

August 31, 2022

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**Private Water Service
69 Polish Avenue, Penetanguishene, Ontario**

1.0 Introduction

G2S Consulting Inc. (G2S) is pleased to provide this letter regarding water supply for the above noted property. It is understood the Town of Penetanguishene requires additional information with respect to private water supply as part of a zoning by-law amendment application.

2.0 Site Setting

It is understood the subject site is located on the east side of Polish Avenue, located approximately 425 m north of the intersection of Polish Avenue and Tay Point Road within a residential setting. Georgian Bay is about 275 m east of the site and the site comprises a formerly vacant land parcel that is under construction for a 5-bedroom dwelling, comprising 2 units.

2.1 Physiographic and Geologic Setting

According to the Quaternary Geology Map 194 Penetanguishene and Christian Island Areas, 1992 – 5B, the site is expected to be underlain by silty sand till rich in Paleozoic rock fragments. The Bedrock Geology of Ontario Map 2544 indicated the site is predominantly underlain by Middle Ordovician, limestone, dolostone, shale, arkose, sandstone (51B – Chazy Gp., Rockcliffe Formation). Bedrock depth is expected at 21 to 30 m below ground surface.

3.0 Local Ground Water Use

Published water well records were obtained from the Ministry of the Environmental, Conservation and Parks (MECP) Water Well Records Database for the subject site and lands within a 500 m radius. These records were reviewed to establish the general hydrogeological environment in the area and determine anticipated well capacities.

Based on water well information obtained from the MECP, 34 wells with pump test data were reported to be located within an approximate 500 m radius of the site. A summary of the well records is included in Appendix A.

Based on the records, we note the following:

- 16 of the wells were terminated in the overburden (gravel, sand, silt, clay) at depths of 21 to 46 m below ground surface (bgs), with static water levels at 6 to 36 m bgs.

Pump tests conducted following installation indicated yields of 11.4 to 45.6 L/min with an average of 28.7 L/min.

The water quality in 14 of the wells was reported as fresh; 2 were unreported.

- 18 of the wells were terminated in the bedrock (limestone or granite) at depths of 23 to 152 m bgs, with static water levels of 8 to 37 m bgs.

Pump tests conducted following installation of the wells indicate the yield of the wells ranged from 3.8 to 228 L/min with an average of 47.7 L/min.

The water quality reported in 14 of the wells was fresh, 1 was salty and 2 were unreported.

For preliminary planning purposes, the water demand is considered to approximate the daily sewage flow rate. Per the Ontario Building Code (2012), for a 5-bedroom dwelling the water demand is estimated to be 2,500 L/day, which corresponds to 1.7 L/min for a 24-hour period.

Since the majority of the water demand will be limited to two, 2-hour periods in the day, a well yield of at least 10.4 L/min will be required to service the peak water demand of the development.

The measured yield in the 7 of the closest wells was an average of 21 L/min, which is sufficient to supply the demand of a 5-bedroom residential dwelling. An adequate water supply, therefore, should be able to be developed on the subject site. The MECP considers a well to be sustainable with a minimum yield of 13.7 L/min., however this is based on a 4-bedroom dwelling.

Pump tests would be required to confirm that an adequate water supply can be developed on the property and the sustained pumping rate will not have an adverse impact on other wells in the area.

4.0 Closing Remarks

We trust this letter is suitable for your present purposes. Should you have any questions, please do not hesitate to contact this office.

Yours truly,

G2S Consulting Inc.

A handwritten signature in blue ink, appearing to read 'M. King', is positioned above the typed name.

Melissa King, P.Geo., QP_{ESA}
Head of Environmental Services

Appendix A
Well Records

Water Well Records

August 4, 2022

3:57:50 PM

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
PENETANGUISENE TOWN	17 589215 4961124 W	2009-02 2514	6.25	FR 0075	54/68/10/1:		0068 10	7160172 (Z91921) A048111	BRWN SAND GRVL BLDR 0025 GREY SAND CLAY DNSE 0065 BRWN SAND PORS 0078
PENETANGUISENE TOWN	17 589235 4961092 W	2009-10 2514	6.25	0064	51/61/10/1:		0063 5	7160171 (Z91920) A080952	GREY SAND BLDR HARD 0020 GREY GRVL SAND CLAY 0060 GREY GRVL SAND LOOS 0068
PENETANGUISENE TOWN 04 028	17 589158 4961378 W	2006-10 2576	6	FR 0219 FR 0248 0360	91///:	DO		7046935 (Z55920) A048790	BRWN GRVL SNDY 0004 BRWN GRVL SAND STNS 0026 GREY GRVL STNS SLTY 0051 GREY SAND SLTY 0053 GREY GRVL STNS SLTY 0085 GREY LMSN 0123 BLUE SHLE LMSN 0152 RED GRNT 0170 BLCK GRNT 0363
TAY TOWNSHIP	17 589139 4961281 W	2020-06 5224	6	FR 0240	84/200/10/1:30	DO		7362574 (Z271722) A267002	BRWN SAND CLAY STNY 0018 GREY CLAY STNY 0090 GREY LMSN ROCK 0120 BLCK GRNT ROCK 0240
TAY TOWNSHIP	17 589293 4961111 W	2017-10 2576	6 6	UT 0109 UT 0251	90/199/2/1:	DO		7299635 (Z270627) A235451	LOAM 0001 STNS BLDR 0072 BRWN LMSN 0140 GREN SHLE 0170 RED GRNT 0200 BLCK GRNT 0240 WHIT GRNT 0278
TAY TOWNSHIP	17 588964 4961489 W	2015-07 5528	6.09 5.90	UT 0279	97/199/9/1:	DO		7246170 (Z212561) A153166	BRWN SAND STNS 0027 GREY CLAY STNS 0090 GREY LMSN 0095 GREY LMSN FCRD 0145 GREN LMSN 0175 RED GRNT 0303 BLCK GRNT 0364
TAY TOWNSHIP	17 589330 4961335 W	2015-06 2576	6 6	FR 0085	34//1/1:	DO		7244237 (Z201749) A169604	LOAM 0001 BRWN SAND STNS 0009 GREY CLAY SLTY 0031 BRWN LMSN 0069 GREN SHLE 0090 BLCK GRNT LYRD 0237
TAY TOWNSHIP	17 589297 4961174 W	2006-11 7075	6.11	FR 0028	81/208/3/1:0	DO		5741386 (Z51824) A045980	GREY CLAY STNS 0091 GREY GRNT 0300
TAY TOWNSHIP	17 589135 4960979 W	2005-04 7222	6 5	FR 0068	60/92/5/1:0	DO	0095 8	5740158 (Z26611) A025963	BRWN SAND BLDR SOFT 0008 BRWN SAND GRVL SOFT 0027 GREY CLAY SAND GRVL 0063 BRWN GRVL SAND CLAY 0103
TAY TOWNSHIP 04 028	17 589087 4961200 W	2008-09 2576	6 5	FR 0072	45//12/1:0	DO	0072 4	7113469 (Z89619) A073172	LOAM 0001 BRWN CLAY 0009 GREY CLAY SOFT 0056 BRWN SAND GRVL FSND 0076
TAY TOWNSHIP 04 028	17 589083 4961133 W	2008-10 2576	6	FR 0071	48//8/1:0	DO	0069 2 0071 4	7119176 (Z90820) A073163	LOAM 0001 BRWN SAND GRVL 0018 GREY CLAY GRVL SLTY 0061 BRWN SAND GRVL 0070 BRWN CSND WBRG 0075
TAY TOWNSHIP 04 041	17 588908 4961593 W	2006-07 3413	6		106///:	DO		5741126 (Z49725) A044548	BRWN SAND 0030 GREY CLAY 0090 WHIT LMSN 0140 GREY SHLE 0180 BLCK GRNT 0356
TAY TOWNSHIP 4 28	17 589276 4961165 W	2007-10 2576			///:			7100702 (Z69541) A062728	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
TAY TOWNSHIP CON 03 028	17 589085 4960909 W	1990-06 2652	6	FR 0082	46//8/1:20	DO		5726877 (65523)	BRWN SAND 0010 GREY CLAY 0033 BRWN SAND GRVL 0097
TAY TOWNSHIP CON 04 014	17 589208 4961315 W	1994-11 5224	6 6	FR 0240	65/230/7/1:0	DO		5731192 (154379)	BRWN SAND BLDR 0030 GREY CLAY GRVL 0048 BRWN HPAN STNY 0088 GREY LMSN 0142 BRWN SHLE 0157 BLCK GRNT 0175 BRWN GRNT 0225 BLCK GRNT 0240
TAY TOWNSHIP CON 04 028	17 589164 4961324 W	1980-07 4816	6	FR 0035	20/35/3/4:0	DO	0035 3	5717196 ()	GRVL BLDR 0021 SAND SILT 0025 SAND 0030 CSND CLAY 0035 CSND SILT 0048 CLAY GRVL 0080
TAY TOWNSHIP CON 04 028	17 589151 4961034 W	1950-10 2611	4	FR 0150	118//5/3:0	DO	0136 5	5703950 ()	MSND GRVL 0002 HPAN 0012 FSND 0080 SILT 0110 FSND 0140 CSND 0150
TAY TOWNSHIP CON 04 028	17 589264 4961124 W	1981-08 4816	6	FR 0064	50//5/2:0	DO	0060 3	5717705 ()	BLDR GRVL 0018 CLAY BLDR 0058 SAND CLAY SILT 0064 SAND GRVL SILT 0070 CLAY GRVL 0075
TAY TOWNSHIP CON 04 028	17 588964 4960974 W	1985-06 4816	6		45//10/2:0	DO	0078 3	5720068 ()	BRWN SAND STNS 0025 GREY CLAY SOFT 0058 FSND STNS 0072 CSND 0081
TAY TOWNSHIP CON 04 028	17 589114 4961224 W	1982-10 4816	6		//5/:	DO	0074 3	5718357 ()	LOAM 0001 CLAY SILT FGVL 0056 CLAY STNS 0072 CSND 0077 FGVL SAND 0080
TAY TOWNSHIP CON 04 028	17 588621 4960991 W	1972-11 2614	6	FR 0071	42/65/5/1:0	DO	0071 3	5709427 ()	BRWN SAND MUCK 0005 BLUE CLAY STNS 0071 SAND 0074 GRVL 0077
TAY TOWNSHIP CON 04 028	17 588656 4960953 W	1973-05 2614	6	FR 0087 UK 0094	40/60/10/4:0	DO	0091 3	5709833 ()	LOAM BLDR 0011 BLUE CLAY 0081 SILT CLAY 0087 GRVL 0094 BLUE CLAY 0095
TAY TOWNSHIP CON 04 028	17 589178 4961203 W	1989-05 2652	6		///1:0			5725293 (47949) A	BRWN SAND BLDR 0011 GREY CLAY HARD 0049 GREY CLAY GRVL 0098 BLCK GRNT 0265
TAY TOWNSHIP CON 04 028	17 588944 4961160 W	1973-04 2614	6 6	FR 0119	70/138/3/2:0	DO		5710123 ()	LOAM 0002 STNS LOAM 0029 GREY CLAY 0097 LMSN 0130 GRNT 0142
TAY TOWNSHIP CON 04 028	17 589060 4961283 W	1988-11 2652	6	FR 0070	45/55/6/1:0	DO		5724337 (25742)	BRWN SAND BLDR 0008 GREY CLAY BLDR 0012 BRWN GRVL 0030 BRWN SAND 0062 BRWN GRVL SAND 0077
TAY TOWNSHIP CON 04 028	17 589216 4961115 W	1965-12 1312	6 5	FR 0035	37/40/10/10:0	DO	0031 99	5703952 ()	GREY CLAY HPAN BLDR 0030 CLAY MSND HPAN 0076 GREY LMSN 0100 WHIT LMSN 0125 GREN LMSN 0145 RED LMSN 0169 RED GRNT 0170
TAY TOWNSHIP CON 04 028	17 589211 4961125 W	1966-06 1312	6	FR 0068	50/60/7/2:0	DO		5703954 ()	BRWN HPAN BLDR 0020 GREY HPAN 0050 GREY HPAN BLDR 0055 GREY HPAN 0065 BRWN HPAN 0068 GRVL 0070
TAY TOWNSHIP CON 04 028	17 589086 4961278 W	1988-11 2652	6	FR 0220	95//5/1:0	DO		5724338 (25741)	BRWN CLAY ROCK 0038 BLCK GRNT 0040 GREY CLAY ROCK 0087 GREY LMSN 0163 RED GRNT 0225
TAY TOWNSHIP CON 04 028	17 589264 4961074 W	1983-11 4816	6 6		90//3/:	DO		5718847 ()	LOAM 0002 GREY CLAY SNDY 0043 FSND SILT 0052 GREY CLAY GRVL BLDR 0089 LMSN 0131 GREN SHLE 0154 RED GRNT 0171 BLCK GRNT 0182
TAY TOWNSHIP CON 04 028	17 588951 4961391 W	1990-10 5224	6	FR 0285	120/285/5/1:0	DO		5727506 (88484)	BRWN CLAY STNY 0025 BRWN CLAY 0060 BRWN SAND 0085 GREY LMSN 0095 GREY LMSN 0165 BLCK GRNT 0280 BRWN GRNT 0285
TAY TOWNSHIP CON 04 028	17 589156 4961119 W	1963-04 1312	6	FR 0065	30/65/5/12:30	DO	0065 4	5703951 ()	BRWN CLAY 0020 STNS BLDR CLAY 0050 GREY CLAY BLDR 0060 GREY CLAY 0065 GRVL 0072

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
TAY TOWNSHIP CON 04 028	17 589221 4961070 W	1966-06 1312	5	FR 0040	25/54/3/30:0	DO	0022 48	5703953 ()	BRWN HPAN BLDR 0018 GREY HPAN BLDR 0040 GRVL HPAN BLDR 0070 GREY LMSN 0074
TAY TOWNSHIP CON 04 028	17 589314 4961274 W	1985-08 3602	6	FR 0078	54/65/12/10:0	DO		5720069 ()	BRWN CLAY STNS 0060 GREY CLAY GRVL 0065 GREY CLAY 0068 GREY GRVL SAND HARD 0074 GREY CLAY GRVL WBRG 0078
TAY TOWNSHIP CON 04 028	17 589226 4961206 W	1990-11 2657			120/275/1/3:0	DO		5727677 (65583)	PRDR 0300 BLCK GRNT 0500
TAY TOWNSHIP CON 05 009	17 589088 4961384 W	1993-07 1583	6 6	SA 0185	40/80/50/2:0	DO		5730142 (119081)	BRWN CLAY 0050 GRNT 0185
TAY TOWNSHIP CON 05 028	17 589282 4961323 W	1988-12 2652	6					5724369 (25746) A	BRWN SAND BLDR 0006 GREY CLAY GRVL 0043 GREY LMSN 0095 RED GRNT 0245
TAY TOWNSHIP CON 05 029	17 589157 4961832 W	1991-05 2652	6	FR 0108	18//25/1:0	DO		5728132 (65577)	BRWN SAND BLDR 0005 BLCK GRNT 0009 GREY HPAN BLDR 0024 GREY LMSN 0081 RED GRNT 0112
TAY TOWNSHIP CON 05 029	17 589121 4961833 W	1991-05 2652	6	FR 0087	23//60/1:0	DO		5728133 (65576)	BRWN SAND BLDR 0007 GREY HPAN BLDR 0022 GREY LMSN 0078 RED GRNT 0087 BLCK GRNT 0090
TAY TOWNSHIP CON 05 029	17 589205 4961741 W	1991-05 2652	6	FR 0155	/170/5/1:30	DO		5728136 (65579)	BRWN HPAN BLDR 0021 GREY LMSN 0089 BLCK GRNT 0178
TAY TOWNSHIP CON 052	17 589038 4961427 W	7075						7381685 (Z334823) A292024 P	
TAY TOWNSHIP CON 09 010	17 589095 4961493 W	1989-11 1583	6 6	FR 0245	80//25/1:0	DO CO		5726043 (64446)	SAND CLAY 0010 CLAY GRVL 0043 CLAY STNS 0080 LMSN 0220 GRNT 0245
TAY TOWNSHIP CON 09 010	17 589088 4961491 W	1989-11 1583	6 6	FR 0290	76//2/1:0	DO CO		5726044 (64445)	CLAY 0035 FSND 0040 CLAY GRVL 0050 CLAY 0076 LMSN 0160 GRNT 0290

Notes:

UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
 DATE CNTR: Date Work Completed and Well Contractor Licence Number
 CASING DIA: .Casing diameter in inches
 WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
 WELL USE: See Table 3 for Meaning of Code
 SCREEN: Screen Depth and Length in feet
 WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only
 FORMATION: See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

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

2. Core Color

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

3. Well Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial	MT	Monitoring TestHole
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		