

GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE

90 WEST BEAVER CREEK ROAD, SUITE 100, RICHMOND HILL, ONTARIO L4B 1E7 · TEL: (416) 754-8515 · FAX: (905) 881-8335

BARRIE MISSISSAUGA OSHAWA NEWMARKET MUSKOKA HAMILTON TEL: (705) 721-7863 TEL: (905) 542-7605 TEL: (905) 440-2040 TEL: (905) 853-0647 TEL: (705) 721-7863 TEL: (905) 777-7956 FAX: (705) 721-7864 FAX: (905) 542-2769 FAX: (905) 725-1315 FAX: (905) 881-8335 FAX: (705) 721-7864 FAX: (905) 542-2769

August 9, 2024 Reference No. 2403-S066
Page 1 of 5

The Sarjeant Company Ltd. 15 Sarjeant Drive Barrie, Ontario L4N 4V9

Attention: Mr. Michael MacMillan

Re: A Slope Stability Assessment for

Proposed Ready-Mix Plant Development

1029 Brebeuf Road Town of Midland

Dear Sir:

According to the written authorization dated March 10, 2024, Soil Engineers Ltd. (SEL) has completed a slope stability assessment for the subject development.

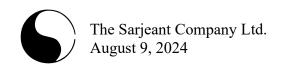
SITE AND PROJECT DESCRIPTIONS

The subject site is located on the east side of Brebeuf Road, approximately 250 m south of Heritage Drive in the Town of Midland. At the time of investigation, the site was a vacant lot with two abandoned structures. Majority of the site was heavily treed and vegetative.

According to the preliminary site grading plan, prepared by The Jones Consulting Group Ltd. dated in October 2023, it is understood that the abandoned structures will be demolished and the site will be subexcavated to El. 209.0 m with a slope gradient of 2 Horizontal (H): 1 Vertical (V) along the northern, eastern and southern site boundaries, for the development of a ready-mix plant. The objective of this slope stability analysis is to verify the feasibility and the long-term stability of the excavated slopes under a proposed condition.

FIELD WORK

The field work, consisting of 6 boreholes to various depths ranging from 6.4 to 20.0 m, was performed between April 11 and 16, 2023.



The boreholes were advanced at intervals to the sampling depths by a track-mounted machine using solid stem augers and equipped with split spoon sampler for soil sampling. Standard Penetration Tests, using the procedures described on the enclosed "List of Abbreviations and Terms", were performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or 'N' values) of the subsoil. The relative density of the cohesionless strata and the consistency of the cohesive strata are inferred from the 'N' values. Split-spoon samples were recovered for soil classification and laboratory testing. The field work was supervised and the findings were recorded by a Geotechnical Technician.

Upon the completion of borehole drilling and soil sampling, monitoring wells were installed within or adjacent to all boreholes to facilitate groundwater monitoring for the slope analysis. Two (2) pairs of nested wells were installed at Boreholes 1 and 2. A suffix of 'S' or 'D', representing the shallow and deep wells, was used to differentiate the well depths at the nested well location. Details of the monitoring wells are included in the corresponding borehole logs.

The borehole and monitoring well locations are shown on the Plan, Drawing No. 1. The ground elevation at each borehole location was interpolated from the contour lines of the reviewed site grading plan.

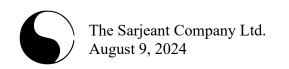
SUBSURFACE CONDITIONS

The borehole findings indicate that the site is underlain by a stratum of gravelly sand, embedded with occasional silt and/or clay seams. Detailed descriptions of the encountered subsurface conditions are presented on the Borehole Logs, comprising Figures 1 to 8, inclusive.

Sand/Gravelly Sand

Native sand/gravelly sand predominates the soil stratigraphy within the depth of investigation. The sand stratum appears to be fine to medium grained near the ground surface and become gravelly and well graded.

The obtained 'N' values of the fine to medium sand stratum range from 2 to 23, with a median of 13 blows per 30 cm of penetration, indicating a very loose to compact, generally compact in relative density. While the obtained 'N' values of the gravelly sand stratum range from 4 to over 100, with a median of 44 blows per 30 cm of penetration, indicating a very loose to very dense, generally dense in relative density. Grain size analyses were performed on two representative samples and the results are plotted on Figure 7, enclosed.



Soil stratum with relatively lower 'N' values was observed near the ground surface due to weathering process. In addition, hard resistance was encountered occasionally during augering, indicating the presence of cobbles and boulders in places.

The natural water content values of the sand samples range from 6% to 40%, with a median of 12%, indicating a generally very moist to wet condition. The relatively high moisture content may also indicates the presence of clay/silt layers within the sand deposit.

Groundwater Condition

Upon completion of monitoring well installation, the project Hydrogeologist carried out the groundwater monitoring program. The groundwater level data collected between April 22, 2024, and July 19, 2024, were provided for our review and the readings were presented in Appendix.

Based on the groundwater records, the highest groundwater reading was recorded in April. There appeared to be an upper perched water and a lower perched water table. The upper perched water table is between El. 223.71 m and El. 226.64 m; the lower perched water table is between El. 215.44 m and El. 215.97 m. The recorded water level may represent the local groundwater regime, which may be subject to seasonal fluctuation.

SLOPE STABILITY ASSESSMENT

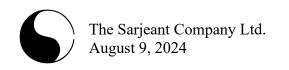
A slope stability assessment was carried out to determine the stability of the proposed side slopes along the northern, eastern and southern site boundaries.

The proposed side slopes have an overall height ranging from 18 to 21 m, with a proposed gradient of 2H:1V or flatter. In addition, along the top of the excavated slope, a topsoil berm, approximately 3 m in height with a side gradient of 3H:1V, will be constructed.

Three (3) cross-sections, Cross-Sections A-A, B-B and C-C, were selected as representative profiles of the slopes; the locations of these cross-sections are shown on Drawing No. 1. The slope profiles at the cross-sections were interpreted from the proposed grading plan. The subsurface profile at both cross-sections was interpreted from samples obtained from the boreholes.

The highest recorded groundwater levels from the monitoring wells have been incorporated into the analysis, as phreatic surfaces at the cross-sections.

The slope stability at the cross-section was analysed using the Bishop Method with the soil strength parameters shown in the following table.

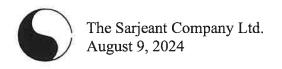


Soil Type	Unit Weight γ' (kN/m³)	Cohesion c' (kPa)	Internal Friction Angle φ'
Compact to dense Sand	20.0	0	37°
Dense to very dense Sand	20.0	0	34°
Topsoil Fill	18.0	0	24°

The results of the analysis are presented on Drawing Nos. 2 to 4, and summarized in the table below.

Cross-Section	FOS	Drawing No.
A-A	1.43	2
В-В	1.37	3
C-C	1.51	4

The analytical results at Cross-Sections A-A, B-B and C-C, under the proposed condition, yield Factor of Safety (FOS) values higher than 1.30, which meets MNR guideline requirement for active land use, and is considered stable for the intended use.



LIMITATIONS OF REPORT

This report was prepared by Soil Engineers Ltd. for the account of The Sarjeant Company Ltd., and for review by the designated consultants, financial institutions and government agencies. The material in the report reflects the judgement of Daric Yangs, P.Eng., and Kin Fung Li, P.Eng., in light of the information available to it at the time of preparation.

Use of the report is subject to the conditions and limitations of the contractual agreement. Any use which a Third Party makes of this report, or any reliance on decisions to be made based on it, are the responsibility of such Third Parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

We trust this letter satisfies your present requirements; however, should any queries arise please feel free to contact this office.

Yours truly,
SOIL ENGINEERS LTD.

W. YANG
100587036

W. YANG
100587036

W. YANG
1006987036

K. F. Li
100169280

ENCLOSURES

Borehole Logs Figures 1 to 8
Borehole and Monitoring Well Location Plan Drawing No. 1
Slope Stability Analyses Drawing Nos. 2 to 4
Groundwater Level Records Appendix

LIST OF ABBREVIATIONS AND DESCRIPTION OF TERMS

The abbreviations and terms commonly employed on the borehole logs and figures, and in the text of the report, are as follows:

SAMPLE TYPES

AS	Auger sample
CS	Chunk sample
DO	Drive open (split spoon)
DS	Denison type sample
FS	Foil sample
RC	Rock core (with size and percentage
	recovery)
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

PENETRATION RESISTANCE

Standard Penetration Resistance or 'N' Value:

The number of blows of a 63.5 kg hammer falling from a height of 76 cm required to advance a 51 mm outer diameter drive open sampler 30 cm into undisturbed soil, after an initial penetration of 15 cm.

Plotted as 'O'

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows per each 30 cm of penetration of a 51 mm diameter, 90° point cone driven by a 63.5 kg hammer falling from a height of 76 cm.

Plotted as '——'

WH	Sampler advanced by static weight
PH	Sampler advanced by hydraulic pressure
PM	Sampler advanced by manual pressure
NP	No penetration

SOIL DESCRIPTION

Cohesionless Soils:

'N' (b	lows	/30 cm)	Relative Density
0	to	4	very loose
4	to	10	loose
10	to	30	compact
30	to	50	dense
)	>50	very dense

Cohesive Soils:

'N'	
(blows/30 cn	n) Consistency
<2	very soft
2 to <4	soft
4 to < 8	firm
8 to <15	stiff
15 to 30	very stiff
>30	hard
	(blows/30 cm <2 2 to <4 4 to <8 8 to <15 15 to 30

Method of Determination of Undrained Shear Strength of Cohesive Soils:

x 0.0 Field vane test in borehole; the number denotes the sensitivity to remoulding

 \triangle Laboratory vane test

METRIC CONVERSION FACTORS

1 ft = 0.3048 m 1 inch = 25.4 mm 1 lb = 0.454 kg 1 ksf = 47.88 kPa



1D

FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development

METHOD OF BORING: Solid Stem Auger

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

DRILLING DATE: April 11, 2024

		5	SAMP	LES		10			one (b 50	lows/30 70	cm) 90		Atterb	erg Li	mits		
EI. (m) Depth (m)	SOIL DESCRIPTION	Number	Type	N-Value	Depth Scale (m)	;	She	ar Stre	ngth (k	200			PL 		LL tent (%)		WATER LEVEL
224.7	Ground Surface																
0.0	20 cm Topsoil	1	50	0	0										34		
0.2	weathered	1 2A	DO	7	1 -							1	2		40		Ī
	Brown, very loose to very dense, wet	2B			ı –	\prod									•		L
	GRAVELLY SAND well graded clay layer occ. cobbles	3	DO	4	2	0									35		W.L. @ El. 224.1 m on completion
		4A											2 20				on c
	<u>wet silt</u> la <u>ye</u> rs	4A 4B	DO	18	-		0						■ 20	,			۲- E
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					<u>:</u> :												
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					-							8]
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					<u>:</u> :												
		9	DO	50/10	9 -							9				$\exists \mathbb{F}$]
215.3 9.4	END OF BOREHOLE	7	100	30/10	<u>:</u>												▶ I
	Installed 25 mm Ø PVC monitoring well to 9.4 m with 1.6 m screen Sand backfill from 7m to 9.4 m Bentonite seal from 0.0 m to 7 m				10 -												
	Provided with monument casing				11 -												
					12	1		-	+	++	+	+	++	+		-	



Soil Engineers Ltd.

1S

FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development

METHOD OF BORING: Solid Stem Auger

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

DRILLING DATE: April 11, 2024

		5	SAMP	LES		10	Dyna 30	mic Con 50			m) 90	Atte	rberg	Limi	ts	
El. (m)	SOIL DESCRIPTION				Depth Scale (m)	×	Shea	r Streng	th (kN/	m²)		PL 		 		LEVEL
epth (m)		Number	Туре	N-Value	Depth S	O 10		tration R blows/3	esistar 0 cm)	nce O	90		ure C	onter	nt (%) 40	 WATER LEVEL
24.7	Ground Surface															
0.0	Straight Auger for Monitoirng Well Installation				2											• • • • • • • • • • • • • • • • • • •
18.6 6.1	END OF BOREHOLE Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing				6											
					9 -											
													1 1	1 1	1	



Soil Engineers Ltd.

LOG OF BOREHOLE: JOB NO.: 2403-S066

PROJECT DESCRIPTION: Proposed Land Development

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

2D

FIGURE NO.: 3

METHOD OF BORING:

Hollow Stem with Mud

Drilling

DRILLING DATE: April 16, 2024

			SAMP	LES		1	C	Oynamic 30	50	70	90		Atter	berg L	mits		
EI. (m) epth (m)	SOIL DESCRIPTION	Number	Type	N-Value	Depth Scale (m)		50 0	Shear Str 100 1 1 Penetratio (blow 30	on Rews/30	n (kN/m 50	²) 200	•		re Con	tent (%)		WATER LEVEL
24.7 0.0	Ground Surface																
).U	— 8 cm Topsoil — Dark brown to brown, very loose to loose SAND	1	DO	3	0 -	b								21 • 22			Ā
	fine to medium grained w <u>ea</u> th <u>er</u> ed	2	DO	4	1 -	0								•			oletion
		3	DO	8	2 -	С	,						13				l on com
21.8		4	DO	3	-	b							12				224.4 m
2.9	Brown, loose to very dense, wet GRAVEILLY SAND well graded a trace of clay	5	DO	4	3 -	0							14				W.L. @ El. 224.4 m on completion
	occ. cobbles and boulders				4 -												M
		6	DO	6	5 -	0							13				
					-												
		7	DO	15	6 -		0						14				
					7 -												
		8	DO	50/13	8 -							b	10				
					-											•	
15.4 9.3	END OF BOREHOLE	9	DO	50/10	9 -							•	10				<u></u>
	Installed 25 mm Ø PVC monitoring well to 9.3 m with 3.1 m screen Sand backfill from 5.5m to 9.3 m Bentonite seal from 0.0 m to 5.5 m Provided with monument casing				10 -												
	, v				11 -												
					- 12												



Soil Engineers Ltd.

2S

FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development

METHOD OF BORING: Solid Stem Auger

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

DRILLING DATE: April 16, 2024

En (m) SOIL DESCRIPTION Page Pag			5	SAMP	LES		10	30	50	70		At	terbe	erg L	imits	
24.7 Ground Surface Straight Auger for Monitolring Well Installation 1	m)	SOIL DESCRIPTION	<u>.</u>		<u>e</u>	Scale (m)	X	Shear	Streng	th (kN/n 150	n²) 200	P 	L		LL -	
Straight Auger for Monitoiring Well Installation 1	m)		Numbe	Туре	N-Valu	Depth										
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1 END OF BOREHOLE Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing 8						2 -										
8.6 1 END OF BOREHOLE Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing 8 1 9 1 10 1																
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8.6 Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing 8.6 7. 10. 10. 10. 10. 10. 10. 10.																
Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing 8						4 -										
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Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing 8						5 -										
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Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m Provided with monument casing 8		Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen				7 -										
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		Trovided with monument casing				8 -										
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						9 -										
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						10										
						11 -										



Soil Engineers Ltd.

LOG OF BOREHOLE: 3 JOB NO.: 2403-S066

METHOD OF BORING: Hollow Stem with Mud

5

Drilling

FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development

DRILLING DATE: April 11, 2024

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

		,	SAMP	LES						ws/30 cm)		Atto	rbora Lii	mite	ĺ	
El. n) epth n)	SOIL DESCRIPTION	Number	Туре	N-Value	Depth Scale (m)	×	She	ar Strer 100 Letration (blows/	ngth (kN 150 L L Resista (30 cm)	/m²) 200	•	PL Moistu	ıre Cont	LL 		WATER LEVEL
7.5	Ground Surface					10			<u> </u>		+	10 2	20 30 L L L	40	+	>
.0	— 10 cm Topsoil —	1	DO	2	0	b						16				
	Dark brown to brown, very loose to loose,wet weathered															
	SAND weathered fine to medium grained	2	DO	8	1 -	0										
5.2 3	some silt				-							12				
	Brown, compact to very dense	3	DO	11	:	þ						•				
	GRAVEILLY SAND				2 -							12				
	a trace of clay occ. cobbles and boulders	4	DO	27	<u>-</u> :		0									
	occ. cobbles and boulders	_	D0	F0/0	3 -							8				Ш
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	Installed 25 mm Ø PVC monitoring well to 7.6 m with 3.1 m screen				<u>-</u> :											
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	Provided with monument casing				_											
					10											
					10 -											
											\blacksquare				\Box	
					11						+				H	
															\Box	
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Soil Engineers Ltd.

LOG OF BOREHOLE: JOB NO.: 2403-S066

FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development

METHOD OF BORING: Hollow Stem with Mud

Drilling

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

DRILLING DATE: April 12, 2024

		5	SAMP	LES		1	• 0	Dyn 30		Cone 50		ws/30 '0	cm) 90			Atter	berg	l Lim	iits			
EI. (m) Depth	SOIL DESCRIPTION	oer .		lue	Depth Scale (m)		5	She	100	rength 1 on Re	50 I	/m²) 200	0			PL 			.L 		10/10	WAIEKLEVEL
(m)		Number	Туре	N-Value	Depth		0 —	3(vs/30 50		0	90 I		● M		re C	onte	ent (%		14/4/	- *
25.5 0.0	Ground Surface 25 cm Topsoil				0	┡				_				-		_	2	7		_		_
	w <u>ea</u> th <u>ered</u> Dark brown to brown, very loose to	1	DO	3	_	þ										14					II	
	compact SAND some silt to silty	2	DO	14	1 -		0														II	
		3	DO	2	2 -	þ										14						
	<u>we</u> t <u>silt</u> la <u>ye</u> rs	4	DO	10	_	()									1'	9					
		5	DO	14	3 -		0									13						
21.5 4.0	Brown, loose to very dense, wet GRAVELLY SAND				4 -																	
	GRAVELLY SAND well graded a trace of silt occ. cobbles and boulders	6	DO	4	_	0										15						
	occ. cobbles and boulders				5 -																	
					6 -																	
		7	DO	16	_		0															
					7 -																	
		8	DO	36	8 -				0													
		9	DO	52	9 -	Ė				0					9							
					10 -																	
		10	DO	50/10	_										1.	-						
					11 -																	
13.5					12	1																



Soil Engineers Ltd.

4

FIGURE NO.:

6

PROJECT DESCRIPTION: Proposed Land Development

METHOD OF BORING: Hollow Stem with Mud

Drilling

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland DRILLING DATE: April 12, 2024

Dynamic Cone (blows/30 cm) **SAMPLES** Atterberg Limits Depth Scale (m) LL **WATER LEVEL** EI. X Shear Strength (kN/m²) (m) **SOIL** 100 150 200 **DESCRIPTION** N-Value Depth O Penetration Resistance (m) (blows/30 cm) Moisture Content (%) 70 30 50 Brown, loose to very dense, wet **GRAVELLY SAND** \mathbb{H} 12.0 12 11 DO 50/8 well graded a trace of silt occ. cobbles and boulders 13 DO 50/13 12 14 15 10 13 DO 50/8 16 13 14 DO 50/15 17 18 12 15 DO 50/13 19 205.5 16 DO 50/13 20 **END OF BOREHOLE** Installed 25 mm Ø PVC monitoring well to 12.2 m with 3.1 m screen Sand backfill from 8.5 m to 12.2 m Bentonite seal from 0.0 m to 12.2 m 21 Provided with monument casing 22 23



Soil Engineers Ltd.

Page: 2 of 2

5 FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development **METHOD OF BORING:** Solid Stem Auger

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland DRILLING DATE: April 15, 2024

		(SAMP	LES			 Dynamic Cone (blows/30 cm) 30 50 70 90 								Atterberg Limits							
EI. (m) Depth (m)	SOIL DESCRIPTION	Number	Туре	N-Value	Depth Scale (m)		×	She 50 Pen	ear S	trenç 0 ion F	gth (kf 150 L Resista 80 cm)	N/m²) 2 ance	00 I I				ture		LL —		<u>↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ </u>	WATER LEVEL
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6

FIGURE NO.:

PROJECT DESCRIPTION: Proposed Land Development

METHOD OF BORING: Solid Stem Auger

PROJECT LOCATION: 1029 Brebeuf Road, Town of Midland

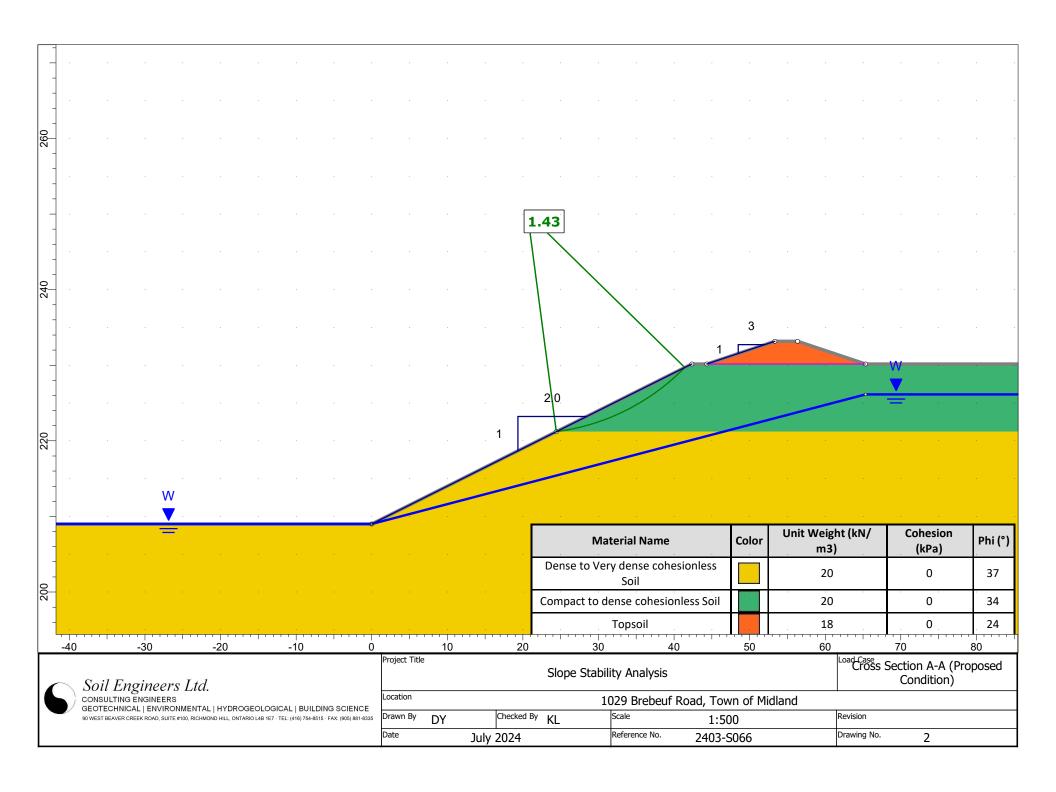
DRILLING DATE: April 16, 2024

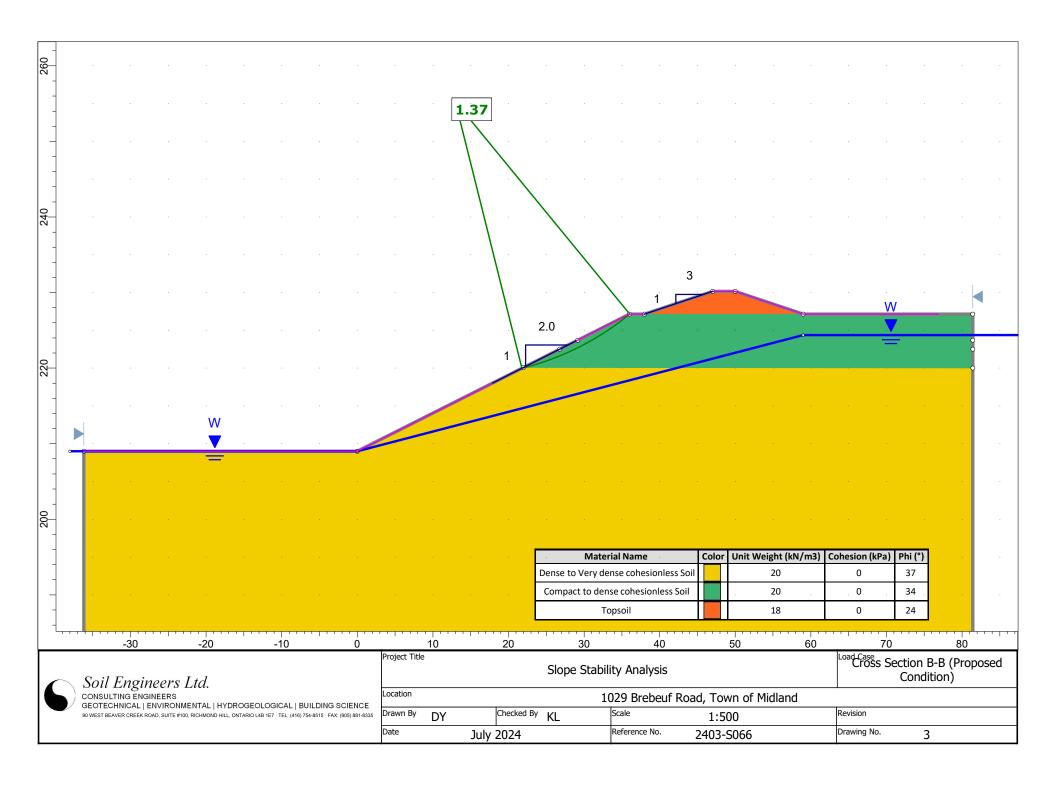
		Ş	SAMP	LES		● Dynamic Cone (blows/30 cm) 10 30 50 70 90
EI. (m) epth (m)	SOIL DESCRIPTION	Number	Туре	N-Value	Depth Scale (m)	X Shear Strength (kN/m²) 50 100 150 200 ○ Penetration Resistance (blows/30 cm) 10 30 50 70 90 10 20 30 40 ■ Moisture Content (%)
26.2 0.0	Ground Surface 8 cm Topsoil				0 -	<u> </u>
0.0	Brown, compact to very dense	1	DO	0		□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□<
	GRAVEILLY SAND well graded trace to some silt occ. cobbles and boulders	2	DO	20	1 -	11
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	Installed 25 mm Ø PVC monitoring well to 6.1 m with 3.1 m screen Sand backfill from 2.5 m to 6.1 m Bentonite seal from 0.0 m to 2.5 m				7 -	
	Provided with monument casing				8 -	
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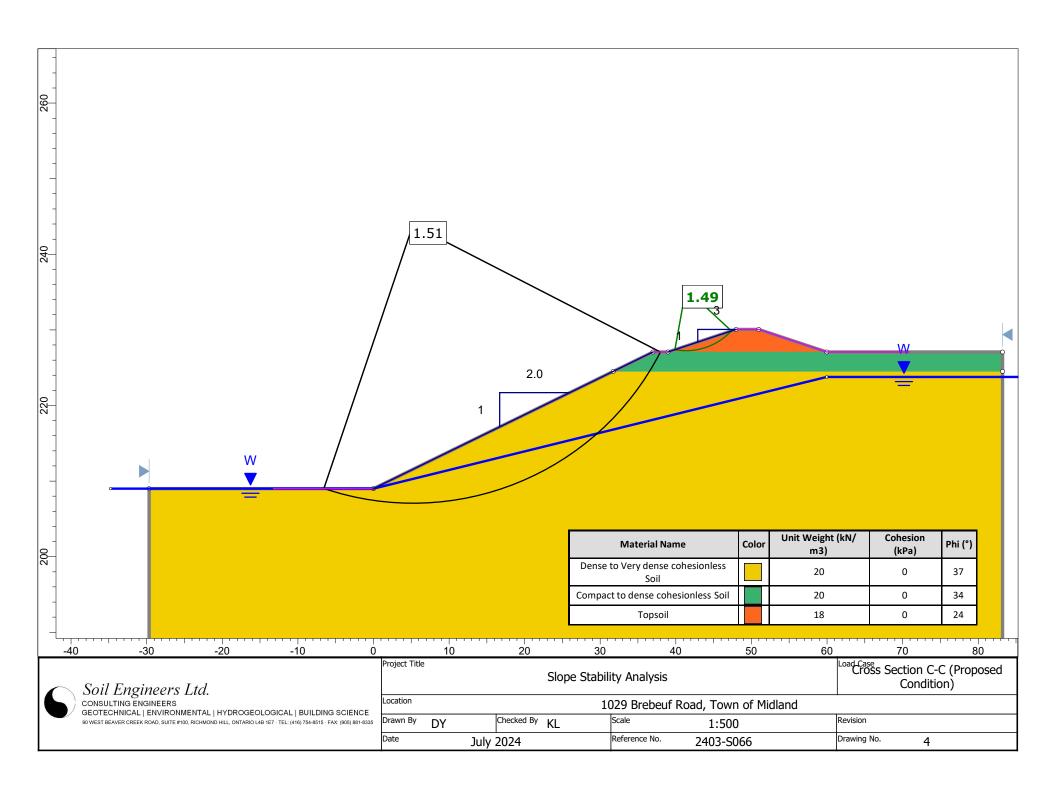


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REFERENCE NO. 2403-S066

APPENDIX

GROUNDWATER LEVEL DATA



APPENDIX D Table D-1: Well Construction Details

1017/1029 Brebeuf Road Midland, Ontario Hydrogeological Assessment

		Well Construction Details Ground Top of Well County Well Inside Borehole														
Location	Installation	Ground Surface*	Top of Well Casing	Stickup		Bottom of We	I		Top of Screer	1	Screen Length	Well Inside Diameter	Borehole Diameter			
		(masl)	(masl)	(m)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(m)	(m)	(m)			
Pit Wells																
MW3	Landshark (2017)	209.10	209.80	0.70	20.58	19.88	189.22	17.53	16.83	192.27	3.05	0.051	0.910			
MW10 (PW-1)	Snider (1978)	208.85	209.93	1.08	47.00	45.92	162.93	44.56	43.48	165.37	2.44	0.152	0.910			
Dug Wells																
Onsite Dug Well	Unknown	226.30	226.70	0.40	3.90	3.50	222.80	0.90	0.50	225.80	3.00	0.910	0.910			
Ditch Concrete Well	Unknown	223.87	224.58	0.71	4.66	3.95	219.92	0.66	-0.05	223.92	4.00	0.910	0.910			
Ditch Corrugated Well	Unknown	221.91	223.04	1.13	3.76	2.63	219.28	0.76	-0.37	222.28	3.00	0.910	0.910			
Monitoring Wells																
BH1S	SoilEng (2024)	224.65	225.64	0.99	5.45	4.46	220.19	2.40	1.41	223.24	3.05	0.051	0.152			
BH1D	SoilEng (2024)	224.65	225.44	0.79	9.91	9.12	215.53	8.39	7.60	217.05	1.52	0.051	0.216			
BH2S	SoilEng (2024)	224.64	225.68	1.04	6.90	5.86	218.78	3.85	2.81	221.83	3.05	0.051	0.152			
BH2D	SoilEng (2024)	224.71	225.80	1.09	10.21	9.12	215.59	7.16	6.07	218.64	3.05	0.051	0.216			
вн3	SoilEng (2024)	227.54	228.55	1.01	8.40	7.39	220.15	5.35	4.34	223.20	3.05	0.051	0.216			
ВН4	SoilEng (2024)	225.50	226.72	1.22	13.21	11.99	213.51	10.16	8.94	216.56	3.05	0.051	0.216			
ВН5	SoilEng (2024)	227.80	228.91	1.11	9.92 (5.21)	8.80 (4.09)	219.00 (223.71)	6.87	5.76	222.04	3.05	0.051	0.216			
BH6	SoilEng (2024)	226.20	227.17	0.97	6.93	5.96	220.24	3.88	2.91	223.29	3.05	0.051	0.152			
Piezometers																
DP1D	Harden (2024)	224.18	225.15	0.97	3.18	2.21	221.97	2.95	1.98	222.20	0.23	0.025	0.025			
DP1S	Harden (2024)	224.18	224.86	0.68	1.64	0.96	223.22	1.41	0.73	223.45	0.23	0.025	0.025			
DP2	Harden (2024)	226.22	227.17	0.95	1.96	1.01	225.21	1.73	0.78	225.44	0.23	0.025	0.025			

Notes:

masl = metres above mean sea level mbgs = metres below ground surface mbtoc = metres below top of well casing

* Ground surface elevations from SoilEng, 2024

italicized = measured well depth; MW5 presumed damaged at this depth

APPENDIX D Table D-2: Groundwater Levels



		Groundwater Levels																						
Location		2023-Nov-	7		2023-Dec-6	3		2024-Apr-11	1		2024-Apr-2	2	:	2024-May-2	3	2	2024-Jun-0	5		2024-Jul-04	1	:	2024-Jul-19	,
	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)	(mbtoc)	(mbgs)	(masl)
Pit Wells	1				1	1		ı	1		1	1	1	1	1									
MW3	-	-	-	19.29	18.59	190.51	-	-	-	-	-	-	-	-	-	19.17	18.47	190.63	19.11	18.41	190.69	19.07	18.37	190.73
MW10 (PW-1)	-	-	-	19.74	18.66	190.19	-	-	-	-	-	-	-	-	-	19.60	18.52	190.33	19.55	18.47	190.38	19.55	18.47	190.38
Dug Wells																								
Onsite Dug Well	-	-	-		-	-	0.93	0.53	225.77	0.67	0.27	226.03	1.11	0.71	225.59	1.33	0.93	225.37	-	-	-	1.61	1.21	225.09
Ditch Concrete Well	2.47	1.76	222.11	2.13	1.42	222.45	1.36	0.65	223.22	0.98	0.27	223.60	1.56	0.85	223.02	1.81	1.10	222.77	-	-	-	2.24	1.53	222.34
Ditch Corrugated Well	1.81	0.68	221.23	1.61	0.48	221.43	1.22	0.09	221.82	1.15	0.02	221.89	-	-	-	1.42	0.29	221.62	-	-	-	1.76	0.63	221.28
Monitoring Wells																								
BH1S	-	-	-	-	-	-	-	-	-	1.30	0.31	224.34	1.81	0.82	223.83	2.12	1.13	223.52	2.63	1.64	223.01	2.74	1.75	222.90
BH1D	-	-	-	-	-	-	-	-	-	DRY @ 9.73	DRY @ 8.94	DRY @ 215.71	DRY @ 9.88	DRY @ 9.09	DRY @ 215.56	DRY @ 9.87	DRY @ 9.08	DRY @ 215.57	DRY @ 9.87	DRY @ 9.08	DRY @ 215.57	DRY @ 9.90	DRY @ 9.11	DRY @ 215.54
BH2S	-	-	-	-	-	-	-	-	-	1.95	0.91	223.73	4.51	3.47	221.17	4.54	3.50	221.14	5.11	4.07	220.57	5.56	4.52	220.12
BH2D	-	-	-	-	-	-	-	-	-	9.78	8.69	216.02	DRY @ 10.21	DRY @ 9.17	DRY @ 215.54	DRY @ 10.21	DRY @ 9.17	DRY @ 215.54	DRY @ 10.21	DRY @ 9.17	DRY @ 215.54	DRY @ 10.16	DRY @ 9.12	DRY @ 215.59
внз	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DRY @ 8.40	DRY @ 7.37	DRY @ 220.17	DRY @ 8.33	DRY @7.30	DRY @ 220.24	DRY @ 8.40	DRY @ 7.37	DRY @ 220.17
BH4	-	-	-	-	-	-	-	-	-	-	-	-	11.29	10.07	215.43	11.63	10.41	215.09	DRY @ 13.11	DRY @ 11.88	DRY @ 213.62	DRY @ 13.09	DRY @ 11.86	DRY @ 213.64
BH5	-	-	-	-	-	-	-	-	-	-	-	-	2.28	1.17	226.63	2.37	1.26	226.54	3.69	2.58	225.22	3.85	2.74	225.06
вн6	-	-	-	-	-	-	-	-	-	3.23	2.26	223.94	3.51	2.54	223.66	3.75	2.78	223.42	4.09	3.12	223.08	4.42	3.45	222.75
Piezometers																								
DP1D	-	-	-	-	-	-	-	-	-	0.63	-0.34	224.52	2.38	1.41	222.77	2.47	1.50	222.68	2.77	1.80	222.38	2.83	1.86	222.32
DP1D-SW	-	-	-	-	-	-	-	-	-	0.63	-0.35	224.52	DRY @ 0.97	DRY @ 0.00	DRY @ 224.18	DRY @ 0.97	DRY @ 0.00	DRY @ 224.18	DRY @ 0.97	DRY @ 0.00	DRY @ 224.18	DRY @ 0.97	DRY @ 0.00	DRY @ 224.18
DP1S	-	-	-	-	-	-	-	-	-	0.35	-0.33	224.51	-	-	-	DRY @ 1.64	DRY @ 0.96	DRY @ 223.22	DRY @ 1.64	DRY @ 0.96	DRY @ 223.22	DRY @ 1.64	DRY @ 0.96	DRY @ 223.22
DP1S-SW	-	-	-	-	-	-	-	-	-	0.36	-0.33	224.50	DRY @ 0.68	DRY @ 0.00	DRY @ 224.18	DRY @ 0.68	DRY @ 0.00	DRY @ 224.18	DRY @ 0.68	DRY @ 0.00	DRY @ 224.18	DRY @ 0.68	DRY @ 0.00	DRY @ 224.18
DP2	-	-	-	-	-	-	-	-	-	0.86	-0.10	226.32	0.94	-0.01	226.23	1.38	0.43	225.79	1.91	0.96	225.26	DRY @ 1.96	DRY @ 1.01	DRY @ 225.21
DP2-SW	-	-	-	-	-	-	-	-	-	0.87	-0.08	226.30	0.91	-0.04	226.26	DRY @ 0.95	DRY @ 0.00	DRY @ 226.22	DRY @ 0.95	DRY @ 0.00	DRY @ 226.22	DRY @ 0.95	DRY @ 0.00	DRY @ 226.22

Notes:

masl = metres above mean sea level mbgs = metres below ground surface mbtoc = metres below top of well casing

□ = data not available