

JULY 24, 2020

PROJECT NO: 903-3780

SENT VIA: EMAIL

Municipality of Meaford
21 Trowbridge Street West
Meaford, ON N4L 1Y1

**Attention: Liz Buckton, BSc. (Hons), MCIP, RPP
Manager, Development Services**

**RE: HYDROGEOLOGICAL ASSESSMENT
LEITH-BAYSHORE ROAD – SEVERANCE APPLICATION
CONCESSION BF, PART LOT 23, R. PLAN 16R-4635, PART 2, ROLL #42-10510-004-07110-000
MUNICIPALITY OF MEAFORD**

Dear Liz,

C.F. Crozier and Associates (Crozier) was retained by Don and Daphne McCullough (Owner) to support a Severance Applications on a parcel of land located along the Bayshore Road (Roll # 42-10510-004-07110-000), located in the Municipality of Meaford, to create five (5) independently serviced and graded lots.

Crozier has completed a desktop hydrogeologic study to investigate the feasibility of constructing individual drinking water wells on each of the proposed lots.

Site Description

The site is approximately 4.91 hectares (12.13 acres) located on the southeast side of Bayshore Road across from Buckingham Lane in the Municipality of Meaford (Figure 1). The site boundary is located approximately 200m from the shore of Georgian Bay and 130m north east of Sideroad 20.

The site is currently primarily open field with trees located along Bayshore Road at the front of the property. The adjacent properties on either side and across Bayshore Road are residential.

Physiography

The site is located in the physiographic region known as the Cape Rich Steps north of the Bruce Peninsula physiographic region.

Chapman and Putnam (1984) describe the Cape Rich Steps as the area located between the Owen Sound and Nottawasaga Bay. It was the upland area located between two river valleys in preglacial times leading to a master stream the flowed down to the Georgian Bay depression. The area rises 150 m from Georgian Bay in a series of five "steps". They consider well water in the area to be scarce for the purposes of intensive farming practices but do not comment on the availability of groundwater for domestic purposes.

Surficial Geology

Published surficial geology mapping (OGS) indicates that the property is bisected by an area of coarse-textured lacustrine deposits of sand and gravel with minor silt and clay on the northwestern half of the property extending to Georgian Bay and fine textured glaciolacustrine deposits of silt and clay with minor sand and gravel in the south eastern portion of the site extending south easterly to an area of sand poor sandy silt to silty sand textured till (Figure 2).

Source Protection

The site is located within the Grey Sauble Source Protection Area. A review of the Source Protection Information Atlas indicates that the property is located within a Highly Vulnerable Aquifer with a vulnerability score of 6.

The site is not located in a Wellhead Protection Area, nor is it located in an Intake Protection Zone and therefore there are no specific policies within the Grey Sauble Source Protection Plan that would apply to the lands. This should be confirmed with the municipality's Risk Management Official (RMO).

MECP Well Records

GSS Engineering Consultants Ltd (GSS) completed a review of well records in the area of the site based on data provided from the Ministry of Environment, Conservation and Parks (MECP) database. They identified eleven (11) wells located within 1.0km of the site. Crozier has confirmed that no new well information has been entered into the MECP database since GSS completed their summary in 2018. These wells are shown on Figure 3 and summarized in Table 1 below;

Table 1; Summary of MECP Well Records

Well ID	Tag #	Diameter (cm)	SWL ¹ (m)	PWL ² (m)	Rate (L/min)	Use	Aquifer	Notes
2505270		12.7	6.10	21.3	22.7	Domestic	Shale	Mineralized
2510749		15.2	32.62	41.16	45.4	Domestic	Shale	
2510833		15.2	9.15	31.40	13.62	Domestic	Shale	
2512445		12.7	30.79	31.40	36.32	Domestic	Shale	
2512914		15.2						
2512915		15.2	17.07	18.60	18.16	Domestic	Shale	
2513165		15.2	14.30	28.96	4.54	Domestic	Shale	
2514186		15.2	25.91	50.30	22.7	Domestic	Shale	
7113391	A074411	15.2		34.45	22.7	Domestic	Shale	
7113392	A065331							
7147557	A092834	15.2	26.52	33.54	13.62	Domestic	Shale	

1. SWL – Static Water Level

2. PWL – Pumping Water Level

In general, a flow rate of 13.62 L/min is considered the minimum that the Canadian Mortgage Housing Council will accept in order to approve a mortgage loan. Although not applicable for this application, MECP Procedure D-5-5 (1996) specifies that a minimum peak demand flow rate of 13.7 L/min be utilized. For the purposes of discussion we will consider the minimum well yield required to be 13.7 L/min.

Of the eleven (11) wells identified, there is one (Well ID 2513165) where the reported yield was less than the minimum of 13.7 L/min. The remainder of the wells within the area produce water roughly equal to 13.7 L/min (Well IS 2510833 and 7147557).

Well ID 2505270 was reported to produce mineralized water. It is important to note that O.Reg. 903 does not define what "mineralized" water is, nor does it require testing to confirm the water quality. This is left to the discretion of the well contractor. The well contractor also noted under "Water Use" that the well was being used for domestic water supply so it should be inferred that whatever caused them to define the water as "mineralized" was not a concern in terms of human consumption and/or was overcome with treatment

Conclusions

Crozier is of the opinion that individual wells could be established for each of the proposed lots that would be capable of providing water of suitable quality and quantity for normal domestic supply without impacting existing water wells in the area.

Yours truly,

C.F. CROZIER & ASSOCIATES INC.



Chris Gerrits, M.Sc. P. Eng.
Senior Project Manager

Cc:






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LEGEND

 Property Limits

Surficial Geology

-  5b: Stone-poor, sandy silt to silty-sand textured till on Paleozoic terrain
-  14b: Coarse-textured lacustrine deposits (littoral)
-  14c: Coarse-textured lacustrine deposits (foreshore and basinal)
-  8a: Fine-textured glaciolacustrine deposits (massive to well laminated)
-  9b: Coarse-textured glaciolacustrine deposits (littoral)

DRAWING NOTES:

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Project

**BAYSHORE ROAD SEVERANCE
MUNICIPALITY OF MEAFORD**

Drawing

SURFICIAL GEOLOGY

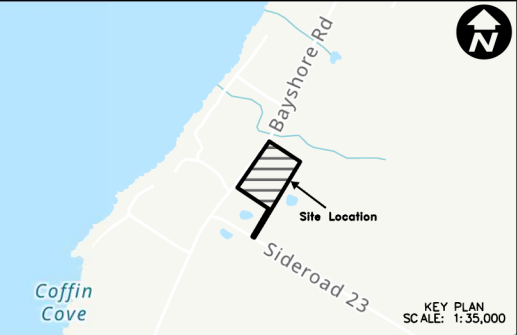
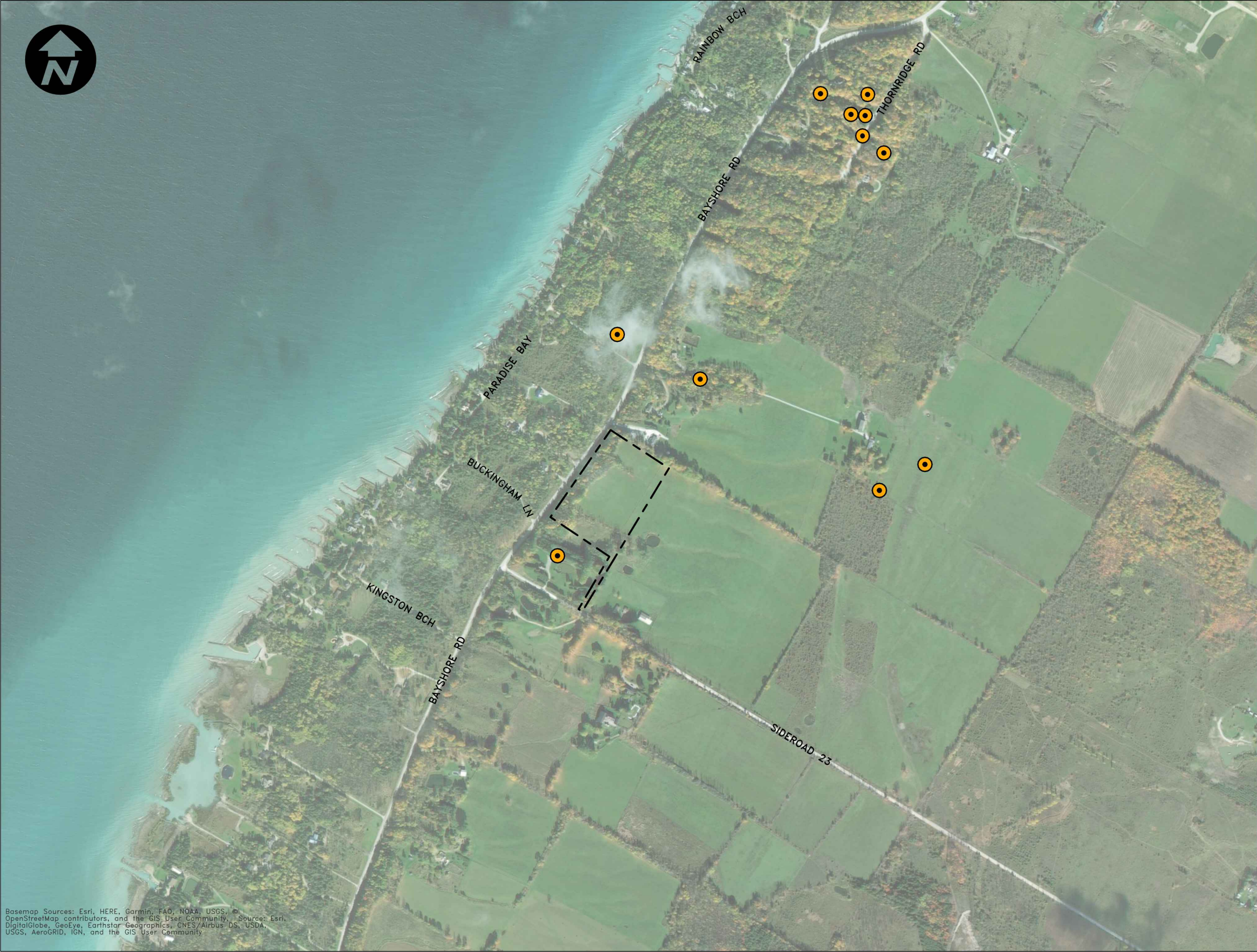


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Drawn	K.O.	Design	C.G.	Project No.	903-3780
Date	2020-07-24	Projection	EPSG:26917	Scale	1:5,000
				Dwg.	FIG. 2

Data Source: Ontario Ministry of Energy, Northern Development and Mines

Basemap Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community. Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



LEGEND

- Property Limits
- Existing Wells

Well ID	Lat	Lon
2505270	44.65805392N	080.84734370W
2510749	44.66826739N	080.83767880W
2510833	44.66734938N	080.83784536W
2512445	44.66782702N	080.83820987W
2512914	44.66196398N	080.84290595W
2512915	44.66295776N	080.84547655W
2513165	44.66006364N	080.83592319W
2514186	44.65948951N	080.83733751W
7113391	44.66779937N	080.83775580W
7113392	44.66828748N	080.83915474W
7147557	44.66697032N	080.83717782W

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Project
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Drawing
WELL LOCATION PLAN



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				Dwg.	FIG. 3