

November 23, 2023
Updated February 16, 2024

Ms. Katrina Lalonde, P.Eng.
Quantum Engineering Inc.
97 Copeland Creek Drive
Tiny, ON
L9M 0M2

Wilson Associates

Consulting Hydrogeologists

Dear Ms. Lalonde:

Re: Hydrogeological Study and Water Balance Analysis
Proposed Commercial Development
120 Pillsbury Drive, Town of Midland, Ontario

It is proposed to develop an existing ± 0.68 ha property at 120 Pillsbury Drive, in the Town of Midland, as a commercial facility with an office, warehouse, storage and associated parking.

As requested by Quantum Engineering Inc., this report has been prepared to address the requirements of the June 2013 "Hydrogeological Assessment Submissions: Conservation Authority Guidelines for Development Applications" (the CA Guideline).

Provided for this study were the following documentation:

- Proposed Site Plan, August 2023, Quantum Engineering Inc.

A copy of the above Site Plan attached for reference.

As no site-specific information was available from which to characterize subsurface conditions, a test pit program was undertaken within accessible areas of the site on March 26, 2019.

The November 23, 2023 report revision includes content provided to address hydrogeology-related comments outlined in the June 17, 2019 Severn Sound Environmental Association review of a previous version of the report. This report update includes the final site plan.

LOCATION AND HYDROGEOLOGICAL SETTING

The subject lands at 120 Pillsbury Drive occupy a 0.68ha "L" shaped parcel located on the west side of Pillsbury Drive, about 280m north of the intersection with William Street. The site is currently undeveloped, and is entirely forested. The site exhibits a steep topography, being located along the scarp between the uplands of Midland to the west and the lowlands of the Wye River valley to the east. Total site relief is about 15m to 18m, with the proposed commercial facility located within the lower, relatively moderate sloped, eastern half of the site.

No surface water bodies are located on-site, with the Wye River located about 600m east of the site.

Lands surrounding the site are undeveloped forest along the scarp lands to the north and south, urban residential and some woodland on the uplands to the west, and industrial lands and some woodland on the lowlands to the east.

The subject lands are located within the Simcoe Uplands physiographic region of southern Ontario, an area of northern Simcoe County characterized by till upland plains and steep-sided, flat floored valleys.

According to Ontario Geological Survey Map P.975 "Quaternary Geology of the Orr Lake Area (Western Half) and Nottawasaga area (Eastern Half)", shallow soils consist of ice-contact deposits of gravel and sand on the uplands to the west, and glaciolacustrine deposits of sand with minor fine gravel on the lowlands to the east. The on-site test pit program (see below), completed within the lower, relatively moderate sloped eastern portion of the site, encountered mainly a thin veneer of fine sand overlying a stony sandy silt glacial till

As the area is municipally serviced, few deep water well records are available in the close vicinity from which to characterize the sequence of overburden formations. Ministry of the Environment, Conservation and Parks (MECP) water well records for distant (i.e. $\geq 500\text{m}$) wells (representative records attached) suggest that the overburden is approximately 53m to 68m deep (depending on surface topography), and apart from some finer-grained deposits in the upper $\pm 6\text{m}$, mainly consists of coarse-grained deposits.

According to interpretation provided by the 2005 North Simcoe Municipal Groundwater Study (NSMGS), the bedrock surface in the area is situated at an approximate elevation of 140m above sea level (masl) (per Figure 4.5.2 of the NSMGS). The NSMGS reports the majority of the lower overburden to be granular in the vicinity of Midland.

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

Although the area is municipally serviced, municipal and historical water wells will have obtained potable groundwater from aquifers in the lower overburden. The bedrock beneath the site is not locally typically used as a source of potable groundwater due to the likelihood of obtaining lower yields of aesthetically-poorer quality groundwater.

According to the 2015 Severn Sound Source Protection Area Approved Assessment Report (the Severn Sound Report), the site is not located within a well head protection area (WHPA-A through WHPA-E). The Simcoe County Interactive Mapping Website indicates that the site is located within Well Head Protection Zone WHPA-Q2 and that the site is located within a significant groundwater recharge area. The Russell and Heritage municipal well fields are located more than 1km to the northwest and southwest.

TEST PITS

To characterize subsurface conditions, three test pits were completed in accessible portions of the moderate sloped portions of the eastern half of the site on March 26, 2019. The soil profiles were logged and representative soil samples were collected for classification and further analysis. The locations of the test pits are shown on the attached diagram. Three representative soil samples from the main identified soil horizons were subjected to grain size analysis, and the following summarizes the results:

Test Pit/ Sample	Depth (m)	Grain-Size Distribution				Estimated Coefficient of Permeability (cm/sec)	Estimated T- Time (minutes/cm)
		Clay %	Silt %	Sand %	Gravel %		
TP1 S1	0.6	3	20	74	3	3×10^{-4}	15
TP2 S2	0.5	4	62	33	1	5×10^{-5}	25
TP2 S3	1.1	4	54	41	1	1×10^{-5}	30

Note: The above coefficients of permeability and T-times are estimates based on field observation, grain-size analysis, experience with similar soils and guidelines published under the Ontario Building Code. Cobble size and larger not included in analyses.

The following summarizes the observed soil profiles and identified T-times:

TEST PIT 1:

<u>Depth (m)</u>	<u>Material</u>
0 - 0.30	dark brown TOPSOIL, stony
0.30 - 0.91	red-brown, lightly compact, dry SAND with some silt and traces of clay and gravel, stony (estimated T-time 15 min/cm)
0.91 - 1.82	grey, compact, dry sandy SILT till with traces of gravel and clay (estimated T-time 30 min/cm)

TEST PIT 2:

<u>Depth (m)</u>	<u>Material</u>
0 - 0.30	dark brown TOPSOIL, sandy
0.30 - 0.91	red-brown, lightly compact, dry sandy SILT with traces of gravel and silt, stony (estimated T-time 25 min/cm)
0.91 - 1.82	grey, compact, dry sandy SILT till with traces of gravel and clay (estimated T-time 30 min/cm)

TEST PIT 3:

<u>Depth (m)</u>	<u>Material</u>
0 - 0.25	FILL - dark brown topsoil
0.25 - 0.91	FILL - grey-brown, compact, dry sandy silt till, stony

0.91 - 1.21	buried TOPSOIL
1.21 - 1.83	grey, compact, dry sandy SILT till with traces of gravel and clay (estimated T-time 30 min/cm)

The soil native soil profile at the three test pits consisted of a lightly compact stony sand to stony sandy silt (estimated T-time 15 to 25min/cm) overlying a sandy silt till (estimated T-time 30min/cm).

Copies of the grain size curves are attached.

The watertable surface was not encountered in any of the test pits.

Locally, the NSMGS indicates that shallow groundwater will flow eastwards beneath the site.

WATER BUDGET ANALYSIS

The following assumptions are made for this assessment:

- Based on the relatively small site area, the site is assumed to act as one catchment. The entire site is considered to exhibit hilly topography (per the 1995 Ministry of the Environment, Conservation and Parks (MECP) definitions referenced by the CA guideline) and medium combination of clay and loam soil conditions (per the above test pits).
- According to updated calculations provided by Quantum Engineering Inc., the 6,745.8m² site currently exhibits an undisturbed woodland pervious area of 100% (6,745.8m²) and an impervious area of 0% (0m²). The proposed development of the site will exhibit an undisturbed woodland pervious area of 62.7% (4,228.3m²), a grassed pervious area of 13.3% (898.0m²), an impervious area (rooftop) of 6.2% (417.1m²) and an impervious area (pavement) of 17.8% (1202.4m²).
- The water surplus for the site is assumed to be 399mm/year, as identified for the Midland Area subwatershed by the 2015 Severn Sound Report (precipitation 986mm/year, actual evapotranspiration 587mm/year). Normal precipitation for the area is 1040.6mm/year (1981-2010 precipitation normal for the closest Environment Canada weather station - Midland WPCP weather station). For this assessment, the 2015 Severn Sound Report precipitation rate of 986mm/year is assumed.

The following tables provide a water budget analysis following the general guidance of the April 2013 Conservation Authority Guidelines for Hydrogeological Assessments.

Table 1 - Water Budget - Undeveloped Conditions

Catchment Designation	Site	
	Undeveloped	Totals
Area (m ²)	6745.8	6745.8
Pervious Area (m ²)	6745.8	6745.8
Impervious Area (m ²)	0	0
Impervious Factors (Per MECP Guidelines referenced by CA Guideline)		
Topography Infiltration Factor	Hilly 0.1	
Soil Infiltration Factor	Medium 0.2	
Land Cover Infiltration Factor	Woodland 0.2	
MECP Infiltration Factor	0.5	
Actual Infiltration Factor	0.5	
Run-Off Coefficient	0.5	
Runoff from Impervious Surfaces*	0	
Inputs (per Unit Area)		
Precipitation (mm/year)	986	986
Run-On (mm/year)	0	0
Other Inputs (mm/year)	0	0
Total Inputs (mm/year)	986	986
Outputs (per Unit Area)		
Precipitation Surplus (mm/year)	399	399
Net Surplus (mm/year)	399	399
Evapotranspiration (mm/year)	587	587
Infiltration (mm/year)	199.5	199.5
Impervious Area Infiltration (mm/year)	0	0
Total Infiltration (mm/year)	199.5	199.5
Runoff Pervious Areas (mm/year)	199.5	199.5
Runoff Impervious Areas (mm/year)	0	0
Total Runoff (mm/year)	199.5	199.5
Total Outputs (mm/year)	986	986
Difference (Inputs - Outputs) (mm/year)	0	0

Inputs (Volume)		
Precipitation (m ³ /year)	6651	6651
Run-On (m ³ /year)	0	0
Other Inputs (m ³ /year)	0	0
Total Inputs (m³/year)	6651	6651
Outputs (Volume)		
Precipitation Surplus (m ³ /year)	2691	2691
Net Surplus (m ³ /year)	2691	2691
Evapotranspiration (m ³ /year)	3960	3960
Infiltration (m ³ /year)	1346	1346
Impervious Area Infiltration (m ³ /year)	0	0
Total Infiltration (m³/year)	1346	1346
Runoff Pervious Areas (m ³ /year)	1346	1346
Runoff Impervious Areas (m ³ /year)	0	0
Total Runoff (m³/year)	1346	1346
Total Outputs (m³/year)	6652	6652
Difference (Inputs - Outputs) (m ³ /year)	1**	1**

** Minor difference due to rounding.

Table 2 - Water Budget - Post-Development Conditions

The proposed development of the site will exhibit an undisturbed woodland pervious area of 62.7% (4,228.3m²), a grassed pervious area of 13.3% (898.0m²), an impervious area (rooftop) of 6.2% (417.1m²) and an impervious area (pavement) of 17.8% (1202.4m²).

Catchment Designation	Site				Totals
	Pervious Woodland	Pervious Grassed	Impervious Roof	Impervious Paved	
Area (m ²)	4228.3	898.0	417.1	1202.4	6745.8
Pervious Area (m ²)	4228.3	898.0	0	0	5126.3
Impervious Area (m ²)	0	0	417.1	1202.4	1619.5
Impervious Factors (Per MECP Guidelines referenced by CA Guideline)					
Topography Infiltration Factor	Hilly 0.1	Hilly 0.1	Hilly 0.30	Hilly 0.30	
Soil Infiltration Factor	Medium 0.2	Medium 0.2	Medium 0.2	Medium 0.2	
Land Cover Infiltration Factor	Woodland 0.2	Cleared 0.1	Cleared 0.1	Cleared 0.1	
MECP Infiltration Factor	0.5	0.4	0.4	0.4	
Actual Infiltration Factor	0.5	0.4	0.4	0.4	
Run-Off Coefficient	0.5	0.6	1	1	
Runoff from Impervious Surfaces*	0	0	0.8	0.8	
Inputs (per Unit Area)					
Precipitation (mm/year)	986	986	986	986	986
Run-On (mm/year)	0	0	0	0	0
Other Inputs (mm/year)	0	0	0	0	0
Total Inputs (mm/year)	986	986	986	986	986
Outputs (per Unit Area)					
Precipitation Surplus (mm/year)	399	399	789	789	493
Net Surplus (mm/year)	399	399	789	789	493
Evapotranspiration (mm/year)	587	587	197	197	493
Infiltration (mm/year)	199.5	160	0	0	146
Impervious Area Infiltration (mm/year)	0	0	0	0	0
Total Infiltration (mm/year)	199.5	160	0	0	146
Runoff Pervious Areas (mm/year)	199.5	239	0	0	157
Runoff Impervious Areas (mm/year)	0	0	789	789	189
Total Runoff (mm/year)	199.5	239	789	789	346

Total Outputs (mm/year)	986	986	986	986	985
Difference (Inputs - Outputs) (mm/year)	0	0	0	0	-1**
Inputs (Volume)					
Precipitation (m ³ /year)	4169	885	411	1186	6651
Run-On (m ³ /year)	0	0	0	0	0
Other Inputs (m ³ /year)	0	0	0	0	0
Total Inputs (m ³ /year)	4169	885	411	1186	6651
Outputs (Volume)					
Precipitation Surplus (m ³ /year)	1687	358	329	949	3223
Net Surplus (m ³ /year)	1687	358	329	949	3223
Evapotranspiration (m ³ /year)	2482	527	82	237	3328
Infiltration (m ³ /year)	844	144	0	0	988
Impervious Area Infiltration (m ³ /year)	0	0	0	0	0
Total Infiltration (m ³ /year)	844	144	0	0	988
Runoff Pervious Areas (m ³ /year)	844	215	0	0	1059
Runoff Impervious Areas (m ³ /year)	0	0	329	949	1278
Total Runoff (m ³ /year)	844	215	329	949	2337
Total Outputs (m ³ /year)	4170	886	411	1186	6653
Difference (Inputs - Outputs) (m ³ /year)	1**	1**	0	0	2**

Note: * Per guidelines, evaporation from impervious areas assumed to be 20% of precipitation.

** Minor differences attributable to rounding.

Table 3 - Water Budget - Post-Development Conditions with Mitigation

Based on the above assessment, approximately 358m³/year (28%) of the runoff from the impervious areas of the site (100% of the runoff from the roof and 3% of runoff from the paved area) will need to be infiltrated on the site in order to maintain the overall rate of infiltration relative to pre-development conditions. The viability of infiltrating this volume of water is discussed below.

Catchment Designation	Site				Totals
	Pervious Woodland	Pervious Grassed	Impervious Roof	Impervious Paved	
Area (m ²)	4228.3	898.0	417.1	1202.4	6745.8
Pervious Area (m ²)	4228.3	898.0	0	0	5126.3
Impervious Area (m ²)	0	0	417.1	1202.4	1619.5
Impervious Factors (Per MECP Guidelines referenced by CA Guideline)					
Topography Infiltration Factor	Hilly 0.1	Hilly 0.1	Hilly 0.30	Hilly 0.30	
Soil Infiltration Factor	Medium 0.2	Medium 0.2	Medium 0.2	Medium 0.2	
Land Cover Infiltration Factor	Woodland 0.2	Cleared 0.1	Cleared 0.1	Cleared 0.1	
MECP Infiltration Factor	0.5	0.4	0.4	0.4	
Actual Infiltration Factor	0.5	0.4	0.4	0.4	
Run-Off Coefficient	0.5	0.6	1	1	
Runoff from Impervious Surfaces*	0	0	0.8	0.8	
Inputs (per Unit Area)					
Precipitation (mm/year)	986	986	986	986	986
Run-On (mm/year)	0	0	0	0	0
Other Inputs (mm/year)	0	0	0	0	0
Total Inputs (mm/year)	986	986	986	986	986
Outputs (per Unit Area)					
Precipitation Surplus (mm/year)	399	399	789	789	493
Net Surplus (mm/year)	399	399	789	789	493
Evapotranspiration (mm/year)	587	587	197	197	493
Infiltration (mm/year)	199.5	160	0	0	146
Impervious Area Infiltration (mm/year)	0	0	789	24	53
Total Infiltration (mm/year)	199.5	160	789	24	199
Runoff Pervious Areas (mm/year)	199.5	239	0	0	157
Runoff Impervious Areas (mm/year)	0	0	0	765	136

Total Runoff (mm/year)	199.5	239	0	765	293
Total Outputs (mm/year)	986	986	986	986	985
Difference (Inputs - Outputs) (mm/year)	0	0	0	0	-1**
Inputs (Volume)					
Precipitation (m ³ /year)	4169	885	411	1186	6651
Run-On (m ³ /year)	0	0	0	0	0
Other Inputs (m ³ /year)	0	0	0	0	0
Total Inputs (m ³ /year)	4169	885	411	1186	6651
Outputs (Volume)					
Precipitation Surplus (m ³ /year)	1687	358	329	949	3223
Net Surplus (m ³ /year)	1687	358	329	949	3223
Evapotranspiration (m ³ /year)	2482	527	82	237	3328
Infiltration (m ³ /year)	844	144	0	0	988
Impervious Area Infiltration (m ³ /year)	0	0	329	29	358
Total Infiltration (m ³ /year)	844	144	329	29	1346
Runoff Pervious Areas (m ³ /year)	844	215	0	0	1059
Runoff Impervious Areas (m ³ /year)	0	0	0	920	920
Total Runoff (m ³ /year)	844	215	0	920	1979
Total Outputs (m ³ /year)	4170	886	411	1186	6653
Difference (Inputs - Outputs) (m ³ /year)	1**	1**	0	0	2**

Note: * Per guidelines, evaporation from impervious areas assumed to be 20% of precipitation.

** Minor differences attributable to rounding.

Table 4 - Water Budget Summary

Characteristic	Site				
	Current	Post-Development	% Change (Current to Post)	Post Development with Mitigation	% Change (Current to Post with Mitigation)
Inputs (Volumes)					
Precipitation (m ³ /year)	6651	6651	0	6651	0
Run-On (m ³ /year)	0	0	0	0	0
Other Inputs (m ³ /year)	0	0	0	0	0
Total Inputs (m ³ /year)	6651	6651	0	6651	0
Outputs (Volumes)					
Precipitation Surplus (m ³ /year)	2691	3223	20	3223	20
Net Surplus (m ³ /year)	2691	3223	20	3223	20
Evapotranspiration (m ³ /year)	3960	3328	-16	3328	-16
Infiltration (m ³ /year)	1346	988	-27	988	-27
Impervious Area Infiltration (m ³ /year)	0	0	0	358	28
Total Infiltration (m ³ /year)	1346	988	-27	1346	0
Runoff Pervious Areas (m ³ /year)	1346	1059	-21	1059	-21
Runoff Impervious Areas (m ³ /year)	0	1278	+1278 m ³ /year	920	+920 m ³ /year
Total Runoff (m ³ /year)	1346	2337	74	1979	47
Total Outputs (m ³ /year)	6652	6653	0	6653	0

Mitigation assumes that 28% of runoff from the impervious areas of the site can be infiltrated on-site, or about 358m³/year. It is assumed that most of this will be infiltrated into grass swales, infiltration galleries, or other equivalent Low Impact Development (LID) measures. According to the above test pit and permeability analyses, the native glacial till (i.e. sandy silt till) will exhibit a percolation rate (T-time) in the range of 30min/cm, or about 0.48m/day. Conservatively assuming that the impervious area drainage of 358m³/year is to be infiltrated over 30 days throughout the year, approximately 11.9m³ of water needs to be infiltrated per day. Based on an infiltration rate of 0.48m/day, LID measures (e.g. grass swales, infiltration galleries, etc...) with a total site footprint of at least 24.8m² are required.

A management plan to maintain the infiltration facilities has been provided in the SWM report, under separate cover.

SUMMARY

1. The upper overburden in the accessible, to be developed, portion of the site is indicated to be a lightly compact stony sand to stony sandy silt (estimated T-time 15 to 25min/cm) overlying a sandy silt till (estimated T-time 30min/cm).
2. The watertable surface was not encountered at the test pits.
3. The site is located within Well Head Protection Area WHPA-Q2 and a significant groundwater recharge area. The Russell and Heritage municipal well fields are located more than 1km to the northwest and southwest.
4. Based on known site conditions (i.e. medium soils, hilly relief, woodland cover), an MECF infiltration factor of 0.5 is indicated for the undeveloped wooded site.
5. Water budget analysis indicates that the development proposal of the site will reduce overall infiltration by about 27% from pre-development conditions.
6. Due to the calculated loss in overall infiltration of the development proposal in comparison to pre-development conditions, infiltration enhancement measures must be adopted to infiltrate approximately 28% of runoff from impervious surfaces. It is assumed that most of this will be infiltrated into grass swales, infiltration galleries, or other equivalent Low Impact Development (LID) measures (see above for minimum LID areas). The infiltration measures need to be maintained in a low-sediment condition to avoid infiltration loss over time, and a management plan to maintain the infiltration facilities has been provided in the SWM report, under separate cover.

Should there be any questions regarding the above information and analysis, please feel free to contact this office.

Yours sincerely,

IAN D. WILSON ASSOCIATES LIMITED

Geoffrey Rether, P. Geo.



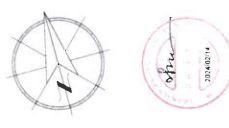
Lot	Quantity	Component Name	Material Name	Size / Weight	Notes
1	16	Rebar	Rebar	10mm x 12m	Pump
2	1	Concrete	Concrete	1.0m ³	Rebar & Formwork
3	1	Formwork	Formwork	1.0m ²	Rebar & Formwork
4	1	Formwork	Formwork	1.0m ²	Rebar & Formwork

PART OF THE
WEST 1/2 LOT 18
CONCESSION 3
(GEOGRAPHIC TOWNSHIP OF TAY)
COUNTY OF HURON
COUNTY OF SIMCOE

NO.	DESCRIPTION	DATE
1	FOR PRE-CONSULT	APRIL 28, 2022
2	FOR PRE-CONSULT	JULY 14, 2022
3	FOR PRE-CONSULT	SEP 15, 2022
4	FOR CLIENT REVIEW	NOV 16, 2022
5	FOR PLANNING	NOV 16, 2022
6	FOR PLANNING	NOV 16, 2022
7	FOR PRE-CONSULT	FEB 14, 2023

LEGEND:

- WATERMAIN / WATER SERVICE
- SEWER SERVICE
- MAINTENANCE HOLE
- CHAIN LINK FENCE
- EXTERIOR WALL
- DIRECTION OF TRAFFIC
- UTILITY POLE
- VALVE & BOX
- CHECK VALVE IN CHIMNEY
- TAPPING SLEEVES & VALVE BOX
- TEE
- W/ 40mm DIA. PVC VALVE & BOX
- W/ 40mm DIA. PVC VALVE & BOX
- GRASSED AREA
- PAVED AREA
- PIPE ROUTE
- SLOPED LANDSCAPE



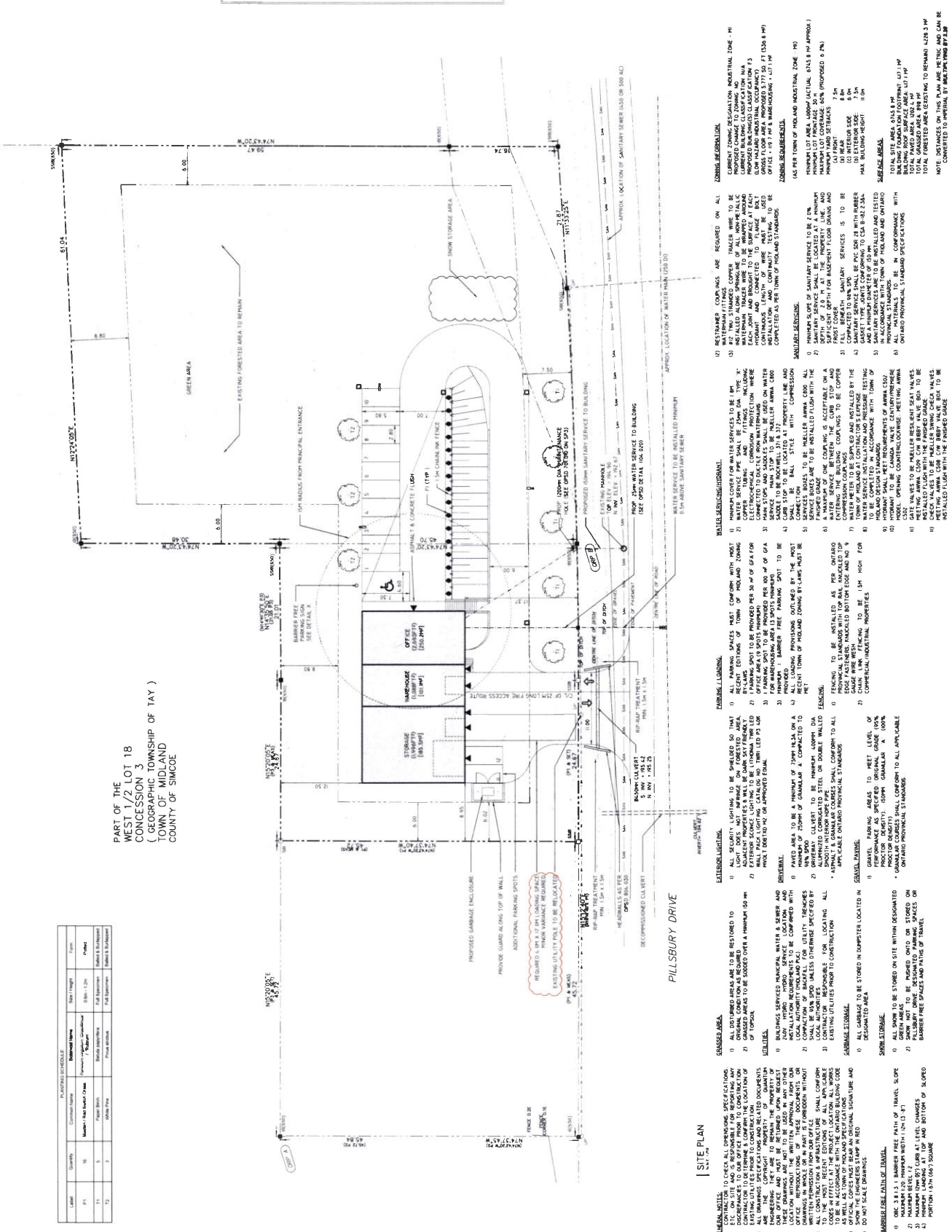
QUANTUM

NEW COMMERCIAL FACILITY

100 PILLSBURY DR
HURON ONTARIO
S11-272-2022-001

SITE PLAN

DATE: AUG. 2023
SCALE: 1:500
PROJECT NO: 6506
DRAWN BY: [Signature]



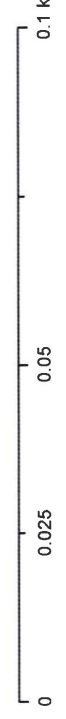
- GENERAL NOTES:**
- CONTRACTOR TO CHECK ALL DIMENSIONS SPECIFICATIONS AND SPECIFICATIONS TO THIS PLAN PRIOR TO CONSTRUCTION. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE ENGINEER.
 - EXISTING UTILITIES SHALL BE MAINTAINED AND PROTECTED THROUGHOUT CONSTRUCTION. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE ENGINEER.
 - ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
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 - ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
- GRASSED AREA:**
- ALL DISTURBED AREAS ARE TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
 - SEEDING SHALL BE DONE WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.
 - SOIL MUST BE TESTED AND FOUND SUITABLE FOR SEEDING.
 - SEEDING SHALL BE DONE AT A RATE OF 15 LBS PER 1000 SQ FT.
 - SOIL MUST BE MOIST AT THE TIME OF SEEDING.
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- UTILITIES:**
- BUILDING SERVICES MANAGER, WATER & SEWER AND SANITARY SERVICE SHALL BE CONTACTED PRIOR TO CONSTRUCTION.
 - LOCAL AUTHORITIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION.
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- LANDSCAPING:**
- ALL SECURITY LIGHTING TO BE SHIELDED SO THAT LIGHT DOES NOT SPILL ON TO FORESTED AREA.
 - EXISTING SCENE LIGHTING TO BE MAINTAINED.
 - LANDSCAPING SHALL BE DONE WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.
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- FENCING:**
- ALL FENCING TO BE INSTALLED AS PER ONTARIO COMMERCIAL ZONING BY-LAW.
 - FENCING SHALL BE DONE WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.
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- WATER SERVICE:**
- MINIMUM SLOPE OF WATER SERVICE TO BE 2 CM PER METRE.
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- SEWER SERVICE:**
- MINIMUM SLOPE OF SEWER SERVICE TO BE 2 CM PER METRE.
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- LANDSCAPE:**
- ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
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SITE PLAN

ELUTIONS AND SERVICES ARE IN METRIC



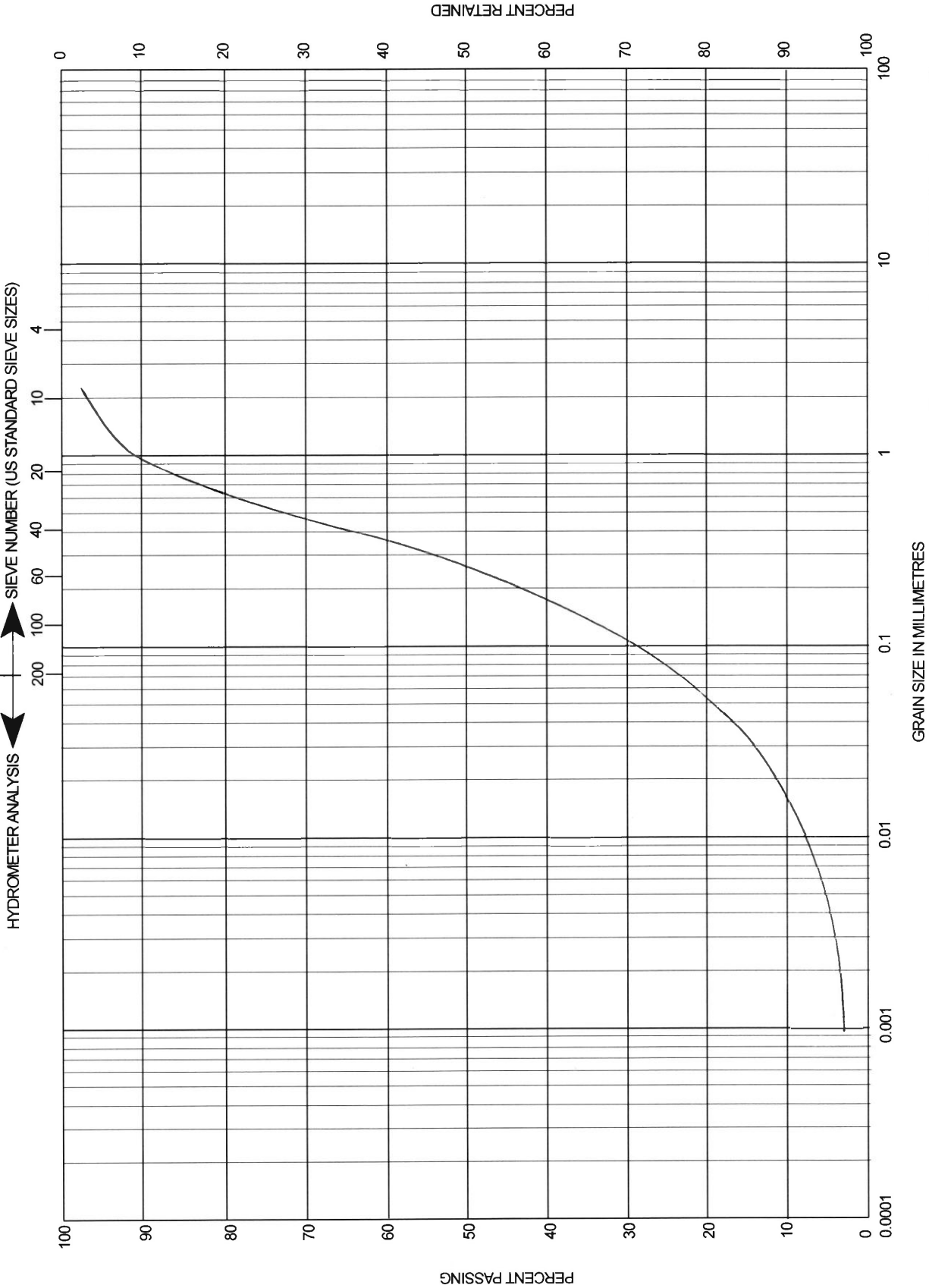
APPROXIMATE TEST PIT LOCATIONS
120 PILLSBURY DRIVE, MIDLAND
SCALE: AS SHOWN



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GRAIN SIZE DISTRIBUTION CHART

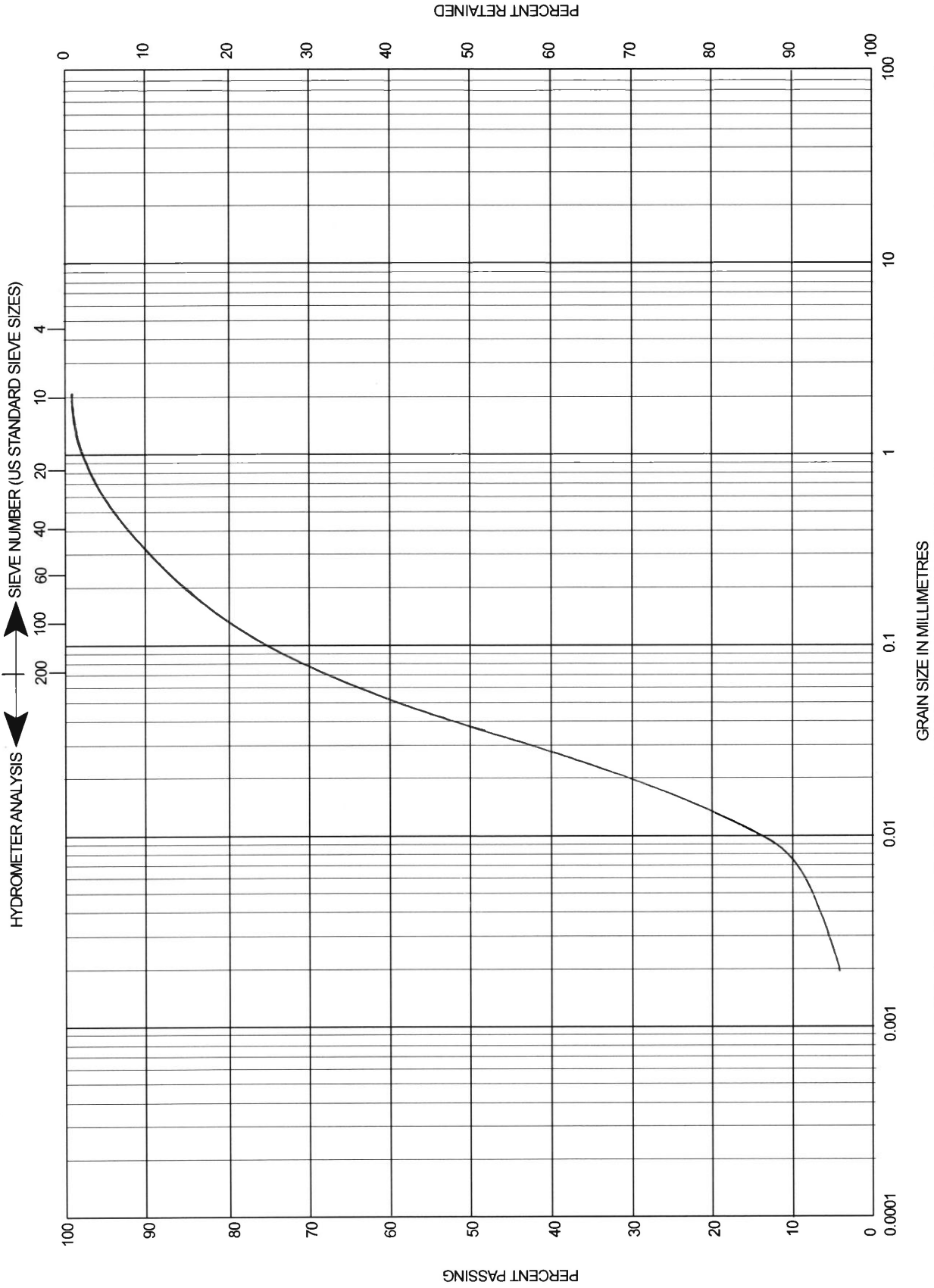
PROJECT / SAMPLE 120 Pillsbury Drive, Midland - Test Pit 1, Sample 1



CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
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GRAIN SIZE DISTRIBUTION CHART

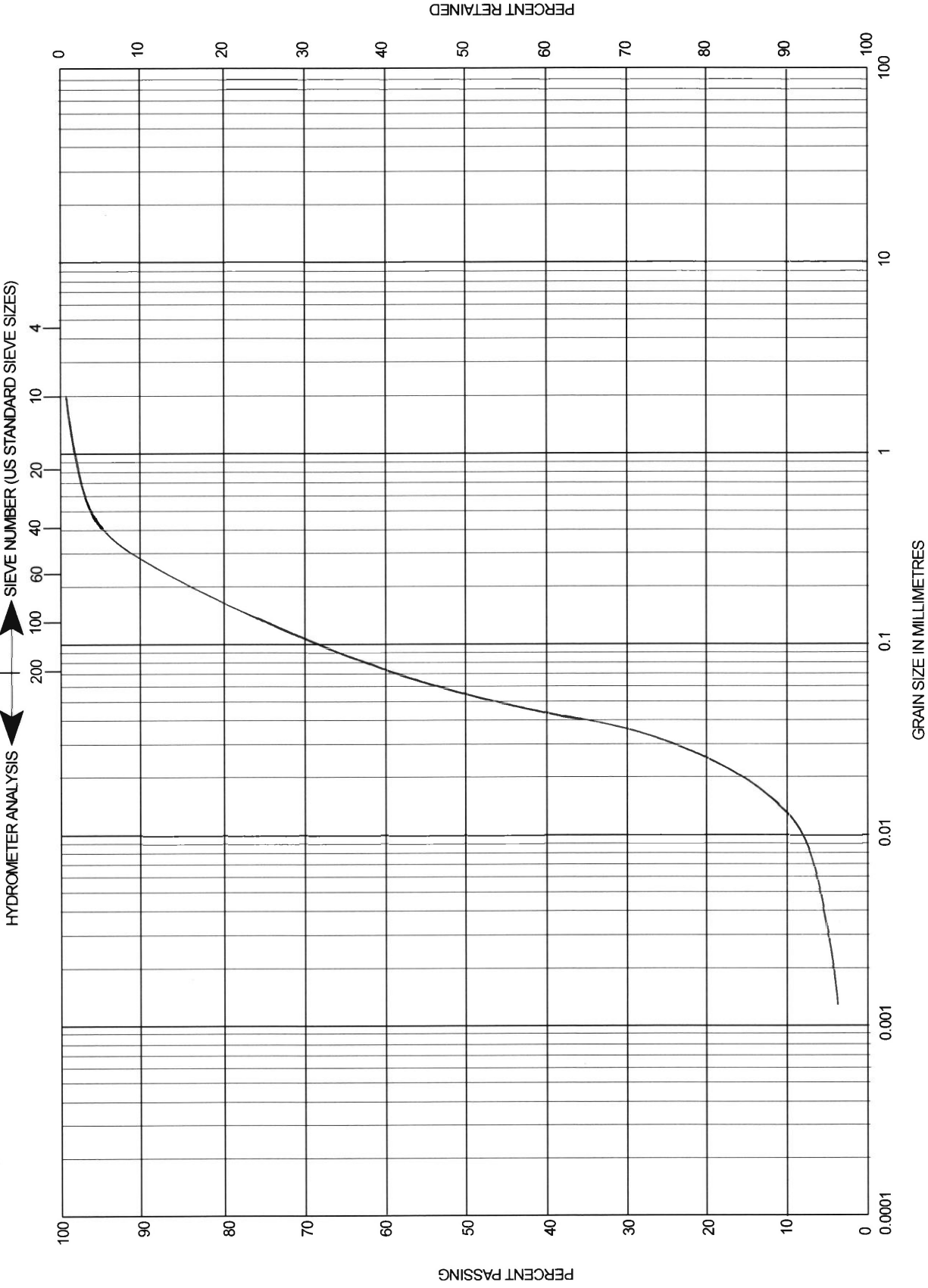
PROJECT / SAMPLE 120 Pillsbury Drive, Midland - Test Pit 2, Sample 2



CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
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GRAIN SIZE DISTRIBUTION CHART

PROJECT / SAMPLE 120 Pillsbury Drive, Midland - Test Pit 2, Sample 3



CLAY SIZE	SILT SIZE	SAND SIZE	GRAVEL SIZE	COBBLE SIZE
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LT.M
17 69050
4954550
Flev 590
From 22



WATER RESOURCES
DIVISION
MAY 25 1966
ONTARIO WATER
RESOURCES COMMISSION

B

Ontario Water Resources Commission Act

WELL RECORD

County or District Simcoe Township, Village, Town or City Midland
 Con. 3 Lot 18 Date completed 10 3 1966
 (day) (month) (year)
 Address Midland

Casing and Screen Record

Inside diameter of casing 10"
 Elev. 212
 Total length of casing 212
 Type of screen Basin
 Length of screen
 Depth to top of screen
 Diameter of finished hole

Pulled out casing

Pumping Test

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

NEGATIVE

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
Top soil	0'	1'		
Brown clay streaks of sand	1'	18'		
Coarse sand fine gravel & boulders (dirty)	18'	20'		
Cemented sand & gravel	20'	38'		
Cemented sand gravel & boulders	38'	47'		
Shale with gravel & broken limestone	47'	59'		
broken limestone & shale	59'	71'		

NEGATIVE

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

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

Drilling or Boring Firm International Water Supply Ltd.
 Address 12 Maitland St. London Ont.

Licence Number
 Name of Driller or Borer Don J. Bayerlein

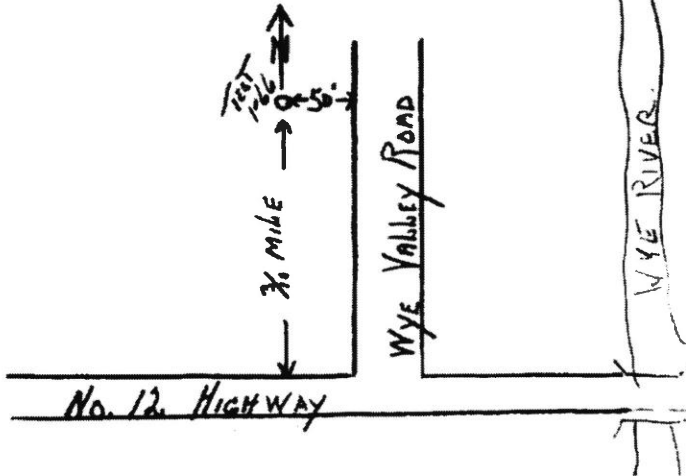
Address 3001 Dundas St. London

Date Mar. 26/66

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

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





Ministry of the Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

319/24

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

11 5715451 57012 PRE 02

COUNTY OR DISTRICT Simcoe	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Tay	CON. BLOCK, TRACT, SURVEY ETC. PRE II	LOT 02
ADDRESS [REDACTED] Yonge St., Midland			DATE COMPLETED DAY 20 MO 07 YR 78
GRID 953800	ELEVATION 5 0690	BASIN CODE 5 22	

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	stones	gravel		0	5
	clay			5	11
	gravel			11	70
	coarse sand			70	76
	gravel	clay, streaks of med. sand		76	88
	coarse sand			88	133
	fine sand			133	138
total depth: 132 feet					

31 0005 12111 0011 05 0070 11 0076 10 0088 11 0509 0133 10

32 0138 08

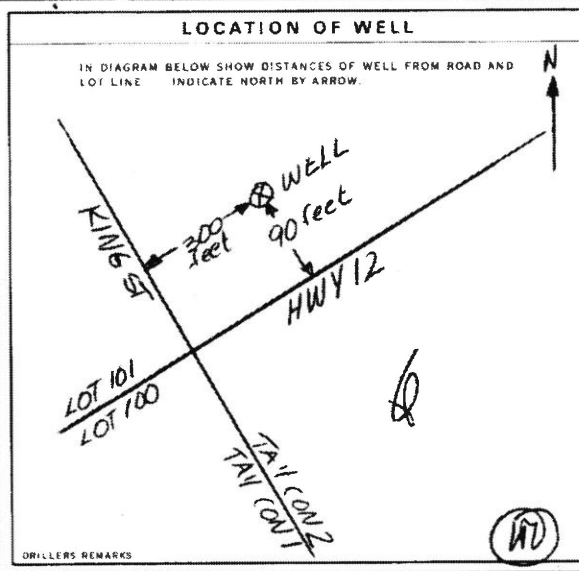
WATER FOUND AT FEET	KIND OF WATER
00-05	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
05-133	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
15-18	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
20-23	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
25-28	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL
30-33	1 FRESH 3 SULPHUR 2 SALTY 4 MINERAL

DEPTH FEET	FROM	TO	MATERIAL	WALL THICKNESS INCHES
06	0	129	STEEL	0.188 + 1
17-18	17	20-23	GALVANIZED	
24-25	24	27-30	CONCRETE	
			OPEN HOLE	

SIZE OF OPENING (SLOT NO.) 016 slot	DIAMETER 06000	LENGTH 03
MATERIAL AND TYPE stainless steel wire wound	DEPTH TO TOP OF SCREEN 0126	DEPTH TO BOTTOM OF SCREEN 0126

DEPTH SET AT FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
10-13	0132	0138
18-21		drill cuttings

PUMPING TEST METHOD 1 <input checked="" type="checkbox"/> PUMP 2 <input type="checkbox"/> WALKER	PUMPING RATE 0010 GPM	DURATION OF PUMPING 02 HOURS 00 MINS
STATIC LEVEL 093 FEET	WATER LEVELS DURING	1 <input type="checkbox"/> PUMPING 2 <input type="checkbox"/> RECOVERY
18-21	15 MINUTES 110 FEET	30 MINUTES 110 FEET
22-24	45 MINUTES 110 FEET	60 MINUTES 110 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT 120 FEET	WATER AT END OF TEST 42 FEET
RECOMMENDED PUMP TYPE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/> DEEP	RECOMMENDED PUMP SETTING 120 FEET	RECOMMENDED PUMPING RATE 0005 GPM



FINAL STATUS OF WELL 1 <input checked="" type="checkbox"/> WATER SUPPLY 2 <input type="checkbox"/> OBSERVATION WELL 3 <input type="checkbox"/> TEST HOLE 4 <input type="checkbox"/> RECHARGE WELL	5 <input type="checkbox"/> ABANDONED - INSUFFICIENT SUPPLY 6 <input type="checkbox"/> ABANDONED - POOR QUALITY 7 <input type="checkbox"/> UNFINISHED
WATER USE 01 <input checked="" type="checkbox"/> DOMESTIC 2 <input type="checkbox"/> STOCK 3 <input type="checkbox"/> IRRIGATION 4 <input type="checkbox"/> INDUSTRIAL 5 <input type="checkbox"/> OTHER	6 <input type="checkbox"/> COMMERCIAL 7 <input type="checkbox"/> MUNICIPAL 8 <input type="checkbox"/> PUBLIC SUPPLY 9 <input type="checkbox"/> COOLING OR AIR CONDITIONING 10 <input type="checkbox"/> NOT USED
METHOD OF DRILLING 2 <input checked="" type="checkbox"/> ROTARY (CONVENTIONAL) 3 <input type="checkbox"/> ROTARY (REVERSE) 4 <input type="checkbox"/> ROTARY (AIR) 5 <input type="checkbox"/> AIR PERCUSSION	6 <input type="checkbox"/> BORING 7 <input type="checkbox"/> DIAMOND 8 <input type="checkbox"/> JETTING 9 <input type="checkbox"/> DRIVING

NAME OF WELL CONTRACTOR Snider Drilling Limited,	LICENCE NUMBER 4816
ADDRESS Craighurst, Ont.	
NAME OF DRILLER OR BORER Mark Lawson.	LICENCE NUMBER
SIGNATURE OF CONTRACTOR Ralph Snider.	SUBMISSION DATE

DATA SOURCE 1	CONTRACTOR 4816	DATE RECEIVED 2 20878
DATE OF INSPECTION	INSPECTOR	
REMARKS PLOTTED AUG/14/79		