investigation in the past. Potential for archaeological resources is used to determine if property assessment of a study area or portions of a study area is required.

“Archaeological resources not previously documented may also be present in the affected area. If the alternative areas being considered, or the preferred alternative selected, exhibit either high or medium potential for the discovery of archaeological remains an archaeological assessment will be required.”

(MCC & MOE 1992: 6-7)

“The Stage 1 background study (and, where undertaken, property inspection) leads to an evaluation of the property’s archaeological potential. If the evaluation indicates that there is archaeological potential anywhere on the property, the next step is a Stage 2 assessment.”

(MTC 2011: 17)

In addition, archaeological sites data is also used to determine if any archaeological resources had been formerly documented within or in close proximity to the study area and if these same resources might be subject to impacts from the proposed undertaking. This data was also collected in order to establish the relative cultural heritage value or interest of any resources that might be encountered during the conduct of the present study. For example, the relative rarity of a site can be used to assign an elevated level of cultural heritage value or interest to a site that is atypical for the immediate vicinity. The requisite archaeological sites data of previously registered archaeological sites was collected from the Programs and Services Branch, Culture Programs Unit, MHSTCI and the corporate research library of AMICK Consultants Limited. The Stage 1 Background Research methodology also includes a review of the most detailed available topographic maps, historical settlement maps, archaeological management plans (where applicable) and commemorative plaques or monuments. When previous archaeological research documents lands to be impacted by the proposed undertaking or archaeological sites within 50 metres of the study area, the reports documenting this earlier work are reviewed for pertinent information. AMICK Consultants Limited will often modify this basic methodology based on professional judgment to include

additional research (such as, local historical works or documents and knowledgeable informants).

Section 7.7.3 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 132) outlines the requirements of the Analysis and Conclusions component of a Stage 1 Background Study.

- 1) *“Identify and describe areas of archaeological potential within the project area.*
- 2) *Identify and describe areas that have been subject to extensive and deep land alterations. Describe the nature of alterations (e.g., development or other activity) that have severely damaged the integrity of archaeological resources and have removed archaeological potential.”*

CHARACTERISTICS INDICATING ARCHAEOLOGICAL POTENTIAL

Section 1.3.1 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics that indicate archaeological potential (MTC 2011: 17-18). Factors that indicate archaeological potential are features of the local landscape and environment that may have attracted people to either occupy the land or to conduct activities within the study area. One or more of these characteristics found to apply to a study area would necessitate a Stage 2 Property Assessment to determine if archaeological resources are present. These characteristics are listed below together with considerations derived from the conduct of this study.

- 1) *Previously Identified Archaeological Sites*
Previously registered archaeological sites have been documented within 300 metres of the study area.
- 2) *Water Sources*
Primary water sources are described as including lakes, rivers streams and creeks. Close proximity to primary water sources (300 metres) indicates that people had access to readily available sources of potable water and routes of waterborne trade and communication should the study area have been used or occupied in the past.

There are identified primary water sources within 300 metres of the study area. The southeastern corner of the study area contains a branch of the North River, which is a source of potable water.

Secondary water sources are described as including intermittent streams and creeks, springs, marshes, and swamps. Close proximity (300 metres) to secondary water sources indicates that people had access to readily available sources of potable water, at least on a seasonal basis, and in some cases seasonal access to routes of waterborne trade and communication should the study area have been used or occupied in the past.

There are no identified secondary water sources within 300 metres of the study area.

3) *Features Indicating Past Water Sources*

Features indicating past water resources are described as including glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, and cobble beaches. Close proximity (300 metres) to features indicating past water sources indicates that people had access to readily available sources of potable water, at least on a seasonal basis, and in some cases seasonal access to routes of waterborne trade and communication should the study area have been used or occupied in the past.

There are identified features indicating past water sources within 300 metres of the study area. The study area is situated within an area once under glacial Lake Algonquin. The study area is now located between the old Lake Algonquin shoreline and the current shoreline of Lake Simcoe (Jackson et al., 2000: 415-420). During the transition from the glacial Lake Algonquin to the present Lake Simcoe the shoreline would have receded through the study area. As the receding process is gradual the study area would have been within close proximity to a shoreline providing access to an abundance of natural resources as well as waterborne trade and communication.

4) *Accessible or Inaccessible Shoreline*

This form of landscape feature would include high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.

There are no shorelines within 300 metres of the study area. However, the study area is situated within an area once under glacial Lake Iroquois. The study area is now located between the old Lake Algonquin shoreline and the current shoreline of Lake Simcoe. During the transition from the glacial Lake Algonquin to the present Lake Simcoe the shoreline would have receded through the study area. As the receding process is gradual the study area would have been within close proximity to a shoreline providing access to an abundance of natural resources as well as waterborne trade and communication.

5) *Elevated Topography*

Features of elevated topography that indicate archaeological potential include eskers, drumlins, large knolls, and plateaux.

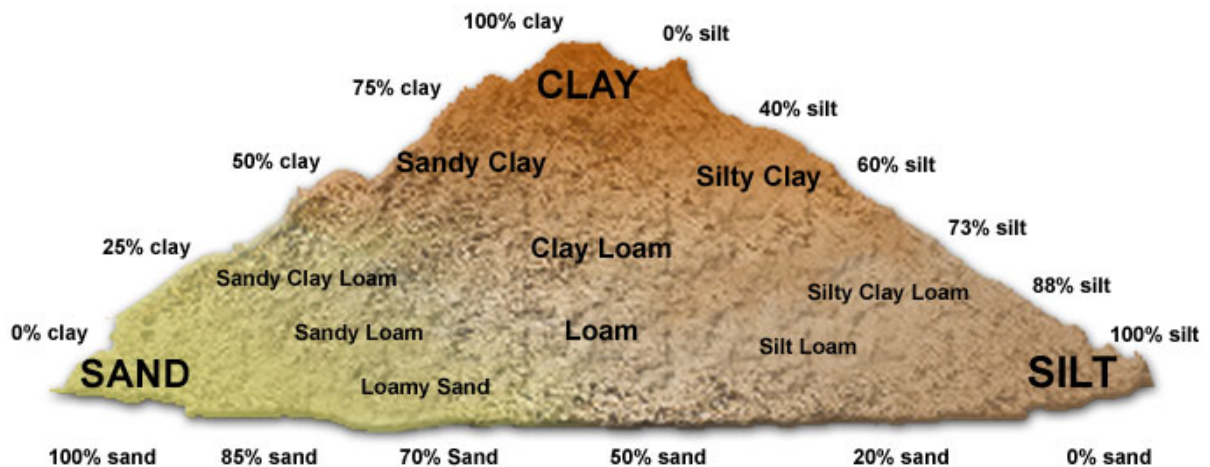
There are no identified features of elevated topography within the study area.

6) *Pockets of Well-drained Sandy Soil*

Pockets of sandy soil are considered to be especially important near areas of heavy soil or rocky ground.

The soil throughout the study area is a dark brown sandy loam, which is consistent with the wider area surrounding the property. Therefore, the presence of this soil has no impact on potential within the study area, as the wider area is not known for clay soils or exposed bedrock.

The image below (Kuhlmann, Stacy 2017) shows the consistencies of soil types and how they compare to one another. The lower percentage of clay allows the soil to break up from the action of ploughing alone when not compacted or bound by extensive root masses.



(Kuhlmann, Stacy 2017)

7) *Distinctive Land Formations*

These are landscape features that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings.

There are no identified distinctive land formations within the study area.

8) *Resource Areas*

Resource areas that indicate archaeological potential include food or medicinal plants (e.g., migratory routes, spawning areas, and prairie), scarce raw materials (e.g., quartz, copper, ochre or outcrops of chert) and resources of importance to early Post-contact industry (e.g., logging, prospecting, and mining).

There are no identified resource areas within the study area.

9) *Areas of Early Post-Contact Settlement*

These include places of early military or pioneer settlement (e.g., pioneer homesteads, isolated cabins, and farmstead complexes), early wharf or dock complexes, pioneer

churches and early cemeteries. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks.

The study area is situated in close proximity to a historic community identified on the historic atlas map.

10) Early Historical Transportation Routes

This includes evidence of trails, passes, roads, railways, portage routes.

The study area is situated within 100 metres of an early settlement road that appears on the Historic Atlas Maps of 1871 and 1881. This historic road corresponds to the road presently known as Division Road West, which is adjacent to the study area.

11) Heritage Property

Property listed on a municipal register or designated under the *Ontario Heritage Act* or is a federal, provincial or municipal historic landmark or site.

There are no listed or designated heritage buildings or properties that form a part of the study area. There are no listed or designated heritage buildings or properties that are adjacent to the study area.

12) Documented Historical or Archaeological Sites

This includes property that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations. These are properties which have not necessarily been formally recognized or for which there is additional evidence identifying possible archaeological resources associated with historic properties in addition to the rationale for formal recognition.

There are no known heritage features, or known historic sites, or known archaeological sites within the study area in addition to those formally documented with the appropriate agencies or previously noted under a different criterion.

CHARACTERISTICS INDICATING REMOVAL OF ARCHAEOLOGICAL POTENTIAL

Section 1.3.2 of the Standards and Guidelines for Consultant Archaeologists specifies the property characteristics which indicate no archaeological potential or for which archaeological potential has been removed (MTC 2011: 18-19). These characteristics are listed below together with considerations derived from the conduct of this study.

The introduction of Section 1.3.2 (MTC 2011: 18) notes that “*Archaeological potential can be determined not to be present for either the entire property or a part(s) of it when the area under consideration has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. This is commonly referred to as ‘disturbed’ or ‘disturbance’, and may include:*”

1) Quarrying

There is no evidence to suggest that quarrying operations were ever carried out within the study area.

2) *Major Landscaping Involving Grading Below Topsoil*

Unless there is evidence to suggest the presence of buried archaeological deposits, such deeply disturbed areas are considered to have lost their archaeological potential. Properties that do not have a long history of Post-Contact occupation can have archaeological potential removed through extensive landscape alterations that penetrate below the topsoil layer. This is because most archaeological sites originate at grade with relatively shallow associated excavations into the soil. Pre-Contact sites and early historic sites are vulnerable to extensive damage and complete removal due to landscape modification activities. In urban contexts where a lengthy history of occupation has occurred, properties may have deeply buried archaeological deposits covered over and sealed through redevelopment activities that do not include the deep excavation of the entire property for subsequent uses. Buildings are often erected directly over older foundations preserving archaeological deposits associated with the earlier occupation.

There is no evidence to suggest that major landscaping operations involving grading below topsoil were ever carried out within the study area. Surfaces paved with interlocking brick, concrete, asphalt, gravel and other surfaces meant to support heavy loads or to be long wearing hard surfaces in high traffic areas, must be prepared by the excavation and removal of topsoil, grading, and the addition of aggregate material to ensure appropriate engineering values for the supporting matrix and also to ensure that the installations shed water to avoid flooding or moisture damage. All hard surfaced areas are prepared in this fashion and therefore have no or low archaeological potential. Disturbed areas are excluded from Stage 2 Property Assessment due to no or low archaeological potential and often because they are also not viable to assess using conventional methodology.

3) *Building Footprints*

Typically, the construction of buildings involves the deep excavation of foundations, footings and cellars that often obliterate archaeological deposits situated close to the surface.

There are no buildings within the study area.

4) *Sewage and Infrastructure Development*

Installation of sewer lines and other below ground services associated with infrastructure development often involves deep excavation that can remove archaeological potential.

There is no evidence to suggest that substantial below ground services of any kind have resulted in significant impacts to any significant portion of the study area. Major utility lines are conduits that provide services such as water, natural gas, hydro,

communications, sewage, and others. These major installations should not be confused with minor below ground service installations not considered to represent significant disturbances removing archaeological potential, such as services leading to individual structures which tend to be comparatively very shallow and vary narrow corridors. Areas containing substantial and deeply buried services or clusters of below ground utilities are considered areas of disturbance, and may be excluded from Stage 2 Property Assessment.

“Activities such as agricultural cultivation, gardening, minor grading and landscaping do not necessarily affect archaeological potential.”

(MTC 2011: 18)

“Archaeological potential is not removed where there is documented potential for deeply buried intact archaeological resources beneath land alterations, or where it cannot be clearly demonstrated through background research and property inspection that there has been complete and intensive disturbance of an area. Where complete disturbance cannot be demonstrated in Stage 1, it will be necessary to undertake Stage 2 assessment.”

(MTC 2011: 18)

SUMMARY

Table 5 below summarizes the evaluation criteria of the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) together with the results of the Stage 1 Background Study for the proposed undertaking. Based on the criteria, the property is deemed to have archaeological potential on the basis of proximity to previously registered archaeological sites, proximity to water, proximity to historic communities, and the location of early historic settlement roads adjacent to the study area.

TABLE 5 EVALUATION OF ARCHAEOLOGICAL POTENTIAL

FEATURE OF ARCHAEOLOGICAL POTENTIAL		YES	NO	N/A	COMMENT
1	Known archaeological sites within 300m	Y			If Yes, potential determined
PHYSICAL FEATURES					
2	Is there water on or near the property?	Y			If Yes, what kind of water?
2a	Primary water source within 300 m. (lakeshore, river, large creek, etc.)	Y			If Yes, potential determined
2b	Secondary water source within 300 m. (stream, spring, marsh, swamp, etc.)		N		If Yes, potential determined
2c	Past water source within 300 m. (beach ridge, river bed, relic creek, etc.)	Y			If Yes, potential determined
2d	Accessible or Inaccessible shoreline within 300 m. (high bluffs, marsh, swamp, sand bar, etc.)		N		If Yes, potential determined
3	Elevated topography (knolls, drumlins, eskers, plateaus, etc.)		N		If Yes, and Yes for any of 4-9, potential determined
4	Pockets of sandy soil in a clay or rocky area		N		If Yes and Yes for any of 3, 5-9, potential determined
5	Distinctive land formations (mounds, caverns, waterfalls, peninsulas, etc.)		N		If Yes and Yes for any of 3-4, 6-9, potential determined
HISTORIC/PREHISTORIC USE FEATURES					
6	Associated with food or scarce resource harvest areas (traditional fishing locations, agricultural/berry extraction areas, etc.)		N		If Yes, and Yes for any of 3-5, 7-9, potential determined.
7	Early Post-Contact settlement area within 300 m.	Y			If Yes, and Yes for any of 3-6, 8-9, potential determined
8	Historic Transportation route within 100 m. (historic road, trail, portage, rail corridors, etc.)	Y			If Yes, and Yes for any 3-7 or 9, potential determined
9	Contains property designated and/or listed under the Ontario Heritage Act (municipal heritage committee, municipal register, etc.)		N		If Yes and, Yes to any of 3-8, potential determined
APPLICATION-SPECIFIC INFORMATION					
10	Local knowledge (local heritage organizations, Pre-Contact, etc.)		N		If Yes, potential determined
11	Recent disturbance not including agricultural cultivation (post-1960-confirmed extensive and intensive including industrial sites, aggregate areas, etc.)		N		If Yes, no potential or low potential in affected part (s) of the study area.

If **YES** to any of 1, 2a-c, or 10 Archaeological Potential is **confirmed**

If **YES** to 2 or more of 3-9, Archaeological Potential is **confirmed**

If **YES** to 11 or No to 1-10 Low Archaeological Potential is **confirmed** for at least a portion of the study area.

8.2 STAGE 2 ANALYSIS AND CONCLUSIONS

Section 7.8.3 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 138-139) outlines the requirements of the Analysis and Conclusions component of a Stage 2 Property Assessment.

1. *Summarize all finding from the Stage 2 survey, or state that no archaeological sites were identified.*
2. *For each archaeological site, provide the following analysis and conclusions:*
 - a. *A preliminary determination, to the degree possible, of the age and cultural affiliation of any archaeological sites identified.*
 - b. *A comparison against the criteria in 2 Stage 2: Property Assessment to determine whether further assessment is required*
 - c. *A preliminary determination regarding whether any archaeological sites identified in Stage 2 show evidence of a high level cultural heritage value or interest and will thus require Stage 4 mitigation.*

No archaeological sites or resources were found during the Stage 2 survey of the study area.

9.0 RECOMMENDATIONS

9.1 STAGE 1 RECOMMENDATIONS

Under Section 7.7.4 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 133) the recommendations to be made as a result of a Stage 1 Background Study are described.

- 1) *Make recommendations regarding the potential for the property, as follows:*
 - a. *if some or all of the property has archaeological potential, identify areas recommended for further assessment (Stage 2) and areas not recommended for further assessment. Any exemptions from further assessment must be consistent with the archaeological fieldwork standards and guidelines.*
 - b. *if no part of the property has archaeological potential, recommend that the property does not require further archaeological assessment.*
- 2) *Recommend appropriate Stage 2 assessment strategies.*

9.2 STAGE 2 RECOMMENDATIONS

Under Section 7.8.4 of the Standards and Guidelines for Consultant Archaeologists (MTC 2011: 139) the recommendations to be made as a result of a Stage 2 Property Assessment are described.

ORIGINAL 2019 Stage 1-2 Archaeological Assessment of Parts 7, 8, 9, 10 & 11 of Plan 51R-41373, Part of Lot 1, Concession 1 Northern Division (Geographic Township of Orillia), Township of Severn, County of Simcoe (AMICK File #19803/MHSTCI File #P058-1760-2019)

- 1) *For each archaeological site, provide a statement of the following:
 - a. Borden number or other identifying number
 - b. Whether or not it is of further cultural heritage value or interest
 - c. Where it is of further cultural heritage value or interest, appropriate Stage 3 assessment strategies*
- 2) *Make recommendations only regarding archaeological matters. Recommendations regarding built heritage or cultural heritage landscapes should not be included.*
- 3) *If the Stage 2 survey did not identify any archaeological sites requiring further assessment or mitigation of impacts, recommend that no further archaeological assessment of the property be required.*

As a result of the Stage 2 Property Assessment of the study area, no archaeological resources were encountered. Consequently, the following recommendations are made:

1. *No further archaeological assessment of the study area is warranted;*
2. *The Provincial interest in archaeological resources with respect to the proposed undertaking has been addressed;*
3. *The proposed undertaking is clear of any archaeological concern.*

10.0 ADVICE ON COMPLIANCE WITH LEGISLATION

While not part of the archaeological record, this report must include the following standard advisory statements for the benefit of the proponent and the approval authority in the land use planning and development process:

- a. This report is submitted to the Minister of Tourism and Culture as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that it complies with the standards and guidelines issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism and Culture, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.*
- b. It is an offence under Sections 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the Ontario Heritage Act.*
- c. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.*
- d. The Cemeteries Act, R.S.O. 1990, c. C.4 and the Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.*
- e. Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48 (1) of the Ontario Heritage Act and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.*

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