CAMBIUM

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Planning

Geotechnical

Material Testing

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January 23, 2017

Triple T Holdings
P.O. Box 1079, Peterborough, ON
K9J 7A9, Canada

Attn: Bill Turner

Re: Geotechnical Investigation
3358 Lakefield Road, Lakefield, Ontario
Cambium Reference: 5874-001

Dear Mr. Turner,

This letter summarizes the findings of the geotechnical investigation completed on January 16, 2017 at the above-noted site. The investigation was completed to provide information to the Triple T Holdings on the existing subsurface conditions at the Site.

TEST PIT INVESTIGATION

The two (2) parcels of land under investigation are currently undeveloped and are north and south of a parcel of land containing a speed skating oval with a small parking area. The investigation was completed with test pits, which were advanced by a Client provided backhoe under the supervision of a Cambium technician. Four (4) test pits, designated as TP101-17 through TP104-17 were excavated in the northern parcel of land and four (4) test pits, designated as TP105-17 through TP108-17, were excavated in the southern parcel. The test pits were advanced to competent limestone bedrock at depths between 0.8 m and 2.4 m below ground surface (mbgs). Dynamic Probe Penetration Test (DPT) values were recorded for the sampled intervals as the number of blows required to drive a 19 mm diameter steel rod into the soil with an 8 kg hammer falling 750 mm. The DPT values are used in this report to assess consistency of cohesive soils and relative density of non-cohesive materials. Representative soil samples were collected of each stratigraphy for future reference and possible laboratory testing. The test pit locations are shown on Figure 1 appended to the end of this letter.

SUBSURFACE CONDITIONS

Test pits to the north of the oval, 101-16 to 104-16, generally consisted of topsoil underlain by a by sand to silty sand, underlain by bedrock. Topsoil in this area was silty sand with some organics and was approximately 250 mm thick. At the time of investigation the topsoil was moist and DPT tests yielded a blow count of 3 to 6, indicating a loose relative density.

The sand layer directly beneath the topsoil can be described as brown sand to silty sand with a trace to no organics and was moist to wet at the time of investigation. DPT testing in this layer yielded results of 5 to 12 indicating a compact relative density. TP 102-17 had the exception of a DPT blow count of 26 indicating a dense state. This layer generally started at 0.25 m below

ground surface (mbgs) and extended to depths between 0.45 mbgs to 0.55 mbgs. TP102-17 was an exception, with the sand layer extending to a depth of 1.4 mbgs. Underlying the silty sand was a layer of sand till. This layer was light brown with some gravel and silt and was moist at the time of investigation. DPT testing yielded results 16 to 50 indicating soil in a compact to very dense state. This layer extended to depths between 1.3 mbgs to 2.4 mbgs where all test pits terminated on practical refusal on presumed bedrock.

Test pits to the south of the speed skating oval, TP105, TP107, TP108-17, generally had a stratigraphy of topsoil underlain by bedrock, and met an early refusal at a depth of 0.75 mbgs. DPT testing in the topsoil yielded blow counts of 3 to 11 indicating a loose to compact relative density. TP106-17 shared a similar stratigraphy to the north test pits having stratigraphy of topsoil, sand, till, and bedrock. Detailed test pit logs are attached.

SUBSURFACE CONDITIONS

As discussed above, the significant aspects of the subsurface conditions at the site are summarized below:

- North of the speed skating oval competent limestone bedrock was encountered between depths of between 1.3 m and 2.4 m below existing site grades.
- Groundwater seepage was encountered in one of the four test pits (TP102-17) at a depth of 1.9 m, which was at the soil/bedrock interface.
- In the property south of the speed skating oval, bedrock was encountered at depths of between 0.4 m and 1.2 m below existing site grades. The shallower bedrock was in the eastern half of the southern property and the top 0.3 m to 0.4 m of bedrock was significantly weathered and fractured and easily excavated. Below that the bedrock was more competent, like that found in the northern portion of the property.
- Groundwater seepage was encountered in one of the four test pits (TP106-17) at a depth of 1.2 m which was right at the soil/bedrock interface.

Cambium trusts that this information is sufficient for your needs. If you have any questions or require clarification of any aspect of this submission, please do not hesitate to contact the undersigned at (705) 742-7900 extension 332.

Best regards,

CAMBIUM INC.

Stuart Baird, P.Eng.
Senior Project Manager

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GEOTECHNICAL INVESTIGATION

TRIPLE T HOLDINGS
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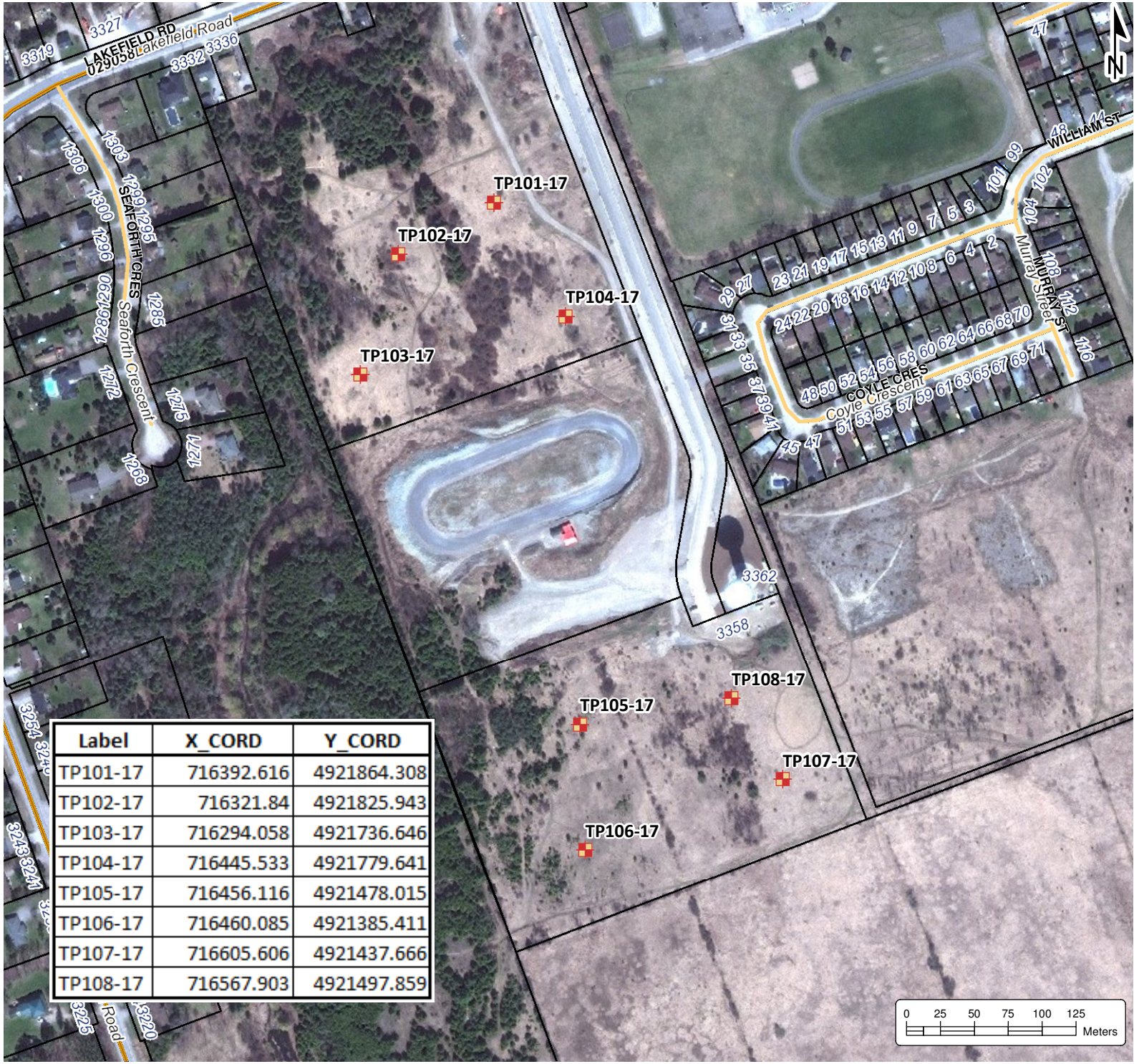

Label	X_CORD	Y_CORD
TP101-17	716392.616	4921864.308
TP102-17	716321.84	4921825.943
TP103-17	716294.058	4921736.646
TP104-17	716445.533	4921779.641
TP105-17	716456.116	4921478.015
TP106-17	716460.085	4921385.411
TP107-17	716605.606	4921437.666
TP108-17	716567.903	4921497.859

LEGEND

Proposed Test Pit Locations

Notes:
- Base mapping features are © Queen's Printer of Ontario, 2015 (this does not constitute an endorsement by the Ministry of Natural Resources or the Ontario Government).
- Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

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PROPOSED TEST PIT LOCATION PLAN

Project No.:	5874-001	Date:	January 2017
		Rev.:	
Scale:	1:4,000	Projection:	NAD 1983 UTM Zone 17N
Created by: TLC	Checked by: SEB	Figure:	1

O:\GIS\project_MXDs\5800-5899\5874-001 Triple T Holdings - Test Pit Investigation - 3358 Lakefield Road, Lakefield\2017-01-13 FIG 1 - Proposed Test Pit Location Plan.mxd

TABLE 1: TEST PIT LOGS
3358 Lakefield Rd
Technician: Brodie Ross
Cambium Reference No. 5874-001
Completed January 16, 2017

Test Pit ID	Depth (mbgs[1])	Soil Sample	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
TP101-17	0.0 - 0.25		Topsoil	0.00 - 0.15	3
	0.25-0.56	GS1	Brown sandy silt, some organics, trace gravel, moist	0.15 - 0.30	6
	0.56-1.32	GS2	Light brown sand, some gravel, some silt (till), moist	0.30 - 0.45	12
	1.32		Limestone bedrock	0.45 - 0.60	12
			No groundwater seepage	0.60-0.75	50/127
				0.75-0.90	4
				0.9-1.05	50/51
TP102-17	0.0 - 0.25		Topsoil	0.00 - 0.15	2
	0.25-0.66	GS1	Brown sand, some silt, trace organics, moist	0.15 - 0.30	3
	0.66-1.4	GS2	Brown silty sand, trace clay, wet-saturated	0.30 - 0.45	3
	1.4-2.08	GS3	Light brown sand, some gravel, some silt (till), moist	0.45-0.6	4
	1.88		Groundwater seepage	0.6-0.75	5
	2.08		Limestone bedrock	0.75-0.9	10
				0.9-1.05	9
				1.05-1.2	26
				1.2-1.35	12
				1.35-1.5	16
				1.5-1.65	50/51
TP103-17	0.0 - 0.2		Topsoil	0.00-0.15	3
	0.25-0.51	GS1	Brown sand, some silt, trace organics, moist	0.15-0.30	3
	0.51-1.52	GS2	Light brown sand, some gravel, some silt (till), moist	0.30-0.45	7
	1.52		Limestone bedrock	0.45-0.6	10
			No groundwater seepage	0.6-0.75	20
				0.75-0.9	4
				0.9-1.05	22
				1.05-1.2	50/26
TP104-17	0.0 - 0.2		Topsoil	0.00 - 0.15	5
	0.2-0.46	GS1	Brown sand, some silt, trace organics, moist	0.15 - 0.30	8
	0.46-2.39	GS2	Light brown sand, some gravel, some silt (till), moist	0.30 - 0.45	8
	2.39		Limestone bedrock	0.45-0.60	22
			No groundwater seepage	0.6-0.75	12
			*Larger cobbles below 1.65 m	0.75-0.9	42
				0.9-1.05	50/26

TABLE 1: TEST PIT LOGS
3358 Lakefield Rd
Technician: Brodie Ross
Cambium Reference No. 5874-001
Completed January 16, 2017

Test Pit ID	Depth (mbgs[1])	Soil Sample	Material Description	Depth (m)	DPT[2] (Blows/150 mm)
TP105-17	0.0 - 0.25 0.25-1.32 1.27 1.32		Topsoil Weathered and fractured limestone, silt and clay seams throughout Groundwater seepage Limestone bedrock	0.00-0.15 0.15-0.30 0.30-0.45	4 3 50/127
TP106-17	0.0 - 0.25 0.25-0.56 0.56-1.22 1.2 1.22	 GS1 GS2	Topsoil Brown sandy silt, some organics, trace gravel, moist Light brown sand, some silt, some gravel (till), wet, cobbles throughout Groundwater seepage Limestone bedrock	0.00 - 0.15 0.15 - 0.30	4 50/51
TP107-17	0.0 - 0.41 0.41-0.76 0.76		Topsoil Fractured/weathered limestone, silt and clay seams throughout Limestone bedrock No groundwater seepage	0.00-0.15 0.15-0.30 0.30-0.45 0.45-0.6	3 3 11 50/76
TP108-17	0.0-0.31 0.31-0.43 0.43-0.76 0.76		Topsoil Slab of solid limestone Weathered/fractured limestone, silt and clay seams throughout Limestone bedrock No groundwater seepage	0.00-0.15 0.15-0.30	4 50/51

1. mbgs = metres below ground surface
2. Dynamic probe penetration test, consisting of driving a 19 mm diameter steel rod 150 mm into the soil with an 8 kg hammer falling 750 mm.