

Geotechnical Report McCormick Pit

Part of Lot 12, Concession 2 EHS
Town of Caledon, Region of Peel
For Blueland Farms Limited

February 2013

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Geotechnical Report

McCORMICK PIT

Part Lot 12, Concession 2 EHS
Town of Caledon, Region of Peel

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INTRODUCTION

This report documents our investigation into the aggregate resource contained within the 40.5 hectare (100 acre) McCormick property. The property is located on the west side of Heart Lake Road about 2 km southeast of Caledon Village in part lot 12, Concession 2 EHS, in the Town of Caledon, Regional Municipality of Peel. The applicant proposes to extract 20.75 hectares (51 acres). Refer to Location Map (see Figure 1).



Figure 1 - McCormick Pit Location

SITE DESCRIPTION

The McCormick property is located on the west side of Heart Lake Road about 2 km southeast of Caledon Village in part lot 12, Concession 2 EHS, in the Town of Caledon, Regional Municipality of Peel.

The site consists of predominantly rough pasture with shrubby or scattered deciduous trees within the moraine (see Figure 2) and three hay fields along the northern perimeter of the site (see Figure 3). A house and sheds (see Figure 4) are located in the proposed area to be licensed. There is a house on a small severed lot along the eastern boundary of the site (see Figure 5).



Figure 2



Figure 3



Figure 4



Figure 5

The mainly deciduous uplands wooded areas (see Figure 6) comprised of sugar maple, ash, black cherry, red oak, beech, basswood, elm, hop hornbeam, white pine, red pine and eastern hemlock of various ages, are found within the southern parts of the site, excluded from the area to be licensed. The hummocky topography consisting of steep sided knolls and enclosed depressions within the southern part of the site are in association with the Paris Moraine, with maximum topographical relief of approximately 20 metres. The hay fields (see Figures 2-5) are smooth to gently to moderately sloping within the area identified as an outwash deposit.

Based on observations there are three small seasonal surface water bodies (see Figure 7) found within closed depressions on site. The highly permeable, granular soils on site allow fairly rapid



Figure 6



Figure 7

infiltration, and as a result, there are no developed surface water drainage courses on the site. Surface drainage is mainly internal and directed to the low areas or depressions within the fields and wooded areas, where water will infiltrate into the soils beneath and contribute to groundwater recharge. Warnock Lake, a provincially significant wetland, and Caledon Creek are located to the northwest and north of the site.

The lands to the north, east, and south of site are mainly in agricultural use and/or open space. There are several farm and non-farm residences located along Heart Lake Road to the east of the site. The lands within the moraine to the south of the site are hummocky and consist of old agricultural fields and meadows with scattered trees and shrubs. On the west side of the property is a large licensed commercial pit operated by Caledon Sand and Gravel Inc. (see Figure 8).

RESOURCE ASSESSMENT

The following information was reviewed as part of the investigation: a) Ontario Geological Survey Aggregate Resources Inventory Paper 23 Aggregate Resources Inventory (ARIP) of the Town of Caledon, 1981; b) Quaternary Geology of the Bolton Area, Geological Report 117 by Owen White, MNR 1975; c) Hydrogeological Assessment by AECOM, February 2013; d) site plans prepared by Harrington McAvan Ltd.; and e) the aerial photography of the site and surrounding lands (see Appendix 1, Test Pit Logs).

Aggregate Resources Inventory of Town of Caledon - ARIP 23 OGS MNR 1981

On page 11 of the report, it states the following, *“Selected Sand and Gravel Resource Area 3 is the main portion of the Caledon Outwash in the Town of Caledon. The Area has been an aggregate source of regional importance for many years and presently supports nine large licensed operations (Pit Nos. 7, 8, 9, 10, 11, 12, 13, 17 and 23). Most of the available resources*

in the deposit are contained within the presently licensed properties. However, small additional resources remain in the areas between the licensed pits, and resource protection for these portions should be considered.

Face heights in the pits vary from 10 to 40 feet (3 to 12 m) and expose moderately to well stratified sand and gravel, consisting in places of up to 70 percent gravel. Some exposures, such as those at Pit Nos. 8 and 12, consist of uniform well sorted pebble- and cobble-sized gravel well suited for crushing. As in Selected Sand and Gravel Resource Areas 1 and 2, the presence of siltstone fragments reduces the quality of the aggregate and necessitates beneficiation procedures."

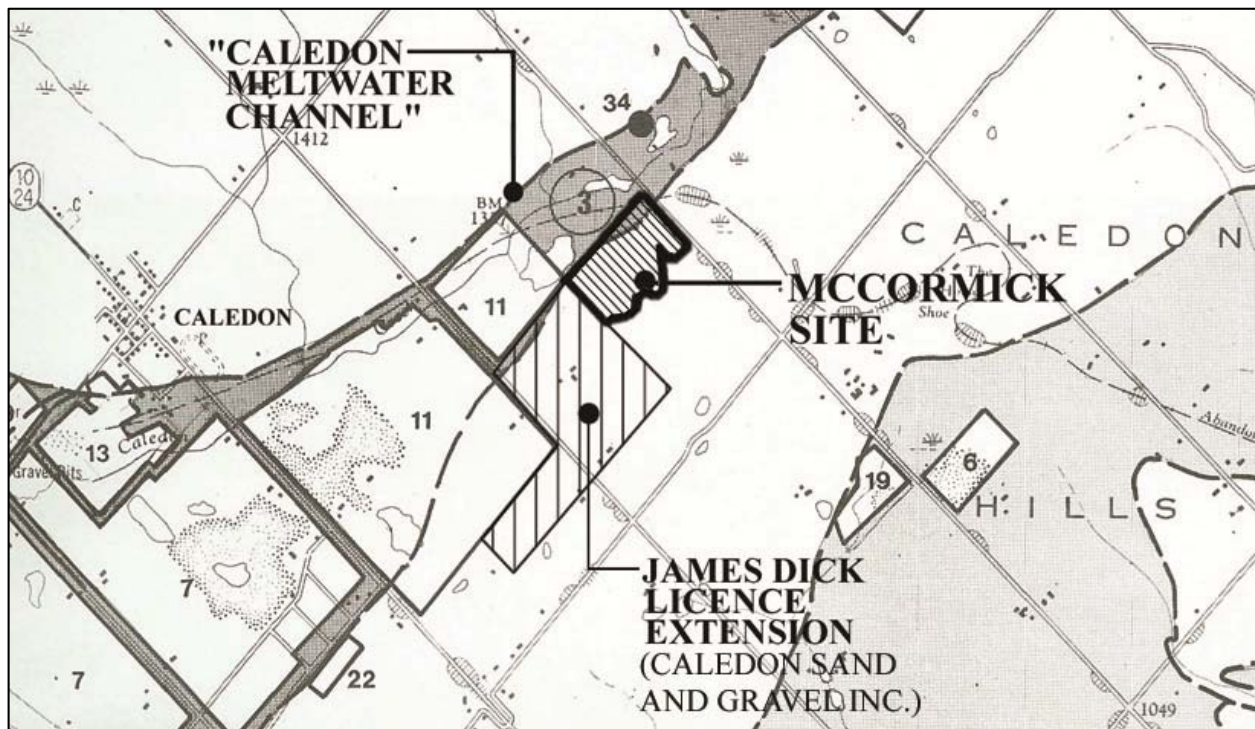


Figure 8- ARIP Map Excerpt

The northeast corner of the McCormick site is mapped with the Selected Sand and Gravel Resource Area 3 (see Figure 8).

Quaternary Geology of the Bolton Area - Geological Report 117 by Owen White MNR 1975

On pages 37 and 38 of the report, the **Caledon Meltwater channel** is described as follows: "The Caledon Meltwater Channel traverses the rim of the escarpment in the northwestern part of the Bolton area from Sleswick, south and southwest through Star past the village of Caledon and thence southwest beyond the map area.

The channel is a broad, shallow valley with a flat to gently undulating floor. The channel is over 1 mile wide at Caledon but narrows considerably at Sleswick. The northern confining wall varies from a steep drift or rock face up to 40 feet high to a low, almost indistinct "step" near Caledon.

The confining wall on the south is formed by a low gravelly ridge of hummocky moraine which is rarely more than 30 feet above the channel floor.

The material at the floor of the channel is usually well sorted and stratifies fine to medium sand with some pebbles (see TP 5, 6 and 33). The sand varies in thickness from 3 feet to a maximum of 9 feet. Well to poorly sorted gravels and sands underlie the upper sands and, in several localities downstream from Star, the deposits are being worked commercially. Where the gravels are known to be of considerable thickness, the area is mapped as gravel but sand is indicated on the map if the subsurface is unknown.

The channel is not simple, single channel, but one or two terrace levels may be present. In some places, the upper terrace appears to be merely a levelling off of the hummocky terrain and seems to lack even a thin veneer of water deposited sands. In other areas it seems that gravels previously in the channel have been eroded by a stream.

Where the modern stream is in the channel floor as it is downstream from Star, it has cut a low channel, linking several shallow depressions in concessions II, III, and IV, Caledon Township."

*On pages 22 and 23 of the same report the **Paris-Galt Moraines** are described as follows: "In the southwestern part of the map-area, and south of Credit Forks, there is a ridge of hummocky terrain about 1 mile wide oriented northeast-southwest. This ridge can be traced to the southwest and joins the Paris Moraine mapped by Karrow (1963; 1968) in the Guelph and Galt areas. The material consists mostly of bouldery sand loam with numerous lenses and pockets of glaciofluvial sediments. A small part of a fairly level outwash plain, which consists of sand veneer over gravel, lies between the front of the moraine and the edge of the escarpment.*

Across the Credit River Valley, the moraine continues along the edge of the Escarpment to the northeast (Photo 6), its crest again being at a maximum elevation of 1450 feet. It continues to the vicinity of Sleswick where it apparently merges with or is overridden by a younger moraine built by ice from the Simcoe lobe. Between the moraine and the Escarpment, a broad shallow valley which is wider downstream was no doubt used by meltwaters draining to the southwest. To the southeast, the back of the moraine decreases to an elevation of about +/- 1200 feet over a distance of approximately ½ miles. The crest of the ridge is hummocky with local relief exceeding 25 feet in places. A hummocky surface remains on the steep back slope of the moraine but has been modified by erosion.

The material in this part of the moraine is variable and may contain a loam till as well as considerable quantities of gravel and sand. The outer edge of the moraine appears to be more gravelly and have less till-like material, whereas the loam till layers are more commonly seen on the back slope of the ridge.

The front edge of the moraine appears to have been eroded by early meltwaters. Two elevated terrace levels can generally be seen and the higher one seems to have been cut directly into the gravel of the moraine with very little deposition of alluvial sand and silts on the eroded surface."

The majority of the McCormick site is mapped within the Paris moraine (see Figure 9).

On page 62 of the geology report, **Wentworth till** is described as follows: “*the moraine ridge from Credit forks to Sleswick is considered not only as part of the Paris moraine, but also to consist mainly of Wentworth Till together with considerable amount of stratified sand and gravel. The till in the moraine ridge is mixed with ice contact stratified deposits, probably older and younger in age. The Wentworth Till is probably overlain by younger ice contact sediments along both sides of the moraine ridge.*” Refer to Appendix A- Test Pit Log 11, 13, 22, 30, 32 and 38.

The Caledon outwash generally has poor stone quality and requires special treatment to allow production of high quality coarse aggregate products such as surface paving aggregate and concrete aggregate. The quality of the aggregate is reduces by the presence of siltstone fragments, which necessitates beneficiation procedures (OGS, 1981).”(See Figure 8)

Geotechnical Investigations on site

The applicant and Harrington McAvan Ltd. (formerly Harrington and Hoyle Ltd.) completed 41 test pits (see Figure 10) on the property between November 6 and 8, 2002 (see Appendix A- test pit logs). The test pits ranged in depth between 1.5 m and 6.7m. All the test pits were dry at the bottom and did not encounter the water table.

AECOM Canada Ltd. (formerly Gartner Lee Limited) was retained to implement a drilling program and drilled six boreholes (see Appendix B- borehole logs and Figure 11) on-site in September 2003 to determine the water table elevation(s) and to verify the quality and quantity of the aggregate found below the bottom of the H&H test pits both above and below the water table. Samples of the soil were collected at each borehole to their final depth. Boreholes ranged in depth between 26.2 m and 41.2 m below ground surface. Grain analysis was conducted on five representative samples. In addition, 22 samples were run through a #4 sieve (4.75 mm) to get a field estimate of the gravel content of the sample. The results of the grain size analysis are presented in the Hydrogeological Assessment (refer to report by AECOM Canada Ltd., formerly Gartner Lee Limited) the results are stated on pages 7 and 8 as follows:

“Five representative samples from the boreholes were submitted for sieve analysis; four of the sand and gravel and one of sandy silt. The sand and gravel samples ranged from 58% to 70% gravel over 4.75 mm in diameter with less than 5% fines (silt and clay). A wide variety of coarse and fine aggregate products may be produced from this deposit. The grain size distribution curves are presented in Appendix A. Of the 22 samples run through the #4 sieve (4.75 mm), the samples ranged from 6% to 76% gravel. However, eight of the 22 samples were identified as having more than 20% silt.”

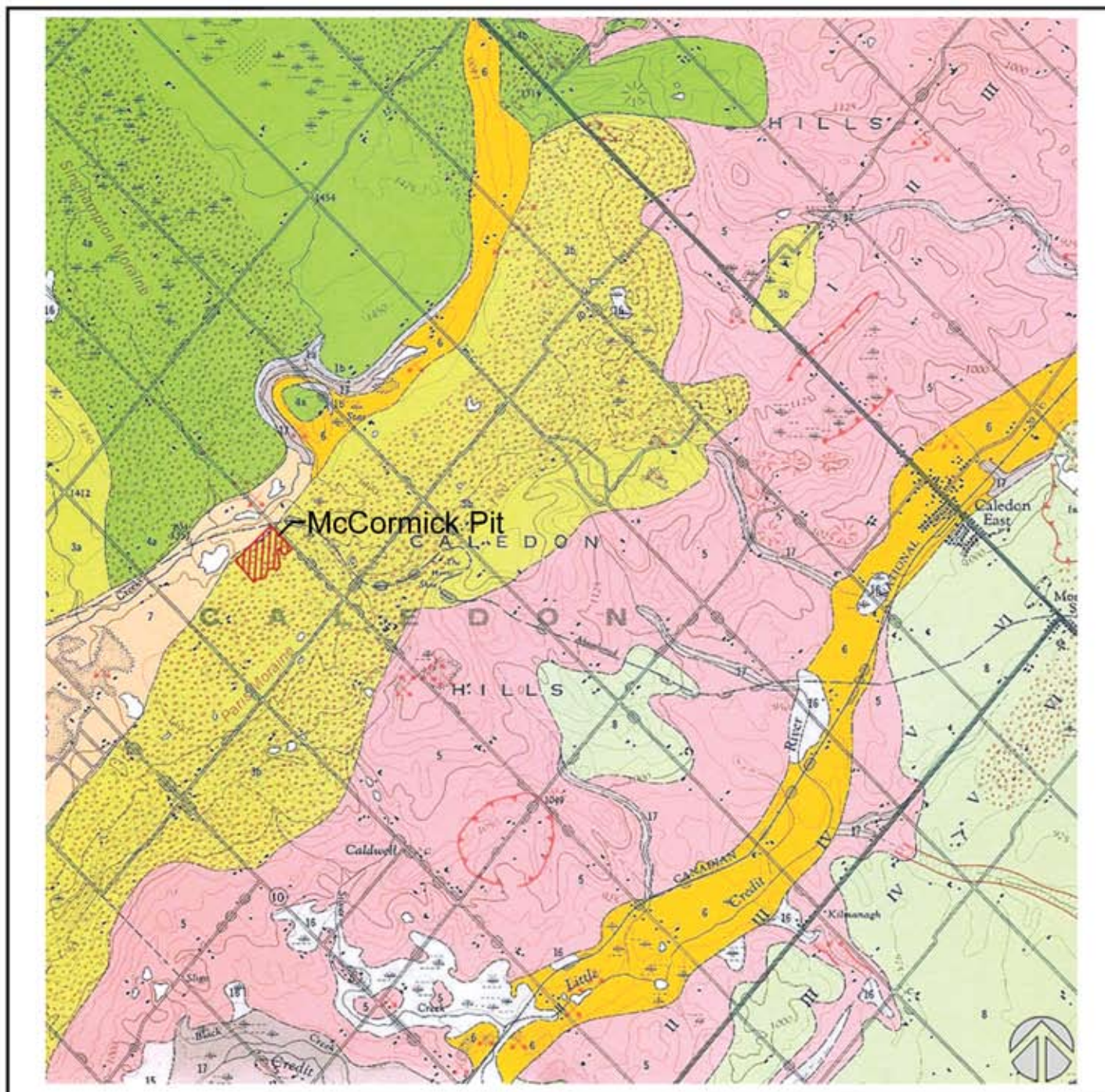
*“Based on the limit of extraction shown on figures 2, 3 and 4, the total quantity of above and below-water aggregate on the site is estimated at approximately **4.5 million m³ or 8 million***

tonnes² gross, of which approximately 3.8 million tonnes is 'below-water' (1.5 m above the water table to the base of resource). Of the reserves on-site, approximately 10% is suitable only for fill material due to the presence of interbedded till layers."

A reddish soil was observed on the numerous, rounded, dolostone cobbles and boulders at depth in TP #35, below the finer sand and gravel near the surface. On page 24 of OGS report #117 it states the following, *"In the Caledon area, the Paris Moraine has overridden the first and possibly second ridge of the Singhampton Moraine ..."*. The first ridge of the Singhampton moraine is mapped starting at the northern boundary of the Caledon Meltwater channel in Lots 13-14 of Concession 2 EHS and heading in a northerly direction from there. The report describes the material in the first ridge as, *"generally more bouldery than that in the second ridge, and also includes much red material in contrast to the almost exclusively buff-coloured material in the second ridge. The higher boulder content of the first ridge might also be expected from the fact that it is farther from the edge of the Escarpment than the second ridge. When the ice moved across the escarpment edge it picked up a large quantity of dolostone boulders. Both ridges contain a high percentage of glaciofluvial gravels and sands, and the matrix of the till in each ridge is quite similar."*

The topography of the bedrock on site is shown to increase from about 365 m asl (1200 feet) along the south boundary to about 396 m asl (1300 feet) at the north boundary. Refer to Map 2276, "Bedrock Topography" in OGS report 117. The bedrock changes from the sandstone, shales and dolostones of the Clinton and Cataract groups on the property to the dolostone of the Amabel formation north of the site.

As noted on page 7 of the Hydrogeological Assessment (refer to report by AECOM Canada Ltd., formerly Gartner Lee Limited), *"Large amounts of sand and gravel were deposited within an outwash plain (Caledon outwash deposit) fed by glacial meltwaters forming a channel between the Paris moraine and the Niagara Escarpment. Based on OGS mapping, the site is situated on the southeastern flank of this outwash gravel. Previous studies conducted by AECOM on the property immediately west of the site suggest that the outwash gravel actually extends further southeast (on to the subject property) though with sporadic and inconsistent till layers interbedded with the sand and gravel (Gartner Lee, 1989). The Aggregate Resources Inventory Paper identifies the outwash deposit of primary significance."*



Geological Report 117, Map 2275, Quaternary Geology of the Bolton Area, MNR

N.T.S.

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LEGEND:

- | | |
|---|--|
| 8 | 8 Halton Till: brown loam to silt loam till |
| 7 | 7 Gravel: outwash gravel usually covered by several feet of sand |
| 6 | 6 Sand: deposited in meltwater channels- often underlain by gravels. |
| 5 | 5 Ice contact stratified drift: sand and gravel land (locally) silt. Structure often disturbed of kame, outwash and outwash and collapse origin. Is frequently exposed long river valleys |
| 4 | 4a Northern lower till: light brown and red sandy loam till
4b Northern lower till: light brown very gravelly sandy loam till
4c Northern lower till: light brown-grey gravelly loam gravelly loam to sandy loam till. |
| 3 | 3a Wentworth Till: red, sandy loam till (possibly a Cary (pre-Huron) till).
3b Wentworth Till: light brown gravelly sandy loam and loam till. Considerable stratified material. |

PALEOZOIC

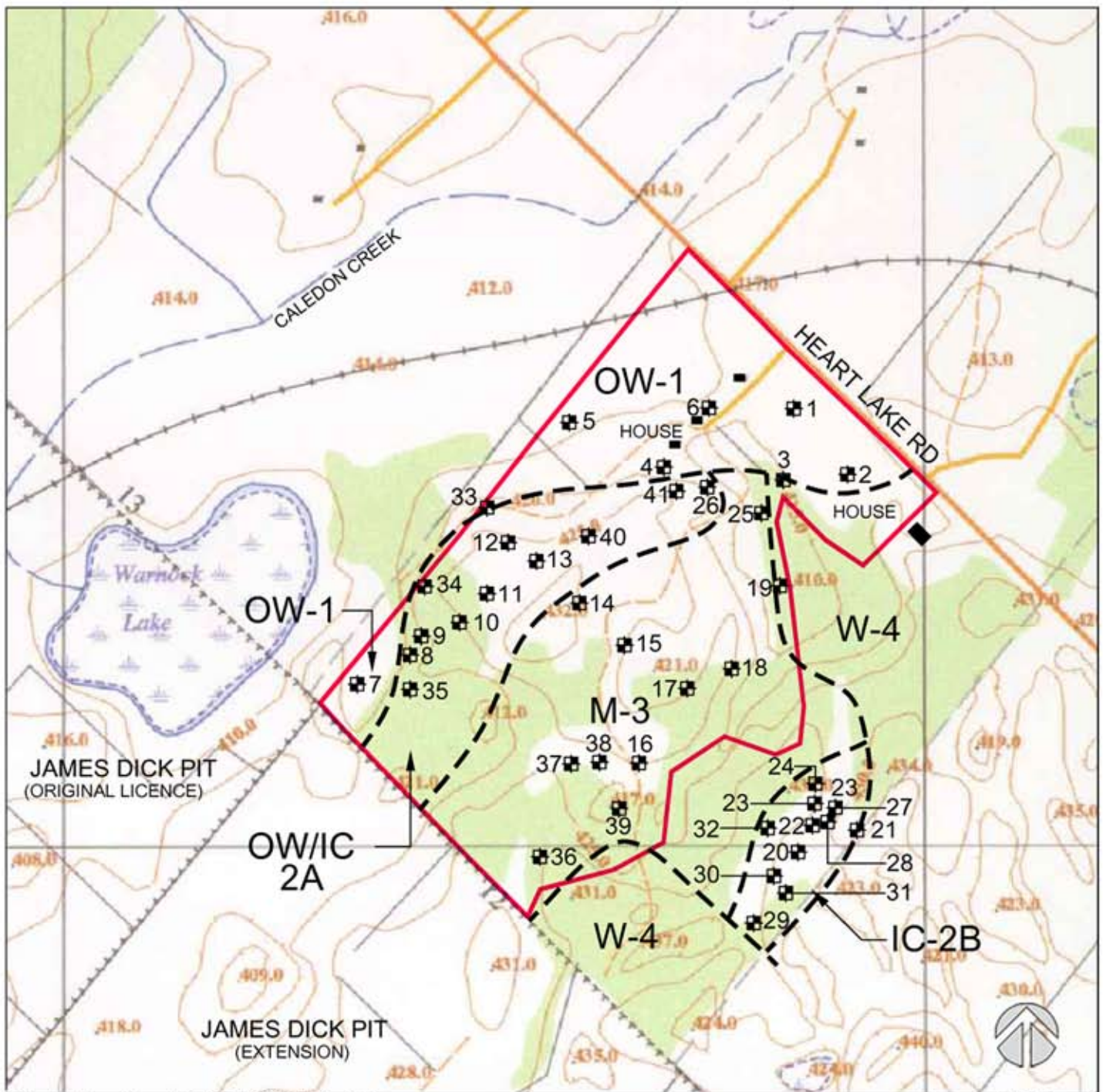
- | | |
|-----------|---|
| 1 | SILURIAN
1a Amabel formation
1b Clinton and Cataract Groups |
| [Pattern] | Drumlin |
| [Symbol] | Individual Kame |
| [Symbol] | Ice block depression |
| [Symbol] | Spillway, water cut channel |
| [Pattern] | Morainial topography |
| [Symbol] | Sand and gravel pit |

Quaternary Geology Map

February 2013

Harrington
McAvan Ltd



FIGURE
9



Ontario Base Map, tile 1017580048550, MNR

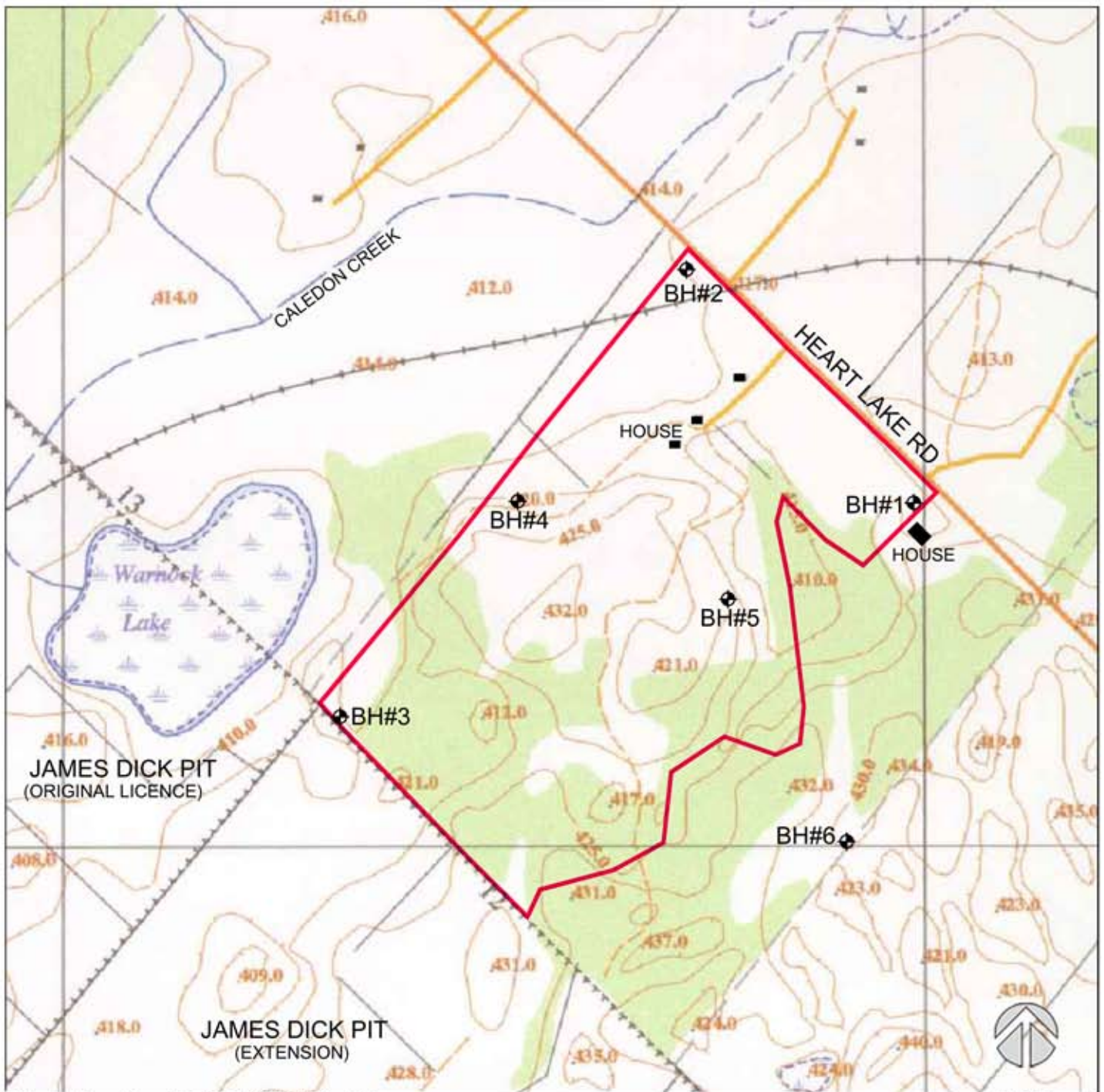
McCormick Pit Blueland Farms Limited

LEGEND:

-  **5** Test Pit No. and location
- OW** Outwash -1
- OW/IC** Outwash/ Ice contact- 2A
- Paris Moraine:**
- IC** Ice contact - 2B
- M** Scattered Trees and Shrubs -3
- W** Wooded Areas - 4
-  Proposed licence boundary

Test Pit Location Map

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Ontario Base Map, tile 1017580048550, MNR

N.T.S.

McCormick Pit

Blueland Farms Limited

LEGEND:

- 5 Borehole No. and location
- Proposed licence boundary

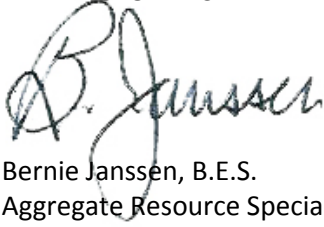
Borehole Location Map

February 2013

CONCLUSION

In conclusion, the investigations completed found that the reserves consist of a large percentage of sand and gravel, interspersed with variable percentage of fines. A wide variety of coarse and fine aggregates may be produced from this deposit and sold. The quality of the aggregate will have to be confirmed with appropriate testing of samples to ensure it meets specifications for various products.

HARRINGTON MCAVAN LTD.

A handwritten signature in black ink, appearing to read 'B. Janssen', is written over the printed name.

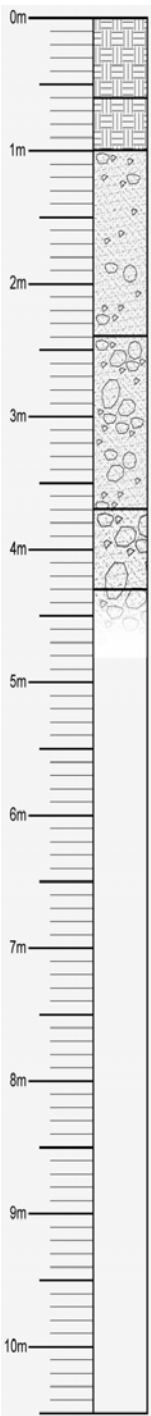
Bernie Janssen, B.E.S.
Aggregate Resource Specialist
BJ/sp

Appendix A

Test Pit Logs

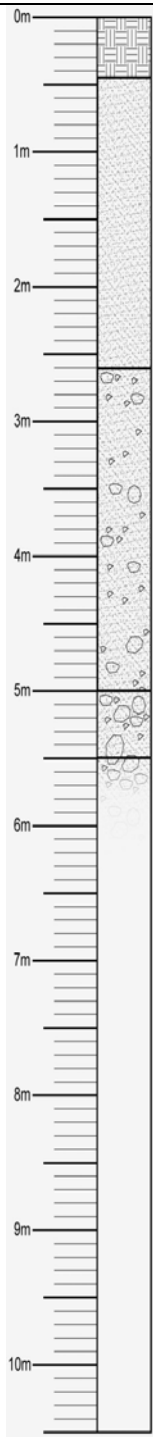


Caledon Pit (McCormick Property)		Test Pit Log 1
HM Project Number: 02-48	Date: November 6, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 418 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown)</p> <p>0.6 – 1.0 m Overburden</p> <p>1.0 – 2.4 m Clean, coarse sand and gravel with 2 to 3 inch (5.0 – 7.5 cm) pebbles</p> <p>2.4 – 3.7 m Clean, medium to coarse sand with 3 to 4 inch (7.5 -10 cm) cobbles</p> <p>3.7 – 4.3 m Medium sand and clean, coarse sand and gravel with 3 to 5 inch (7.5 – 12.5 cm) cobbles, horizontally bedded; cobbles up to 9 inches (22.5 cm)</p> <p>Dry at bottom of test pit</p>	<p>Location – 23 m south of laneway and 37 m from east fenceline on knoll</p> <p>40% stone;</p> <p>approximately 40 - 50% stone</p> <p>approximately 50% stone; some flat, elongated cobbles noted; very clean material all the way to the bottom of the test pit; bulk sample taken</p>

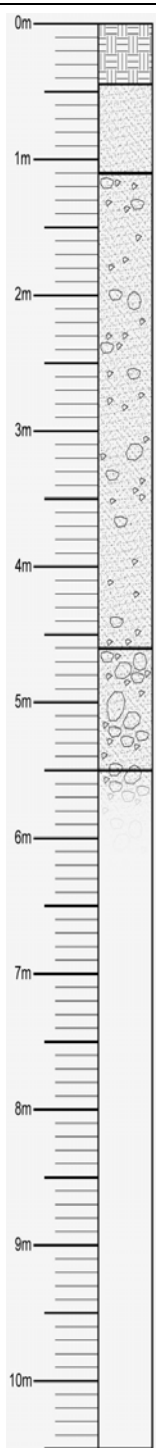


Caledon Pit (McCormick Property)		Test Pit Log 2
HM Project Number: 02-48	Date: November 6, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 416 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.45 m Topsoil (dark brown)</p> <p>0.45 – 2.6 m Silty, very fine sand (tan to yellowish-brown)</p> <p>2.6 – 5.0 m Clean, coarse sand and gravel with 2 to 3 inch (5.0 – 7.5 cm) pebbles</p> <p>5.0 – 5.5 m Becoming stonier with larger pebbles and cobbles mixed with clean coarse sand and some medium sand</p> <p>Dry at bottom of test pit</p>	<p>Location – south of laneway and 37 m from east fenceline within a hollow south of TP#1</p> <p>approximately 40% stone;</p> <p>approximately 40% stone; ave. size of stone 3 – 5 inches (7.5 – 12.5 cm); very clean material; bulk sample taken</p>

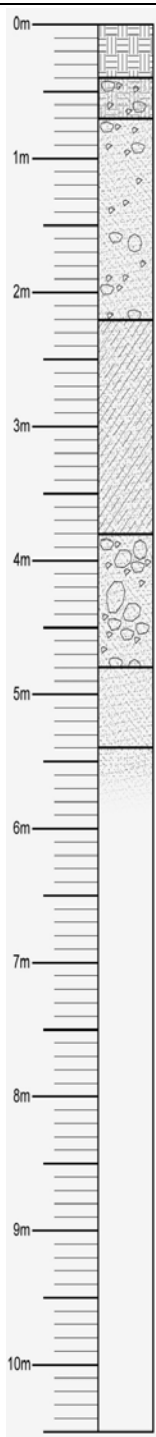


Caledon Pit (McCormick Property)		Test Pit Log 3
HM Project Number: 02-48	Date: November 6, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 415 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.45 m Topsoil (dark brown)</p> <p>0.45 – 1.1 m Tan to yellowish-brown overburden;</p> <p>1.1 – 4.6 m Clean, coarse sand and gravel with 2 to 3 inch (5.0 – 7.5 cm) pebbles and 4 inch (10 cm) cobbles</p> <p>4.6 – 5.5 m Clean, medium and coarse sand and gravel with 3 to 4 inch (7.5 – 10 cm) cobbles; some 5 inch (12.5 cm) cobbles</p> <p>Dry at bottom of test pit</p>	<p>Location – south of laneway, west of TP#1 and east of cedar rail fence in low depression in hay field</p> <p>Subsoil very dry and dusty</p> <p>approximately 40% stone;</p> <p>approximately 40 - 45% stone; appears to be more bony as depth increases; good clean material;</p>

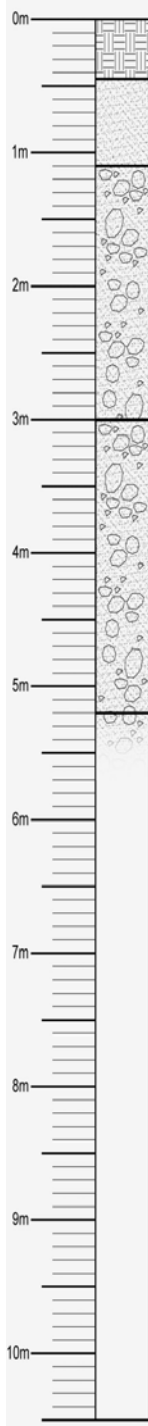


Caledon Pit (McCormick Property)		Test Pit Log 4
HM Project Number: 02-48	Date: November 6, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 419 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.4 m Topsoil (dark brown)</p> <p>0.4 - 0.7 m Stony subsoil (yellowish brown)</p> <p>0.7 - 2.2 m Coarse gravel in a clean medium to coarse sand (brown) matrix with 1 to 3 inch (2.5 - 7.5 cm) stone</p> <p>2.2 - 3.8 m Fine to medium sand with some silt lenses (moist)</p> <p>3.8 - 4.8 m Pebbly to cobbly gravel (3-5 inch) in sand matrix</p> <p>4.8 - 5.4 m Clean, medium sand</p> <p>Dry at bottom of test pit</p>	<p>Location - 72 m west of shed and 16.5 m north of the fence near the interface between moraine and outwash deposit</p> <p>30 - 40% stone; stone rounded to sub-rounded; carbonates (dolostone & limestone) with some crystallines</p> <p>> 40% stone</p> <p>Masonry sand</p>

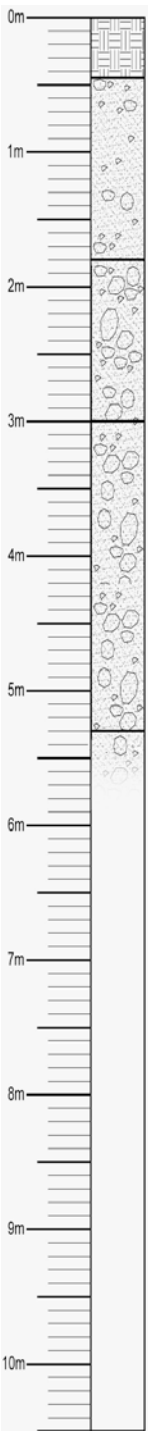


Caledon Pit (McCormick Property)		Test Pit Log 5
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 414 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.45 m Topsoil (dark brown)</p> <p>0.45 – 1.1 m Clean, medium sand</p> <p>1.1 – 3.0 m Clean, coarse sand and gravel with 2 to 3 inch (5.0 – 7.5 cm) pebbles</p> <p>3.0 – 5.2 m Clean, medium to coarse sand and gravel with 3 to 5 inch (7.5 – 12.5 cm) cobbles</p> <p>Dry at bottom of test pit</p>	<p>Location – 23 m south of north property line and 39 m from fence line in the low area in the north hay filed</p> <p>60% stone;</p> <p>approximately 60 - 70% stone; very clean material</p>

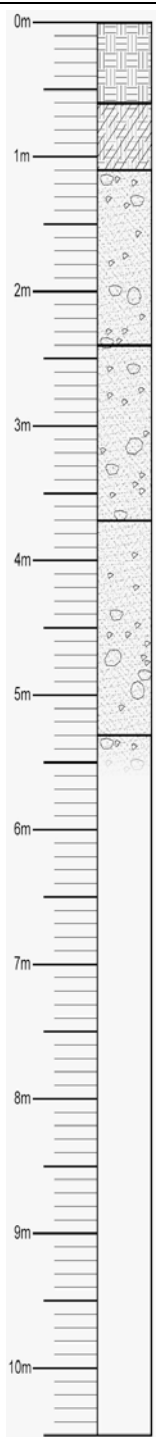


Caledon Pit (McCormick Property)		Test Pit Log 6
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 415 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.45 m Topsoil (dark brown)</p> <p>0.45 – 1.8 m Clean, medium sand with 2 to 3 inch (5.0 – 7.5 cm) pebbles</p> <p>1.8 – 3.0 m Clean, coarse sand and gravel with 3 to 5 inch (7.5 – 12.5 cm) cobbles; becoming stonier with depth</p> <p>3.0 – 5.3 m Clean, coarse sand and gravel with 3 to 5 inch (7.5 – 12.5 cm) cobbles</p> <p>Dry at bottom of test pit</p>	<p>Location – 39 m north of shed on a small knoll in the north hay field</p> <p>approximately 50% stone;</p> <p>approximately 50 - 60% stone;</p> <p>> 60% stone; outwash deposit, horizontally bedded; very good material</p>



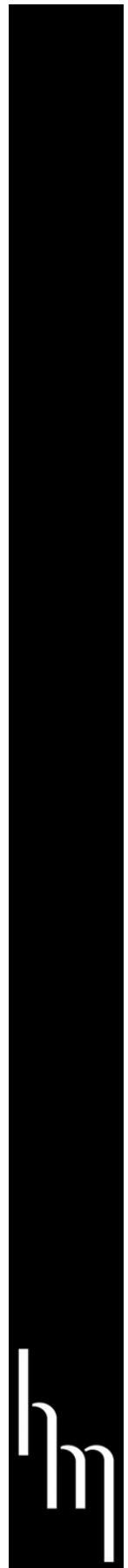
Caledon Pit (McCormick Property)		Test Pit Log 7
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 415 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown)</p> <p>0.6 – 1.1 m Silty subsoil (light brown)</p> <p>1.1 – 2.4 m Clean, medium to coarse sand and gravel with 2 to 3 inch (5.0 – 7.5 cm) pebbles</p> <p>2.4 – 3.7 m Clean, coarse gravelly sand with 2 to 3 inch (5.0 - 7.5 cm) pebbles</p> <p>3.7 – 5.3 m Clean, coarse sand with some gravel up to 3 inch (7.5 cm) pebbles/cobbles</p> <p>Dry at bottom of test pit</p>	<p>Location – 23 m south of north property line and 45 m from west fence in the west hay field at rear of site</p> <p>approximately 25% stone;</p> <p>approximately 20% stone; very clean, good material; bulk sample taken</p>

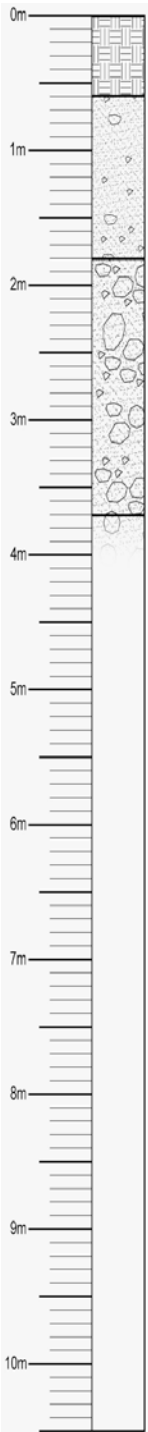


Caledon Pit (McCormick Property)		Test Pit Log 8
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 413 m asl	

Depth (m)	Sample:	Description:	Remarks:
0m		0 - 0.45 m Topsoil (dark brown)	Location – in low depression at east end of the west hay field at rear of site
1m		0.45 – 2.4 m Silty sand subsoil and overburden (yellowish brown)	Very dry soil
2m		2.4 – 3.7 m Clean, fine sand	
3m		3.7 – 5.5 m Clean, medium sand and gravel with 2 to 3 inch (5.0 - 7.5 cm) pebbles and cobbles; some coarse sand and occasional boulder	approximately 40% stone; increase in stone with depth; very clean, good material; bulk sample taken
4m		Dry at bottom of test pit	
5m			
6m			
7m			
8m			
9m			
10m			




Caledon Pit (McCormick Property)		Test Pit Log 9
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 417 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown)</p> <p>0.6 – 1.8 m clean medium sand with coarse gravel; 2 - 3 inch (5.0 -7.5 cm) pebbles</p> <p>1.8 – 3.7 m Clean, coarse sand and gravel with 3 to 6 inch (7.5 - 15 cm) cobbles; becoming coarser with depth</p> <p>Dry at bottom of test pit</p>	<p>Location – channel cut on side of hill at the southeast corner of the west hay field</p> <p>approximately 40% stone; some silt noted</p> <p>approximately 40% stone; clean, good material;</p>

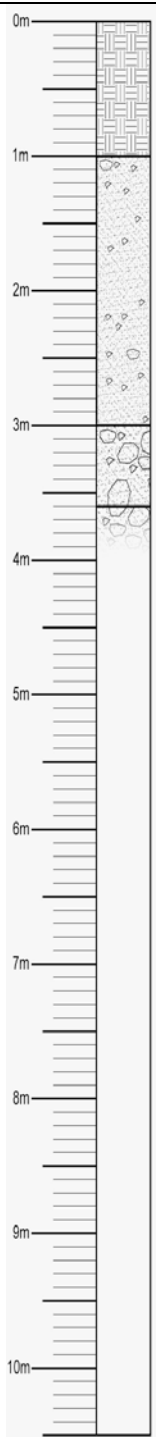


Caledon Pit (McCormick Property)		Test Pit Log 10
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 421 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown) with overburden</p> <p>0.6 – 1.8 m coarse sand and gravel with 3 to 4 inch (7.5 - 10 cm) cobbles</p> <p>1.8 – 4.3 m Sandy, silt - Wentworth till (tan to yellowish brown)</p> <p>Dry at bottom of test pit</p>	<p>Location – on top of first hill/ridge in the moraine at the southeast corner of the west hay field</p> <p>approximately 40% stone; fairly consistent</p> <p>stop dig</p>

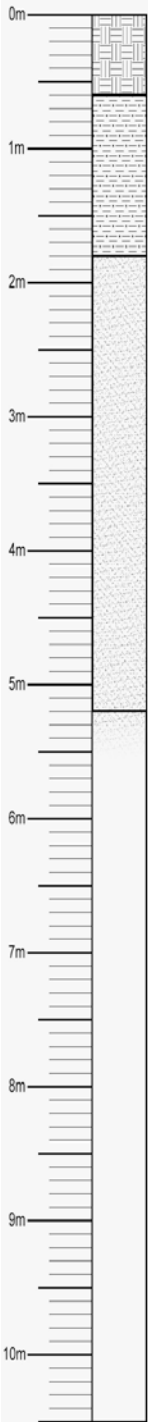


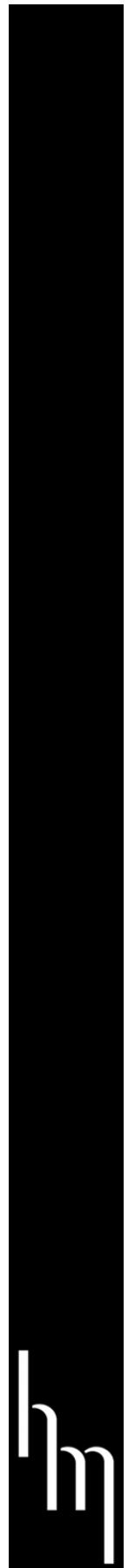
Caledon Pit (McCormick Property)		Test Pit Log 11
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 426 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 1.0 m Topsoil (dark brown) and overburden</p> <p>1.0 – 3.0 m Clean, medium sand with lenses of fine sand (laminated) and gravel with 1 to 3 inch (2.5 – 7.5 cm) stones</p> <p>3.0 – 3.6+ m Clean, fine and medium sand with 5 inch (12.5 cm) cobbles and a few larger boulders</p> <p>Dry at bottom of test pit</p>	<p>Location – on top of the next hill/ridge in the moraine, to the east of TP #10</p> <p>approximately 20% stone; bulk sample taken</p> <p>Becoming coarser with depth; dolostone and crystalline boulders; sides caving in; stop test pit</p>

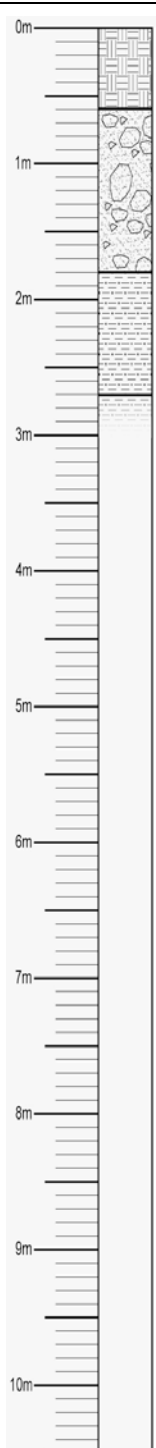


Caledon Pit (McCormick Property)		Test Pit Log 12
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 425 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown)</p> <p>0.6 – 1.8 m Wentworth Till (sandy –silt till)</p> <p>1.8 – 5.2 m Clean, fine sand and some medium sand</p> <p>Dry at bottom of test pit</p>	<p>Location – adjacent to lane way on north side of property, on moraine to the northeast of TP #11</p>

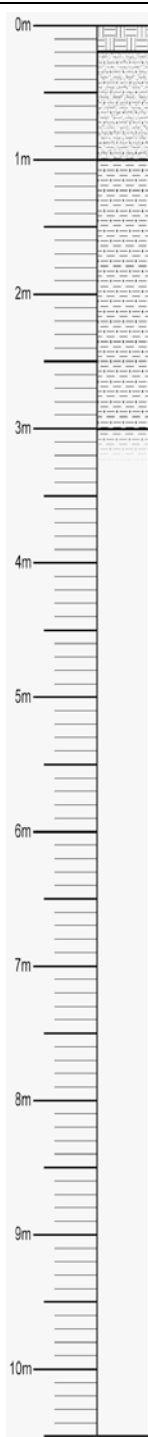


Caledon Pit (McCormick Property)		Test Pit Log 13
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 426 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown) and overburden</p> <p>0.6 – 1.8 m Medium to coarse sand and coarse to cobbly gravel with occasional boulders up to 0.6 m</p> <p>1.8 – 2.7 m Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – on small gravelly ridge on moraine to the south of TP #12</p> <p>Ice-contact deposit on side of hill sloping steeply to the east at greater than 45 degrees (away from ridge which is comprised of Wentworth till); > 40% stone</p>

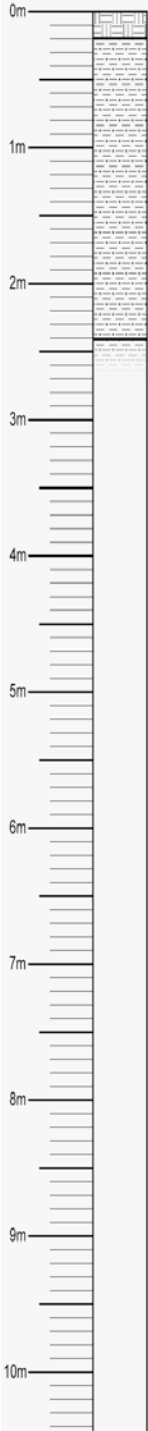


Caledon Pit (McCormick Property)		Test Pit Log 14
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 431 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.2 m Topsoil (dark brown)</p> <p>0.2 – 1.0 m Till-like flows with fine sand layers</p> <p>1.0 – 3.0 m Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – on next ridge on moraine to the south of TP #13</p> <p>Tan – yellowish brown; compact and difficult to dig</p>

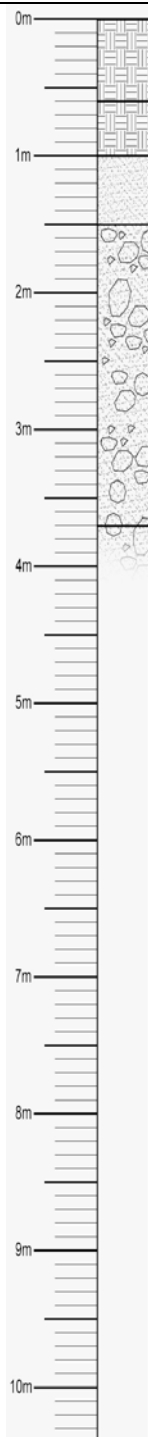


Caledon Pit (McCormick Property)		Test Pit Log 15
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 425 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.2 m Topsoil (dark brown)</p> <p>0.2 – 2.4 m Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – on next ridge on moraine 65 m to the south of TP #14</p> <p>Tan – yellowish brown; compact and difficult to dig; stop test pit</p>

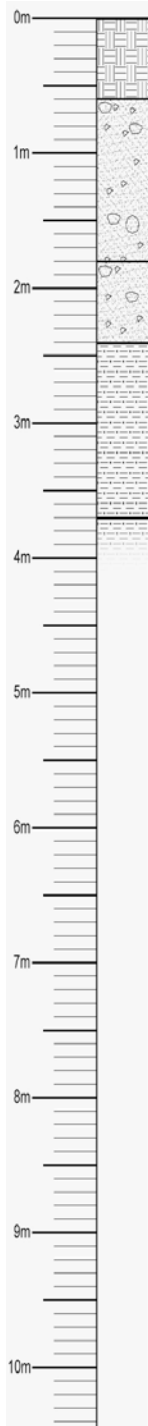


Caledon Pit (McCormick Property)		Test Pit Log 16
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 425 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown) and subsoil</p> <p>0.6 – 1.0 m Overburden</p> <p>1.0 – 1.5 m Clean, fine sand</p> <p>1.5 – 3.7 m Dirty (silty) sand with cobbles and occasional boulder > 12 inches (0.3 m)</p> <p>Dry at bottom of test pit</p>	<p>Location – on next ridge on moraine west of TP #15 going toward woodlot</p> <p>Tan – yellowish brown, appears to be till-like (Wentworth till); stop test pit</p>

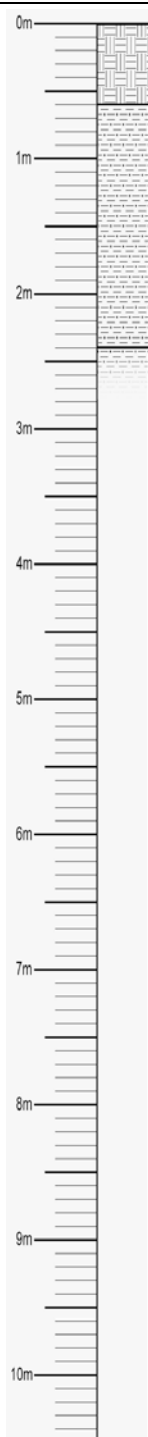


Caledon Pit (McCormick Property)		Test Pit Log 17
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 422 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown) and overburden</p> <p>0.6 – 1.8 m Clean, fine sand and gravel with small pebbles 1.5 to 2.5 inches (3.75 – 6.25 cm)</p> <p>1.8 – 2.4 m Some cleaner material noted on lower side of test pit</p> <p>2.4 – 3.7 m Wentworth Till</p> <p>Dry at bottom of test pit</p>	<p>Location – in gully north and east of TP #16</p> <p>Approximately 25% stone; sloping downward on an angle</p> <p>stop test pit</p>

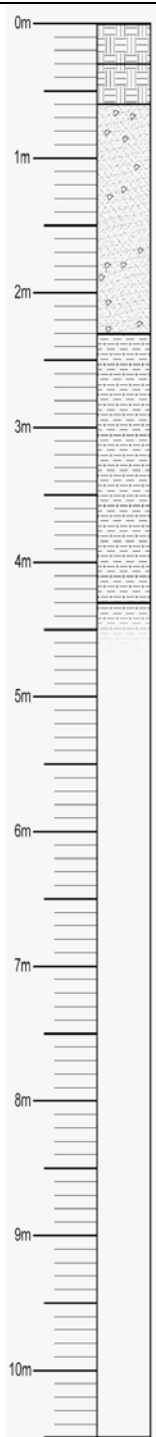


Caledon Pit (McCormick Property)		Test Pit Log 18
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 425 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0 - 0.6 m Topsoil (dark brown) and overburden</p> <p>0.6 – 2.4 m Wentworth Till</p> <p>Dry at bottom of test pit</p>	<p>Location – On side of hill south of TP #17</p> <p>discontinue test pit</p>

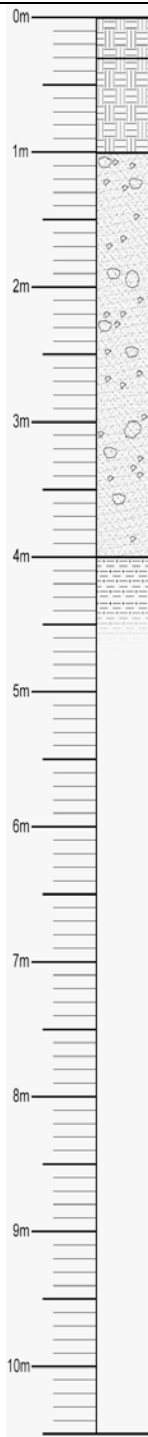


Caledon Pit (McCormick Property)		Test Pit Log 19
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 415 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 - 0.6 m Overburden</p> <p>0.6 – 2.3 m Fairly clean, fine sand with some medium sand and fine gravel</p> <p>2.3 – 4.3 m Wentworth till to bottom</p> <p>Dry at bottom of test pit</p>	<p>Location – On flat area to the northwest of large kettle depression</p> <p>Sand layers dipping to the east at 30 degrees</p> <p>discontinue test pit</p>

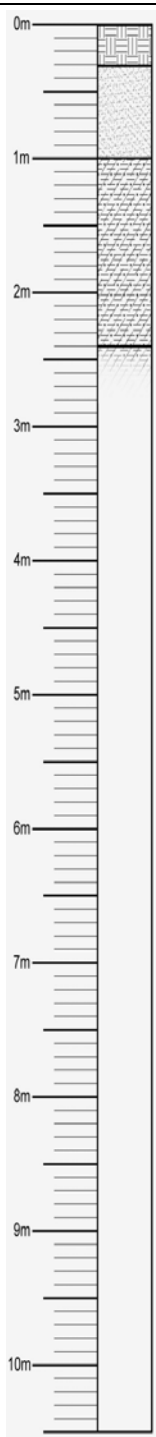


Caledon Pit (McCormick Property)		Test Pit Log 20
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 430 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 1.0 m Subsoil/overburden</p> <p>1.0 – 4.0 m Fine to coarse gravel (half inch to 3 inches) with occasional cobble; fine to coarse sand; some silt</p> <p>4.0 m+ Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – On the north slope of small ridge, 54 m from the south property line</p> <p>Ice-contact deposit with layers dipping to the south at 30 degrees (away from ridge); 30 – 40% gravel</p> <p>Discontinue test pit</p>



Caledon Pit (McCormick Property)		Test Pit Log 21
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 430 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 1.0 m Fine yellow sand</p> <p>1.0 – 2.4 m Silt with some clay (moist)</p> <p>Dry at bottom of test pit</p>	<p>Location – Southeast of test pit #20 adjacent to wooded area, 23.5 m from the south property line</p> <p>Discontinue test pit</p>



Caledon Pit (McCormick Property)**Test Pit Log 22**

HM Project Number: 02-48

Date: November 7, 2002

Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon

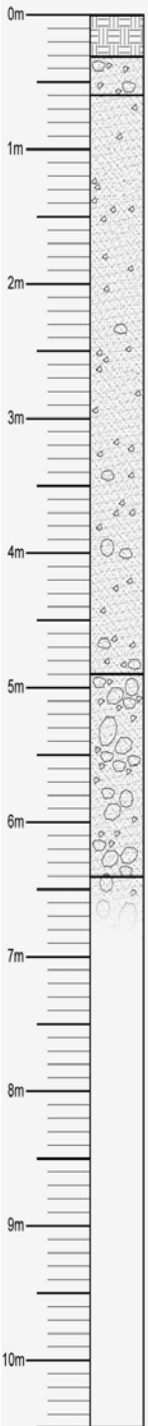
Supervisor: S.M.

Method: John Deere 200LC Excavator

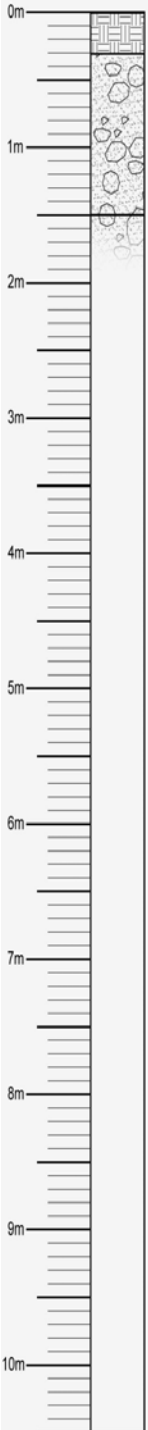
Elevation TOC:

Samples:

GS: +/- 431 m asl

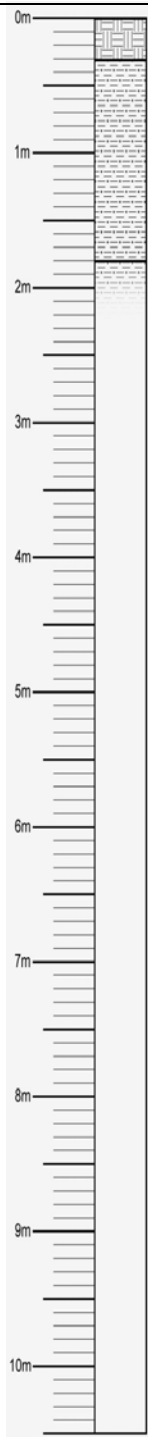
Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown) and subsoil</p> <p>0.3 – 0.6 m Clean, fine to coarse sand and gravel</p> <p>0.6 – 4.9 m Becoming sandier with clean, medium sand and pebbly gravel</p> <p>4.9 – 6.4 m Becoming coarser with pebbly to cobbly gravel</p> <p>6.4 m+ - Still in sand and gravel</p> <p>Dry at bottom of test pit</p>	<p>Location – 30 m east of test pit #20 on south slope of small ridge</p> <p>> 40% stone; slightly dipping to the south</p> <p>some silt balls or lenses noted</p> <p>occasional boulder, up to 0.6 m in diameter; some flat elongated cobbles</p> <p>Maximum reach of excavator; generally good material</p>

Caledon Pit (McCormick Property)		Test Pit Log 23
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 432 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil</p> <p>0.3 – 1.5 m Dirty, sand and gravel with numerous boulders</p> <p>Dry at bottom of test pit</p>	<p>Location – 22 m east of TP #22 on top of small ridge</p> <p>Refusal at 1.5 m; Discontinue test pit</p>

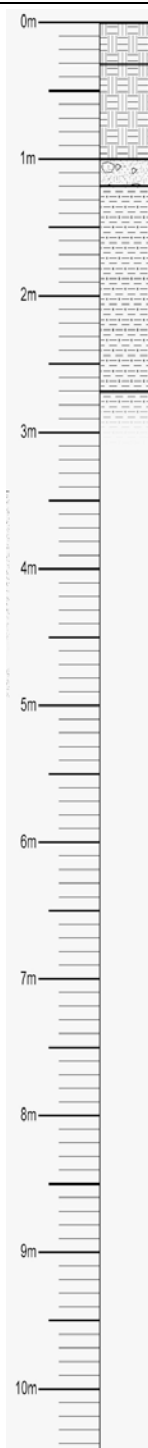


Caledon Pit (McCormick Property)		Test Pit Log 24
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 432 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil</p> <p>0.3 – 1.8 m Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – east of TP #23 on top of small ridge</p> <p>Discontinue test pit</p>

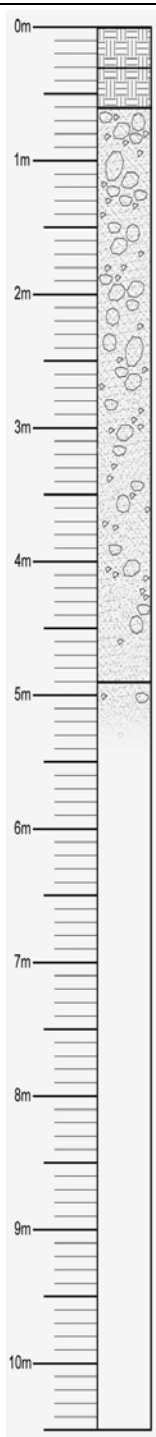


Caledon Pit (McCormick Property)		Test Pit Log 25
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 415 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 1.0 m Subsoil/overburden</p> <p>1.0 – 1.2 m Dirty sand and gravel</p> <p>1.2 – 2.7 m Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – on flat area at the north end of the kettle depression, 37 m west of rail fence</p> <p>Discontinue test pit</p>

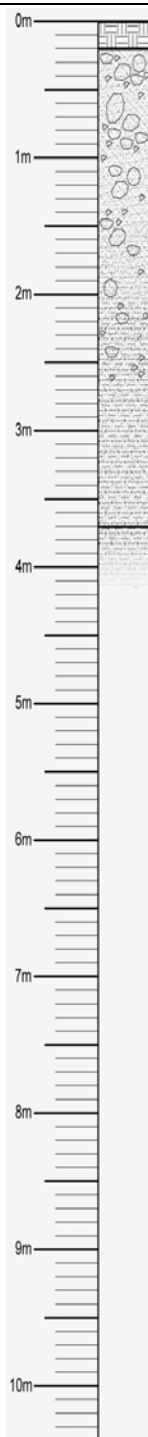


Caledon Pit (McCormick Property)		Test Pit Log 26
HM Project Number: 02-48	Date: November 7, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 421 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 0.6 m Yellowish-brown subsoil</p> <p>0.6– 4.9 m Clean, sand and gravel; fine to coarse gravel grading to cobbly gravel with medium to coarse sand; becoming finer pebbly gravel (half to 3 inches) with depth; bottom of test pit was still in sand and gravel</p> <p>Dry at bottom of test pit</p>	<p>Location – Approximately half way up hill south of TP #4 at interface between moraine and outwash</p> <p>> 40% stone; poorly sorted; minor cementation noted on some cobbles; some flat, elongated cobbles; rounded to sub-rounded stone up to 10 inches (25 cm) in diameter; discontinue test pit because sides are caving in; good material</p>




Caledon Pit (McCormick Property)		Test Pit Log 27
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 429 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.2 m Topsoil (dark brown) and subsoil</p> <p>0.2 – 3.7 m Some boulders with sand near surface; then tan-light brown, sandy silt till (Wentworth till) with few stones</p> <p>Dry at bottom of test pit</p>	<p>Location – 30 m southeast of test pit #22 and 39 m north of test pit #21 on flat area</p> <p>discontinue test pit</p>

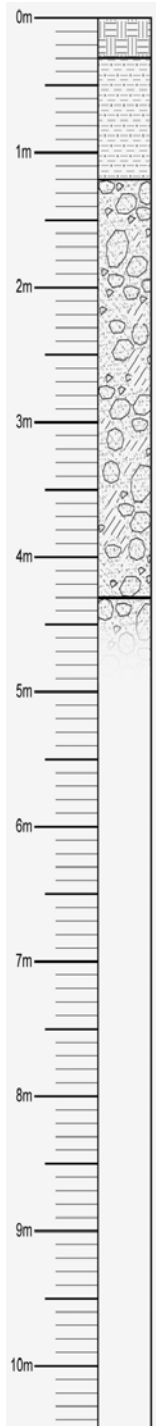


Caledon Pit (McCormick Property)		Test Pit Log 28
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 430 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.35 m Topsoil (dark brown)</p> <p>0.35 – 1.4 m Overburden</p> <p>1.4 – 1.6 m Layer of fine to medium sand</p> <p>1.6 – 2.7 m Dirty sand and gravel; horizontally bedded pebbles and cobbles</p> <p>2.7 – 5.1 m Laminated layers of silt and fine sand becoming till-like at depth</p> <p>Dry at bottom of test pit</p>	<p>Location – 7 m southeast of test pit #22 at bottom of slope of ridge</p> <p>30- 40% stone; some boulders</p> <p>discontinue test pit</p>



Caledon Pit (McCormick Property)		Test Pit Log 29
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 433 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 1.2 m Sandy, silty till (Wentworth)</p> <p>1.2 – 4.3 m Fine to coarse gravel (half to 3 inches) with cobbles up to 10 inches (25 cm); dirty, silty sand with some pockets of clean coarse sand</p> <p>Dry at bottom of test pit</p>	<p>Location – approximately 170 m west of test pit #22 on ridge at southwest woodlot</p> <p>some boulders up to 0.35 m; weathered crystalline boulders</p> <p>material till-like at depth; difficult to dig; discontinue test pit</p>



Caledon Pit (McCormick Property)**Test Pit Log 30**

HM Project Number: 02-48

Date: November 8, 2002

Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon

Supervisor: S.M.

Method: John Deere 200LC Excavator

Elevation TOC:

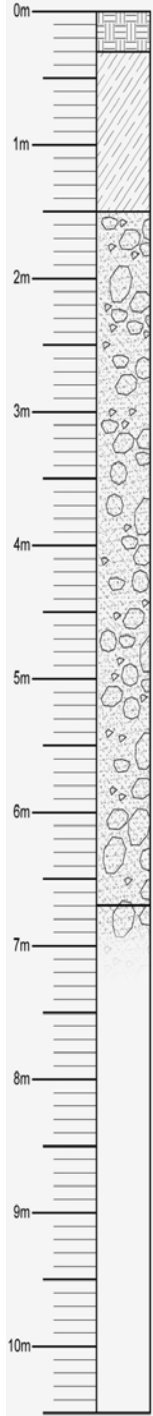
Samples:

GS: +/- 430 m asl

Depth (m)	Sample:	Description:	Remarks:
0m		0- 0.2 m Topsoil (dark brown)	Location – approximately 60 m east of test pit #29 and 59 m north of south property line on south slope of small ridge
1m		0.2 - 0.5 m Overburden	
2m		0.5 – 1.2 m Poorly sorted sand and gravel ranging from half inch to cobble size	30- 40% stone; good material
3m		1.2 – 1.5 m Silt layer	Silt dipping to the south at 10 degrees
4m		1.5 – 6.4 m Clean, medium to coarse, brown sand with gravel becoming coarser at depth; sand becoming finer at depth	> 40% stone; some boulders up to 0.38 m; stone rounded to sub-rounded; some silt at depth
5m			
6m			
7m		Sand and gravel at bottom of test pit	At maximum reach of excavator; discontinue test pit
8m			
9m			
10m		Dry at bottom of test pit	



Caledon Pit (McCormick Property)		Test Pit Log 31
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 429 m asl	


Depth (m)	Sample:	Description:	Remarks:
		0- 0.3 m Topsoil (dark brown)	Location – approximately 22 m south of test pit #30 on level area
		0.3 - 1.5 m Yellowish-brown sandy, silt loam (very dry subsoil)	Overburden increases by metres on the west side of test pit; sloping at 70 degrees
		1.5 – 6.7 m Poorly sorted sand and gravel ranging from half inch to cobble size; clean, fine to medium sand becoming medium sand with pebbly to cobbly gravel; alternating layers of clean and dirtier materials at depth	30- 40% stone; some boulders; good material Silt seams 0.3 – 0.45 cm in thickness at depth; some silt coating on stones
		Sand and gravel at bottom of test pit	At maximum reach of excavator; discontinue test pit
		Dry at bottom of test pit	



Caledon Pit (McCormick Property)

Test Pit Log 32

HM Project Number: 02-48	Date: November 8, 2002
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.
Method: John Deere 200LC Excavator	Elevation TOC:
Samples:	GS: +/- 432 m asl

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.2 m Topsoil (dark brown)</p> <p>0.2 - 1.1 m Subsoil/overburden</p> <p>1.1 – 2.4 m Fairly clean, fine to medium sand with poorly sorted gravel ranging from half inch to boulders</p> <p>2.4 – 4.0 m Silt seams; sand and gravel becoming dirtier; bouldery, silt layer – till-like</p> <p>4.0 – 5.0 m Clean, medium sand with some pebbles and cobbles</p> <p>5.0 m + - till-like material</p> <p>Dry at bottom of test pit</p>	<p>Location – approximately 59 m northeast of test pit #30 on north facing slope of ridge</p> <p>> 30% stone; rounded to sub-rounded carbonate and crystalline stones; boulders up to 0.6 m; Ice-contact deposit with layers dipping 30 degrees to the north and west;</p> <p>Silt seams 0.2 cm in thickness at depth; some silt coating on stones</p> <p>Material becoming compact and difficult to dig; discontinue test pit</p>



Caledon Pit (McCormick Property)
Test Pit Log 33

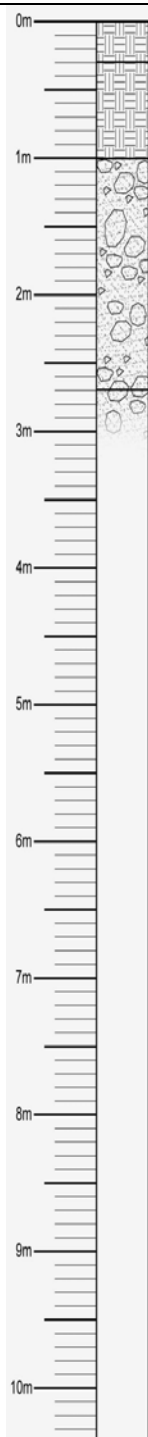
Test Pit Log 33

HM Project Number: 02-48	Date: November 8, 2002
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.
Method: John Deere 200LC Excavator	Elevation TOC:
Samples:	GS: +/- 420 m asl

Depth (m)	Sample:	Description:	Remarks:
		0- 0.3 m Topsoil (dark brown) 0.3 - 1.0 m Subsoil/overburden 1.0 – 3.0 m Wentworth till 3.0 – 3.2 m Thin layer of clean, medium sand 3.2 – 4.0 m Stonier, till-like material 4.0 – 4.6 m Clean, fine sand with some 1-3 inches (2.5 – 7.5 cm) pebbles Dry at bottom of test pit	Location – On moraine, north of TP #12 approximately 9 m from north fence line compact and difficult to dig; 10 – 15% stone;

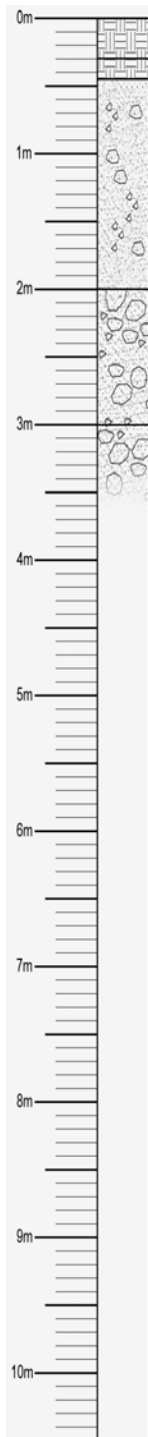


Caledon Pit (McCormick Property)		Test Pit Log 34
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 419 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 - 1.0 m Light brown subsoil</p> <p>1.0 – 2.7 m Clean, sand and gravel with 3 to 8 inch (7.5 – 20 cm) cobbles and some boulders; fine to medium sand with 1 to 3 inch (2.5 – 7.5 cm) pebbles</p> <p>Dry at bottom of test pit</p>	<p>Location – Channel cut on side of hill, approximately 123 m west of TP #33 on south side of laneway; 12.1 m south of fence line</p> <p>> 30% stone; sand and gravel dipping north at 20 degrees</p>

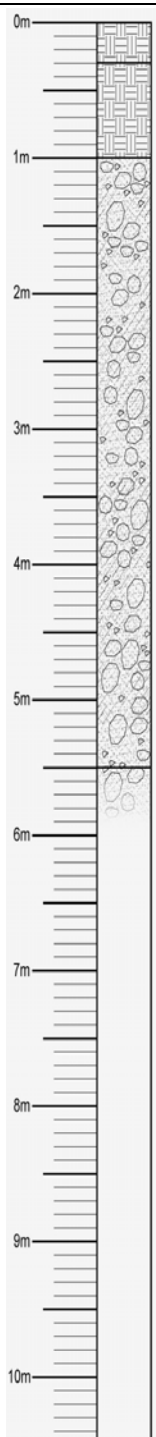


Caledon Pit (McCormick Property)		Test Pit Log 35
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 416 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 0.45 m Light brown subsoil</p> <p>0.45 – 2.0 m Very clean, sand and gravel with 1 to 3 inch (2.5 – 7.5 cm) pebbles</p> <p>2.0 – 3.0 m+ Very bony gravel with numerous cobbles and boulders</p> <p>Dry at bottom of test pit</p>	<p>Location – Channel cut on side of hill, southwest of TP #8 on south side of hay field</p> <p>> 30% stone; sides easily cave in</p> <p>> 60% stone; reddish coating on carbonate stones</p> <p>Difficulty digging through large boulders; discontinue test pit</p>

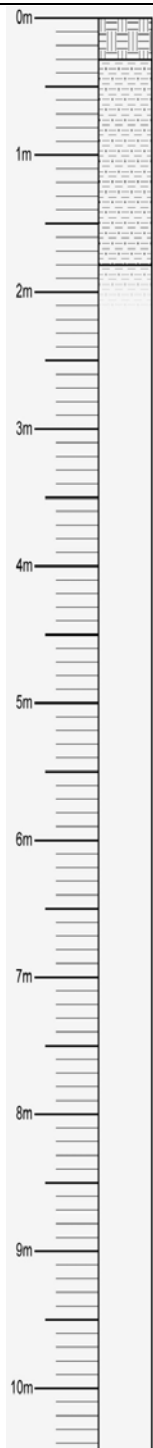


Caledon Pit (McCormick Property)		Test Pit Log 36
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 429 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 1.0 m Light brown subsoil</p> <p>1.0 – 5.5 m Poorly sorted, dirty sand and gravel with silt seams; cleaner, medium sand and pebbly gravel with some cobbles; becoming dirtier with depth</p> <p>Dry at bottom of test pit</p>	<p>Location – On small ridge north of the southwest woodlot, approximately 61 m east of the west property line</p> <p>> 30% stone;</p> <p>Silty, till-like material at depth Difficulty digging through till; discontinue test pit</p>

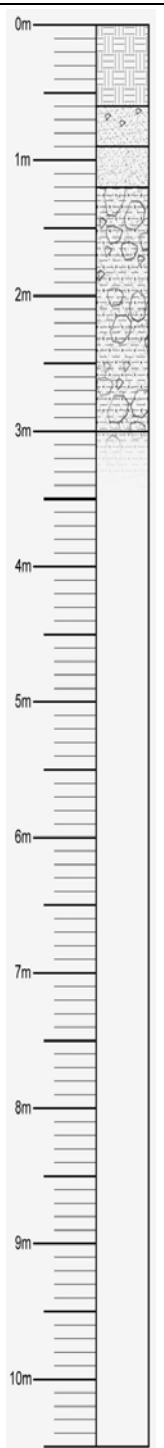


Caledon Pit (McCormick Property)		Test Pit Log 37
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 424 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown) and overburden</p> <p>0.3 – 1.8 m Wentworth till</p> <p>Dry at bottom of test pit</p>	<p>Location – On small ridge, approximately 84 m east of the old fence row by large basswood tree</p> <p>discontinue test pit</p>

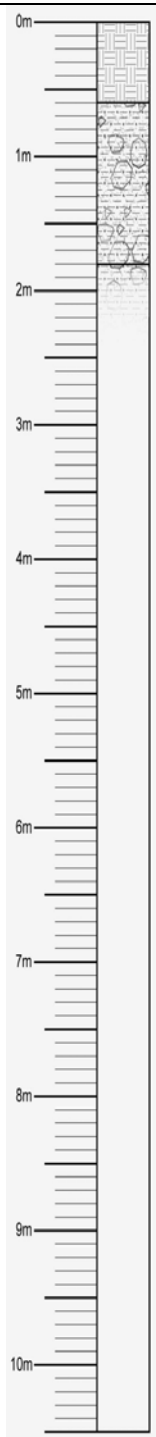


Caledon Pit (McCormick Property)		Test Pit Log 38
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 425 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.6 m Topsoil (dark brown) and overburden</p> <p>0.6 – 0.9 m A thin layer of sand and fine gravel</p> <p>0.9 – 1.2 m A thin layer of fine sand</p> <p>1.2 – 3.0 m Sandy, stony, silty till with some boulders (Wentworth)</p> <p>Dry at bottom of test pit</p>	<p>Location – On side of small ridge, approximately 32 m south of TP #37</p> <p>Layer dips to the west at about 10 degrees (away from hill)</p> <p>discontinue test pit</p>

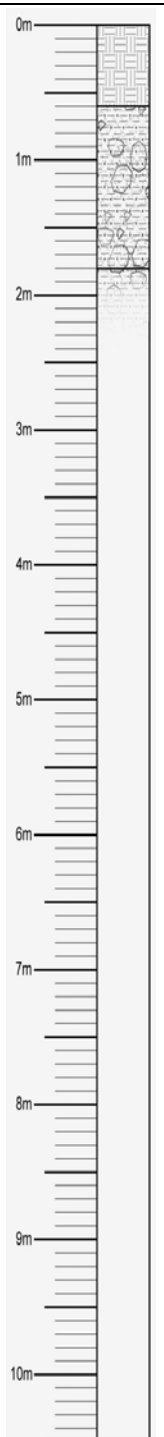


Caledon Pit (McCormick Property)		Test Pit Log 39
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 420 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.6 m Topsoil (dark brown) and overburden</p> <p>0.6 – 1.8 m Sandy, stony, silty till with some boulders (Wentworth)</p> <p>Dry at bottom of test pit</p>	<p>Location – On north side of small depression near southwest woodlot</p> <p>discontinue test pit</p>

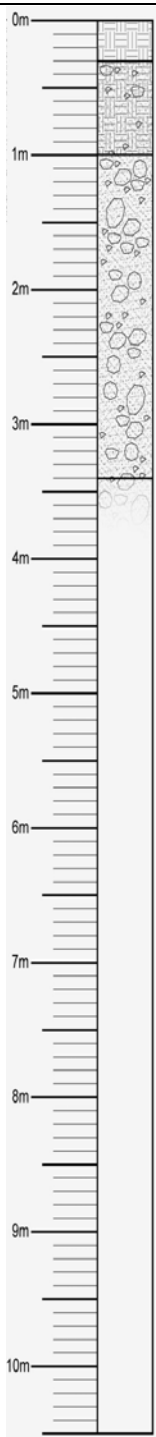


Caledon Pit (McCormick Property)		Test Pit Log 40
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 423 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.6 m Topsoil (dark brown) and overburden</p> <p>0.6 – 1.8 m Sandy, stony, silty till (Wentworth till)</p> <p>Dry at bottom of test pit</p>	<p>Location – on moraine, 43.5 m west of corner of hay field</p> <p>Compact and difficult to dig through</p> <p>discontinue test pit</p>



Caledon Pit (McCormick Property)		Test Pit Log 41
HM Project Number: 02-48	Date: November 8, 2002	
Location: Pt. Lot 12, Conc. 2 EHS, Town of Caledon	Supervisor: S.M.	
Method: John Deere 200LC Excavator	Elevation TOC:	
Samples:	GS: +/- 422 m asl	

Depth (m)	Sample:	Description:	Remarks:
		<p>0- 0.3 m Topsoil (dark brown)</p> <p>0.3 – 1.0 m Sandy, stony subsoil</p> <p>1.0 - 3.4 m Clean, sand and gravel; medium to coarse sand; fine to coarse gravel with cobbles</p> <p>Sand and gravel at bottom of test pit</p> <p>Dry at bottom of test pit</p>	<p>Location – near top of moraine, southwest of TP #4</p> <p>> 30% stone;</p> <p>Sides of test pit were caving in; discontinue test pit</p>



Appendix B

Borehole Logs



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 1 1 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 08 September 2003 LOGGED BY DL GROUND ELEV 419.11 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE					COMMENTS	
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER		% REC
0.9		<u>TOPSOIL</u> Brown topsoil, moist.		1		GS				() = Laboratory grain size analyses (*) = % of sediment retained by a # 4 sieve (4.75 mm - gravel) 5.49 to 6.1 m - (* 67 % gravel)
1		<u>SANDY SILT AND GRAVEL</u> Brown sandy silt and gravel, moist.		2		GS				
2				3		GS				
3				4		GS				
4				5		GS				
5				6		GS				
6				7		GS				
7				8		GS				
8				9		GS				
9				10		GS				
10				11		GS				
11				12		GS				
11.0				13		GS				
12				14		GS				
13		<u>SILT TILL</u> Brown silt till, trace clay, sand and gravel, moist to wet.		15		GS				Water Level at 10.7 m below ground surface, Jan.19,2004
14		<u>SAND AND GRAVEL</u> Brown sand and gravel, wet to saturated.		16		GS				
15				17		GS				
15.6				18		GS				
16				19		GS				
17				20		GS				
18				21		GS				
19				22		GS				
20				23		GS				
21				24		GS				
22				25		GS				
23			26		GS					
24			27		GS					
25			28		GS					
26			29		GS					25.62 to 26.23 m - (* 56 % gravel)
27										
28										
29										



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 1 2 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 08 September 2003 LOGGED BY DL GROUND ELEV 419.11 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE					COMMENTS		
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER		% REC	% RQD
31				30	X	GS					
32				31	X	GS					
33				32	X	GS					
34				33	X	GS					
35				34	X	GS					
36				35	X	GS					
37				36	X	GS					
38.4	38			35	X	GS				37.52 to 38.13 m - (* 48 % gravel)	
39.0	39	SHALE Red Shale Borehole terminated in red shale at about 39.04 m.		36	X	GS					



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 2	1 of 1
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 09 September 2003 LOGGED BY DL GROUND ELEV 415.50 m ASL	

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE					COMMENTS	
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER		% REC
0.9	1	<u>TOPSOIL</u> Brown topsoil, moist.		1	X	GS				() = Laboratory grain size analyses (*) = % of sediment retained by a # 4 sieve (4.75 mm - gravel) 2.75 to 3.05 m - (* 58 % gravel)
	2			2	X	GS				
	3	<u>SILTY SAND AND GRAVEL</u> Brown silty sand and gravel, moist.		3	X	GS				
	4			4	X	GS				
	5			5	X	GS				
	6			6	X	GS				
	7			7	X	GS				
4.6	8			8	X	GS				
	9	<u>SAND AND GRAVEL</u> Brown sand and gravel, moist.		9	X	GS				
	10			10	X	GS				
	11			11	X	GS				
	12			12	X	GS				
	13			13	X	GS				
	14			14	X	GS				
	15			15	X	GS				
	16			16	X	GS				
	17			17	X	GS				
	18			18	X	GS				
	19			19	X	GS				
12.5	20			20	X	GS				
	21	<u>SANDY SILT AND GRAVEL</u> Brown sandy silt and gravel, moist.		21	X	GS				
	22			22	X	GS				
	23			23	X	GS				
	24			24	X	GS				
	25			25	X	GS				
	26			26	X	GS				
	27			27	X	GS				
	28			28	X	GS				
	29			29	X	GS				
	30			30	X	GS				
	31			31	X	GS				
	32			32	X	GS				
	33			33	X	GS				
	34			34	X	GS				
	35			35	X	GS				
	36			36	X	GS				
	37			37	X	GS				
	38			38	X	GS				
	39			39	X	GS				
	40			40	X	GS				
	41			41	X	GS				
	42			42	X	GS				
	43			43	X	GS				
		<u>SHALE</u> Red Shale Borehole terminated in red shale at about 26.23 m. Borehole dry upon completion - no monitor installed.								



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 3 1 of 1
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 10 September 2003 LOGGED BY DL GROUND ELEV 415.95 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE					COMMENTS	
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER		% REC
0.9	1	<u>TOPSOIL</u> Brown topsoil, moist.		1	X	GS				() = Laboratory grain size analyses (*) = % of sediment retained by a # 4 sieve (4.75 mm - gravel)
	2			2	X	GS				
	3	<u>SILTY SAND AND GRAVEL</u>		3	X	GS				
	4	Brown silty sand and gravel, moist to wet.		4	X	GS				
	5			5	X	GS				
	6			6	X	GS				
	7			7	X	GS				
	8			8	X	GS				
	9			9	X	GS				
	10			10	X	GS				
	11		11	X	GS				4.27 m - (* 6 % gravel)	
	12		12	X	GS					
	13		13	X	GS					
	14		14	X	GS					
	15		15	X	GS					
	16		16	X	GS					
	17	-becoming saturated below about 9.8 m.	17	X	GS					Water level at 8.8 m below ground surface, Jan.19, 2004
	18		18	X	GS					9.15 m - (* 38 % gravel)
11.3	19		19	X	GS					
	20	<u>SANDY GRAVEL</u>	20	X	GS					
	21	Brown sandy gravel to sand and gravel ,saturated.	21	X	GS					12.2 m - (* 18 % gravel)
	22		22	X	GS					
	23		23	X	GS					
	24		24	X	GS					
	25		25	X	GS					
	26		26	X	GS					
	27		27	X	GS					
	28		28	X	GS					
	29		29	X	GS					
	30		30	X	GS					
	31		31	X	GS					18.3 m - Sandy gravel
	32		32	X	GS					(77 % gravel, 22.4 % sand and
	33		33	X	GS					0.6 % silt)
	34		34	X	GS					
	35		35	X	GS					
	36		36	X	GS					
	37		37	X	GS					
	38		38	X	GS					
	39		39	X	GS					
	40		40	X	GS					
	41		41	X	GS					
	42		42	X	GS					
25.9	43		43	X	GS					25.62 m - (* 65 % gravel)
	44	<u>SILT TILL</u>	44	X	GS					
	45	Brown silt till, some clay, trace sand and gravel, saturated.	45	X	GS					
27.5		Borehole terminated in silt till at about 27.45 m.								



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 4 1 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 10 September 2003 LOGGED BY DL GROUND ELEV 419.26 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE						COMMENTS		
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER	% REC		% RQD	
0.9	1	<u>TOPSOIL</u> Brown topsoil, moist.		1	X	GS					(*) = % of sediment retained by a # 4 sieve (4.75 mm - gravel)	
				2	X	GS						
				3	X	GS						
2.8	2	<u>SILTY SAND AND GRAVEL</u> Brown silty sand and gravel, moist.		4	X	GS					1.83 m - (* 49 % gravel)	
				5	X	GS						
				6	X	GS						
				7	X	GS						
				8	X	GS						
4.9	3	<u>SAND</u> Brown sand, moist.		9	X	GS						
				10	X	GS						
			11	X	GS							
			12	X	GS							
			13	X	GS							
			14	X	GS							
			15	X	GS							
			16	X	GS							
			17	X	GS							
			18	X	GS							
11.3	4	<u>SAND</u> Brown sand, occasional gravel, wet to saturated. -becoming saturated below about 12.2 m.		19	X	GS					Water level at 10.9 m below ground surface, Jan.19, 2004	
				20	X	GS						
				21	X	GS						
				22	X	GS						
				23	X	GS						
13.7	5	<u>SANDY GRAVEL</u> Brown sandy gravel, saturated.		24	X	GS						
				25	X	GS						
				26	X	GS						
				27	X	GS						
				28	X	GS						
			29	X	GS							
			30	X	GS							
			31	X	GS							
			32	X	GS							
			33	X	GS							
19.8	6	<u>SILT TILL</u> Brown silt till, trace clay, sand and gravel, saturated.		34	X	GS					17.08 m - (* 63 % gravel)	
				35	X	GS						
				36	X	GS						
				37	X	GS						
				38	X	GS						
				39	X	GS						
				40	X	GS						
				41	X	GS						
				42	X	GS						
				43	X	GS						
23.8	7	<u>SANDY SILT AND GRAVEL</u> Brown sandy silt and gravel, moist.		44	X	GS					25.62 m - (* 34 % gravel)	
				45	X	GS						
				46	X	GS						
				47	X	GS						
				48	X	GS						
				49	X	GS						
29.0	8	<u>SAND AND GRAVEL</u>										29.28 m - (* 33 % gravel)



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 4 2 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 10 September 2003 LOGGED BY DL GROUND ELEV 419.26 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE						COMMENTS	
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER	% REC		% RQD
30.2		Brown sand and gravel, saturated.		50	X	GS					
31.4		SILT TILL		51	X	GS					
31		Brown silt till, trace clay, sand and gravel, saturated.		52	X	GS					
32.3		SHALE		53	X	GS					
32		Red Shale									
		Borehole terminated in red shale at about 32.33 m.									





BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 5 1 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 11 September 2003 LOGGED BY DL GROUND ELEV 425.19 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE					COMMENTS	
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER		% REC
0.8		<u>TOPSOIL</u> Brown topsoil, moist.		1	X	GS				(*) = % of sediment retained by a # 4 sieve (4.75 mm - gravel)
1				2	X	GS				
2		<u>SAND</u> Brown sand, occassional gravel, moist.		3	X	GS				
3				4	X	GS				
4				5	X	GS				
5				6	X	GS				
6				7	X	GS				
7				8	X	GS				
8				9	X	GS				
9				10	X	GS				
10				11	X	GS				6.71 m - (* 46 % gravel)
11				12	X	GS				
11.9				13	X	GS				
12		<u>SANDY GRAVEL</u> Brown sandy gravel, moist.		14	X	GS				
13				15	X	GS				
14				16	X	GS				
15				17	X	GS				
15.6				18	X	GS				
16		<u>SAND</u> Brown sand, trace gravel, moist to wet.		19	X	GS				
17				20	X	GS				
18				21	X	GS				13.42 m - (* 62 % gravel)
19				22	X	GS				
20				23	X	GS				
20.7				24	X	GS				
21				25	X	GS				
22				26	X	GS				
23				27	X	GS				
24				28	X	GS				
24.7				29	X	GS				
25				30	X	GS				
26				31	X	GS				Water level at 18 m below ground surface, Jan.19, 2004
27				32	X	GS				
28				33	X	GS				
29				34	X	GS				
29.6				35	X	GS				
				36	X	GS				
				37	X	GS				
				38	X	GS				
				39	X	GS				
				40	X	GS				
				41	X	GS				21.96 m - (* 28 % gravel)
				42	X	GS				
				43	X	GS				
				44	X	GS				
				45	X	GS				
				46	X	GS				
				47	X	GS				
				48	X	GS				
				49	X	GS				



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 5 2 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 11 September 2003 LOGGED BY DL GROUND ELEV 425.19 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE				COMMENTS			
				NUMBER	INTERVAL	TYPE	N VALUE		% WATER	% REC	% RQD
31		<u>SAND AND GRAVEL</u> Brown sand and gravel, saturated.		50	X	GS					31.72 m - (* 66 % gravel)
32		51		X	GS						
33		52		X	GS						
33.9		53		X	GS						
34		54		X	GS						
35		55		X	GS						
36		56		X	GS						
37		57		X	GS						
38		58		X	GS						
39		59		X	GS						
40		60		X	GS						
41.2		61		X	GS						
		62		X	GS						
		63		X	GS						
		64		X	GS						
		65		X	GS						
		66		X	GS						
		67		X	GS						
		Borehole terminated in silt till at about 41.18 m.									



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 6	1 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 12 September 2003 LOGGED BY DL GROUND ELEV 430.31 m ASL	

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE						COMMENTS	
				NUMBER	INTERVAL	TYPE	N VALUE	% WATER	% REC		% RQD
0.9		<u>TOPSOIL</u> Brown topsoil, moist.		1	X	GS					() = Laboratory grain size analyses (*) = % of sediment retained by a # 4 sieve (4.75 mm - gravel)
1				2	X	GS					
2		<u>SILTY SAND</u> Brown silty sand, trace gravel, moist.		3	X	GS					
3				4	X	GS					
4				5	X	GS					
5				6	X	GS					
6				7	X	GS					
7				8	X	GS					
8				9	X	GS					
9				10	X	GS					
10				11	X	GS					6.71 m - Silty sand, some gravel (6.8% gravel, 56.7 % sand and 26.5 % silt)
11				12	X	GS					
12				13	X	GS					
13				14	X	GS					
13.1				15	X	GS					
14				16	X	GS					
15				17	X	GS					
16				18	X	GS					
16.8				19	X	GS					
17				20	X	GS					
18		<u>SILT TILL</u> Brown silt till, trace clay, sand and gravel, moist.		21	X	GS					17.08 m - (* 76 % gravel)
19				22	X	GS					
20				23	X	GS					
21				24	X	GS					
22				25	X	GS					
23				26	X	GS					
24				27	X	GS					
25				28	X	GS					
25.3				29	X	GS					
26				30	X	GS					
27				31	X	GS					
28				32	X	GS					
29				33	X	GS					
				34	X	GS					
				35	X	GS					
				36	X	GS					
				37	X	GS					
				38	X	GS					
				39	X	GS					
				40	X	GS					23.18 m - (* 42 % gravel)
				41	X	GS					
				42	X	GS					
				43	X	GS					
				44	X	GS					
				45	X	GS					
				46	X	GS					
				47	X	GS					
				48	X	GS					
				49	X	GS					
											Water level at 25.4 m below ground surface, Jan.19, 2004



BOREHOLE LOG	PROJECT: 23-348	BOREHOLE: 6 2 of 2
McCormick Pit Caledon, Ontario-Hart Lake Road FOR: Harrington and Hoyle		DATE: 12 September 2003 LOGGED BY DL GROUND ELEV 430.31 m ASL

DEPTH (m)	STRATIGRAPHY	STRATIGRAPHIC DESCRIPTION	MONITOR DETAILS & NUMBER	SAMPLE				COMMENTS			
				NUMBER	INTERVAL	TYPE	N VALUE		% WATER	% REC	% RQD
31	<div></div>	<div></div>	<div></div>	50	X	GS	<div></div>	<div></div>	<div></div>	<div></div>	30.5 m - (* 9 % gravel)
32				51	X	GS					
33				52	X	GS					
33.9				53	X	GS					
34				54	X	GS					
35.1				55	X	GS					
35				56	X	GS					
36				57	X	GS					
37				58	X	GS					
38				59	X	GS					
39				60	X	GS					
40				61	X	GS					
41.2				62	X	GS					
41				63	X	GS					
				64	X	GS					
				65	X	GS					
				66	X	GS					
				67	X	GS					
		Borehole terminated in sand at about 41.18 m.									



Appendix C

Statement of Qualifications





**Statement of Qualifications
Harrington McAvan Ltd
Glenn D. Harrington, OALA, FCSLA
Bernhard Janssen, B.E.S.**

Harrington McAvan Ltd is a firm of landscape architects practicing in Ontario for the past thirty-six years. The firm has expertise in landscape architecture, earth sciences, and biology, with a focus on stream and wetland restoration and rehabilitation projects.

Harrington McAvan Ltd (previously Harrington and Hoyle Ltd.) have been producing Site Plans for aggregate licenses for the past thirty years and in that time have prepared well over 150 successful plans. The firm has consulted to the Ontario Ministry of Natural Resources on a variety of legislative initiatives and was retained in 1990 to prepare the *Generic 'Class A' Site Plans* as examples of new standards required under the Aggregate Resources Act (ARA). The firm is an associate member of the Ontario Stone, Sand & Gravel Association (formerly Aggregate Producers' Association of Ontario).

Mr. Glenn Harrington is a full member of the Ontario Association of Landscape Architects and a Fellow of the Canadian Society of Landscape Architects. He has been coordinating applications and preparing site plans for over thirty years for pits and quarries across the province.

Mr. Harrington has served on numerous provincial advisory committees including the State of the Aggregate Resources Report, and the Aggregate Strategy Working Group.

Mr. Bernie Janssen received his Bachelor of Environmental Studies degree from the University of Waterloo in 1983. He had over fourteen years experience working in MNR's aggregate program in the greater Toronto and London areas, dealing with plans, license applications, and reports before joining Harrington McAvan Ltd in 1997.

Mr. Janssen specializes in compliance assessments and reports under the ARA, operations planning, and aggregate resource assessment. In 1988 he was granted approval by the Ministry of Natural Resources to prepare site plans under the Aggregate Resources Act.

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