Functional Servicing & Stormwater Management Report Overhead Bridge Road 6 Lots Township of Tiny

File 20-644
December 2020

Prepared by

WMI & Associates Limited
119 Collier Street, Barrie Ontario L4M 1H5

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Appendices

1.0 Introduction

1.1 General

WMI & Associates Ltd. has been retained by Charlebois Properties Inc. to prepare a Functional Servicing and Stormwater Management Report for the proposed Overhead Bridge Road 6 Lots, located in the Township of Tiny, County of Simcoe.

The proposed development is located on Overhead Bridge Road (formerly County Road 61) to the west of the Town of Penetanguishene. The Whip-poor-will Development is located to the west, with the Copeland Creek developments to the north. The proposed site location is a parcel of land between 584 and 564 Overhead Bridge Road. This development comprises 5.6ha and 6 residential lots. The property is legally referred to as Part of Lot 9, Concession 12 in the Township of Tiny, County of Simcoe.

The designs described herein are based on a Legal Survey prepared by Raikes (prepared November 2020), and the topographic ground information obtained from First Base Solutions.

The engineering analysis and design outlined in this report conforms with the following:

- Township of Tiny Engineering Standards (April 2003).
- Ministry of Environment (MOE) Stormwater Management Practices Planning and Design Manual (2003).
- MOE and MNR Best Management Practices Manual (1991).
- Hydrogeological Assessment Submissions Conservation Authority Guidelines for Development Applications (June, 2013).
- South Georgian Bay Lake Simcoe Source Protection Region, Approved South Georgian Bay Lake Simcoe Source Protection Plan (January 26, 2015, Amended February 15, 2018).
- Low Impact Development Stormwater Management Planning And Design Guide Version 1.0, CVCA & TRCA (2010).
- Ontario Building Code (Sept. 14, 2012 and current addendums).

1.2 Study Purpose and Context

This report presents an investigation of existing storm drainage infrastructure and drainage patterns, and a design of proposed storm drainage systems to support the full build out of the Overhead Bridge Road 6 Lots development.

This report intends to demonstrate how the potable water supply, sewage disposal as well as the storm drainage and quality controls will be accommodated within the development and fit within the context of existing municipal infrastructure. Designs presented herein are in accordance with the Township of Tiny and Ontario Ministry of the Environment Conservation and Parks (MECP) design guidelines and regulations.

2.0 Site Servicing

2.1 Servicing Options/Feasibility Overview

The subject property is located in a privately-serviced rural area. This area of the Township is not close to either full municipal or private sewage treatment systems. The southern portion of the Whip-Poor-Will Development does operate a drinking water system comprised of one pumping station, two ground water wells and one storage reservoir. Given the potential significant cost to connect and upgrade the system it is cost prohibitive for 6 Lots. Given the significant distances and the inefficiency to connect to any existing municipal system it was concluded that this site is best developed using individual on-site water services and individual on-site sewage systems. The proposed servicing and overall feasibility of other various servicing options is discussed in the water servicing and sewage sections provided below.

In order to support the functionality of the potable water and sewage disposal, Wilson Associates completed a Hydrogeological Assessment which is included in **Appendix C.**

2.2 Water Servicing

In order to demonstrate an adequate potable water supply is available, a hydrogeologic evaluation was undertaken by Wilson Associates Ltd. The Hydrogeologic Assessment Report summarizes as follows:

"The average reported well within about 500 metres of the proposed development is of drilled construction, completed in the intermediate overburden to a depth of 57.2 metres and yields 78 litres of fresh-quality water per minute over an average period of 4.5 hours. This average yield significantly exceeds the maximum water demand of a normal four bedroom home specified by the MECP (i.e. 18L/min without inline storage). Overall groundwater conditions are very favorable for domestic water requirements. The high average well yield in the vicinity of the site is consistent with an aquifer setting that is more than capable of supplying domestic water demand with limited risk of adverse interference on the large lots proposed

Based on historical and on-going water quality analytical data from the nearby Whippoorwill wells, which are completed in the same overburden aquifer in which the on-site wells are likely to be completed, bacteriological and chemical quality of water from properly-constructed on-site drilled wells will be acceptable."

In summary, the site can be adequately supplied with water via individual drilled wells.

2.3 Sewage Disposal

The subject area and surrounding lands are not currently supplied with municipal or private communal sanitary sewage services. There are no municipal or private communal sewage treatment systems in the vicinity of the subject area.

The local residences including the Whip-Poor-Will Development are serviced by individual on-site sewage disposal (septic) systems. We conclude that the best option for sewage is to service each lot by a single residential treatment system. Therefore, individual on-site sewage disposal systems are proposed for each of the 6 Lots within the subject development.

To determine the impact that 6 new septic systems may have on the environment and groundwater regime, a Hydrogeologic Evaluation Report was prepared by Wilson Associates Ltd. which included a septic system suitability and groundwater impact assessment. The assessment concluded:

Under MECP procedure D-5-4, the nitrate impact of the proposed six lot development is 5.6 mg/L, and well within the maximum acceptable nitrate impact of 10 mg/L. The sewage impact of the proposed six privately-serviced lots will be acceptable.

The findings of the evaluation determined that the subject development can be serviced by Class 4 individual septic systems. Each of the lots is of sufficient size to easily accommodate a private septic system. The Hydrogeological Evaluation is contained in **Appendix C** for reference.

As supported by the Terraprobe Test Pit Geotechnical Investigation, the existing soils have a T time between 4 to 6 min/cm and there was no groundwater in any of the 6 test pits that were completed.

In addition to the above, the appropriate setbacks to both existing and proposed private wells located in the vicinity will be provided in accordance with Ontario Building Code (“OBC”).

2.4 Fire Protection

Based on our experience with the Copeland Creek South project, it was agreed in principle that the Township’s current tanker truck supply capabilities are adequate to service that proposed development, in addition to other existing developments and residents in the surrounding community. Therefore, the existing wells and the proposed wells on the subject site have not been, and do not need to be, designed to provide fire flows or storage.

3.0 Existing Conditions

3.1 Topography and Drainage Patterns

The subject site is currently undeveloped and is comprised almost entirely of wooded cover. All site runoff drains gently northward and ultimately sheet flows towards Copeland Creek, which ultimately discharges into Penetang Bay.

There is a well-defined open ditch along the west side of Overhead Bridge Road. This ditch drains a very small frontage of the subject property but mainly conveys runoff from the Overhead Bridge Road, ROW and asphalt surface. Drainage patterns on the site generally flow from south to north. This site is extremely stable given the existing vegetation.

Refer to the Drainage Plans (Figures 2 and 3) contained in **Appendix A**.

3.2 Subsurface Conditions

The Soils Map of Simcoe County (Soil Survey Report), published by the Canada Department of Agriculture (1959), reveals that the native soils throughout the subject site area are a Tioga sandy loam, which are classified within hydrologic soils group A.

A test pit investigation has been conducted by Terraprobe Inc. to verify the composition of the native soils. Six test pits which were dug in the probable location of the future septic systems to a depth of approx. 1.4m - 1.8m confirms that the native soils are a sandy material. A standing water elevation was not encountered in any of the test pits upon completion.

Since the vast majority of the subject site are within the Tioga Sandy Loam deposit, and the test pit investigations confirm that the native deposit is a sandy material, all drainage areas will be classified within Hydrologic Soils group ‘A’ for the purpose of establishing stormwater modelling parameters.

The Subsurface Observations and Geotechnical Comments Report, prepared by Terraprobe, Inc. is contained in **Appendix D** for reference.

4.0 Post-Development Drainage

Post-development drainage patterns will resemble existing drainage patterns as closely as possible. Various low-impact development techniques are also proposed within the drainage system to minimize downstream impacts and disturbance of the wooded landscape.

The Post-Development Drainage Plan (Figure 3) is contained in **Appendix A** for reference. For runoff conveyance design calculations, refer to **Appendix B.**

5.0 Stormwater Management

5.1 Design Criteria Guidelines

The stormwater management design principles for the proposed Overhead Bridge Road 6 Lots Development incorporates the policies and criteria of the Ontario Ministry of the Environment Conservation and Parks (MECP), the Township of Tiny, and utilizes low impact development techniques in various aspects of the stormwater management system.

The stormwater management design criteria for the Overhead Bridge Road 6 Lots Development is as follows:

- The Ontario Government rainfall intensity-duration-frequency (IDF) curves (look up values) are to be used to determine the peak flow rates and runoff volumes generated on the site.

- Major and minor storm flows are to be drained side yard swale and by open ditches on Overhead Bridge Road cross section.

- Quantity controls are not proposed due to the site's close proximity to the discharge point of Copeland Creek into the receiving water body, Penetang Bay. Refer to the Stormwater Management Report, Copeland Creek South Project, Lot 115 Concession 2, Tiny Township, dated January 2016, WMI Project 11-173, for supporting documentation.

- Quality control is required to be provided to MECP 'enhanced' levels (80% total suspended solids removal) through the application of Low Impact Development techniques within the rural road cross section.

- Erosion and sediment control measures will be implemented prior to and during the construction of the development and maintained until the site is stabilized.

5.2 Hydrologic Analysis

5.2.1 Rainfall Data

The hydrologic modelling was completed using the Rational Method to assess the pre- and post-development peak flows for the site. Storm rainfall distribution was used for the 2, 5, 10, 25, 50, and 100 year storm event calculations.

Refer to **Appendix B** for related calculations.

5.2.2 Pre-Development Condition Results

Using the pre-development drainage area as illustrated in Figure 2 and the program Rational Method, the total flows were determined for the 2, 5, 10, 25, 50, and 100 year storm events. All of the above noted peak flows are summarized in Table 1 below. The hydrologic model runs for the SCS Type-II storm distribution can be found in **Appendix C**. A summary of SWMHYMO input parameters and output results are contained in **Appendix B.**

Table 1: Pre-Development Peak Flows

Catchment	**Area (ha)**	**Rational Method Pre-Development Peak Flows**					
		2 yr. m^3/s	**5 yr. m^3/s**	**10 yr. m^3/s**	**25 yr. m^3/s**	**50 yr. m^3/s**	**100 yr. m^3/s**
PRE, EX1, EX2	6.16	0.116	0.155	0.180	0.233	0.283	0.325

5.2.3 Post-Development Condition Results

The post-development peak flows for all catchments are summarized in **Table 2** below.

Table 2: Post-Development Uncontrolled Peak Flows

Catchment	**Area (ha)**	**Rational Method Post-Development Peak Flows**					
		2 yr. m^3/s	**5 yr. m^3/s**	**10 yr. m^3/s**	**25 yr. m^3/s**	**50 yr. m^3/s**	**100 yr. m^3/s**
PRE, EX1, EX2	6.16	0.155	0.206	0.240	0.311	0.377	0.433

In comparing Tables 1 and 2, it is evident that the post-development peak flows slightly exceed the pre-development levels. Quantity controls are not proposed to be provided, however, since the marginal increase in peak flow from this site will have negligible impact on the current capacity of downstream lands. This is due to the watershed's large drainage area of more than 1800ha of land located predominantly upstream of the proposed site area, and the corresponding peak flow 'time to peak' that is much longer than the time to peak from the subject site, therefore rendering the site's increased peak flow impact as minimal.

The post-development drainage recommendations are to control storm runoff on each individual lot. A soakaway pit has been designed for each lot to control flows generated

from the impervious surface of the house as well as the driveway. The sizing of the soakaway pits has been based on a 1:5 year storm event. In our calculations we have not assumed any infiltration from the soakaway pits and this is a very conservative given the highly permeable sandy soils in this area. The house apron area in the driveway will be directed to soakaway pits via perimeter swells. In the event that there is a significant storm event such as the 1:100 year storm it is recommended that interception swales be installed on the upstream side of each individual house apron in order to direct any upstream flows from the upstream lot to the rear of the subject lands. It is our opinion that any runoff during a 1:100 year event will not adversely impact any downstream lands and inclusion of an interception swales is a very conservative measure. This drainage concept is outlined on Figure 4 in **Appendix A** of the report.

5.3 Quality Control

5.3.1 Lot Level Control

To minimize any negative impacts the proposed subdivision may have on the quality of stormwater runoff, an integrated treatment train approach will be implemented.

Specifically, long length grassed swales which will be incorporated into the lot design (by virtue of the large lot sizes) which will promote infiltration of runoff from impervious surfaces into the native sandy soils. These swales will act as enhanced grass swales and serve to function as an LID system.

Additionally, roof downspouts and sump pump discharge from the proposed dwellings will be required to discharge to pervious lawn & landscape areas, so as to further promote infiltration of surface runoff and re-infiltration of groundwater. It should be noted that the proposed landscape features will also provide inherent water balance benefit by way of evapotranspiration and nutrient uptake through vegetation, thus further supporting the hydrologic cycle.

5.4 Source Water Protection

From a source water protection perspective, and based on a review of the South Georgian Bay Lake Simcoe Source Protection Region (Approved South Georgian Bay Lake Simcoe Source Protection Plan, January 26, 2015 - amended February 15, 2018 - and MOECC's Source Protection Atlas), the subject site is located within a Wellhead Protection Area D with a vulnerability score of 2. The application is only for 6 Lots (no commercial), therefore the development and the associated engineering design is not subject to further design requirements related to source water protection (i.e. there are no water quantity threats and as a result a Section 59 Notice is not required).

A copy of an email from Severn Sound Environmental Association is included in **Appendix F**.

5.5 Storm Drainage System & Outlet Design Details

The following summarizes the major features provided within the Stormwater Management system:

- Major and Minor storm flows will be conveyed by swales to Overhead Bridge Road and to the rear of the lots.
- Based on Table 4.4 of the MOE Stormwater Management Planning and Design Manual, March 2003, in order to provide stormwater quality control for a 25mm event over 48 hours the required total storage volume necessary for capture for each house is $5m^3$. Given we are providing $15m^3$ per house we have exceeded this requirement.
- Driveway culverts are side based on 1:5 year events with the minimum size being 400mm **Ø.**

Refer to **Appendix B** for supporting calculations.

6.0 Storm Drainage System Maintenance

The proposed storm soakaway system will require maintenance in order to function properly. The inlets should be inspected at a minimum on a quarterly basis, and after all significant rainfall events (>50mm) to ensure they are not clogged. Recommended operation & maintenance procedures are as follows:

- Sediment and trash deposition on the soakaway pit inlets should be frequently cleaned and disposed of to prevent migration into the roadside ditches, as required. In particular this should be done promptly following major storms and snow melts.
- Grass clippings should not be blown into the ditches to minimize organic loading and prevent clogging.

7.0 Sediment and Erosion Controls

Effective erosion and sediment control must be established prior to construction commencement and maintained until the site has been stabilized. Pro-active measures will be required to limit the amount of sediment travelling down slope. Where site grading is required, exposure of the soil during construction should be minimized to avoid erosion and sedimentation.

Topsoil Stripping: Topsoil stripping will be reduced as much as possible on-site. Where grading is necessary, the exposed soil will be stabilized by seeding immediately upon being set to grade. Should topsoil stockpiling be required, the stockpiles will be kept to manageable levels for grass/weed cutting purposes.

Silt Fence: Silt fence will be placed along the down slope of all excavated material to prevent sediment transport. Periodic inspections and repairs to the silt fence should be performed regularly, as well as after every rainfall event.

Mud Mat: Mud tracking from construction traffic must be controlled through the use of a mud-mat consisting of clear stone located at the site's construction entrance/ exit.

Vegetated Buffers: Existing grassland vegetation/wooded areas along the development limits are to be maintained wherever possible. These areas will provide a natural barrier to filter potentially sediment-laden overland flow before it is released from the site.

Finally, the site Engineer Building Contractor will be responsible for completing routine inspections of the sediment and erosion control structures throughout the construction phase of the development, particularly after rainfall events. All damaged or clogged control devices or fencing must be repaired immediately.

8.0 Traffic Impact Brief

8.1 Background

The subject site is located at the northwest corner of Overhead Bridge Road and Concession Road 12 East and is to comprise 6 residential Lots.

It is bound by existing single family residential developments to the north, south and west, which front onto Overhead Bridge Road and local residential roads such as Whip-poor-will Drive and Kingfisher Crescent and Goldfinch Crescent. 5 of the 6 proposed lots are to have their driveway accesses directly onto Overhead Bridge Road. One Lot will have access to Concession 12.

8.2 Traffic Volume Impacts

Trip generation rates were determined using the Institute of Transportation Engineers' (ITE) Trip Generation Manual, 10th Edition. The single family detached housing dataset (code # 210) provides a wide range of statistical data from a number of sites that are similar in nature to the proposed development; as such this data was utilized for the subject site. The data for the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' time period is utilized throughout this analysis since it results in conservative estimates of trips and is representative of peak travel periods in residential neighborhoods such as this.

Using the fitted curve equation from the 'Weekday Peak hour of Adjacent Street Traffic, One Hour Between 7am and 9am' report, ten (10) total vehicular trips (entering and exiting) are expected to be generated by this development. Refer to the Trip Generation Spreadsheet appended to this Brief for calculation details.

From the review of the local road networkand likely travel destinations such as shopping centers, employment lands, recreation facilities/attractions relative to the location of the primary arterial roads through the Township (namely County Roads 6, 25, 26, and 93), it is estimated that the majority of vehicular trips generated from the development will travel to/from the south via Overhead Bridge Road, Concession Road 11 East and Golf Link Road.

The minor increase in vehicular trips as a result of the proposed development is insignificant and will have little to no effect on traffic movements and capacities on existing roadways and the stop controlled intersections in the local area. Therefore, it is expected that the development can be accommodated within the existing transportation system without retrofits or improvements.

8.3 Sight-Distance Analysis

Ontario's Ministry of Transportation (MTO) outlines specific sight-distance geometry criteria to ensure safe vehicular movement to and from intersecting roadways and to ensure that through traffic on the adjacent roadway will have adequate time and space for manoeuvrability and braking. Based on a design speed of 80km/hr (10 km/hr over the posted speed of 70km/hr), the minimum required stopping sight-distance is approximately 130m (referenced from MTO Geometric Design Standards for Ontario Highways Manual, Figure E3-6). The minimum safe sight distance for vehicles turning left or right onto a two-lane highway and assuming the operating speeds before being overtaken by vehicles travelling in the same direction (condition D and E east, as referenced from figure E3-6) is approximately 270m. Refer to the appended E3-6 figure for sight-distance calculation details.

From review of existing site conditions and sight-lines from the vantage point of the proposed Lots 1 to 5 driveway access at Overhead Bridge Road, visibility is noted to be adequate to achieve the minimum stopping sight distance, since there are no notable obstructions and the road alignment is relatively straight from this location up to and including 130m away in either direction. There is a slight curve in Overhead Bridge Road to the south of the subject site, which does slightly restrict the available sight-distance to an estimated 240m from the vantage point of Lot #6 at Overhead Bridge Road but as the driveway access for Lot 6 is from Concession 12, this is not an issue. However, the remaining frontage of the property does have sight-distance visibilities in excess of 270m.

8.4 Traffic Impact Summary

This design brief demonstrates that the proposed Charlebois development between 584 and 564 Overhead Bridge Road can be accommodated within the local community without adverse impacts on existing transportation systems. In particular, the estimated 10 peak hourly trips onto Overhead Bridge Road is relatively insignificant in terms of traffic volume, and should be easily accommodated by existing roads. Also, the sight-distance onto Overhead Bridge Road is noted to be generally adequate based on MTO design guidelines with the current posted speed of 70km/hr.

9.0 Summary and Conclusions

This Functional Servicing and Stormwater Management Report demonstrates how the proposed Overhead Bridge Road 6 Lots can be serviced and integrated into the existing community, without imposing any adverse effects. Specifically, we note the following:

- The 6 Lots can be adequately supplied with potable drinking water via the installation of individual drilled wells located on each lot.

- Sewage disposal can be achieved by installing a conventional Class 4 disposal system on each lot.

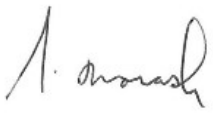
- Stormwater quality control will be achieved in the conveyance system to MECP enhanced levels by retaining runoff in soakaway pits, for infiltration into the native sandy soil. These lot level controls will be provided to further promote infiltration of impervious surface runoff.

- The use of silt fence, mud mats, and existing vegetated buffers will ensure downstream stormwater quality is maintained during construction.

We confirm the development of the 6 Lots can be achieved and recommendations of this report can support the Planning Application.

Respectfully submitted,

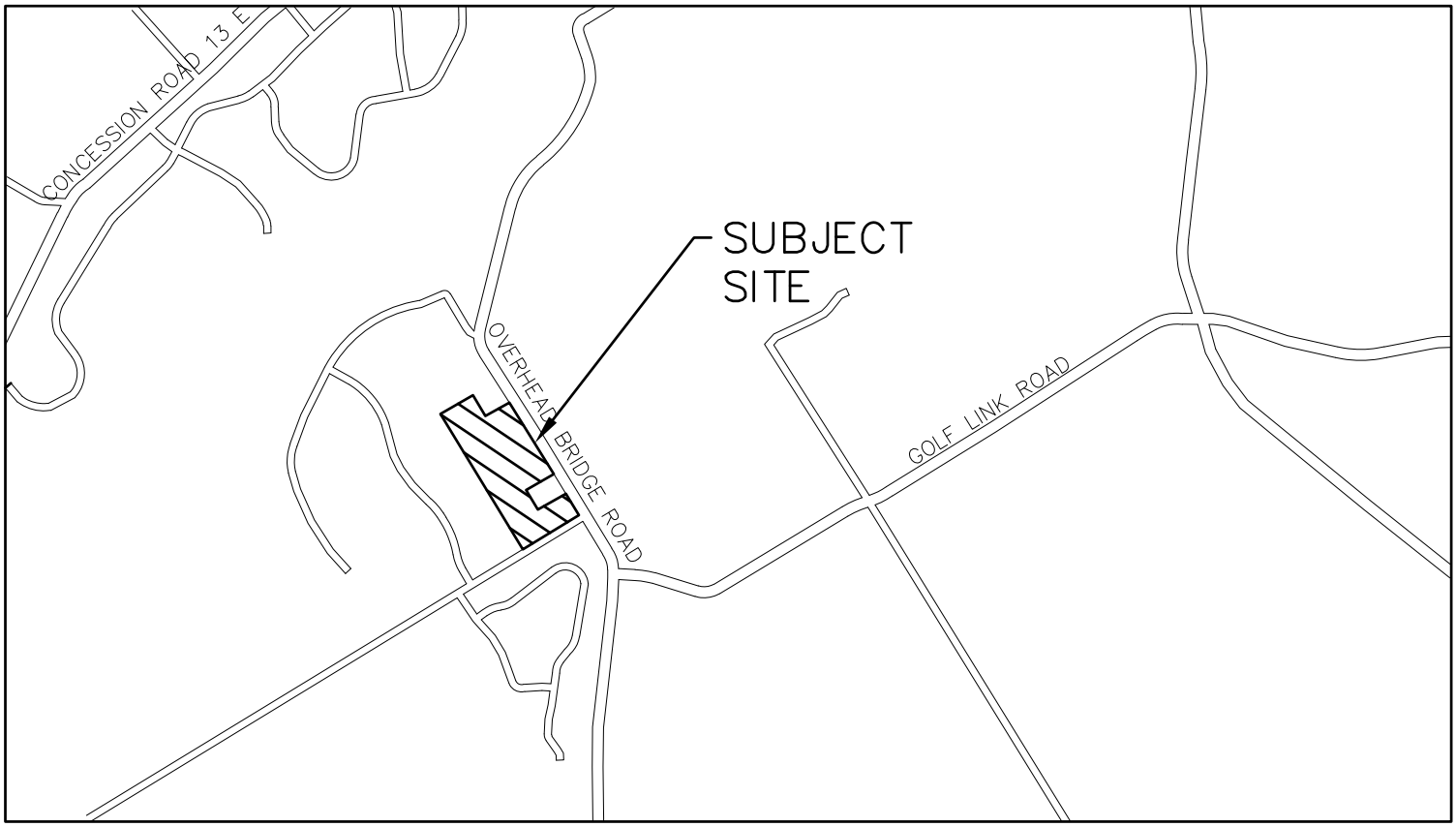
WMI & Associates Limited



Stephen Morash, P.Eng.

APPENDIX A

Figures & Drawings



Drawing Title

SITE LOCATION PLAN

Project Title

OVERHEAD BRIDGE ROAD LOTS

WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
705-797-2027
www.wmiengineering.ca

Drawn By	Checked By	Figure No.
AW	SM	FIG1
Scale	Project No.	
N.T.S.	20-644	

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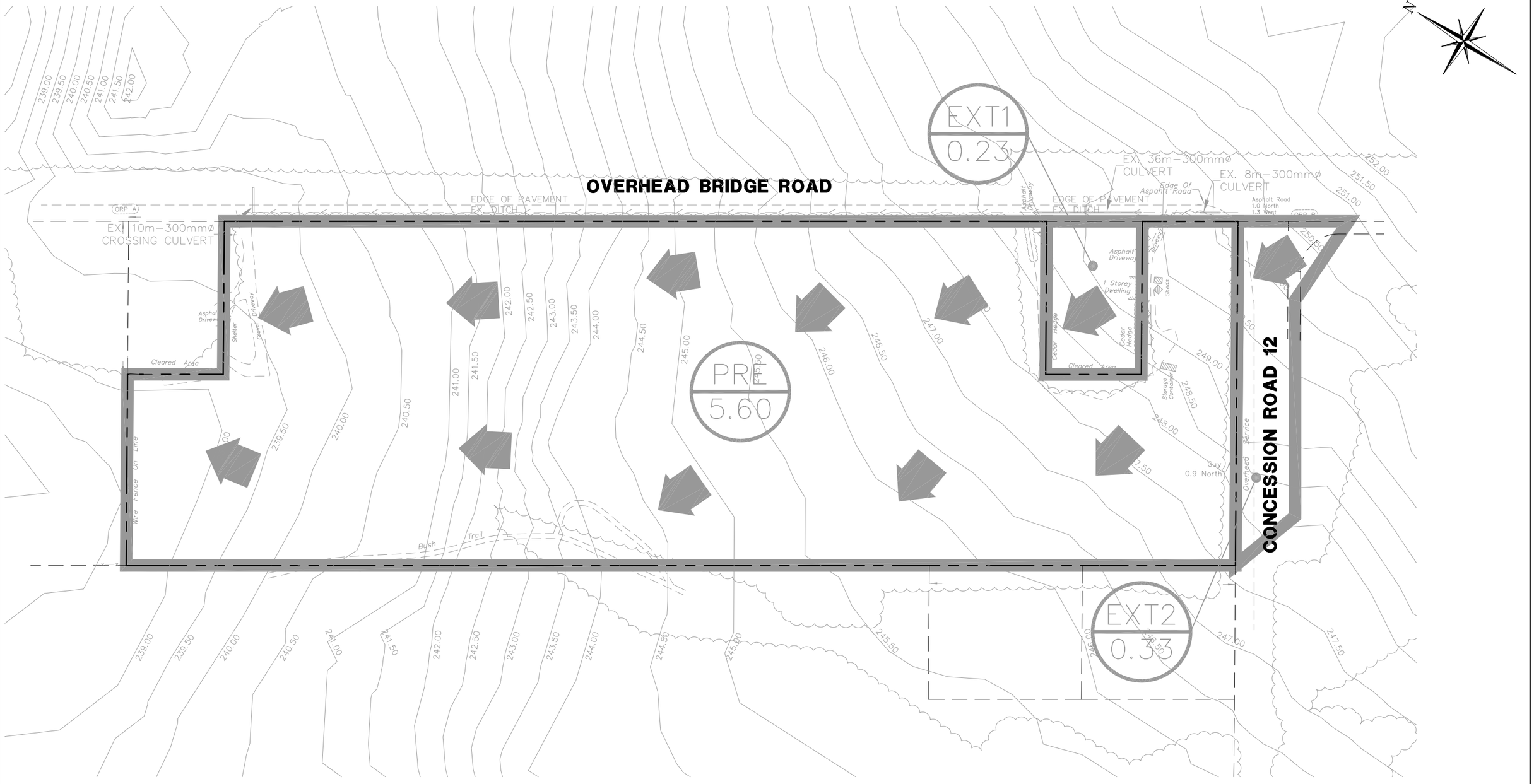

Legend:

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- OVERLAND FLOW DIRECTION
- LIMITS OF CATCHMENT AREA

Drawing Title

PRE–DEVELOPMENT
DRAINAGE PLAN

Project Title

OVERHEAD BRIDGE ROAD LOTS

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Drawn By: AW	Checked By: SM	DATE: DEC. 07, 2020	
Scale: 1:1500	Project No.: 20–644	Figure No.: FIG 2	

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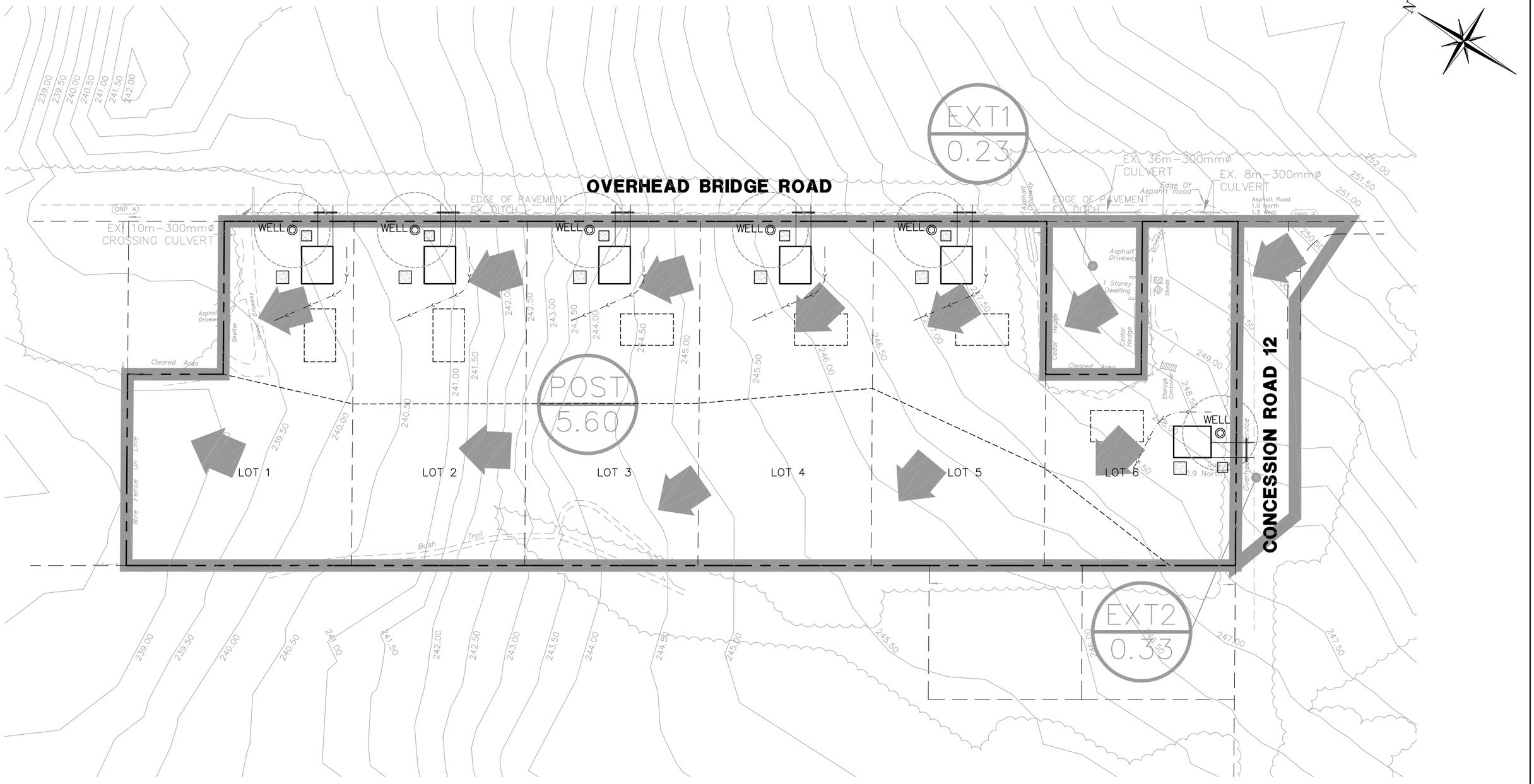

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OVERLAND FLOW DIRECTION

LIMITS OF CATCHMENT AREA

Drawing Title

POST–DEVELOPMENT DRAINAGE PLAN

Project Title

OVERHEAD BRIDGE ROAD LOTS

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Drawn By: AW	Checked By: SM	DATE: DEC. 07, 2020	
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PR. DRIVEWAY SOAK-AWAY PIT
(5-YR CAPTURE)
4.0m(L)x4.0m(W)x1.0m(H)

PR. HOUSE SOAK-AWAY PIT
(5-YR CAPTURE)
5.0m(L)x5.0m(W)x1.8m(H)
(REFER TO DETAIL ON THIS SHEET)

PR. 9.0m 400mmø CULVERT (TYP.)

0.2m DEEP INTERCEPT SWALE (TYP.)

PR. BUILDING (2000ft²)(TYP.)

15.0m CLEARANCE FROM EX. OR PR. SEPTIC SYSTEMS

OVERHEAD BRIDGE ROAD

EDGE OF PAVEMENT
EX. DITCH

EX. 10m-300mmø CROSSING CULVERT

EX. 36m-300mmø CULVERT

EX. 8m-300mmø CULVERT

Asphalt Road 1.0 North 1.3 West

ORP B

(239.70) (240.55) (242.53) (245.30) (247.18) (248.52)

241.00 243.51 245.79 247.34

(239.12) (240.00) (243.01) (245.17) (246.33) (247.00) (247.61) (247.68)

WELL

SEPTIC 250m² (TYP.)

MATCH EXISTING ELEVATIONS

PR. SILT FENCE TO BE INSTALLED PER OPSD 219.110 (TYP.)

LOT 1 | LOT 2 | LOT 3 | LOT 4 | LOT 5 | LOT 6

Cleared Area

Asphalt Driveway

Garden

1 Storey Dwelling

Sheds

Cedar Hedge

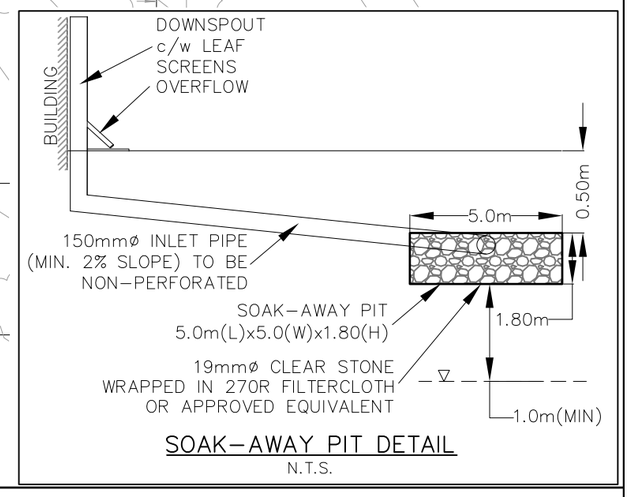
Storage Container

Overhead Service

Wire Fence On Line

Bush Trail

CONCESSION ROAD 12



SOAK-AWAY PIT DETAIL
N.T.S.

Legend:

- PR. 2000ft² BUILDING
- PR. SEPTIC SYSTEM
- PR. SOAK-AWAY PIT
- WELL PR. DRILLED WELL
- (240.55) PR. MATCH EXISTING ELEVATIONS
- 241.00 PR. ELEVATIONS
- PR. CULVERT
- EX. CULVERT
- EX. EDGE OF PAVEMENT
- EX. DITCH
- PR. SLOPE
- EX. EDGE OF PAVEMENT
- SF PR. SILT FENCE

Drawing Title

SITE SERVICING & GRADING PLAN

Project Title

OVERHEAD BRIDGE ROAD LOTS

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APPENDIX B

Stormwater Management Calculations

WMI & Associates Limited
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RUNOFF COEFFICIENT CALCULATIONS
"C" SPREADSHEET

Date: 2020-12-07 **Project No.:** 20-644

Project: Overhead Bridge Road **Prepared By:** BD

RUNOFF COEFFICIENT NUMBERS

Land Cover		Hydrologic Soil Groups		
		A-AB	B-BC	C-D
Cultivated Land	0 - 5% grade	0.22	0.35	0.55
	5 - 10% grade	0.3	0.45	0.6
	10 - 30% grade	0.4	0.65	0.7
Pasture Land	0 - 5% grade	0.1	0.28	0.4
	5 - 10% grade	0.15	0.35	0.45
	10 - 30% grade	0.22	0.4	0.55
Woodlot or Cutover	0 - 5% grade	0.08	0.25	0.35
	5 - 10% grade	0.12	0.3	0.42
	10 - 30% grade	0.18	0.35	0.52
Lakes and Wetlands		0.05	0.05	0.05
Impervious Area	(i.e. buildings, roads, parking lot, etc.)	0.95	0.95	0.95
Gravel	(not used for proposed parking or storage areas)	0.4	0.5	0.6
Residential	Single Family	0.3	0.4	0.5
	Multiple (i.e. semi, townhouse, apartment, etc.)	0.5	0.6	0.7
Industrial	Light	0.55	0.65	0.75
	Heavy	0.65	0.75	0.85
Commercial		0.6	0.7	0.8
Unimproved Areas		0.1	0.2	0.3
Lawn	< 2% grade	0.05	0.11	0.17
	2 - 7% grade	0.1	0.16	0.22
	> 7% grade	0.15	0.25	0.35

Ref: Runoff Coefficient Numbers - Adapted from Design Chart 1.07, Ontario Ministry of Transportation, "MTO Drainage Management Manual", MTO. (1997)

<<< **Elements Requiring Input Information**

PRE-DEVELOPMENT CONDITION

Land Cover		Hydrologic Soil Groups		
		A-AB	B-BC	C-D
Cultivated Land	0 - 5% grade			
	5 - 10% grade			
	10 - 30% grade			
Pasture Land	0 - 5% grade			
	5 - 10% grade			
	10 - 30% grade			
Woodlot or Cutover	0 - 5% grade	5.73		
	5 - 10% grade			
	10 - 30% grade			
Lakes and Wetlands				
Impervious Area	(i.e. buildings, roads, parking lot, etc.)	0.30		
Gravel	(not used for proposed parking or storage areas)			
Residential	Single Family			
	Multiple (i.e. semi, townhouse, apartment, etc.)			
Industrial	Light			
	Heavy			
Commercial				
Unimproved Areas				
Lawn	< 2% grade	0.13		
	2 - 7% grade			
	> 7% grade			

Total Area (ha) = 6.16 **Runoff Coefficient, C =** **0.12**

POST-DEVELOPMENT CONDITION

Land Cover		Hydrologic Soil Groups		
		A-AB	B-BC	C-D
Cultivated Land	0 - 5% grade			
	5 - 10% grade			
	10 - 30% grade			
Pasture Land	0 - 5% grade			
	5 - 10% grade			
	10 - 30% grade			
Woodlot or Cutover	0 - 5% grade	5.13		
	5 - 10% grade			
	10 - 30% grade			
Lakes and Wetlands				
Impervious Area	(i.e. buildings, roads, parking lot, etc.)	0.60		
Gravel	(not used for proposed parking or storage areas)			
Residential	Single Family			
	Multiple (i.e. semi, townhouse, apartment, etc.)			
Industrial	Light			
	Heavy			
Commercial				
Unimproved Areas				
Lawn	< 2% grade	0.43		
	2 - 7% grade			
	> 7% grade			

Total Area (ha) = 6.16 **Runoff Coefficient, C =** **0.16**

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

RATIONAL METHOD CALCULATIONS

Date: 2020-12-07 **Project No.:** 20-644

Project: Overhead Bridge Road **Prepared By:** BD

<<< **Elements Requiring Input Information**

Rainfall Intensity-Duration-Frequency Coefficients from: http://www.mto.gov.on.ca/IDF_Curves/terms.shtml

2-year		5-year		10-year		25-year		50-year		100-year	
A =	21.5	A =	28.6	A =	33.3	A =	39.2	A =	43.6	A =	48.0
B =	-0.699	B =	-0.699	B =	-0.699	B =	-0.699	B =	-0.699	B =	-0.699

Rational Method Formula

$$Q = \frac{C \times I \times A}{360} \quad (m^3/s)$$

where, C = Runoff Coefficient
I = Rainfall Intensity, (mm/hr)
A = Drainage Area, (ha)

Rainfall Intensity Equation (2-100 year storm events)

$$I_{2\text{-}100} = A \times (T_C / 60)^B \quad (mm/hr)$$

where, A = Rainfall IDF Coefficient
B = Rainfall IDF Coefficient
T_C = Time of Concentration, (min)

Runoff Coefficient Equations
Based on MTO Drainage Manual (1984), page BD-4

2-year	C_2 =	C
5-year	C_5 =	C
10-year	C_{10} =	C
25-year	C_{25} =	1.10 x C
50-year	C_{50} =	1.20 x C
100-year	C_{100} =	1.25 x C

For storms having a return period of more than 10 years, the Runoff Coefficient, C, will be increased as indicated above, up to a maximum value of 1.

Rainfall Intensity Equation (25mm storm event)
Based on the MOE SWMP Manual (2003), Eq'n 4.9

$$I_{25mm} = (43 \times C) + 5.9 \quad (mm/hr)$$

where, C = Runoff Coefficient

Catchment I.D.	A (ha)	T_C (min.)	C	Q_{25mm} (m^3/s)	Q_2 (m^3/s)	Q_5 (m^3/s)	Q_{10} (m^3/s)	Q_{25} (m^3/s)	Q_{50} (m^3/s)	Q_{100} (m^3/s)
PRE	6.16	15.0	0.12	0.023	0.116	0.155	0.180	0.233	0.283	0.325
POST	6.16	15.0	0.16	0.035	0.155	0.206	0.240	0.311	0.377	0.433

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STORMWATER MANAGEMENT CALCULATIONS
SOAKAWAY PIT DESIGN

Date: 2020-12-02 **Project No.:** 20-644

Project: Overhead Bridge Road **Prepared By:** BD

Purpose: An soakaway pit is proposed on each lot to provide quality control, water balance, volume control and phosphorus reduction benefits. The soakaway pits will be sized to store the entire runoff volume generated by the contributing building rooftop area during a 25mm storm event while maintaining a maximum draw down time of 48 hours.

<<< **Elements Requiring Input Information**

Infiltration Volume:

Total Area = **0.02** ha
Runoff Volume = **25** mm

Infiltration Volume = A (ha) x RV (mm) x 10 m^3
= 0.02 ha x 25 mm x 10 m^3
= **5** m^3

Max. Allowable Depth:

Based on the Ministry of the Environment's (MOE) Stormwater Management Design Manual dated March 2003, Page 4-20, Equation 4.2: Maximum Allowable Depth is:

$$d = \frac{PT}{1000} = \frac{40 \quad 48}{1000} = 1.92 \text{ m}$$

where,
d = maximum allowable depth (m)
P = percolation rate (Table 4.4 of MOE Manual OR Geotechnical/Hydrogeological Assessments) (mm/hr)
T = draw down time (24-48hr) (hr)

Provided Depth = **0.60** m

Min. Bottom Area:

Based on the Ministry of the Environment's (MOE) Stormwater Management Design Manual dated March 2003, Page 4-26, Equation 4.3: Infiltration Bottom Area is:

Min. Required Bottom Area:

$$A = \frac{1000\ V}{P\ n\ t} = \frac{1000 \quad 5}{40 \quad 0.4 \quad 48} = 6.5 \ m^2$$

where,
A = bottom area (m^2)
V = runoff volume to be infiltrated (m^3)
P = percolation rate of surrounding native soil (mm/hr)
n = porosity of the storage media (0.4 for clear stone/1.0 for infiltration basins)
t = retention time (hr)

Provided Bottom Area = **9.0** m^2

Excavation Volume:

Min. Required Excavation Volume = Infiltration Volume/porosity of the storage media
= 5 / 0.4 < (0.4 for clear stone/1.0 for infiltration basins)
= **12.5** m^3

Provided Excavation Volume = L x W x D m^3
= **3** m x **3** m x **0.6** m
= **5.4** m^3

Soil Cover:

Based on the Ministry of the Environment's (MOE) Stormwater Management Design Manual dated March 2003, Page 4-21, Figure 4.4: Soil Cover for Trenches (based on frost heave potential).

Min. Soil Cover = **0.5** m

Notes: - Refer to the latest Geotechnical Letter for the percolation rate which was estimated to be 4-6min/cm (100mm/hr) through grain size distribution analyses. Considering this, and based on Table C1 in Appendix C of the LID Design Guide and assuming that the soil horizon is continuous within 1.5m below the proposed bottom of the infiltration features, the mean infiltration rate assumed (100mm/hr) has been divided by a safety correction factor of 2.5 to calculate the design infiltration rate of 40mm/hr. Refer to Table C2 in Appendix C of the LID Design Guide for reference to the safety correction factor noted above. Groundwater was not encountered on-site.

Culvert Calculator Report
20-644 Driveway Culvert

Comments: Driveway Culvert sized to convey peak flows generated by the 5-year design storm (1.50ha contributing area - 0.082cu.m/s).

Minimum culvert size of 400mm (CMP) required at a minimum slope of 0.5%

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	0.44	m	Headwater Depth/Height	0.87	
Computed Headwater Elev	0.40	m	Discharge	0.0820	m³/s
Inlet Control HW Elev.	0.36	m	Tailwater Elevation	0.00	m
Outlet Control HW Elev.	0.40	m	Control Type	Outlet Control	

Grades					
Upstream Invert	0.04	m	Downstream Invert	0.00	m
Length	9.00	m	Constructed Slope	0.005000	m/m

Hydraulic Profile					
Profile	M2		Depth, Downstream	0.20	m
Slope Type	Mild		Normal Depth	0.33	m
Flow Regime	Subcritical		Critical Depth	0.20	m
Velocity Downstream	1.26	m/s	Critical Slope	0.019060	m/m

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	0.41	m
Section Size	400 mm		Rise	0.41	m
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	0.40	m	Upstream Velocity Head	0.04	m
Ke	0.90		Entrance Loss	0.03	m

Inlet Control Properties					
Inlet Control HW Elev.	0.36	m	Flow Control	Unsubmerged	
Inlet Type	Projecting		Area Full	0.1	m²
K	0.03400		HDS 5 Chart	2	
M	1.50000		HDS 5 Scale	3	
C	0.05530		Equation Form	1	
Y	0.54000				

APPENDIX C

Hydrogeological Assessment
(by Wilson Associates Inc.)

Ian D. Wilson Associates Ltd.
since 1974

Tel: 519.233.3500
Fax: 519.233.3501

P. O. Box 299
Clinton, Ontario
N0M 1L0

Wilson Associates

Consulting Hydrogeologists

December 5, 2020

Mr. Frank Charlebois
Charlebois Properties Inc.
430 Concession 16 East
Tiny, ON
L9M 0P1

Dear Mr. Charlebois:

Re: Desktop Hydrogeological Assessment - Proposed Residential Lots
Overhead Bridge Road at Concession Road 12
Part Lot 9, Concession 12, Township of Tiny

It is proposed to develop six residential lots on a 5.5968ha parcel of land located at the northwest corner of the intersection of Overhead Bridge Road and Concession Road 12, within part of Lot 9, Concession 12, Township of Tiny. The attached drawing, prepared by Celeste Philips Planning Inc., shows the location and layout of the proposed lots.

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

To support the development proposal, a desktop hydrogeological study was conducted involving the following:

- A desktop review of readily available background hydrogeological information for the site and vicinity.
- A review of site-specific subsurface information detailed in the December 3, 2020 Test Pit Investigation letter report from Terraprobe Inc. (copy attached).
- Sewage system development impact assessment under current Ministry of the Environment, Conservation and Parks (MECP) Procedure D-5-4 "Technical Guideline For Individual On-Site Sewage Systems : Water Quality Impact Risk Assessment", commonly known as the "nitrate guideline".
- A review of water well records to provide comment regarding aquifer conditions and groundwater supply potential.

This desktop study was completed at the request of Charlebois Properties Inc.

SITE SETTING, GEOLOGY AND HYDROGEOLOGY

The proposed development is located northwest corner of the intersection of Overhead Bridge Road and Concession Road 12. The site is a mostly rectangular parcel, with two existing residential lots dividing the frontage on Overhead Bridge Road. Total frontage on Overhead Bridge Road is about 365m and frontage along Concession Road 12 is about 137m. The subject lands are forested and undeveloped. The site exhibits a slope to the north or northwest, with a total relief of about 10m. Lands to the west, north and south are occupied by residential lots. Apart from the two existing residential lots fronting on Overhead Bridge Road, lands to the east are undeveloped forest.

No surface water bodies are located on or in the close vicinity of the site. Simcoe County website mapping suggests that wetland conditions may be present downslope to the north of the site.

The subject property is situated within the Simcoe Uplands physiographic region of southern Ontario, which consists of a series of rolling till plains situated above the glacial Lake Algonquin shoreline. According to Ontario Geological Survey Map P.975 "Quaternary Geology of the Orr Lake - Nottawasaga Area", the upper soils consist of glaciolacustrine shallow water deposits of sand with minor fine gravel. The Terraprobe report indicates that all subsurface samples collected consisted of sand with traces of gravel and/or silt, consistent with Quaternary geology mapping.

According to the record of a log of a 1978 test well completed about 1.5km to the southwest, (Well Record # 5715544), the overburden is approximately 100 to 110 metres deep in the vicinity of the site. Nearby well records report that the upper half of the overburden largely consists of granular deposits of sand, or sand and gravel, with discontinuous, variable fine-grained deposits at depths typically in the range of 20m to 40m below grade. Distant well records typically report the lower overburden to be fine-grained in character.

The bedrock beneath the site consists of limestone or dolostone of the Simcoe Group.

The majority of local groundwater supplies are obtained from the granular deposits of the intermediate overburden. The lower overburden typically provides little to no potential for groundwater supply due to its fine-grained character, and the bedrock is less often utilized due to the expense of deep drilling and the potential of obtaining aesthetically poor-quality water.

WELL POTENTIAL ANALYSIS

To establish well yield and basic water quality probabilities, up-to-date MECP records for water wells located within approximately 500 metres of the proposed development were reviewed. Records for well abandonments, geotechnical or environmental monitoring wells are not included in the summary. The MECP water well record database contains the records for 18 water wells within the review area. The water well records used in the preparation of the review are attached. The following summarizes the reported well record information within the review area.

Number of wells:	18
Drilled Construction:	18
Dug/Bored Construction:	0
Sandpoint Construction:	0
Unknown Construction:	0
Completed in Overburden:	18 (100%)
Completed in Bedrock:	0

The following summarizes the reported well performance data.

	Maximum	Minimum	Average
Well Depth (m)	74.7	29.6	57.2
Test Rate (L/min)	455	23	78
Test Period (Hours)	24	1	4.5

Reported Water Quality:	
Fresh:	18 or 100% (no objectionable tastes or odours)
Sulphurous:	none
Mineralized/Saline:	none
Quality Not Reported:	none
Dry Well:	none

The average reported well within about 500 metres of the proposed development is of drilled construction, completed in the intermediate overburden to a depth of 57.2metres and yields 78 litres of fresh-quality water per minute over an average period of 4.5 hours. This average yield significantly exceeds the maximum water demand of a normal four bedroom home specified by the MECP (i.e. 18L/min without inline storage). Overall groundwater conditions are very favourable for domestic water requirements. The high average well yield in the vicinity of the site is consistent with an aquifer setting that is more than capable of supplying domestic water demand with limited risk of adverse interference on the large lots proposed.

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 very favourable.

WATER QUALITY

Based on the probable depth of on-site wells (i.e. ±57m) in the intermediate overburden, the bacteriological quality of water from properly-constructed wells is anticipated to be acceptable. Samples of water collected in 1992 by Wilson Associates from Whippoorwill Well #2 (Well Record No. 5728953), completed about 300m to the south and in the same overburden aquifer in which the on-site wells are likely to be completed, were reported to contain no detectable Total Coliform or E. Coli bacteria (analysis attached). The Tiny Township 2019 Annual Drinking Water Report for the Whippoorwill Wells 1 and 2 reports that 104 samples of raw water were collected from the Whippoorwill wells, with non-detectable to low (1 CFU/100mL) Total Coliform and no detectable E. Coli bacteria (attached).

The chemical quality of groundwater from the intermediate overburden aquifer is known to be acceptable. Samples of water collected by Wilson Associates in 1992 from Whippoorwill Well #2 (Well Record No. 5728953), completed about 300m to the south and in the same overburden aquifer in which the on-site wells are likely to be completed, were reported to be slightly alkaline (pH 7.92) and to exhibit moderate hardness (198mg/L as $CaCO_3$) (analyses attached). All parameters determined in 1992 were at acceptable levels, with no indicators of surface water impact (i.e. elevated levels of nitrate, chloride, sodium, etc...). The Tiny Township 2019 Annual Drinking Water Report for the Whippoorwill system reports no applicable chemical water quality exceedances of the Ontario Drinking Water Quality Standards (attached).

SEWAGE SYSTEM IMPACT ASSESSMENT

Under the current MECP "Technical Guideline For Individual On-Site Sewage Systems : Water Quality Impact Risk Assessment" (Procedure D-5-4, also known as the "nitrate guideline"), 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. 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.

Based on samples collected from the nearby Whippoorwill wells (per the 2019 Annual Drinking Water Report), the nitrate content of groundwater is low, recently ranging between 0.2 and 0.7mg/L.

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. Step 1 of the guideline is not applicable based on lot size.

Step 2 of the guideline is applicable where groundwater resources can be confidently demonstrated to be hydraulically isolated from potential sewage pathways. As the upper overburden is predominantly granular, Step 2 of the guideline does not apply.

Under Step 3 of the guideline, a mass-balance calculation is used to determine the potential impact 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 Terraprobe soil evaluation and Quaternary geology mapping, the upper soil profile consists of sand (infiltration factor 40%), the overall relief is hilly (infiltration factor 10%) and the cover will likely be cleared (infiltration factor 10%), all resulting in an infiltration factor of 60%. The water surplus for the site is assumed to be 456mm/year, based on the 1981-2010 precipitation normal for the closest Environment Canada weather station - Midland WPCP weather station (1040.6mm/year, rounded to 1041mm/year) and the actual evapotranspiration rate as identified for Copeland Creek subwatershed by the 2015 Severn Sound Source Protection Area Approved Assessment Report (Table 3.2-3 - actual evapotranspiration 585mm/year).

As such, the annual infiltration rate will be 273mm (60% of 456mm), representing about 26% of average annual precipitation in the sub-watershed.

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 = Nitrate concentration
Q_S = Volume of sewage (6 lots @ 1000 L/day/lot, per MECP guideline)
C_S = Nitrate content of sewage (40 mg/L, per MECP guideline)
Q_P = Infiltration (273mm/year x 5.5968ha x 10,000L/mm/ha = 1.53×10^7L/yr)
C_P = Nitrate content of shallow groundwater (0.7mg/L assumed, see above)

Therefore:

$(2.19 \times 10^6 \text{L/yr} + 1.53 \times 10^7 \text{L/yr}) \times C_T = (2.19 \times 10^6 \text{L/yr} \times 40 \text{mg/L}) + (1.53 \times 10^7 \text{L/yr} \times 0.7 \text{mg/L})$
$C_T = 5.6$mg/L

Based on the MECP-specified daily volume of sewage for the purposes of the Procedure D-5-4 assessment, and an infiltration rate of 273mm/year, the nitrate impact of the proposed six-lot development is 5.6mg/L, and well within the maximum acceptable nitrate impact of 10mg/L. As such, the sewage impact of the proposed six privately-serviced lots will be acceptable.

CONCLUSIONS AND RECOMMENDATIONS

1. The average reported well within about 500 metres of the proposed development is of drilled construction, completed in the intermediate overburden to a depth of 57.2metres and yields 78 litres of fresh-quality water per minute over an average period of 4.5 hours. This average yield significantly exceeds the maximum water demand of a normal four bedroom home specified by the MECP (i.e. 18L/min without inline storage). Overall groundwater conditions are very favourable for domestic water requirements. The high average well yield in the vicinity of the site is consistent with an aquifer setting that is more than capable of supplying domestic water demand with limited risk of adverse interference on the large lots proposed.

2. Based on historical and on-going water quality analytical data from the nearby Whippoorwill wells, which are completed in the same overburden aquifer in which the on-site wells are likely to be completed, the bacteriological and chemical quality of water from properly-constructed on-site drilled wells will be acceptable.

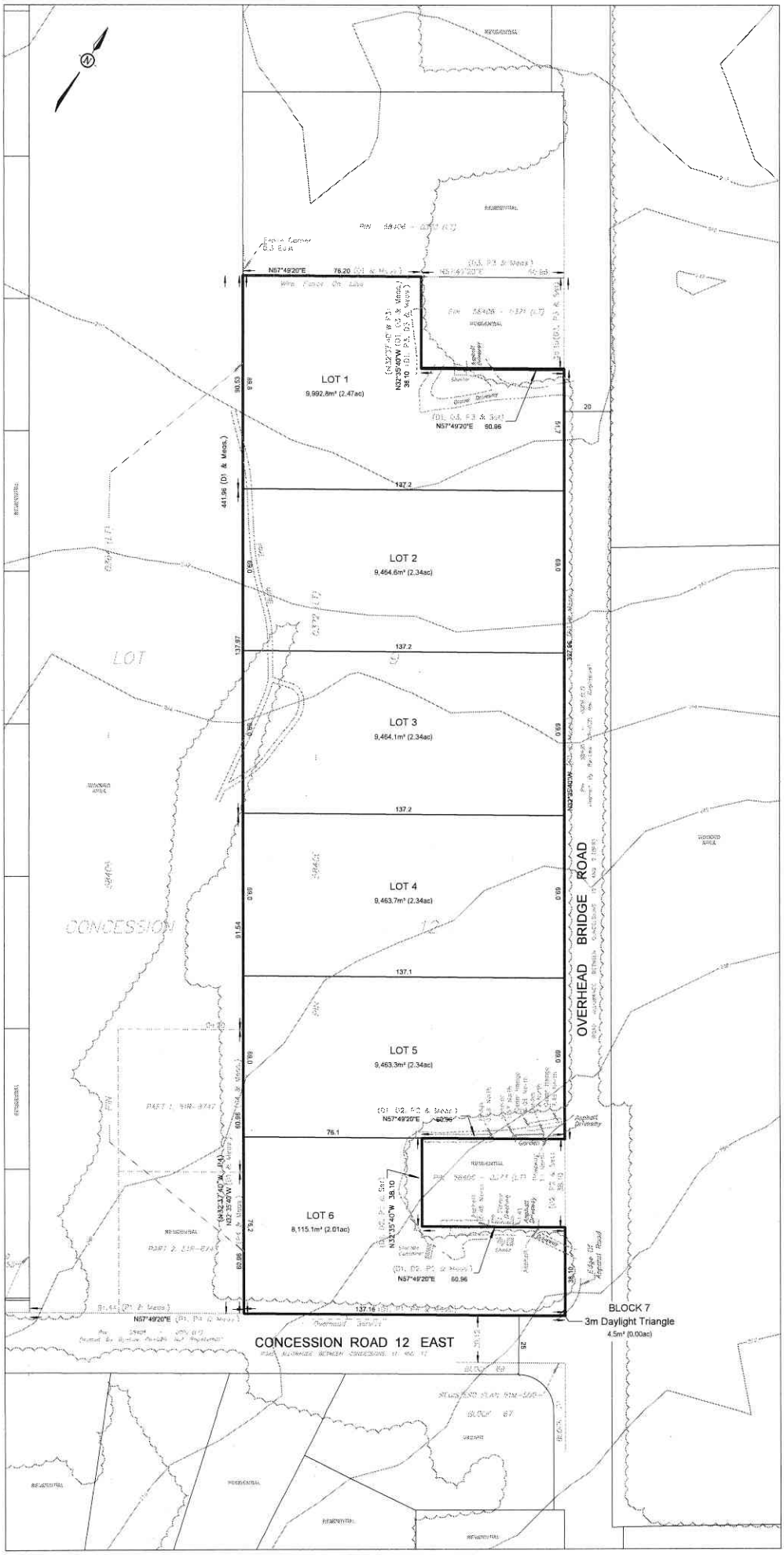
3. Under MECP Procedure D-5-4, the nitrate impact of the proposed six-lot development is 5.6mg/L, and well within the maximum acceptable nitrate impact of 10mg/L. The sewage impact of the proposed six privately-serviced lots will be acceptable

Should there be any questions regarding the above information and discussion, please do not hesitate to contact this office.

IAN D. WILSON ASSOCIATES LIMITED

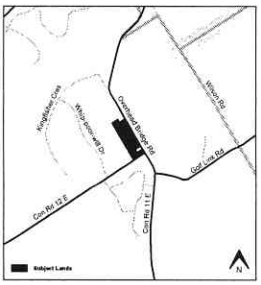
Geoffrey Rether, B.Sc., P.Geo.

PROFESSIONAL GEOSCIENTIST
GEOFFREY B. RETHER
PRACTISING MEMBER
0426
ONTARIO



KEY MAP

Scale 1:25,000



DRAFT PLAN OF SUBDIVISION

PART OF LOT 9, CONCESSION 12
TOWNSHIP OF TINY
COUNTY OF SIMCOE

LAND USE SCHEDULE

USE	LOTS / BLOCKS	AREA
Single Detached Lots	Lots 1-6	55,563.3m² (13.83ac)
3m Daylight Triangle	Block 7	4.5m² (0.00ac)
Total		55,567.8m² (13.83ac)

LEGEND

2.0m Contours

Wooded Area

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ON THIS PLAN.

DATE

PETER T. RAIKES, BSc., CLS., MRICS.
RAIKES GEOMATICS INC.

OWNER'S CERTIFICATE

CHARLEBOIS PROPERTIES INC, BEING THE REGISTERED OWNERS OF THE SUBJECT LANDS, HEREBY AUTHORIZE CELESTE PHILLIPS PLANNING INC. TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE

FRANK CHARLEBOIS, PRESIDENT
CHARLEBOIS PROPERTIES INC.

ADDITIONAL INFORMATION
REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) Shown on plan
b) Shown on plan
c) See Key Plan
d) Residential
e) Shown on plan
f) Shown on plan
f1) None
g) Shown on plan
h) Municipal Water
i) Sand and Silty Sand
j) Shown on plan
k) Full Municipal Services
l) Shown on plan

No.	DATE	REVISION	BY

Sources: Plan of Survey prepared by Raikes Geomatics Inc. dated November 26, 2020.

SCALE: 1 : 750

0 25 50 75m

Date: December 2, 2020 | Drawn By: AM

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Barrie, ON L4M 3A7
T: 705 797 8977
F: 705 730 8850
celeste@cplan.ca
celeste PHILLIPS PLANNING INC.

Ontario

Ministry of Health / Ministère de la Santé — Laboratory Services Branch / Service de Laboratoire

Date Received / Date Reçue | Lab. No. / N° du Lab.

JAN 10 92 W E 33

Bacteriological Analysis of Water
Analyse Bactériologique de l'eau

Sample taken by / Échantillon prélevé par	Location of supply (Lot, Con., Twp.) / Lieu de Prélèvement (Lot, Concession, Commune)	County	Date collected / Date du Prélèvement
G. RETHER	L9, C11, TINY	SIMCOE	JAN 10 92

Your name and return address must appear on all copies / Votre nom et votre adresse de retour doivent paraître sur toutes les copies.

Name / Nom: IAN D. WILSON ASSOC.

Street, R.R., Box No. / Rue, R.R., Casier Postal: BOX 277

City, Town / Ville: STRATFORD

Province: ONT

Postal Code / Code Postal: N5A 6T1

☐ **Private Citizens:** check this box. Drinking water only. See reverse of report for interpretation.
Citoyen Privé: cocher cette case. Eau potable seulement. Voir au verso pour interprétation.

Consult your local health unit for further information. / Pour les directives additionel consultez votre unité sanitaire local.

FOLD

SHADED AREAS FOR OFFICIAL AGENCIES ONLY
ZONE OMBRÉE RÉSERVÉE AUX AGENTS OFFICIELS

Non potable samples MUST be received within 6 hours if unrefrigerated or within 24 hours if refrigerated.

FOLD

CHECK APPROPRIATE BOXES / COCHER TOUTES LES CASES APPROPRIÉES

DRINKING WATER

- ☐ Treated
- ☒ Non-treated
- ☒ Municipal
- ☒ Well
- ☐ Other Public
- ☐ Single Household

NON-DRINKING WATER

- ☐ Recreational
- ☐ Swimming Pool-Indoor
- ☐ Hydrotherapy Spa, Whirlpool
- ☐ Swimming Pool-Outdoor
- ☐ Wading Pool
- ☐ Sewage
- ☐ Other:

COMMENTS

BACTERIAL COUNT / NUMERATION DES BACTÉRIES
Based on 100 ml volume/Base sur un volume de 100 ml

Total coliform/ Totale des Colibacilles	Faecal coliform/ Colibacilles Fecaux	Faecal Strep/ Streptocoques Fecaux	BACTERIAL COUNT Based on 1.0 ml volume: APC
0	0		JAN 13 '92
Background	P. aeruginosa	Presumptive Staphylococci	S. aureus
			PUBLIC HEALTH LABORATORY 750 MEMORIAL AVE. ORILLIA ONT L3V 6K5
Technician		Checked by	Date

REPORT OF ANALYSIS

ARECO CANADA INC., 28 CONCOURSE GATE, NEPEAN, ONTARIO, K2E 7T7
TELEPHONE: (613) 228 1145 FAX: (613) 228 1148

LABORATORY I.D.: 140192-2
SAMPLE MATRIX: Well Water, Bidan Subdivision
REPORT NUMBER: 7943001

CLIENTS JOB NUMBER: Ian D. Wilson, 89-19
DATE SUBMITTED: 14-01-92
DATE REPORTED: 30-01-92

DRINKING WATER CRITERIA	UNITS	RESULTS				
PARAMETERS		Well 2 Tiny Twp.				
Colour	T.C.U.	<1				
Hardness($CaCO_3$)	mg/L	198				
Alkalinity($CaCO_3$)	mg/L	149				
Turbidity	N.T.U.	11				
Conductivity	uS/cm	390				
pH		7.92				
Fluoride	mg/L	<0.1				
Chloride	mg/L	3.7				
Nitrite (N)	mg/L	<0.1				
Nitrate (N)	mg/L	<0.1				
Sulphate	mg/L	20.3				
Calcium	mg/L	51.8				
Magnesium	mg/L	16.6				
Sodium	mg/L	6.4				
Potassium	mg/L	2.6				
Ammonia (N)	mg/L	0.16				
TKN	mg/L	0.2				
Cyanide	mg/L	<0.02				
Phenols	mg/L	<0.002				
TOC	mg/L	1				
DOC	mg/L	1				

REPORT OF ANALYSIS

ARECO CANADA INC., 28 CONCOURSE GATE, NEPEAN, ONTARIO, K2E 7T7
TELEPHONE: (613) 228 1145 FAX: (613) 228 1148

LABORATORY I.D.: 140192-2
SAMPLE MATRIX: Well Water, Bidan Subdivision
REPORT NUMBER: 7943001

CLIENTS JOB NUMBER: Ian D. Wilson, 89-19
DATE SUBMITTED: 14-01-92
DATE REPORTED: 30-01-92

DRINKING WATER CRITERIA	UNITS	RESULTS				
PARAMETERS		Well 2 Tiny Twp.				
Barium	mg/L	0.11				
Cadmium	mg/L	<0.004				
Chromium	mg/L	<0.01				
Copper	mg/L	<0.01				
Arsenic	mg/L	<0.01				
Boron	mg/L	0.01				
Iron	mg/L	0.02				
Lead	mg/L	<0.04				
Manganese	mg/L	0.034				
Selenium	mg/L	<0.005				
Silver	mg/L	<0.01				
Zinc	mg/L	0.03				
Mercury	mg/L	<0.001				
Uranium	mg/L					

REPORT OF ANALYSIS

ARECO CANADA INC., 28 CONCOURSE GATE, NEPEAN, ONTARIO, K2E 7T7
TELEPHONE: (613) 228 1145 FAX: (613) 228 1148

LABORATORY I.D.: 140192-2
SAMPLE MATRIX: Well Water, Bidan Subdivision
REPORT NUMBER: 7943001

CLIENTS JOB NUMBER: Ian D. Wilson, 89-19
DATE SUBMITTED: 14-01-92
DATE REPORTED: 30-01-92

DRINKING WATER CRITERIA	UNITS	RESULTS				
PARAMETERS		**Well 2 Tiny Twp.**				
Anion Sum	meq/L	3.98				
Cation Sum	meq/L	4.30				
% Difference	%	3.81				
Ion Ratio	AS/CS	0.93				
Conductivity (calc.)	uS/cm	386				
TDS (ion sum calc.)	mg/L	241				
SAR		0.20				
Langelier Index	S.I.	0.27				

Certified by
Greg Clarkin, B.Sc., GeoChem
Lab Manager

REPORT OF ANALYSIS

ARECO CANADA INC., 28 CONCOURSE GATE, NEPEAN, ONTARIO, K2E 7T7
TELEPHONE: (613) 228 1145 FAX: (613) 228 1148

LABORATORY I.D.:	140192-2	CLIENTS JOB NUMBER:	Ian D. Wilson, #89-19
SAMPLE MATRIX:	Water, Bidan Subdivision	DATE SUBMITTED:	14-01-92
REPORT NUMBER:	7943001	DATE REPORTED:	30-01-92

METHOD: PURGE AND TRAP HIGH RESOLUTION GC-MS/SIM

PARAMETER	UNITS					
EPA 624		**M.D.L.**	**Well 2**			
Benzene	ppb	0.04	<0.04			
Bromodichloromethane	ppb	0.09	<0.09			
Bromoform	ppb	0.2	<0.2			
Bromomethane	ppb	0.4	<0.4			
Carbon Tetrachloride	ppb	0.08	<0.08			
Chlorobenzene	ppb	0.05	<0.05			
Chloroethane	ppb	0.4	<0.4			
Chloroform	ppb	0.06	<0.06			
2-Chloroethylvinylether	ppb	0.09	<0.09			
Chloromethane	ppb	0.6	<0.6			
Dibromochloromethane	ppb	0.1	<0.1			
1,2-Dichlorobenzene	ppb	0.08	<0.08			
1,3-Dichlorobenzene	ppb	0.07	<0.07			
1,4-Dichlorobenzene	ppb	0.07	<0.07			
1,1-Dichloroethane	ppb	0.1	<0.1			
1,2-Dichloroethane	ppb	0.1	<0.1			
1,1-Dichloroethene	ppb	0.2	<0.2			
trans-1,2-Dichlorethene	ppb	0.1	<0.1			
1,2-Dichloropropane	ppb	0.2	<0.2			
cis-1,3-Dichloropropene	ppb	0.1	<0.1			
trans-1,3-Dichloropropene	ppb	0.1	<0.1			
Ethylbenzene	ppb	0.03	<0.03			
Methylene Chloride	ppb	0.05	<0.05			
1,1,2,2-Tetrachloroethane	ppb	0.2	<0.2			

REPORT OF ANALYSIS

ARECO CANADA INC., 28 CONCOURSE GATE, NEPEAN, ONTARIO, K2E 7T7
TELEPHONE: (613) 228 1145 FAX: (613) 228 1148

LABORATORY I.D.:	140192-2	CLIENTS JOB NUMBER:	Ian D. Wilson, #89-19
SAMPLE MATRIX:	Water, Bidan Subdivision	DATE SUBMITTED:	14-01-92
REPORT NUMBER:	7943001	DATE REPORTED:	30-01-92

METHOD: PURGE AND TRAP HIGH RESOLUTION GC-MS/SIM

PARAMETER	UNITS					
EPA 624		**M.D.L.**	**Well 2**			
Tetrachloroethene	ppb	0.08	<0.08			
Toluene	ppb	0.04	<0.04			
1,1,1-Trichloroethane	ppb	0.08	<0.08			
1,1,2-Trichloroethane	ppb	0.2	<0.2			
Trichloroethene	ppb	0.1	<0.1			
Trichlorofluoromethane	ppb	0.5	<0.5			
Vinyl Chloride	ppb	0.7	<0.7			
m,p-Xylene	ppb	0.03	<0.03			
o-Xylene	ppb	0.03	<0.03			

Certified by
Greg Clarkin, B.Sc. GeoChem
Lab Manager

Township of Tiny
2019 Annual Drinking Water Report
Whippoorwill Drinking Water System

Drinking Water System Number: 220007481
Drinking Water System Category: Small Municipal Residential
Owned and Operated by: The Corporation of the Township of Tiny
Report cov January 1st to December 31st, 2019

1. Notification and Availability of Reports:

The annual reports and annual summary reports are available to the public at no charge on the Township of Tiny website:

www.Tiny.ca

The Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection at the Township of Tiny Municipal Office:

130 Balm Beach Rd W,
Tiny, Ontario
L0L 2J0

System users were notified that annual reports are available, free of charge, through the Township of Tiny website and when the public requests a report.

This Drinking Water System does not serve more than 10,000 people.

There are no Designated Facilities served by this Drinking Water System.
A copy of this annual report was not provided to the Designated Facility but is available upon request.

The Township of Tiny does not report to any Interested Authorities.

There are no other Drinking Water Systems that receive all of their drinking water from this system.

2. Drinking Water System Description:

The Whippoorwill Drinking Water System is comprised of one pumping station, two groundwater wells, one storage reservoir, and approximately 2.6 km of distribution watermains. The system serves 71 properties, with 2 vacant lots slated for future service.

Township of Tiny
2019 Annual Drinking Water Report
Whippoorwill Drinking Water System

3. Water treatment chemicals used in this reporting period:

Sodium Hypchlorite (Flochem-12)

4. Significant expenses were incurred to:

a. [x] Install required equipment
b. [ ] Repair required equipment
c. [x] Replace required equipment
d. [ ] Studies / Engineering

5. Description and breakdown of monetary expenses incurred:

Replaced all pumpstaion piping with stainless steel PH 21	105749.00
Cleaned generator fuel	850.00
Replaced reseroir probe	750.00
Total Expenditure:	$107,349.00

6. Details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre:

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
None					

7. Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period:

Sample Locations	Number of Samples	Range of E. Coli results	Range of Total Coliform Results	Number of HPC Samples	Range of HPC Results
Raw	104	0	0-1	n/a	n/a
Treated	52	0	0	n/a	n/a
Distribution	52	0	0	52	0-210

Township of Tiny
2019 Annual Drinking Water Report
Whippoorwill Drinking Water System

8. Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report:

Parameter	Number of Grab Samples	Range of Results (min #)-(max #)	
Turbidity - Raw	24	0.06	0.66
Chlorine – Treated	228	1.15	2.14
Chlorine - Distribution	105	0.78	1.87
Fluoride – not required	n/a	n/a	n/a

9. Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument:

Date of legal instrument issued	Parameter	Date Sampled	Result	Unit of Measure
None				

10. Summary of inorganic parameters tested during this reporting period or the most recent sample results:

Note: ND = not detected

Parameter	Sample Date	Results 21	Unit of Measure	Exceedance
Alkalinity	2019	164-175*	mg/L	no
Antimony	24-Apr-08	ND	µm	no
Arsenic	24-Apr-08	ND	µm	no
Barium	24-Apr-08	79	µm	no
Boron	24-Apr-08	14	µm	no
Cadmium	24-Apr-08	ND	µm	no
Chromium	24-Apr-08	ND	µm	no
Mercury	24-Apr-08	ND	µm	no
Selenium	24-Apr-08	ND	µm	no
Uranium	24-Apr-08	0.84	µm	no
Flouride	24-Apr-08	0.11	mg/L	no
Sodium	24-Apr-08	9400	µm	no
Lead	2018	ND-0.61*	µm	no
Nitrite	2019	<0.1	mg/L	no
Nitrate	2019	0.2-0.7	mg/L	no

**Distribution sample*

Township of Tiny
2019 Annual Drinking Water Report
Whippoorwill Drinking Water System

11. Summary of organic parameters tested during this reporting period or the most recent sample results:

Note: ND = not detected

Parameter	Sample Date	Results PH 21	Unit	Exceedence
Alachlor	24-Apr-08	ND	µm	no
Atrazine + metabolites	24-Apr-08	ND	µm	no
Azinphos-methyl	24-Apr-08	ND	µm	no
Benzene	24-Apr-08	ND	µm	no
Benzo(a)pyrene	24-Apr-08	ND	µm	no
Bromoxynil	24-Apr-08	ND	µm	no
Carbaryl	24-Apr-08	ND	µm	no
Carbofuran	24-Apr-08	ND	µm	no
Carbon Tetrachloride	24-Apr-08	ND	µm	no
Chlorpyrifos	24-Apr-08	ND	µm	no
Diazinon	24-Apr-08	ND	µm	no
Dicamba	24-Apr-08	ND	µm	no
1,2-Dichlorobenzene	24-Apr-08	ND	µm	no
1,4-Dichlorobenzene	24-Apr-08	ND	µm	no
1,2-dichloroethane	24-Apr-08	ND	µm	no
1,1-Dichloroethylene (vinylidene chloride)	24-Apr-08	ND	µm	no
Dichloromethane	24-Apr-08	ND	µm	no
2,4-Dichlorophenol	24-Apr-08	ND	µm	no
2,4-Dichlorophenoxy acetic acid (2,4-D)	24-Apr-08	ND	µm	no
Diclofop-methyl	24-Apr-08	ND	µm	no
Dimethoate	24-Apr-08	ND	µm	no
Diquat	24-Apr-08	ND	µm	no
Diuron	24-Apr-08	ND	µm	no
Glyphosate	24-Apr-08	ND	µm	no
Malathion	24-Apr-08	ND	µm	no
Metolachlor	24-Apr-08	ND	µm	no
Metribuzin	24-Apr-08	ND	µm	no
Monochlorobenzene	24-Apr-08	ND	µm	no
Paraquat	24-Apr-08	ND	µm	no
Pentachlorophenol	24-Apr-08	ND	µm	no
Phorate	24-Apr-08	ND	µm	no
Picloram	24-Apr-08	ND	µm	no
Polychlorinated Biphenyls (PCB)	24-Apr-08	ND	µm	no

Township of Tiny
2019 Annual Drinking Water Report
Whippoorwill Drinking Water System

Note: ND = not detected

Parameter	Sample Date	Results PH 21	Unit	Exceedence
Prometryne	24-Apr-08	ND	µm	no
Simazine	24-Apr-08	ND	µm	no
Terbufos	24-Apr-08	ND	µm	no
Tetrachloroethylene (perchloroethylene)	24-Apr-08	ND	µm	no
2,3,4,6-Tetrachlorophenol	24-Apr-08	ND	µm	no
Triallate	24-Apr-08	ND	µm	no
Trichloroethylene	24-Apr-08	ND	µm	no
2,4,6-Trichlorophenol	24-Apr-08	ND	µm	no
Trifluralin	24-Apr-08	ND	µm	no
Vinyl Chloride	24-Apr-08	ND	µm	no

Distribution Parameter	RAA	Exceedance
Haloacetic Acids Average	5.3	no
Trihalomethanes Average	6.3	no

12. The following inorganic or organic parameter(s) exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards:

Parameter	Result Value	Unit of Measure	Date of Sample
None			

UTM [1|7]z [5|8|2|1|8|0|0] Con II O.S. Lot 111

[4]R [4|9|5|4|5|0|0] CODED

Elev. [5]R [9|8|3|5]

Basin [2|2] [| |]

The Ontario Water Resources Commission Act

WATER WELL RECORD

County or District Simcoe Township, Village, Town or City Tiny

Con. II O.S. Lot 111 PRW Date completed 31 (day) March (month) 69 (year)

[redacted] ...dress Midland

31D/12W.B.

5706259

Casing and Screen Record	
Inside diameter of casing	6 ¼"
Total length of casing	212 ft.
Type of screen	6" stainless steel
Length of screen	3'x25 slot & 3'x30 slot
Depth to top of screen	213'
Diameter of finished hole	6"

Pumping Test	
Static level	195 ft.
Test-pumping rate	7 G.P.M.
Pumping level	196 ft.
Duration of test pumping	24 hrs.
Water clear or cloudy at end of test	clear
Recommended pumping rate	10 G.P.M.
with pump setting of	205 feet below ground surface

Well Log: Overburden and Bedrock Record	From ft.	To ft.	Water Record: Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
sand gravel & stones	0	220	215	fresh

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 Snider Drilling

Address Craighurst

Licence Number 3481

Name of Driller or Borer R. Snider

Address Craighurst

Date March 31/69

Ralph Snider

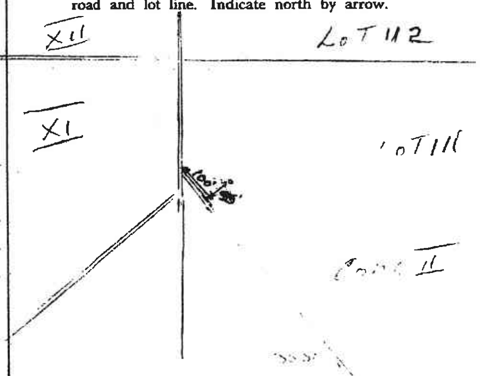
(Signature of Licensed Drilling or Boring Contractor)

Form 7

OWRC COPY

Location of Well

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



Ontario

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue.

Go Back to Map

Well ID

Well ID Number: 5706261
Well Audit Number:
Well Tag Number:

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

Well Location

Address of Well Location	
Township	TINY TOWNSHIP
Lot	111
Concession	PR W 02
County/District/Municipality	SIMCOE
City/Town/Village	
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 17 Easting: 582814.30 Northing: 4954724.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
	MSND			0 ft	129 ft
	FSND			129 ft	181 ft
	MSND			181 ft	189 ft
	CSND			189 ft	194 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
Cable Tool	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
6 inch	STEEL		190 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
6 inch		190 ft	194 ft

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 4816

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	10 GPM
Duration of Pumping	24 h:0 m
Final water level	171 ft
If flowing give rate	
Recommended pump depth	185 ft

Recommended pump rate	10 GPM
Well Production	PUMP
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL	160 ft		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind
190 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter

Audit Number:

Date Well Completed: May 16, 1969

Date Well Record Received by MOE: May 22, 1969

Updated: January 24, 2020

The Ontario Water Resources Commission Act

WATER WELL RECORD

31012W

Water management in Ontario 1. PRINT ONLY IN SPACES PROVIDED 2. CHECK ☒ CORRECT BOX WHERE APPLICABLE (11) 5709271 MUNICIP 57014 CON CON 12

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Simcoe	Tiny	XII	009

[redacted] Penetang. Date completed 03 day May mo. 72 yr.

54700 5 Elevation 0820 5 Basin code 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General colour	Most common material	Other materials	General description	Depth – feet From	To
	sand & gravel		cemented	0	162
	Sand & silt		fine	162	207
	Sand		medium	207	216

(31) 0162 28 1160 0207 0806 0216 09

(32)

(41) WATER RECORD

Water found at – feet	Kind of water
0207 / 207 ft	1 ☒ Fresh

(51) CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth – feet From	To
06	☒ Steel	.188	0	0213

SCREEN: Size(s) of opening (slot no.) 025; Diameter 06 inches; Length 03 feet; Material and type: Stainless Steel; Depth at top of screen 213 feet

(61) PLUGGING & SEALING RECORD

Depth set at – feet From	To	Material and type (cement grout, lead packer, etc.)

(71) PUMPING TEST

Pumping test method: ☒ Pump ☐ Bailer; Pumping rate 0020 GPM; Duration of pumping 02 hours 00 mins.

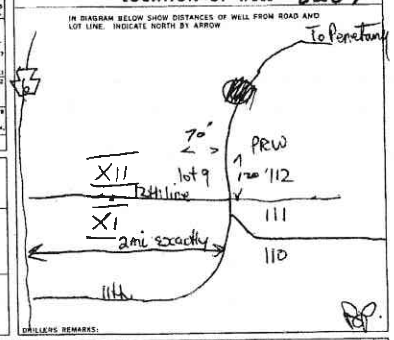
Static level 176 feet

Water at end of test: ☒ Clear ☐ Cloudy

Recommended pump type: ☐ Shallow ☒ Deep; Recommended pump setting 200 feet; Recommended pumping rate 0010 GPM

LOCATION OF WELL 8254

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



FINAL STATUS OF WELL 1 – ☒ Water supply

WATER USE 01 – ☒ Domestic

METHOD OF DRILLING 2 – ☒ Rotary (conventional)

CONTRACTOR

Name of well contractor: Snider Drilling — Licence number 4816

Address: Craighurst

Name of driller or borer: R. Snider

Signature of contractor: Ralph Snider

OFFICE USE ONLY: Data source 1; Contractor 4816; 141172; Date of inspection Aug 25 72

OWRC COPY

The Ontario Water Resources Commission Act

WATER WELL RECORD

31D12W

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

11 | 5709360 | MUNICIP. 57014 | CON. CON | LOT 12

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Tiny | CON., BLOCK, TRACT, SURVEY, ETC.: Con 12 BP | LOT 009

[redacted] Box 671 Penetang | DATE COMPLETED: DAY 10 MO. 09 YR. 72

54950 | 5 | 0795 | 5 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
		dug well		0	43
red		Course sand		43	84
		fine Parts sand water		84	97

31: 0043 23 | 0084 710 | 0097 0891

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0084	1 ☒ FRESH

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
04	1 ☒ STEEL	188	0	0093

SCREEN

SIZE(S) OF OPENING (SLOT NO.): 006 | DIAMETER: 04 INCHES | LENGTH: 004 FEET
MATERIAL AND TYPE: SS steel | DEPTH TO TOP OF SCREEN: 0098 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER | PUMPING RATE: 0006 GPM | DURATION OF PUMPING: 01 HOURS 00 MINS.

STATIC LEVEL: 074 | WATER LEVEL END OF PUMPING: 074 | WATER LEVELS DURING: 15 MINUTES 074

PUMP INTAKE SET AT: 90 FEET | WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 090 FEET | RECOMMENDED PUMPING RATE: 0005 GPM.

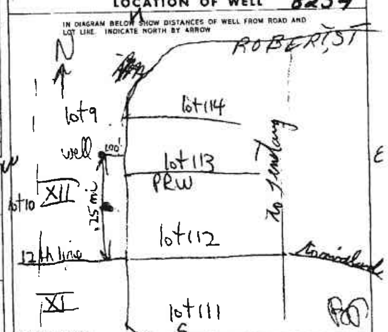
FINAL STATUS OF WELL: 1 — 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE: 01 — 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING: 1 — 1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

LOCATION OF WELL 8254

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



CONTRACTOR — NAME OF WELL CONTRACTOR: Al Cameron | LICENCE NUMBER: 1570
NAME OF DRILLER OR BORER: Al Cameron | LICENCE NUMBER: 1570
SIGNATURE OF CONTRACTOR | SUBMISSION DATE: DAY 10 MO. Sept YR. 72

OFFICE USE ONLY — DATA SOURCE: 1 | CONTRACTOR: 1510 | DATE RECEIVED: 020173
DATE OF INSPECTION: Aug 25/76 | INSPECTOR
CSS.ES | P | WI

OWRC COPY

Ministry of the Environment — Ontario

The Ontario Water Resources Act

WATER WELL RECORD

31D12

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

11 | 5715544 | MUNICIP. 57014 | CON. CON | LOT 11

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Tiny | CON., BLOCK, TRACT, SURVEY, ETC.: Conc. 11 | LOT 7/11

[redacted] Perkinsfield, Ont. | DATE COMPLETED: DAY 30 MO. 08 YR. 78

52850 | 5 | 0775 | 5 | 22

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	EARTH	CLAY, STONES	PACKED	0	20
GREY	CLAY			20	40
GREY	SAND	CLAY		40	60
GREY	CLAY	SAND, GRAVEL (HARDPAN)	LAYERED	60	260
GREY	QUICKSAND	CLAY	LOOSE	260	290
GREY	HARDPAN	& GRAVEL	LAYERED (GRANITE LEDGE AT 315').	290	335'
BLACK	GRANITE			335'	343

31: 0026 6 0260 1 2 | 0040 2 6 5 | 0060 2 8 6 3 | 0260 2 0 2 8 | 0290 2 8 1 3 | 0335 2 4 1 4 | 0343 1 4 7 4

32: 0343821

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
0320	1 ☒ FRESH

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
06	1 ☒ STEEL	.188	0	0314

SCREEN

SIZE(S) OF OPENING (SLOT NO.) | DIAMETER | LENGTH | MATERIAL AND TYPE | DEPTH TO TOP OF SCREEN

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER | PUMPING RATE: 0008 GPM (ESTIMATED) | DURATION OF PUMPING: 03 HOURS 00 MINS.

STATIC LEVEL: 170 FEET

PUMP INTAKE SET AT | WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP | RECOMMENDED PUMP SETTING: 330 FEET | RECOMMENDED PUMPING RATE: 0008 GPM

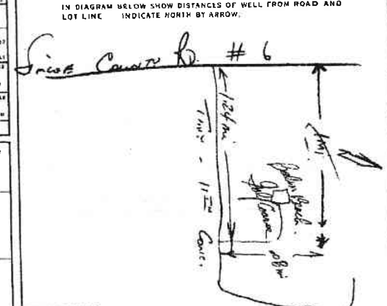
FINAL STATUS OF WELL: 1 — 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED

WATER USE: 03 — 1 ☐ DOMESTIC 2 ☐ STOCK 3 ☒ IRRIGATION 4 ☐ INDUSTRIAL ☐ OTHER 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED

METHOD OF DRILLING: 4 — 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☒ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING

LOCATION OF WELL

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



CONTRACTOR — NAME OF WELL CONTRACTOR: Howell Drilling | LICENCE NUMBER: 2652
ADDRESS: R.R.1 Waubaushene, Ont.
NAME OF DRILLER OR BORER: Robbie Howell | LICENCE NUMBER: 2656
SIGNATURE OF CONTRACTOR: Doug Howell | SUBMISSION DATE: DAY 07 MO. 09 YR. 78

OFFICE USE ONLY — DATA SOURCE: 1 | CONTRACTOR: 2652 | DATE RECEIVED: 3010/78
REMARKS: Locality 05/4/81
CSS.ES

FORM NO. 0506 4-77

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 5723524 — MUNICIP 5701.4 — CON

COUNTY OR DISTRICT: SIMCOE — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TINY — CON: XII — LOT: 9

OWNER (SURNAME FIRST): BIDAN CONSTR. LTD. — ADDRESS: RR. 1 Perkinsfield Ontario — DATE COMPLETED: DAY 14 MO June YR 88

21 — ZONE — EASTING — NORTHING — DC — ELEVATION — DC — BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FEET FROM	TO
BROWN	SAND			0	70
BROWN	GRAVEL	STONES CLAY		70	160
GREY	CLAY	GRAVEL		160	188
BROWN	SAND	GRAVEL		188	195

31

32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
188 190 195	1 ☒ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
6	1 ☒ STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC	.188	+2	180
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC			
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC			

SCREEN — SIZE(S) OF OPENING (SLOT NO.): 3 SLOT 12 — DIAMETER: 6 INCHES — LENGTH: 7 FEET — MATERIAL AND TYPE: STAINLESS — DEPTH TO TOP OF SCREEN: 188 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
60	70	BENSEAL

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☒ PUMP 2 ☐ BAILER — PUMPING RATE: 16 1/4 GPM — DURATION OF PUMPING: 4 HOURS — ☒ PUMPING ☐ RECOVERY

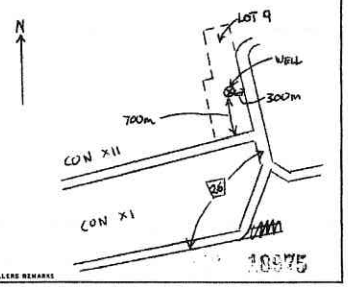
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES
138 FEET	145 FEET	145 FEET	145 FEET	145 FEET	145 FEET

IF FLOWING GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP — RECOMMENDED PUMP SETTING: FEET — RECOMMENDED PUMPING RATE: GPM

LOCATION OF WELL

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



DRILLERS REMARKS: 10975

FINAL STATUS OF WELL — ☒ 1 WATER SUPPLY — ☐ 2 OBSERVATION WELL — ☐ 3 TEST HOLE — ☐ 4 RECHARGE WELL — ☐ 5 ABANDONED, INSUFFICIENT SUPPLY — ☐ 6 ABANDONED, POOR QUALITY — ☐ 7 UNFINISHED — ☐ 8 DEWATERING

WATER USE — ☒ 1 DOMESTIC — ☐ 2 STOCK — ☐ 3 IRRIGATION — ☐ 4 INDUSTRIAL — ☐ 5 COMMERCIAL — ☐ 6 MUNICIPAL — ☐ 7 PUBLIC SUPPLY — ☐ 8 COOLING OR AIR CONDITIONING — ☐ OTHER — ☐ 9 NOT USED

METHOD OF CONSTRUCTION — ☐ 1 CABLE TOOL — ☒ 2 ROTARY (CONVENTIONAL) — ☐ 3 ROTARY (REVERSE) — ☐ 4 ROTARY (AIR) — ☐ 5 AIR PERCUSSION — ☐ 6 BORING — ☐ 7 DIAMOND — ☐ 8 JETTING — ☐ 9 DRIVING — ☐ DIGGING — ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: HENRY HAMMERS — WELL CONTRACTOR'S LICENCE NUMBER: 2514
ADDRESS: 544 St. Vincent St. BARRIE
NAME OF WELL TECHNICIAN: HENRY HAMMERS — WELL TECHNICIAN'S LICENCE NUMBER: 7086
SIGNATURE OF TECHNICIAN/CONTRACTOR: Henry Hammers — SUBMISSION DATE: DAY ____ MO ____ YR ____

OFFICE USE ONLY

DATE SOURCE: CONTRACTOR 2514 — DATE RECEIVED: JUL 15 1988
DATE OF INSPECTION: ____ INSPECTOR: ____
REMARKS: ____

CSS.ES

FORM NO. 0506 (11/88) FORM 9

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Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 5724350 — MUNICIP 5701.4 — CON

COUNTY OR DISTRICT: SIMCOE — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TINY — CON: XII — LOT: 24 9

[redacted] X8 PERKINSFIELD ONT — DATE COMPLETED: DAY 18 MO NOV YR 88

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH FEET FROM	TO
BROWN	SAND			0	32
GREY	SAND	+ CLAY		32	85
GREY	CLAY			85	100
BROWN	SAND	GRAVEL BOULDERS		100	105
BROWN	SAND	+ GRAVEL		185	190

31

32

41 WATER RECORD

WATER FOUND AT FEET	KIND OF WATER
185 190	1 ☒ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS
	1 ☐ FRESH 2 ☐ SALTY — 3 SULPHUR 4 MINERALS 5 GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
6	1 ☒ STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC	.188	+2	180
5	1 ☒ STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC	.188	180	185
	1 STEEL 2 GALVANIZED 3 CONCRETE 4 OPEN HOLE 5 PLASTIC			

SCREEN — SIZE(S) OF OPENING (SLOT NO.): 14 — DIAMETER: 6 INCHES — LENGTH: 3 FEET — MATERIAL AND TYPE: STAINLESS — DEPTH TO TOP OF SCREEN: 185 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT LEAD PACKER ETC.)
15	20	BENSEAL

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER — PUMPING RATE: 12 GPM — DURATION OF PUMPING: 2 HOURS 30 MINUTES — ☐ PUMPING ☒ RECOVERY

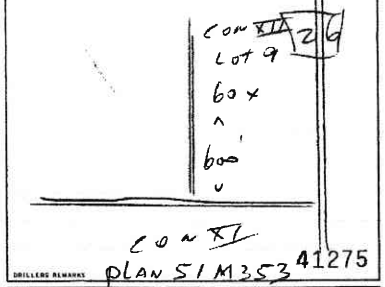
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES
144 FEET	175 FEET	144 FEET	144 FEET	144 FEET	144 FEET

IF FLOWING GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: ☒ CLEAR ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 180 FEET — RECOMMENDED PUMPING RATE: 12 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: PLAN 51M353 41275

FINAL STATUS OF WELL — ☒ 1 WATER SUPPLY — ☐ 2 OBSERVATION WELL — ☐ 3 TEST HOLE — ☐ 4 RECHARGE WELL — ☐ 5 ABANDONED, INSUFFICIENT SUPPLY — ☐ 6 ABANDONED, POOR QUALITY — ☐ 7 UNFINISHED — ☐ 8 DEWATERING

WATER USE — ☒ 1 DOMESTIC — ☐ 2 STOCK — ☐ 3 IRRIGATION — ☐ 4 INDUSTRIAL — ☐ 5 COMMERCIAL — ☐ 6 MUNICIPAL — ☐ 7 PUBLIC SUPPLY — ☐ 8 COOLING OR AIR CONDITIONING — ☐ OTHER — ☐ 9 NOT USED

METHOD OF CONSTRUCTION — ☐ 1 CABLE TOOL — ☒ 2 ROTARY (CONVENTIONAL) — ☐ 3 ROTARY (REVERSE) — ☐ 4 ROTARY (AIR) — ☐ 5 AIR PERCUSSION — ☐ 6 BORING — ☐ 7 DIAMOND — ☐ 8 JETTING — ☐ 9 DRIVING — ☐ DIGGING — ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: HENRY HAMMERS — WELL CONTRACTOR'S LICENCE NUMBER: 2514
ADDRESS: 544 St. Vincent St. BARRIE ON T
NAME OF WELL TECHNICIAN: N. HAMMERS — WELL TECHNICIAN'S LICENCE NUMBER: 7082
SIGNATURE OF TECHNICIAN/CONTRACTOR: Henry Hammers — SUBMISSION DATE: DAY ____ MO ____ YR ____

OFFICE USE ONLY

DATE SOURCE: CONTRACTOR 2514 — DATE RECEIVED: DEC 21 1988
DATE OF INSPECTION: ____ INSPECTOR: ____
REMARKS: ____

CSS.ES

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The Ontario Water Resources Act

WATER WELL RECORD

5724520

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11 | MUNICIP. 57014 | CON. CON | 112

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
[redacted]	Tiny	12 LOT 9-10	26

Address: [redacted] UNIT 1 GOLFLINK RD. PERKINSFIELD — Elevation / Basin code: WOL 2J0 — Date completed: Day 23 Mo 12 Yr 88

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General colour	Most common material	Other materials	General description	Depth – feet From	To
Brown	Sand			0	75
Brown	Clay	Gravel		75	90
Brown	Sand	Clay		90	140
	Sand	Gravel.		140	165
Brown	Sand		Med	165	194
Gray	Clay			194	200

41 WATER RECORD

Water found at – feet	Kind of water
190	☒ Fresh

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	To
6 1/4	Steel	.188	0	187
5	Steel	.188	184	187

SCREEN

Slot no.: 28 — Diameter: 6 Tele — Length: 3 feet — Material and type: Stainless Steel — Depth to top of screen: 187 feet

61 PLUGGING & SEALING RECORD

Depth set at – feet From	To	Material and type
0	2	Hole Plug

71 PUMPING TEST

Pumping test method: ☒ Pump — Air Lift — Pumping rate: 20 GPM — Duration of pumping: 2 hours 15 mins

Static level: 144 — Water level end of pumping: 180 — Water levels during: 15 minutes 180 — 30 minutes 180 — 45 minutes 180 — 60 minutes 180

Recommended pump type: ☒ Deep

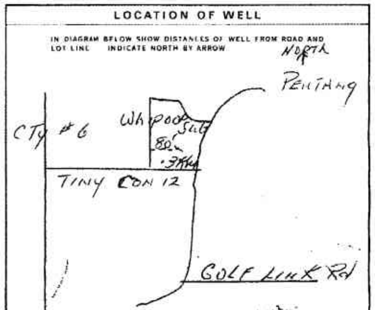
FINAL STATUS OF WELL: ☒ Water supply

WATER USE: ☒ Domestic

METHOD OF CONSTRUCTION: ☒ Rotary (conventional)

LOCATION OF WELL

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



22185

CONTRACTOR

Name of well contractor: Clearwater Drilling — Well contractor's licence number: 1583

Address: RR 1 Barrie

Name of well technician: Allan Wright — Well technician's licence number: T0250

Signature of technician/contractor: [signature] — Submission date: Day 4 Mo 2 Yr 89

OFFICE USE ONLY: Contractor 1583 — Date received FEB 07 1989 — WDE

MINISTRY OF THE ENVIRONMENT COPY

CSS.ES — FORM NO. 0506 (11/86) FORM 9

Ontario — Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

5724867

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

11 | MUNICIP. 57014 | CON. CON | 112

County or District	Township, Borough, City, Town, Village	Con., Block, Tract, Survey, etc.	Lot
Simcoe	Tiny	12	25

Address: [redacted] 3 Site 6 Comp. 11 Perkinsfield Ont. — Date completed: Day 21 Mo 04 Yr 89

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General colour	Most common material	Other materials	General description	Depth – feet From	To
brown	sand			0	65
	clay			65	85
	sand	gravel		85	95
	stones			95	110
	sand	gravel		110	140
	gravel			140	145
	sand		coarse	145	155
	sand		medium	155	185
	clay		sand	185	200

41 WATER RECORD

Water found at – feet	Kind of water
155	☒ Fresh

51 CASING & OPEN HOLE RECORD

Inside diam inches	Material	Wall thickness inches	Depth – feet From	To
6¼"	☒ Steel	188	0	178
5	☒ Steel	188	175	178

SCREEN

Slot no.: 16 — Diameter: 6"tele. — Length: 3 feet — Material and type: stainless steel — Depth to top of screen: 178 feet

61 PLUGGING & SEALING RECORD

Depth set at – feet From	To	Material and type
0	22	hole plug

71 PUMPING TEST

Pumping test method: ☒ Pump — Pumping rate: 7 GPM — Duration of pumping: 1 hours 30 mins

Static level: 144 — Water level end of pumping: 145½ — Water levels during: 15 minutes 139 — 30 minutes 142½ — 45 minutes 144 — 60 minutes 145

Water at end of test: ☒ Clear — Recommended pump type: ☒ Deep — Recommended pump setting: 176 feet — Recommended pumping rate: 7 GPM

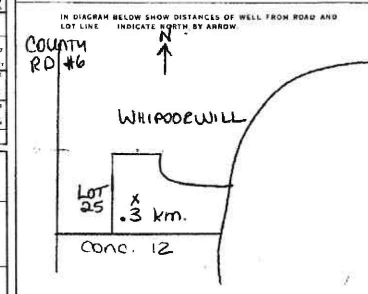
FINAL STATUS OF WELL: ☒ Observation well

WATER USE: ☒ Domestic

METHOD OF CONSTRUCTION: ☒ Rotary (conventional)

LOCATION OF WELL

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



43191

CONTRACTOR

Name of well contractor: Clearwater Drilling — Well contractor's licence number: 1583

Address: R.R.#1 Barrie, Ont. L4M 4Y8

Name of well technician: Donald R. Prince — Well technician's licence number: T0176

Signature of technician/contractor: [signature] — Submission date: Day 30 Mo 04 Yr 89

OFFICE USE ONLY: Contractor 1583 — Date received MAY 10 1989

MINISTRY OF THE ENVIRONMENT COPY

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Ministry of the Environment
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WATER WELL RECORD

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

11 — 5724868 — MUNICIP 5.70.14 — CON. CON. 12

COUNTY OR DISTRICT: Simcoe
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Tiny
CON. BLOCK, TRACT, SURVEY, ETC.: 12
LOT: 17
[redacted] neral Delivery Perkingfield LOL 2J0
DATE COMPLETED: DAY 26 MO 04 YR 89

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
brown	sand		coarse	0	76
greyt	clay	stones		76	100
	sand		coarse	100	110
	sand	gravel		110	185
	sand		dirty	185	200

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
178'	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6¼"	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	175'
5	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	172'	175'

SCREEN: SLOT NO. 20 — DIAMETER 6 tel INCHES — LENGTH 3 FEET
MATERIAL AND TYPE: stainless steel — DEPTH TO TOP OF SCREEN 175 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
0	19	hole plug

71 PUMPING TEST

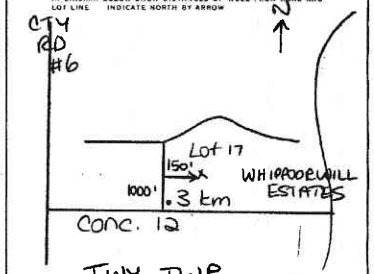
PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER — airlifted
PUMPING RATE: 15 GPM — DURATION OF PUMPING: 2 HOURS 15 MINUTES

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET

1 ☐ PUMPING 2 ☐ RECOVERY
IF FLOWING GIVE RATE — GPM
PUMP INTAKE SET AT — FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☐ DEEP
RECOMMENDED PUMP SETTING: 170 FEET
RECOMMENDED PUMPING RATE: 15 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: 43232

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED 8 ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED 10 ☐ OTHER

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☒ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING 10 ☐ DIGGING 11 ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: Clearwater Drilling — WELL CONTRACTOR'S LICENCE NUMBER: 1583
ADDRESS: R.R.#1 Barrie, Ont. L4M 4Y8
NAME OF WELL TECHNICIAN: Donald R. Prince — WELL TECHNICIAN'S LICENCE NUMBER: T0176
SIGNATURE OF TECHNICIAN/CONTRACTOR
SUBMISSION DATE: DAY 30 MO 04 YR 89

OFFICE USE ONLY

DATA SOURCE 58 — CONTRACTOR 1583 — DATE RECEIVED MAY 10 1989
DATE OF INSPECTION — INSPECTOR
REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

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Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 5725681 — MUNICIP 5.70.14 — CON. CON. 12

COUNTY OR DISTRICT: SIMCOE
TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TINY
CON. BLOCK, TRACT, SURVEY, ETC.: XII
LOT: 9
[redacted] Holland Ave Midland, ont
DATE COMPLETED: DAY 23 JUNE 89

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
Yellow	SAND			0	70
Grey	CLAY	SAND		70	84
Yellow	SAND	GRAVEL, STONES		84	130
Grey	SAND	+ GRAVEL		130	180

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
174 180	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+12	174

SCREEN: SLOT NO. 18 — DIAMETER 6 INCHES — LENGTH 3 FEET
MATERIAL AND TYPE: STAINLESS — DEPTH TO TOP OF SCREEN 177 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
10	15	Bentseal

71 PUMPING TEST

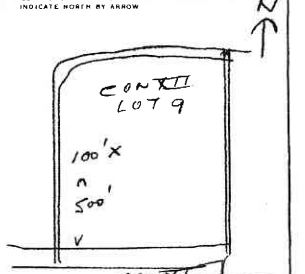
PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER
PUMPING RATE: 15 GPM — DURATION OF PUMPING: 2 HOURS

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
145 FEET	160 FEET	145 FEET	145 FEET	145 FEET	145 FEET

1 ☐ PUMPING 2 ☒ RECOVERY
IF FLOWING GIVE RATE — GPM
PUMP INTAKE SET AT — FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 160 FEET
RECOMMENDED PUMPING RATE: 12 GPM

LOCATION OF WELL

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



DRILLERS REMARKS: 59328

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☒ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED 8 ☐ DEWATERING

WATER USE

1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ NOT USED 10 ☐ OTHER

METHOD OF CONSTRUCTION

1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING 10 ☐ DIGGING 11 ☐ OTHER

CONTRACTOR

NAME OF WELL CONTRACTOR: HENRY HAMMERS WELL DRILLING LTD — WELL CONTRACTOR'S LICENCE NUMBER: 2514
ADDRESS: 544 ST VINCENT ST. BARRIE, ONT
NAME OF WELL TECHNICIAN: H. HAMMERS — WELL TECHNICIAN'S LICENCE NUMBER: T0186
SIGNATURE OF TECHNICIAN/CONTRACTOR: Henry Hammers
SUBMISSION DATE: DAY — MO — YR

OFFICE USE ONLY

DATA SOURCE 58 — CONTRACTOR 2514 — DATE RECEIVED OCT 27 1989
DATE OF INSPECTION — INSPECTOR
REMARKS

CSS.ES

FORM NO. 0506 (11/86) FORM 9

MINISTRY OF THE ENVIRONMENT COPY

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 5726060 MUNICIP 57014 CON CON. 12

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TINY | CON. BLOCK, TRACT, SURVEY, ETC.: Cont. 12 | LOT: 41

[redacted] 76 KING ST APT #601 MIDLAND ONT | DATE COMPLETED: DAY 06 MO 11 YR 89

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	SAND	GRAVEL		0	197

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER				
180	1 ☑ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
6 1/4	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	194-7
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN: SIZE-SLOT OF OPENING (SLOT NO.) 10 | DIAMETER 5 INCHES | LENGTH 3 FEET | MATERIAL AND TYPE: STAINLESS STEEL | DEPTH TO TOP OF SCREEN 191 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☐ BAILER 3 ☑ AIR | PUMPING RATE: 6.0 GPM | DURATION OF PUMPING: 1 HOURS 0 MINUTES

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☑ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING: 195 FEET | RECOMMENDED PUMPING RATE: 6.0 GPM

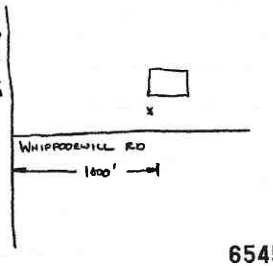
FINAL STATUS OF WELL: 1 ☑ WATER SUPPLY | 2 ☐ OBSERVATION WELL | 3 ☐ TEST HOLE | 4 ☐ RECHARGE WELL | 5 ☐ ABANDONED, INSUFFICIENT SUPPLY | 6 ☐ ABANDONED, POOR QUALITY | 7 ☐ UNFINISHED | ☐ DEWATERING

WATER USE: 1 ☑ DOMESTIC | 2 ☐ STOCK | 3 ☐ IRRIGATION | 4 ☐ INDUSTRIAL | 5 ☐ COMMERCIAL | 6 ☐ MUNICIPAL | 7 ☐ PUBLIC SUPPLY | 8 ☐ COOLING OR AIR CONDITIONING | ☐ OTHER | 9 ☐ NOT USED

METHOD OF CONSTRUCTION: 1 ☐ CABLE TOOL | 2 ☐ ROTARY (CONVENTIONAL) | 3 ☐ ROTARY (REVERSE) | 4 ☑ ROTARY (AIR) | 5 ☐ AIR PERCUSSION | 6 ☐ BORING | 7 ☐ DIAMOND | 8 ☐ JETTING | 9 ☐ DRIVING | ☐ DIGGING | ☐ OTHER

LOCATION OF WELL

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



DRILLERS REMARKS: 65450

CONTRACTOR
NAME OF WELL CONTRACTOR: HOWELL DRILLING | WELL CONTRACTOR'S LICENCE NUMBER: 1652
ADDRESS: Box 368 COLDWATER, ONT
NAME OF WELL TECHNICIAN: KIM HOWELL | WELL TECHNICIAN'S LICENCE NUMBER: 81-197
SIGNATURE OF TECHNICIAN/CONTRACTOR: Kim Howell | SUBMISSION DATE: DAY 08 MO 11 YR 89

OFFICE USE ONLY
DATA SOURCE 58: CONTRACTOR 59-62: 2652 | DATE RECEIVED 63-64: DEC 12 1989 | 65-66
DATE OF INSPECTION | INSPECTOR
REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/88) FORM 8

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 5726548 MUNICIP 57014 CON CON. 12

COUNTY OR DISTRICT: [redacted] | TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Tiny | CON. BLOCK, TRACT, SURVEY, ETC.: 12 | LOT: 27

[redacted] Site 12 Comp 10 | DATE COMPLETED: DAY 09 MO 09 YR 89

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
Red	Sand			0	26
Red	Sand	Clay		26	98
Grey	Clay	Gravel		98	132
Grey	Clay	Cemented Sand		132	144
Red	Gravel	Sand		144	200

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER				
187	1 ☑ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS
	1 ☐ FRESH	2 ☐ SALTY	3 ☐ SULPHUR	4 ☐ MINERALS	5 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
5	1 ☑ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+2	179
	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC			

SCREEN: SIZE-SLOT OF OPENING (SLOT NO.) 18 | DIAMETER 5 INCHES | LENGTH 8 FEET | MATERIAL AND TYPE: SS | DEPTH TO TOP OF SCREEN 179 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
		Cuttings Bentonite
		Hole plug

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☑ PUMP 2 ☐ BAILER 3 ☐ AIR | PUMPING RATE: 10 GPM | DURATION OF PUMPING: 2 HOURS 0 MINUTES

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 10 MINUTES	20 MINUTES	30 MINUTES	40 MINUTES	50 MINUTES	60 MINUTES
FEET	FEET	FEET	FEET	FEET	FEET	FEET	FEET

IF FLOWING, GIVE RATE: GPM | PUMP INTAKE SET AT: FEET | WATER AT END OF TEST: 1 ☑ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☑ DEEP | RECOMMENDED PUMP SETTING: 185 FEET | RECOMMENDED PUMPING RATE: 8 GPM

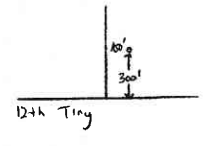
FINAL STATUS OF WELL: 1 ☑ WATER SUPPLY | 2 ☐ OBSERVATION WELL | 3 ☐ TEST HOLE | 4 ☐ RECHARGE WELL | 5 ☐ ABANDONED, INSUFFICIENT SUPPLY | 6 ☐ ABANDONED, POOR QUALITY | 7 ☐ UNFINISHED | ☐ DEWATERING

WATER USE: 1 ☑ DOMESTIC | 2 ☐ STOCK | 3 ☐ IRRIGATION | 4 ☐ INDUSTRIAL | 5 ☐ COMMERCIAL | 6 ☐ MUNICIPAL | 7 ☐ PUBLIC SUPPLY | 8 ☐ COOLING OR AIR CONDITIONING | ☐ OTHER | 9 ☐ NOT USED

METHOD OF CONSTRUCTION: 1 ☐ CABLE TOOL | 2 ☑ ROTARY (CONVENTIONAL) | 3 ☐ ROTARY (REVERSE) | 4 ☐ ROTARY (AIR) | 5 ☐ AIR PERCUSSION | 6 ☐ BORING | 7 ☐ DIAMOND | 8 ☐ JETTING | 9 ☐ DRIVING | ☐ DIGGING | ☐ OTHER

LOCATION OF WELL

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



DRILLERS REMARKS: 63130

CONTRACTOR
NAME OF WELL CONTRACTOR: BURTON DRILLING | WELL CONTRACTOR'S LICENCE NUMBER: 1456
ADDRESS: RR#1 ORO STATION
NAME OF WELL TECHNICIAN: DAVID BURTON | WELL TECHNICIAN'S LICENCE NUMBER: 70549
SIGNATURE OF TECHNICIAN/CONTRACTOR: D Burton | SUBMISSION DATE: DAY 09 MO 04 YR 90

OFFICE USE ONLY
DATA SOURCE 58: CONTRACTOR 59-62: 1456 | DATE RECEIVED 63-64: MAY 24 1990 | 65-66
DATE OF INSPECTION | INSPECTOR
REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/88) FORM 8

Ontario — Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 5726570 | Municip 57014 | Con. CON | 112

County or District: [redacted]
Township, Borough, City, Town, Village: TINY
Con. Block, Tract, Survey, etc.: 12
Lot: 1
Address: [redacted] R#2 Midland Ont.
Date completed: Day 01 Mo 04 Yr 90
RC: +4R 7K4

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth (Feet) From	To
Red	Sand			0	15
Grey	Clay	gravel		15	120
Dark	Sand	Gravel		120	190

31
32

41 WATER RECORD

Water found at - feet	Kind of water
187	1 ☑ Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth - feet From	To
6"	1 ☑ Steel	.188	+1	181

SCREEN
Size of opening (slot no.): 18 | Diameter: 6 inches | Length: 6 feet
Material and type: SS | Depth to top of screen: 181 feet

61 PLUGGING & SEALING RECORD

Depth set at - feet From	To	Material and type (cement grout, lead packer, etc.)
		BEWSEAL
		HOLEPLUG
		CUTTINGS

71 PUMPING TEST
Pumping test method: 1 AIR | Pumping rate: 10 GPM | Duration of pumping: 2 hours
Static level: 145 feet | Water level end of pumping: 180 feet
Water levels during: 2 ☒ Recovery — 15 minutes: 180 feet | 30 minutes: 180 feet | 45 minutes: 180 feet | 60 minutes: 180 feet
Pump intake set at: 180 feet | Water at end of test: 1 ☑ Clear
Recommended pump type: ☑ Deep | Recommended pump setting: 180 feet | Recommended pumping rate: 10 GPM

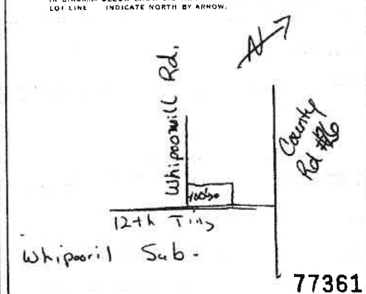
FINAL STATUS OF WELL: 1 ☑ Water supply

WATER USE: 1 ☑ Domestic

METHOD OF CONSTRUCTION: 2 ☑ Rotary (conventional)

LOCATION OF WELL

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



77361

CONTRACTOR
Name of well contractor: BURTON DRILLING | Well contractor's licence number: 1456
Address: ORO STN. ONT. LOL 2EO
Name of well technician: DAVID R. BURTON | Well technician's licence number: T0547
Signature of technician/contractor: [signature] | Submission date: Day 30 Mo 04 Yr 90

OFFICE USE ONLY
Contractor: 1456 | Date received: MAY 24 1990

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY

FORM NO. 0506 (11/86) FORM 9

Ontario — Ministry of the Environment

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 5726571 | Municip 57014 | Con. CON | 112

County or District: [redacted]
Township, Borough, City, Town, Village: TINY
Con. Block, Tract, Survey, etc.: 12
Lot: 9
Address: [redacted] R#1, PERKINSFIELD ON LOL 2TO
Date completed: Day 23 Mo 04 Yr 90

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

General Colour	Most Common Material	Other Materials	General Description	Depth (Feet) From	To
Red	Sand			0	50
	Sand	Stones		50	74
grey	Sand	Clay		74	144
Dark	Sand		Med.	144	170

31
32

41 WATER RECORD

Water found at - feet	Kind of water
168'	1 ☑ Fresh

51 CASING & OPEN HOLE RECORD

Inside diam. inches	Material	Wall thickness inches	Depth - feet From	To
6"	1 ☑ Steel	.188	+1	164

SCREEN
Size of opening (slot no.): 18 | Diameter: 6 inches | Length: 4 feet
Material and type: SS | Depth to top of screen: 164 feet

61 PLUGGING & SEALING RECORD

Depth set at - feet From	To	Material and type (cement grout, lead packer, etc.)
		BENSEAL
		HOLEPLUG
		CUTTINGS

71 PUMPING TEST
Pumping test method: 1 AIR | Pumping rate: 10 GPM | Duration of pumping: 2 hours
Static level: 67 feet | Water level end of pumping: 150 feet
Water levels during: 2 ☒ Recovery — 15 minutes: 150 feet | 30 minutes: 150 feet | 45 minutes: 150 feet | 60 minutes: 150 feet
Pump intake set at: 150 feet | Water at end of test: 1 ☑ Clear
Recommended pump type: ☑ Deep | Recommended pump setting: 150 feet | Recommended pumping rate: 10 GPM

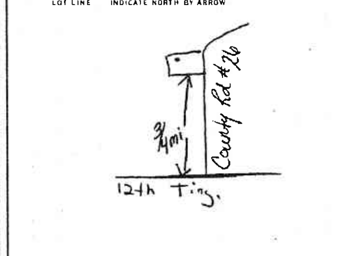
FINAL STATUS OF WELL: 1 ☑ Water supply

WATER USE: 1 ☑ Domestic

METHOD OF CONSTRUCTION: 2 ☑ Rotary (conventional)

LOCATION OF WELL

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



77356

CONTRACTOR
Name of well contractor: BURTON DRILLING | Well contractor's licence number: 1456
Address: ORO STN. ONT LOL 2EO
Name of well technician: DAVID R. BURTON | Well technician's licence number: T0547
Signature of technician/contractor: [signature] | Submission date: Day 30 Mo 04 Yr 90

OFFICE USE ONLY
Contractor: 1456 | Date received: MAY 24 1990

CSS.ES

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FORM NO. 0506 (11/86) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 5727035 — MUNICIP 5701 — CON — 12

COUNTY OR DISTRICT: SIMCOE — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: TINY — CON: XII — LOT: 13

[redacted] ENETANG ONTARIO — DATE COMPLETED: DAY 29 MO MAY YR 90

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
Yellow	Sand			0	60
Grey	clay			60	90
Grey	clay	GRAVEL STONES		90	102
Grey	clay			102	168
Brown	sand			168	175

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
168 175	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
6	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	+1/2	168

SCREEN: SIZE(S) OF OPENING (SLOT NO.): 3 + 12 — DIAMETER: 6 INCHES — LENGTH: 6 FEET — MATERIAL AND TYPE: Stainless — DEPTH TO TOP OF SCREEN: 169 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD, PACKER, ETC.)
10	20	Bentseal

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER — PUMPING RATE: 25 GPM — DURATION OF PUMPING: 1 HOURS 30 MINUTES — 1 ☐ PUMPING 2 ☒ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
104 FEET	130 FEET	104 FEET	104 FEET	104 FEET	104 FEET

IF FLOWING GIVE RATE: GPM — PUMP INTAKE SET AT: FEET — WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 140 FEET — RECOMMENDED PUMPING RATE: 20 GPM

FINAL STATUS OF WELL: 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED 8 ☐ DEWATERING

WATER USE: 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ OTHER 10 ☐ NOT USED

METHOD OF CONSTRUCTION: 1 ☐ CABLE TOOL 2 ☒ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING 10 ☐ DIGGING 11 ☐ OTHER

LOCATION OF WELL

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

DRILLER'S REMARKS:

CONTRACTOR
NAME OF WELL CONTRACTOR: HENRY HAMMERS well DRILLING LTD — WELL CONTRACTOR'S LICENCE NUMBER: 2514
ADDRESS: 514 St VINCENT ST. BARRIE ONT
NAME OF WELL TECHNICIAN: John Leighton — WELL TECHNICIAN'S LICENCE NUMBER: 89046
SIGNATURE OF TECHNICIAN/CONTRACTOR: Henry Hammers — SUBMISSION DATE: DAY — MO — YR

OFFICE USE ONLY
DATA SOURCE: CONTRACTOR — 2514 — DATE RECEIVED: AUG 10 1990
DATE OF INSPECTION — INSPECTOR
REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY — FORM NO. 0506 (11/88) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 — 5728073 — MUNICIP 5701 — CON — 12

COUNTY OR DISTRICT: Simcoe — TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE: Tiny — CON: 12 — LOT: 9

[redacted] Fox Penetang Box 1726 L0K-1P0 — DATE COMPLETED: DAY 18 MO 06 YR 91

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
Brown	Sand			0	70
Grey	Clay			70	90
Brown	Sand			90	150
Brown	Sand	Gravel		150	158

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
158	1 ☒ FRESH 2 ☐ SALTY 3 ☐ SULPHUR 4 ☐ MINERALS 5 ☐ GAS

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH FEET FROM	TO
6 5/8	1 ☒ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	.188	0	154

SCREEN: SIZE(S) OF OPENING (SLOT NO.): 14 — DIAMETER: 5" INCHES — LENGTH: 4' FEET — MATERIAL AND TYPE: (Stainless Steel) — DEPTH TO TOP OF SCREEN: 154 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD, PACKER, ETC.)

71 PUMPING TEST

PUMPING TEST METHOD: 1 ☐ PUMP 2 ☒ BAILER — PUMPING RATE: 14 GPM — DURATION OF PUMPING: 1 HOURS 0 MINUTES — 1 ☐ PUMPING 2 ☒ RECOVERY

STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING: 15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
131 FEET	158 FEET	131 FEET	131 FEET	131 FEET	131 FEET

IF FLOWING GIVE RATE: GPM — PUMP INTAKE SET AT: 154 FEET — WATER AT END OF TEST: 1 ☐ CLEAR 2 ☒ CLOUDY

RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP — RECOMMENDED PUMP SETTING: 154 FEET — RECOMMENDED PUMPING RATE: 10 GPM

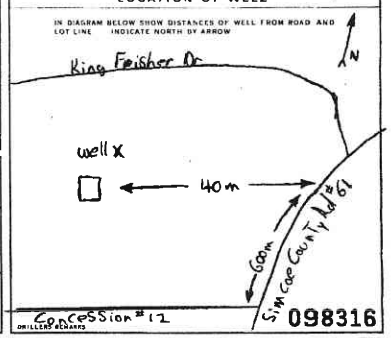
FINAL STATUS OF WELL: 1 ☒ WATER SUPPLY 2 ☐ OBSERVATION WELL 3 ☐ TEST HOLE 4 ☐ RECHARGE WELL 5 ☐ ABANDONED, INSUFFICIENT SUPPLY 6 ☐ ABANDONED, POOR QUALITY 7 ☐ UNFINISHED 8 ☐ DEWATERING

WATER USE: 1 ☒ DOMESTIC 2 ☐ STOCK 3 ☐ IRRIGATION 4 ☐ INDUSTRIAL 5 ☐ COMMERCIAL 6 ☐ MUNICIPAL 7 ☐ PUBLIC SUPPLY 8 ☐ COOLING OR AIR CONDITIONING 9 ☐ OTHER 10 ☐ NOT USED

METHOD OF CONSTRUCTION: 1 ☒ CABLE TOOL 2 ☐ ROTARY (CONVENTIONAL) 3 ☐ ROTARY (REVERSE) 4 ☐ ROTARY (AIR) 5 ☐ AIR PERCUSSION 6 ☐ BORING 7 ☐ DIAMOND 8 ☐ JETTING 9 ☐ DRIVING 10 ☐ DIGGING 11 ☐ OTHER

LOCATION OF WELL

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



DRILLER'S REMARKS:

CONTRACTOR
NAME OF WELL CONTRACTOR: Vinson's Well Drilling — WELL CONTRACTOR'S LICENCE NUMBER: 5224
ADDRESS: RR#2 Coldwater L0K-1E0
NAME OF WELL TECHNICIAN: John &Dave Vinson — WELL TECHNICIAN'S LICENCE NUMBER: T-0245
SIGNATURE OF TECHNICIAN/CONTRACTOR: John Vinson — SUBMISSION DATE: DAY 01 MO 07 YR 91

OFFICE USE ONLY
DATA SOURCE: CONTRACTOR — 5224 — DATE RECEIVED: JUN 27 1991
DATE OF INSPECTION — INSPECTOR
REMARKS

CSS.ES

MINISTRY OF THE ENVIRONMENT COPY — FORM NO. 0506 (11/88) FORM 9

Ministry of the Environment
Ontario

The Ontario Water Resources Act

WATER WELL RECORD

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

11 | 5728953 | MUNICIP 57014 | CON. CON | 12

COUNTY OR DISTRICT	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE	CON, BLOCK, TRACT, SURVEY, ETC.	LOT
Simcoe	Tiny	12	14

OWNER (SURNAME FIRST)	ADDRESS	DATE COMPLETED
Bidan Construction	RR # 1 Perkinsfield	DAY 15 MO 1 YR 92

21 ZONE · EASTING · NORTHING · RC · ELEVATION · RC · BASIN CODE

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET FROM	TO
BROWN	SAND	STONES		0	6
BROWN	CLAY	STONES		6	32
BROWN	GRAVEL	CLAY		32	70
BROWN	GRAVEL	SAND		70	170
BROWN	SAND		MEDIUM	170	240
BROWN	SAND		FINE (DIRTY)	240	245

31
32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
237	☒ FRESH

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET FROM	TO
8	☒ STEEL	.188	+1½	220

SCREEN

SIZE OF OPENING (SLOT NO.)	DIAMETER	LENGTH
20	8 INCHES	15 FEET

MATERIAL AND TYPE: STAINLESS STEEL
DEPTH TO TOP OF SCREEN: 222 FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET FROM	TO	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
		HOLEPLUG
		BENSEAL
		CUTTINGS

71 PUMPING TEST

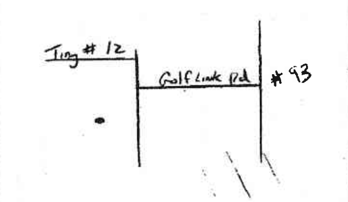
PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
1 ☐ PUMP 2 ☐ BAILER	100 GPM	4 HOURS — MINS

STATIC LEVEL	WATER LEVEL END OF PUMPING	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
188½ FEET	193 FEET	194 FEET	194 FEET	194 FEET	193½ FEET

IF FLOWING GIVE RATE: GPM
PUMP INTAKE SET AT: FEET
WATER AT END OF TEST: 1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE: ☐ SHALLOW ☒ DEEP
RECOMMENDED PUMP SETTING: 215 FEET
RECOMMENDED PUMPING RATE: 100 GPM

LOCATION OF WELL

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



DRILLERS REMARKS:

115257

FINAL STATUS OF WELL
1 ☒ WATER SUPPLY
2 ☐ OBSERVATION WELL
3 ☐ TEST HOLE
4 ☐ RECHARGE WELL
5 ☐ ABANDONED, INSUFFICIENT SUPPLY
6 ☐ ABANDONED, POOR QUALITY
7 ☐ UNFINISHED
☐ DEWATERING

WATER USE
1 ☐ DOMESTIC
2 ☐ STOCK
3 ☐ IRRIGATION
4 ☐ INDUSTRIAL
☐ OTHER
5 ☐ COMMERCIAL
6 ☒ MUNICIPAL
7 ☐ PUBLIC SUPPLY
8 ☐ COOLING OR AIR CONDITIONING
9 ☐ NOT USED

METHOD OF CONSTRUCTION
1 ☐ CABLE TOOL
2 ☒ ROTARY (CONVENTIONAL)
3 ☐ ROTARY (REVERSE)
4 ☐ ROTARY (AIR)
5 ☐ AIR PERCUSSION
6 ☐ BORING
7 ☐ DIAMOND
8 ☐ JETTING
9 ☐ DRIVING
☐ DIGGING ☐ OTHER

CONTRACTOR
NAME OF WELL CONTRACTOR: BURTON DRILLING — WELL CONTRACTOR'S LICENCE NUMBER: 1456
ADDRESS: RR#1 ORO STATION
NAME OF WELL TECHNICIAN: DAVID R. BURTON — WELL TECHNICIAN'S LICENCE NUMBER: T0547
SIGNATURE OF TECHNICIAN/CONTRACTOR: [signature] — SUBMISSION DATE: DAY 28 MO 1 YR 92

OFFICE USE ONLY
DATA SOURCE: 1456 — DATE RECEIVED: MAR 27 1992
DATE OF INSPECTION / INSPECTOR
REMARKS: CSS.ES

MINISTRY OF THE ENVIRONMENT COPY — FORM NO. 0506 (11/86) FORM 9

Ontario

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue.

Go Back to Map

Well ID

Well ID Number: 7278461
Well Audit Number: *Z227054*
Well Tag Number: *A202038*

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

Well Location

Address of Well Location	86 KING FISHER CRESCENT
Township	TINY TOWNSHIP
Lot	009
Concession	CON 12
County/District/Municipality	SIMCOE
City/Town/Village	PENETANG
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 -- Zone 17 Easting: 581913.00 Northing: 4955590.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BLCK	LOAM			0 ft	2 ft
BRWN	SAND	SILT	WBRG	2 ft	58 ft
GREY	CLAY	SLTY	GRVL	58 ft	111 ft
GREY	SAND	GRVL	CLAY	111 ft	130 ft
BRWN	SAND	GRVL	WBRG	130 ft	132 ft
GREY	GRVL	SLTY	CLAY	132 ft	149 ft
BRWN	SAND	GRVL	WBRG	149 ft	157 ft

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 ft	25 ft	GROUT	

Method of Construction & Well Use

Method of Construction	Well Use
Other Method	
DR	Domestic

Status of Well

Water Supply

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
5 inch	STEEL	152 ft	154 ft
6 inch	STEEL	-2 ft	154 ft

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
5 inch	STAINLESS STEEL	154 ft	157 ft

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 2576

Results of Well Yield Testing

After test of well yield, water was	CLEAR
If pumping discontinued, give reason	
Pump intake set at	130 ft
Pumping Rate	5 GPM
Duration of Pumping	

Final water level	
If flowing give rate	
Recommended pump depth	130 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	96 ft		
1		1	102 ft
2	99 ft	2	
3		3	99 ft
4		4	
5	101 ft	5	96 ft
10		10	96 ft
15	106 ft	15	96 ft
20	109 ft	20	96 ft
25	109 ft	25	96 ft
30	109 ft	30	96 ft
40	109 ft	40	96 ft
45		45	
50	109 ft	50	96 ft
60	109 ft	60	96 ft

Water Details

Water Found at Depth	Kind
157 ft	Fresh

Hole Diameter

Depth From	Depth To	Diameter
0 ft	20 ft	8 inch
20 ft	157 ft	6 inch

Audit Number: Z227054

Date Well Completed: August 09, 2016

Date Well Record Received by MOE: January 06, 2017

Updated: January 24, 2020

APPENDIX D

Test Pit Investigation
(by Terraprobe)

Terraprobe
Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

December 3, 2020

File No. 3-20-0134-21
Barrie Office

Charlebois Properties Inc.
430 Concession 16 East
Tiny, ON
L9M 0P1

Attention: Mr. Frank Charlebois, frankc@charleboishaulage.com

RE: TEST PIT INVESTIGATION
OVERHEAD BRIDGE ROAD
TINY, ONTARIO

Dear Mr. Charlebois:

This letter presents the results of our Test Pit Investigation carried out at the above noted site. The purpose of the investigation was to retrieve samples for the estimation of soil percolation rates.

1. SITE AND PROJECT DESCRIPTION

The site is located at Overhead Bridge Road and the 12th Concession in the Township of Tiny, in the County of Simcoe, Ontario. The site consists of six lots, numbered one through six.

2. FIELD WORK

The field work for the investigation was carried out on November 24, 2020. The test hole locations are noted on the appended Test Pit Location Plan.

A total of six (6) test holes were advanced using an excavator extending to depths between 1.44 and of 1.8 m below existing grades.

The field work was carried out by a member of our field staff. The excavator was provided and operated by the client.

3. SUBSURFACE CONDITIONS

The details of the subsurface conditions encountered at the test pit locations are presented on the Table 1 summarized below. It should be noted that the conditions are confirmed at the test pit locations only and could vary between and beyond the locations. No water ingress was observed in all six test locations on the completion of excavation.

Table 1

Lab No.	Location of sample	Soil Description	Unified Soil Classification	Estimated Soil "T"-Time (min/cm)	Depth of Test Hole (m)
719a	Lot 1	Sand, trace gravel, trace silt	SW-SP	4 to 6	1.44 m
719b	Lot 2	Sand, trace silt	SW-SP	4 to 6	1.8 m
719c	Lot 3	Sand, trace gravel, trace silt	SW-SP	4 to 6	1.5 m
719d	Lot 4	Sand, trace silt	SW-SP	4 to 6	1.6 m
719e	Lot 5	Sand, trace silt	SW-SP	4 to 6	1.8 m
719f	Lot 6	Sand, trace silt, trace gravel	SW-SP	4 to 6	1.8 m

Terraprobe witnessed the excavation of the test holes. Samples were retrieved between 0.5 and 1.2 m in the open test holes. Please refer to the appended Test Pit Location Plan. Terraprobe Inc. assumes no responsibility for the application of the above-noted percolation rates ("T"-Time) for use in design of an on-site sewage disposal system. The design of an on-site sewage system must be conducted by a qualified professional with due regard for a number of site-specific conditions in addition to the percolation rates of the soils.

4. ESTIMATTION OF SOIL PERCOLATION RATE ('T-TIME')

Samples were obtained of the native materials encountered in each of the six test holes. A grain size distribution curve was plotted for the samples and is appended on the Wash Sieve Analysis Test Reports. The estimated soil percolation rate ("T-Time") is greater than 4 to 6 min/cm.

5. CLOSURE

Terraprobe Inc. does not present the estimated percolation rates given in this report as a warranty of performance for the soils tested. Furthermore, the estimate provided is indicative of the sample in a disturbed state only. It must be emphasized that factors such as, but not limited to, consistency, structure, organic content, density and degree of saturation could influence the estimate. The client or third party using this information as a basis for tile field design assumes all risk associated with their evaluation of this report and all other criteria used in the design of any private sewage disposal system.

This report was prepared for the express use of Charlebois Properties and its retained design consultants and is not for the use by others. Contractors bidding on this project should provide their own interpretation of the data and/or conduct their own investigation and compose their own analyses/conclusions. This report is the copyright of Terraprobe Inc. and no part of this report may be reproduced by any means, in any form, without the prior written permission of Terraprobe Inc.

We trust this information is sufficient for your present purposes. Should you have any questions concerning the above, please do not hesitate to contact the undersigned.

Terraprobe Inc.

Steven Green, P.Eng.
Associate
Barrie Branch Manager

Enclosures: Test Pit Location Plan (1 page)
Wash Sieve Analysis (6 pages)

NOT TO SCALE.
BOREHOLE LOCATIONS ARE APPROXIMATE

Terraprobe
220 Bayview Drive, Barrie, Ontario, L4N 4Y8
Tel: (705) 739-8355 Fax: (705) 739-8369

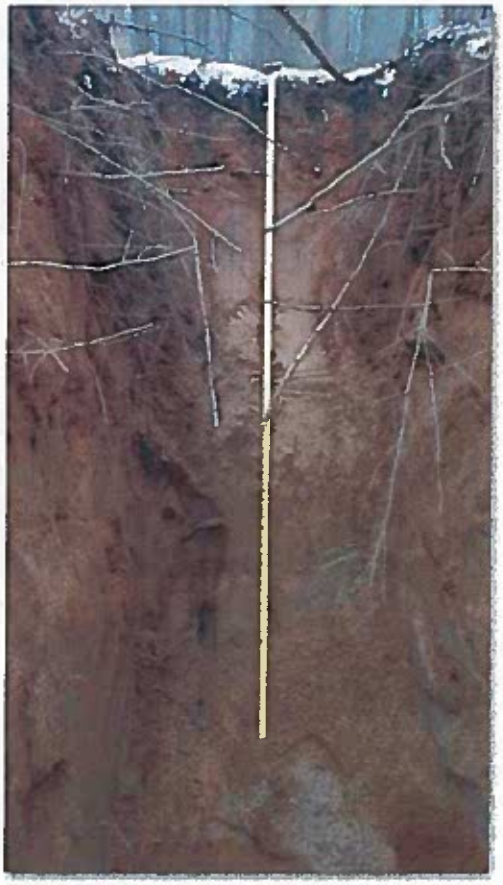
Title: OVERHEAD BRIDGE ROAD
TEST PIT LOCATION PLAN

File No. 3-20-0134

FIGURE: 1

1

2



3

4

5

6

Terraprobe

WASH SIEVE ANALYSIS
TEST REPORT

PROJECT: Overhead Bridge Road
LOCATION: Tiny, ON
CLIENT: Charlesbois Properties Inc.

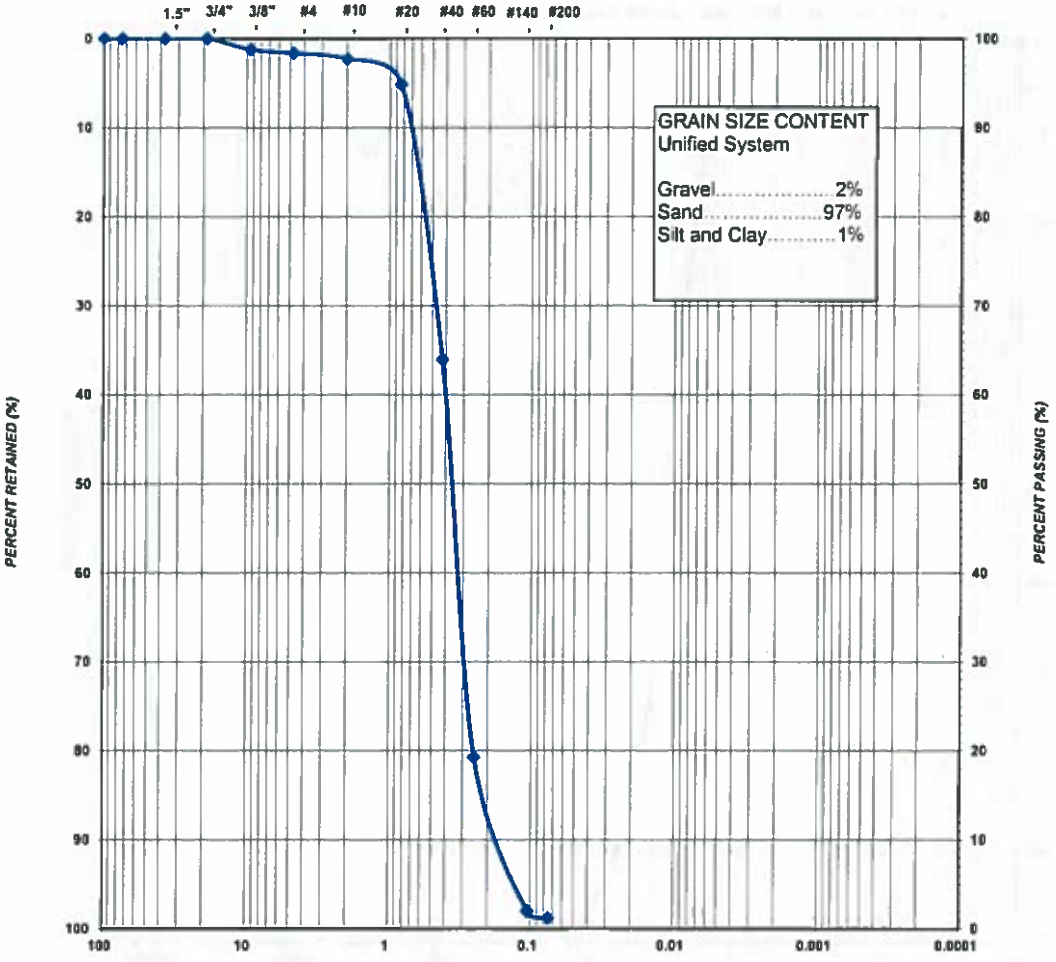
FILE NO.: 3-20-0134
LAB NO.: 719a
SAMPLE DATE: Nov-24-20
SAMPLED BY: S.W.

TEST PIT NUMBER: 1
SAMPLE DEPTH: 0.5 to 1.5m
SAMPLE NUMBER: 1
SAMPLE LOCATION: Lot 1
SAMPLE DESCRIPTION: Sand, trace gravel, trace silt

Estimated Septic T-Time: 4 to 6 min/cm

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL		COARSE	MEDIUM	FINE	SILT	CLAY	
			SAND					
UNIFIED SYSTEM	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY		
	GRAVEL		SAND					

Terraprobe

WASH SIEVE ANALYSIS
TEST REPORT

PROJECT: Overhead Bridge Road
LOCATION: Tiny, ON
CLIENT: Charlesbois Properties Inc.

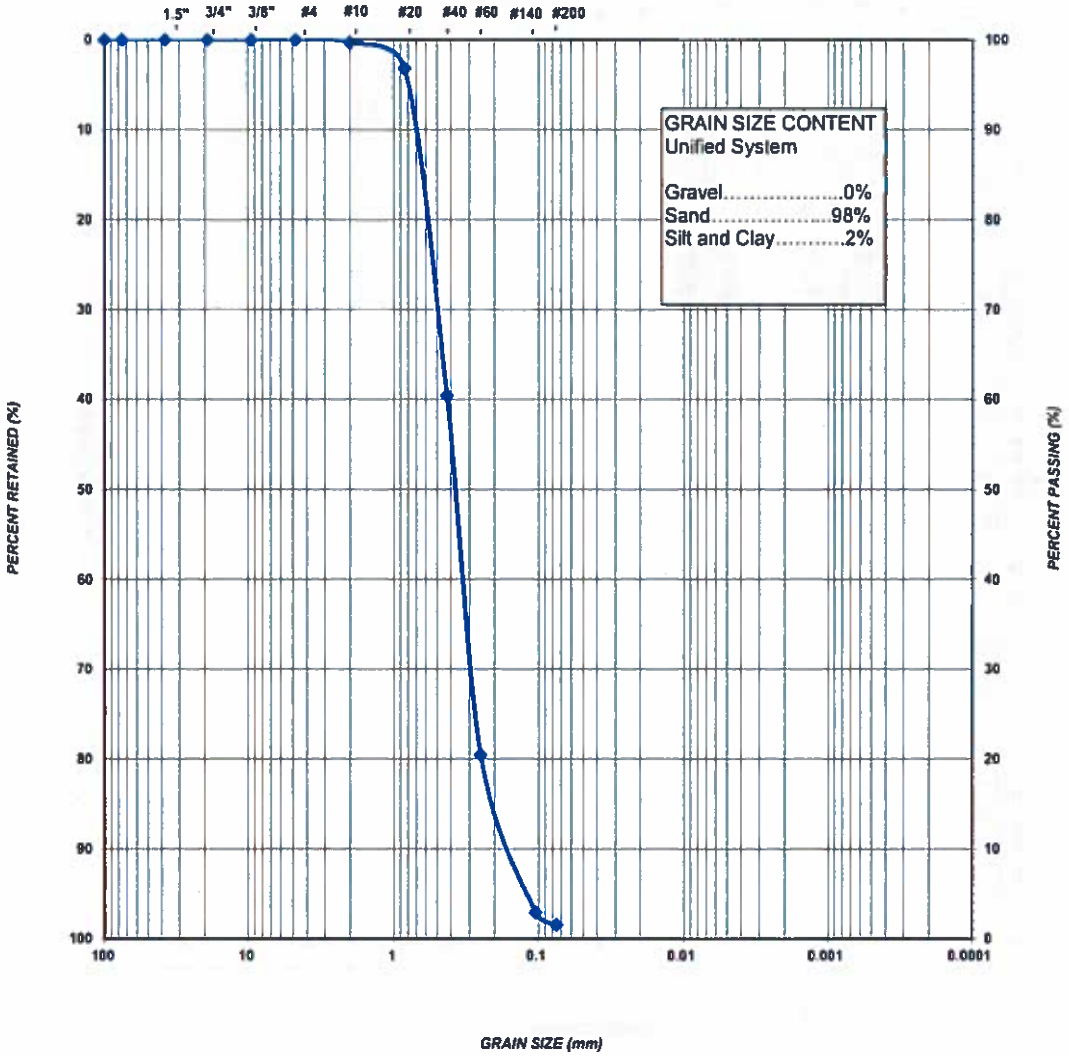
FILE NO.: 3-20-0134
LAB NO.: 719b
SAMPLE DATE: Nov-24-20
SAMPLED BY: S.W.

TEST PIT NUMBER: 2
SAMPLE DEPTH: 0.5 to 1.5m
SAMPLE NUMBER: 1
SAMPLE LOCATION: Lot 2
SAMPLE DESCRIPTION: Sand, trace silt

Estimated Septic T-Time: 4 to 6 min/cm

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL		SAND			SILT	CLAY
			COARSE	MEDIUM	FINE		

UNIFIED SYSTEM	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Terraprobe

WASH SIEVE ANALYSIS
TEST REPORT

PROJECT: Overhead Bridge Road
LOCATION: Tiny, ON
CLIENT: Charlesbois Properties Inc.

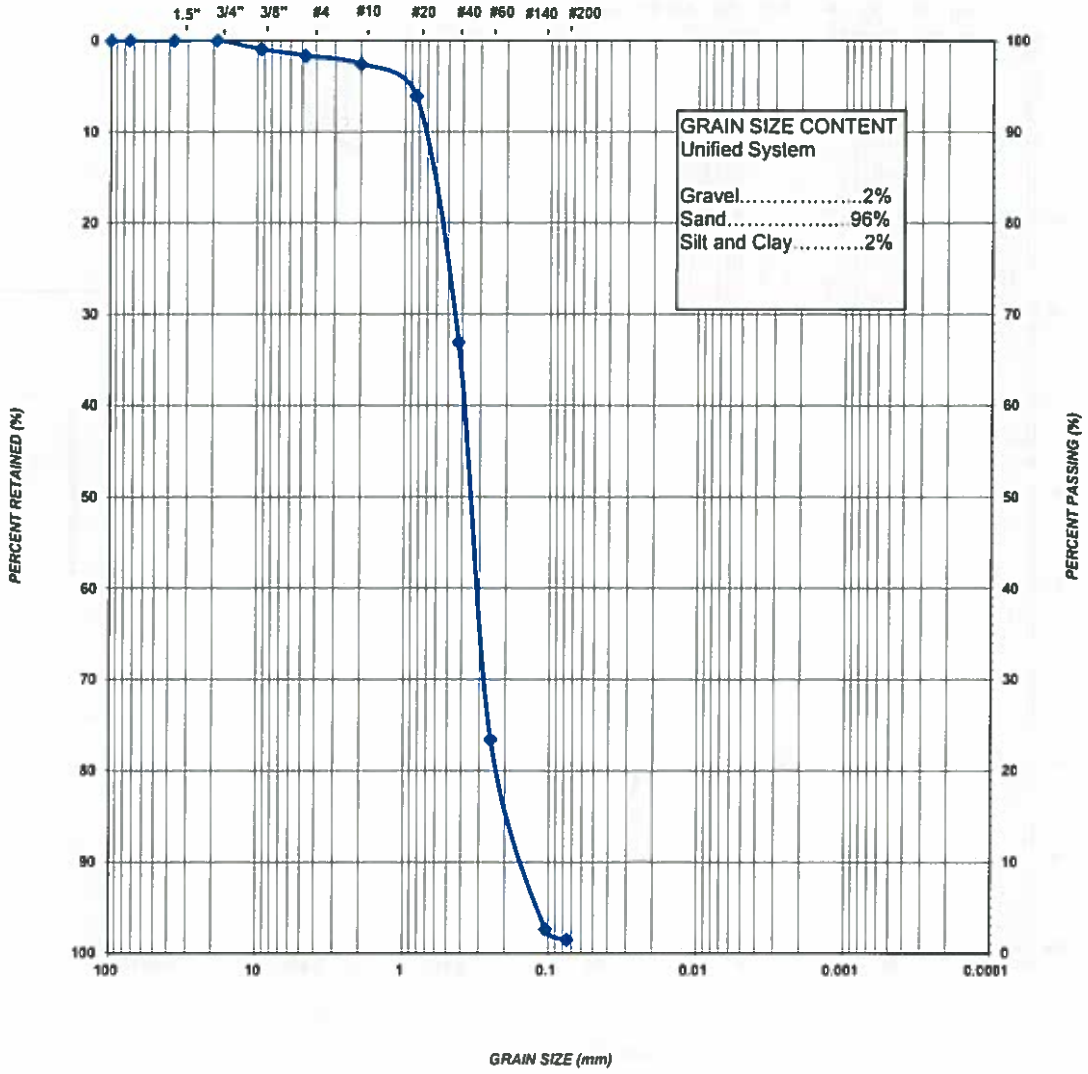
FILE NO.: 3-20-0134
LAB NO.: 719c
SAMPLE DATE: Nov-24-20
SAMPLED BY: S.W.

TEST PIT NUMBER: 3 SAMPLE DEPTH: 0.5 to 1.5m
SAMPLE NUMBER: 1
SAMPLE LOCATION: Lot 3
SAMPLE DESCRIPTION: Sand, trace gravel, trace silt

Estimated Septic T-Time: 4 to 6 min/cm

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL		SAND			SILT	CLAY
			COARSE	MEDIUM	FINE		

UNIFIED SYSTEM	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Terraprobe

WASH SIEVE ANALYSIS
TEST REPORT

PROJECT: Overhead Bridge Road
LOCATION: Tiny, ON
CLIENT: Charlesbois Properties Inc.

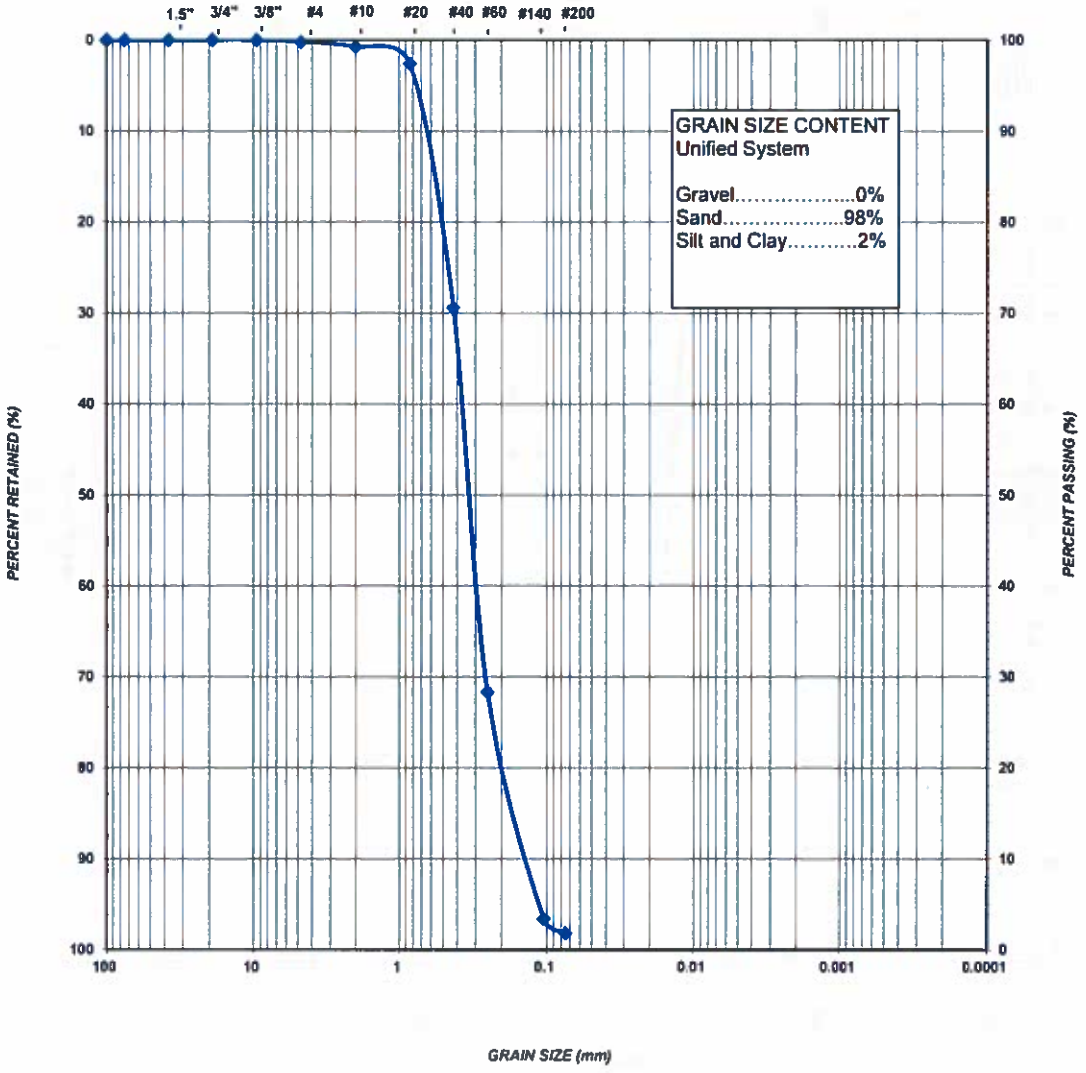
FILE NO.: 3-20-0134
LAB NO.: 719d
SAMPLE DATE: Nov-24-20
SAMPLED BY: S.W.

TEST PIT NUMBER: 4
SAMPLE DEPTH: 0.5 to 1.5m
SAMPLE NUMBER: 1
SAMPLE LOCATION: Lot 4
SAMPLE DESCRIPTION: Sand, trace silt

Estimated Septic T-Time: 4 to 6 min/cm

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL	COARSE	MEDIUM	FINE	SILT	CLAY
		SAND				

UNIFIED SYSTEM	COARSE	FINE	COARSE	MEDIUM	FINE	
	GRAVEL		SAND			SILT AND CLAY

Terraprobe

WASH SIEVE ANALYSIS
TEST REPORT

PROJECT: Overhead Bridge Road
LOCATION: Tiny, ON
CLIENT: Charlesbois Properties Inc.

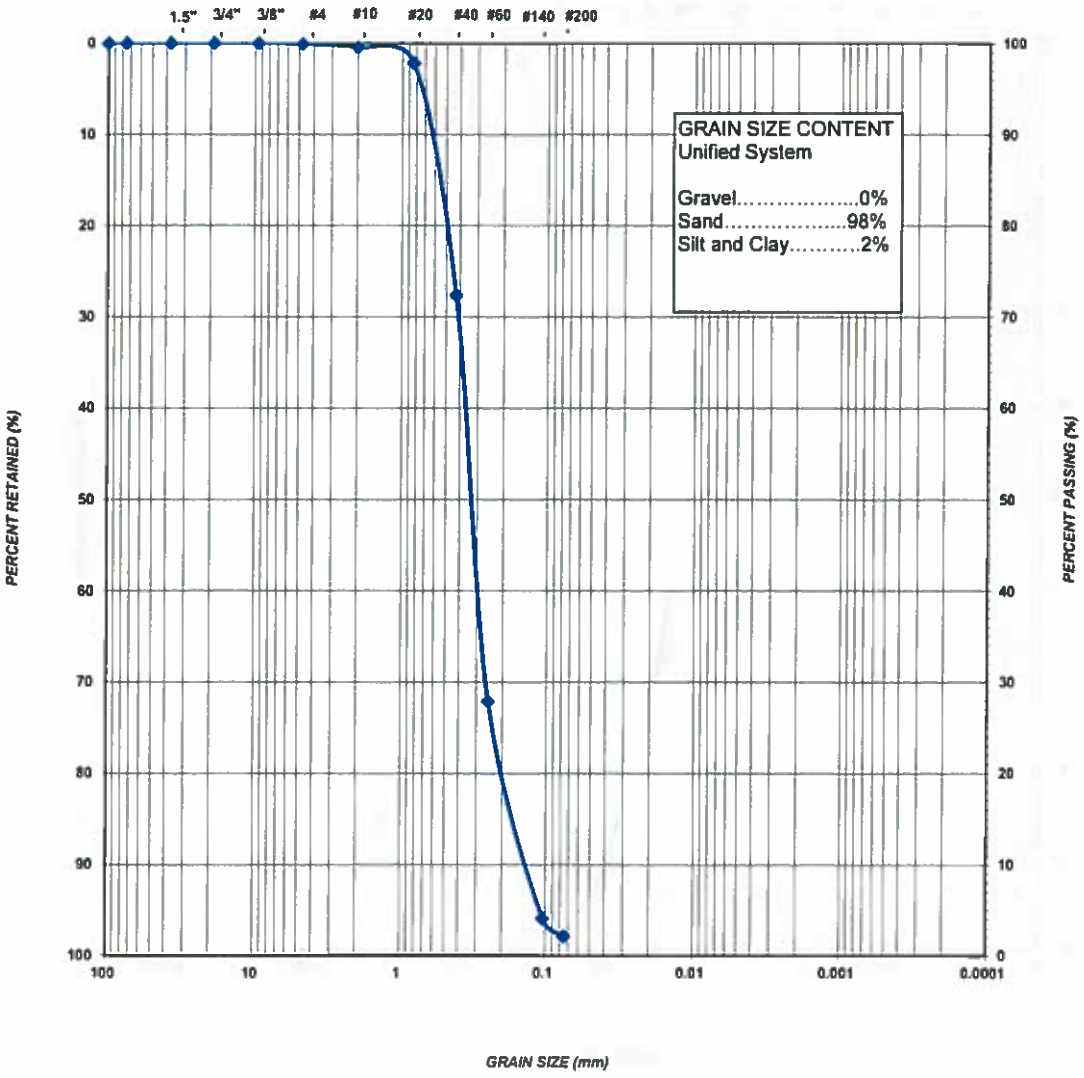
FILE NO.: 3-20-0134
LAB NO.: 719e
SAMPLE DATE: Nov-24-20
SAMPLED BY: S.W.

TEST PIT NUMBER: 5
SAMPLE DEPTH: 0.5 to 1.5m
SAMPLE NUMBER: 1
SAMPLE LOCATION: Lot 5
SAMPLE DESCRIPTION: Sand, trace silt

Estimated Septic T-Time: 4 to 6 min/cm

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL		SAND			SILT	CLAY
			COARSE	MEDIUM	FINE		

UNIFIED SYSTEM	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Terraprobe

WASH SIEVE ANALYSIS
TEST REPORT

PROJECT: Overhead Bridge Road
LOCATION: Tiny, ON
CLIENT: Charlesbois Properties Inc.

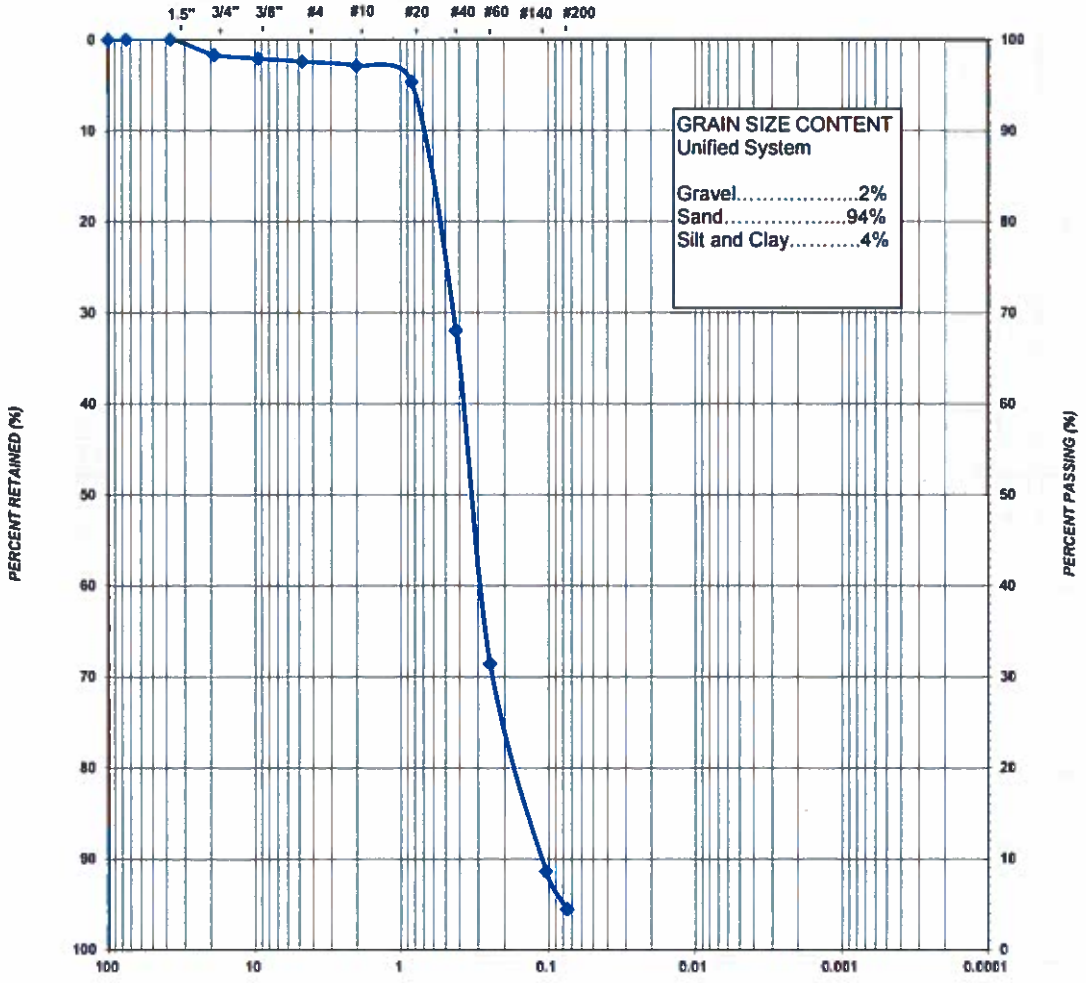
FILE NO.: 3-20-0134
LAB NO.: 719f
SAMPLE DATE: Nov-24-20
SAMPLED BY: S.W.

TEST PIT NUMBER: 6
SAMPLE DEPTH: 0.5 to 1.5m
SAMPLE NUMBER: 1
SAMPLE LOCATION: Lot 6
SAMPLE DESCRIPTION: Sand, trace silt, trace gravel

Estimated Septic T-Time: 4 to 6 min/cm

GRAIN SIZE DISTRIBUTION

U.S. STANDARD SIEVE SIZES



MIT SYSTEM	GRAVEL		COARSE	MEDIUM	FINE	SILT	CLAY
			SAND				

UNIFIED SYSTEM	COARSE	FINE	COARSE	MEDIUM	FINE	SILT AND CLAY
	GRAVEL		SAND			

APPENDIX E

Traffic Calculations

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS
ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 7AM AND 9AM

Date: 1-Dec-20 **Project No.:** 20-644

Project: Charlebois Properties, Tiny Twp. **Prepared By:** JR

References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [T = 0.71(X) + 4.80]
Charlebois Properties	210: Single-Family Detached Housing	6 units	**10**

Notes:
This analysis is based on the Concept Plan for NW corner of Overhead Bridge Rd. & Concession 12 E, prepared by Celeste Phillips Planning Inc., dated November 6, 2020.

WMI & Associates Limited
119 Collier Street, Barrie, Ontario L4M 1H5
p (705) 797-2027 f (705) 797-2028

TRIP GENERATION SPREADSHEET

VEHICLE TRIP ENDS VS. DWELLING UNITS
ON A WEEKDAY, PEAK HOUR OF ADJACENT STREET TRAFFIC, ONE HOUR BETWEEN 4PM AND 6PM

Date: 1-Dec-20 **Project No.:** 20-644

Project: Charlebois Properties, Tiny Twp. **Prepared By:** JR

References: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition

Development	ITE Code & Land Use	Independent Variable	Total Trips- From Fitted Curve Equation [Ln(T) = 0.96Ln(X) + 0.20]
Innisfil Executive Estates Phase 2	210: Single-Family Detached Housing	6 units	**7**

Notes:
This analysis is based on the Concept Plan for NW corner of Overhead Bridge Rd. & Concession 12 E, prepared by Celeste Phillips Planning Inc., dated November 6, 2020.

A - Minimum Stopping Sight Distance, Table E3-1.
A_1 - Distance travelled in 3 s, Table E3-2.
B - Safe Sight Distance for P vehicle, crossing 2-lane highway from stop.
C - Safe Sight Distance for P vehicle, turning left into 2-lane highway across P vehicle approaching from left.
D - Safe Sight Distance for P vehicle to turn left into 2-lane highway and attain assumed operating speed before being overtaken by P vehicle approaching in same direction at design speed.
E - Safe Sight Distance for P vehicle to turn right into 2-lane highway and attain assumed operating speed before being overtaken by P vehicle approaching in same direction at design speed.

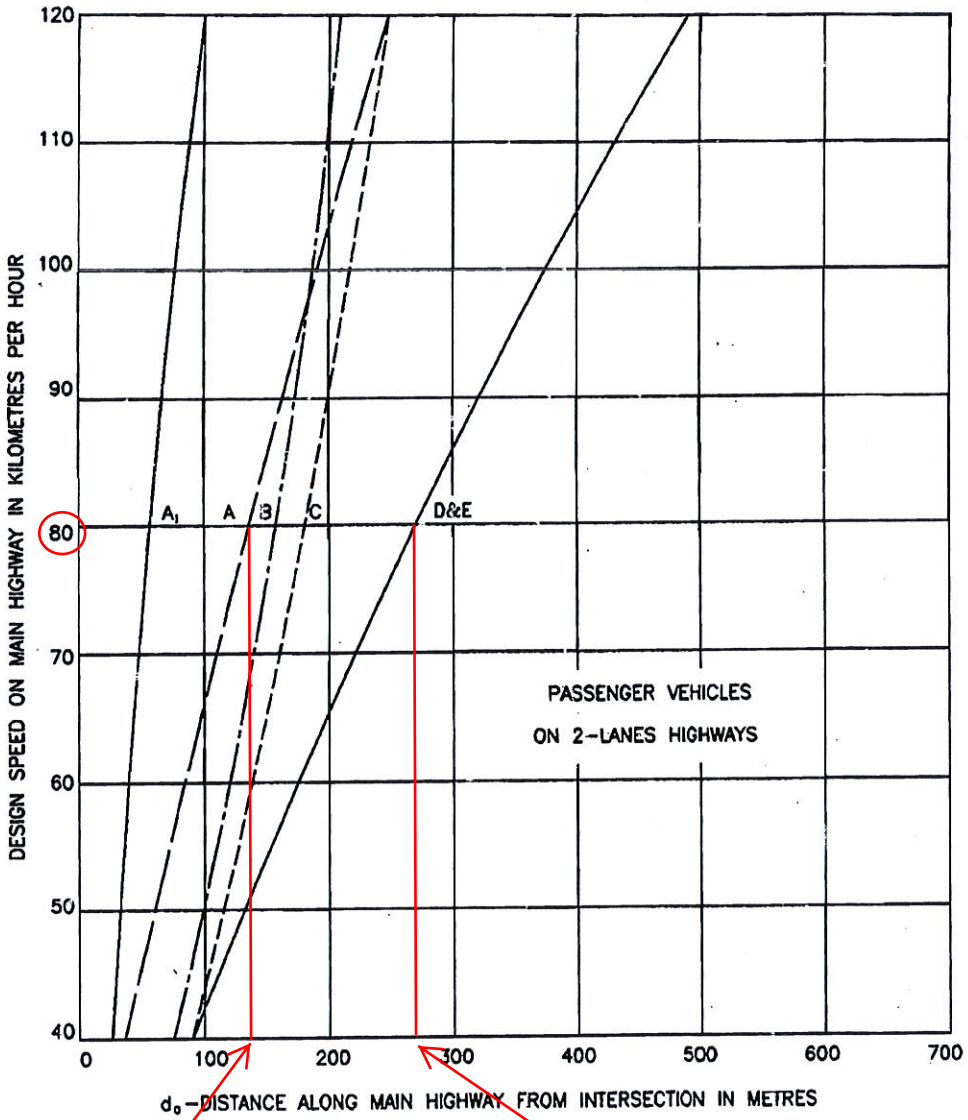


Figure E3-6

Sight Distance Requirements for Stopping Crossing and Turning Movements

Condition A: Minimum stopping sight distance is approx. 130m for 80km/h design speed.

Condition D & E: Safe sight distance is approx. 270m for 80km/h design speed.

APPENDIX F

Project Correspondence

Stephen Morash

From: Celeste Phillips <celeste@cplan.ca>
Sent: November 30, 2020 4:30 PM
To: Stephen Morash
Cc: Frank Charlebois
Subject: FW: Charlebois development

Stephen – Below is the email exchange with Melissa. Sounds good to me – but please let us know.

From: "celeste@cplan.ca" <celeste@cplan.ca>
Date: Monday, November 30, 2020 at 4:27 PM
To: Melissa Carruthers <MCarruthers@severnsound.ca>
Cc: Shawn Persaud <spersaud@tiny.ca>
Subject: Re: Charlebois development

Thanks Melissa for your response. Yes, 6 residential lots are contemplated, no commercial or retail.

From: Melissa Carruthers <MCarruthers@severnsound.ca>
Date: Monday, November 30, 2020 at 10:04 AM
To: "celeste@cplan.ca" <celeste@cplan.ca>
Cc: Shawn Persaud <spersaud@tiny.ca>
Subject: RE: Charlebois development

Hi Celeste,

I can only speak to the drinking water source protection program and the screening that I do as part of that on behalf of the Township; as this property is located in the wellhead protection area D of the Robert Street municipal drinking water system, with a vulnerability score of 2. If the application is strictly for the creation of 6 residential lots, without any commercial or retail spaces, I would not have any requirements. Having said that, once a formal application has been made, I would issue a letter to this effect. In essence, formal screening will take place, however, based on the indicated plans for the property, nothing will apply from a drinking water source protection standpoint.

For all other screening requirements, it's recommended to confirm with Shawn and Calvin.

If you have any questions, comments, or concerns, please feel free to contact me.
Thank you!

Melissa Carruthers
Risk Management Official / Risk Management Inspector

Severn Sound Environmental Association
489 Finlayson St, P.O. Box 460, Port McNicoll, ON L0K 1R0
P (705) 534-7283 ext. 205 / **Fax** (705) 534-7459
MCarruthers@severnsound.ca | www.severnsound.ca | @SSEA_SSRAP

**** OFFICE CLOSED****

As the circumstances caused by COVID-19 continue to evolve, the SSEA office remains closed. The SSEA staff will continue to operate remotely. We expect this to cause delays in our ability to respond to requests. For more information see www.severnsound.ca

---

From: Celeste Phillips [mailto:celeste@cplan.ca]
Sent: November 25, 2020 5:33 PM
To: Melissa Carruthers
Subject: Charlebois development

Hi Melissa – We recently met at a virtual meeting regarding the Charlebois landholding on the west side of Overhead Bridge Road in the Township of Tiny. My recollection is that Shawn Persaud indicated at the outset of the meeting that no formal screening is required and I was wondering if you might have provided this to Shawn by email. He is away this week and I wanted to be sure I had your confirmation of this. Kindly advise when time permits.

Celeste Phillips, MCIP RPP

Celeste Phillips Planning Inc.
85 Bayfield Street
Suite 300
Barrie, Ontario
Canada
L4M 3A7

Telephone: 705.797.8977
iPhone: 705.730.8850

Email: **celeste@cplan.ca**