Geotechnical Engineering

Environmental Engineering

Hydrogeology

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Groundwater Impact Assessment

Proposed Residential Development
Mahogany Community Development
Ottawa (Manotick), Ontario

Prepared For

Minto Communities Inc.

June 9, 2017

Report: PG4045-1

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List of Appendices

1.0 INTRODUCTION

1.1 Background

Paterson Group (Paterson) was retained by Minto Communities Inc. to complete a groundwater impact assessment to support a development application for the subject property located in Lots 4 and 5 of Concession A in the Village of Manotick, Ontario (hereinafter referred to as the "subject site"). See Paterson Drawing PG4045-1 – Site Plan for site location.

The purpose of this report is to characterize the hydrogeological setting, identify potential impacts to the groundwater and assess the relative degree of risk associated with the identified potential impacts at the subject site.

1.2 Proposed Development

It is Paterson's understanding that the subject site has a portion of Stage 1 complete and will continue the development of the residential subdivision in future stages. It is expected that the mixture will consist of single family homes, semi-detached homes, townhomes and institutional lands. The subject site consists of multiple municipal lots and has been described by the lots and concession location. The future development is expected to extend from Manotick Main Street to First Line Road and from Century Road to the northern extend of Lot 4 and Concession A. However, the timeframe to complete all stages are anticipated to be 10 to 20 years. This assessment will review stages 2 to 4.

2.0 SITE DESCRIPTION

The subject site has a portion of Stage 1 complete that is located west of Manotick Main Street. The area proposed for development is approximately 195 hectares. The site is bordered by vacant agricultural lands and/or residential dwellings to the north, Manotick Main Street to the east, Century Road to the south, and First Line Road to the west. The Mud Creek Drain and the Thomas Baxter Drain cross the western limits of the proposed stages at the subject site. The Wilson Cowan Drain crosses through the center of the site with Mahogany Creek passing through the eastern portion. See Paterson Drawing PG4045-1 – Site Plan for development limits related to Stages 2 to 4.

2.1 Surrounding Land Use

The surrounding land uses are as described below:

North

- Residential land with single family homes. Typically on private wells and sewer systems. Limited area to the northeast with municipal servicing.

East

- Residential land with single family homes. Some private and municipal services.
- Manotick Main Street Right-of-way.
- Rideau River.

West

- Residential land with single family homes. Typically on private wells and sewer systems.
- Agricultural crop land.

South

- Residential land with single family homes. Typically on private wells and sewer systems.
- Agricultural crop land.

2.2 Potential Sources of Contamination

A Phase I Environmental Site Assessment was conducted by Paterson in January 2017. The assessment indicated that the historical property usage was agricultural. No sources of potentially contaminating activity were identified with respect to the historical land use of the subject site.

Potential off-site contamination sources were identified as a former retail fuel outlet at 5646 Manotick Main Street and road salt application along Manotick Main Street. The retail fuel outlet is not considered to be an area of potential environmental concern due to the distance from the subject site (approximately 200m) and the application of road salt on Manotick Main Street is expected to be localized and confined to the overburden unit.

3.0 METHOD OF INVESTIGATION

3.1 Field Program

There were five geotechnical field programs carried out in relation to this site by Paterson. The first program was conducted in July 2000, where 18 test pits were completed to a maximum depth of 3.8 m below ground surface (bgs). The second was conducted in May 2004, where 12 boreholes were completed to a maximum depth of 8.9 m bgs. The third program was conducted in July 2004, where 6 boreholes were completed to a maximum depth of 12.7 m bgs. The fourth was conducted in June 2006, where 6 boreholes were completed to a maximum depth of 17.4 m bgs. The final program was conducted in July 2007 and January of 2008, where 49 boreholes were completed to a maximum depth of 9.8 m bgs. The test hole locations are shown on Drawing PG0675-6 - Test Hole Location Plan included in Appendix 1.

The subsurface conditions observed in the test holes were recorded in detail in the field. The soil profiles are presented on the Soil Profile and Test Data sheets in Appendix 1 of this report.

The boreholes were advanced using a track-mounted auger drill rig operated by a two-person crew while the test pits were advanced using a track mounted excavator. Both drilling and excavating occurred under full-time supervision of Paterson personnel.

Soil samples were obtained from the boreholes by means of split spoon sampling and the sampling of shallow soils directly from auger flights. Split spoon samples were taken at approximate 0.76 m intervals. The depths at which grab, split spoon and auger flight samples were obtained from the test holes are shown as "**G**", "**SS**" and "**AU**" respectively on the Soil Profile and Test Data Sheets, appended to this report.

The Standard Penetration Test (SPT) was conducted in conjunction with the recovery of the split-spoon samples. The SPT results are recorded as "N" values on the Soil Profile and Test Data sheets. The "N" value is the number of blows required to drive the split-spoon sampler 300 mm into the ground after a 150 mm initial penetration using a 63.5 kg hammer falling from a height of 760 mm. This test was done in accordance with ASTM D1586-11 - Standard Method for Penetration Test and Split-Barrel Sampling of Soils.

All soil samples were classified on site, placed in sealed plastic bags and were transported to our laboratory for further review and testing. Transportation of the

samples was completed in accordance with ASTM D4220-95 (2007) - Standard Practice for Preserving and Transporting Soil Samples.

Subsurface conditions observed in the test holes were recorded in detail in the field. Reference should be made to the Soil Profile and Test Data sheets presented in Appendix 1 for specific details of the soil profile encountered at the test hole locations.

3.2 Overburden Groundwater Level Monitoring

Flexible polyethylene standpipes were installed in select boreholes to permit the monitoring of groundwater levels subsequent to the completion of the field program.

Following the geotechnical program, groundwater levels were measured at the piezometer installations using an electronic water level meter. Groundwater levels were measured relative to the ground surface elevation at each monitoring installation. Groundwater levels at all locations are summarized in Table 1, appended to this report.

Groundwater levels may vary due to seasonal fluctuations and may be different at the time of construction. Areas consisting of cohesive soils may have elevated groundwater level readings due to perched conditions.

3.3 Water Well Records Database

A search of the Ministry of the Environment and Climate Change (MOECC) Water Well Record database returns numerous water wells within the vicinity of the subject site. The development to the north of the subject site, within a 100 m buffer, also contains a number of wells that were not registered with the MOECC at the time of construction. There are approximately 34 potential well locations along the northern property boundary that are expected to be located at each residence in the front yard (adjacent to Potter Drive). Typical MOECC practice is to assume the well location at the centre of the front yard if the well is buried and are unable to locate the installation. The wells are expected to be approximately 150 m away, horizontally, from the nearest servicing excavations.

The MOECC water well records within the database show the wells encountering water bearing fractures within the bedrock and are depicted on Paterson drawing PG4045-2 – MOECC Water Well Location Plan.

Two monitoring wells are mapped on site adjacent to the existing sewer pumping station. The MOECC Well ID for the wells are 7181759 and 7181760. These wells extend to depths of 11.6 to 14.5 m below ground surface (bgs). Field reconnaissance was unable to locate the wells.

Existing water supply well records indicate that, in the area surrounding the subject site, the wells are generally completed at significant depths within the Oxford Formation and potentially extending into the March Formation bedrock aquifers. All of these wells were reported as encountering water-bearing zones below the proposed servicing depths at the subject site. As such, these wells are considered to have a relatively low potential to be impacted by construction dewatering activities at the subject site.

3.4 Permit to Take Water Database

The nearest existing PTTW is 7850-ABSPNZ for Meyknecht-Lischer Contractors Ltd. The MOECC PTTW mapping tool indicates that the purpose is construction dewatering taking surface and ground water. The site is located approximately 900 m north of the subject site. It is not expected that there will be any negative effects related to the combined water takings due to the distance and strata separating the sites.

With regards to the Environmental Activity and Sector Registry (EASR), no active registries were found within greater than 1 km of the subject site on the MOECC EASR database.

4.0 GEOLOGY

4.1 Overburden Geology

The available surficial geology mapping from OGS Earth indicate that the site mainly consists of offshore marine sediments consisting of clay and silt at surface. There are localized areas with plain to drumlinized till consisting of stone-poor, sandy silt to silty sand. The mapped information is generally consistent with the geotechnical investigations at the subject site. Overburden soils mapping is shown on Paterson Drawing PG4045-4 – Overburden Geology.

The general stratigraphy identified during the geotechnical investigation generally consisted of a thin layer of topsoil overlying a silty clay strata followed by a till (silty sand matrix).

The overburden thickness is estimated to range from 2 to 25 m based upon available geological mapping. The geotechnical investigations encountered bedrock at a maximum depth of 17.4 m.

4.2 Bedrock Geology

The available geological mapping information from OGS Earth shows that the subject site is located in an area where the upper bedrock consists of Lower Ordovician dolomite of the Oxford formation. The Oxford formation is considered to be an aquifer unit typically providing good water quality and quantity. Bedrock geology mapping is shown on Paterson Drawing PG4045-3 – Bedrock Geology.

4.3 Hydrogeology

The area consists of a shallow unconfined overburden aquifer and an underlying bedrock aquifer. The depth to groundwater in the overburden piezometers typically ranged from 1 to 2 m below ground surface. Groundwater flow direction in the overburden unit is interpreted to be eastwards toward the Rideau River.

The overburden unit forms a confining layer over the till and bedrock units due to the thickness of the marine sediments consisting of clay and silt. The confining layer contributes protection to the underlying bedrock aquifer from potential impacts. The overburden aquifer is not used as a source of potable water due to the low hydraulic conductivities of the material.

The bedrock aquifer consists of water bearing fracture zones that occur between relatively unfractured layers of massive bedrock. It is expected the horizontal

bedding plane fracture zones are the water bearing zones with the upper bedrock layer forming a confining layer. The groundwater flow within the bedrock unit is interpreted to flow north to northeast based upon bedrock elevations and the location of the Rideau River.

There are no significant groundwater discharge zones in the vicinity of the subject site and no significant groundwater recharge zones within the subject site due to the thickness and low hydraulic conductivity of the overburden unit. This reduces the potential recharge from the overburden to the bedrock unit. Recharge to the bedrock unit occurs over a regional scale with portions occurring to the west to northwest of the site within the Kars Esker (west of First Line Road) and surrounding areas labeled as an area of significant groundwater recharge area (SGRA) in the Mud Creek Subwatershed Study (2015).

The site evaluation indicates that the subject site is not hydrogeologically sensitive. The rate of infiltration from the overburden unit to the bedrock unit is considered to be very low due to low hydraulic conductivity of the overburden and the massive nature of the upper bedrock strata.

5.0 GROUNDWATER IMPACT ASSESSMENT

The potential groundwater impacts were identified for the subject site as follows:

- Construction Dewatering
- Stormwater Runoff
- Road salting
- Ongoing Residential Usage
- Construction activities
- Neighboring residential sewage treatment systems

5.1 Construction Dewatering

In areas where ground or surface water is encountered during construction activities, dewatering will be required to ensure a dry excavation is maintained for safety and quality of installation. It is expected that the shallowest excavations will be within the roadways adjacent to the northern subject site boundary and are expected to be in the range of 4 to 5 m bgs. The maximum depth of excavation is expected to be approximately 6.5 to 7 m through the central east-west portion of the site for the deepest sewer collectors. A permit to take water (MOECC Reference Number – 3181-AJ5PKS) is in place for construction dewatering where required.

It is not expected that construction dewatering within the overburden unit will negatively impact the bedrock aquifer due to the vertical separation distance and confining nature of the overburden unit and the transient nature of construction dewatering.

5.2 Stormwater Runoff

Stormwater runoff on construction sites may contain high concentrations of total suspended solids (TSS) if left uncontrolled. Various control measures implemented during construction will mitigate the associated potential impacts. However, the potential impacts to the bedrock aquifer are considered to be negligible due to the vertical separation distance and confining nature of the overburden unit.

Erosion and sediment control plans will be used during construction to minimize the potential impacts related to stormwater runoff into excavations and on site watercourses.

5.3 Road Salting

The City of Ottawa road maintenance plan generally does not provide salt application processes to residential classed roadways. The potential road salt impacts would be expected to occur along Manotick Main Street and Century Road right-of-ways. It is expected that the potential for impacts will be confined to the overburden unit with negligible impacts on the bedrock aquifer due to the vertical separation distance and the confining nature of the overburden unit. Future usage of road salt within the development is, also, not expected to have a negative effect on the bedrock aquifer in the vicinity of the subject site.

5.4 Ongoing Residential Usage

Potential impacts from ongoing residential usage (i.e. garden fertilizer application, pesticide application etc.) to the bedrock aquifer are expected to be negligible. The potential for impacts to the bedrock aquifer in the vicinity of the subject site are considered to be negligible due to the vertical separation distance and confining nature of the overburden unit.

5.5 Construction Activities

The following construction related activities have the potential to impact groundwater at the subject site:

- Storage and handling of liquid fuels (i.e. Refueling of large and small construction equipment).
- Handling and disposal of construction related chemicals (i.e. adhesives, sealants, paints, etc.) and associated waste material.

The potential for impacts to the bedrock aquifer in the vicinity of the subject site are considered to be negligible due to the vertical separation distance and confining nature of the overburden unit.

5.6 Neighbouring Residential Sewage Treatment Systems

Potential impacts associated with neighbouring sewage treatment systems may be assessed by sampling offsite water supply wells.

The ongoing use of sewage treatment systems on neighbouring properties is not expected to have any significant impact on the bedrock aquifer in the vicinity of the subject site.

5.7 Risk Assessment Summary

The relative degree of risk to the bedrock aquifer, associated with the aforementioned potential impacts, have been identified as negligible. The potential impacts, as discussed in the previous sections, have been identified as having an extremely low relative degree of risk to the bedrock aquifer.

6.0 GROUNDWATER MONITORING PLAN

A comprehensive groundwater monitoring plan is not considered to be necessary, because the construction water takings will be of a short term nature and there will be negligible impact to the bedrock aquifer.

Due to the shallow excavations anticipated for the development, the radius of influence is expected to have a significant buffer between the assumed water well locations at the centre of the front yards along Potter Drive and the proposed servicing excavations. The buffer includes the residential lots within the development adjacent to the northern development boundary.

As a precautionary measure, the two monitoring wells adjacent to the existing sanitary pumping station, with locations based upon MOECC mapping, will be monitored periodically. The monitoring will be contingent upon locating the wells and condition of the monitoring well installations.

6.1 Impact of Proposed Development on Surrounding Wells

As a component of this investigation, a review of water well records in the vicinity of the subject site was conducted, using the Ministry of the Environment and Climate Change's (MOECC) online water well record search tool. The majority of water well records in the vicinity of the site are non-existent. Reports that were available have been appended to this report, and the locations of the water wells provided by MOECC's mapping tool are shown on attached Drawing PG4045-2 – MOECC Water Well Location Plan.

A field survey would be required to confirm the location and well depths during the baseline testing program for residences that do not show a well location on the MOECC mapping or are believed to be mapped at inaccurate locations. Typically, wells accessing deeper aquifers are at lower risk of impacts by construction dewatering activities due to the greater vertical separation between the dewatering zone and the zone(s) at which water was encountered in these wells.

It is noted that the wells selected are considered to be a representative sampling of the wells closest to the northern development boundary. As there are no expected impacts to the existing water wells, any well testing would be a precautionary measure to protect the homeowner, Minto Communities and the City of Ottawa interests.

The baseline monitoring program will consist of the following:

- A letter will be provided to homeowners, within the 100 m buffer, outlining the proposed monitoring program and that a target of 10 to 20% of residences within 100 m of the property buffer will be approached as a representative sample.
- An interview will be conducted with co-operative homeowners to determine qualitative water quality and a request for a copy of the well record will be issued as there are none registered with the MOECC within the proposed monitoring area.
- A visual inspection of the well exterior will be completed for wells that are accessible. The details of the well (location, casing type, address, well tag number) will be verified with the published well record, if possible. Any discrepancies will be noted.
- The approximate location of the well will be referenced relative to the residence. If wells cannot be located, the centre of the front yard will be used as the well location.
- A water sample will be obtained from a suitable tap prior to any treatment process (disinfection, softening, etc.) where possible. The water sample will be submitted for analytical testing for the City of Ottawa “subdivision package” suite of parameters.

7.0 STATEMENT OF LIMITATIONS

The client should be aware that any information pertaining to soils and all test hole logs are furnished as a matter of general information only, and test hole descriptions or logs are not to be interpreted as descriptive of conditions at locations other than those of the test holes.

The conclusions presented are based upon information from a limited historical review and field inspection. The findings of this investigation are based on a review of readily available geological, historical and regulatory information. The historical research relies on information supplied by municipal and provincial agencies and was limited within the scope of work, time and budget of the project herein.

This report has been prepared for Minto Communities Inc. in support of the Mahogany Community development. Any use of this report for purposes other than those described herein or by person(s) other than Minto Communities Inc. or their agent(s) is not authorized without review by Paterson Group for the applicability of our recommendations to the altered usage of the report.

Paterson Group Inc.

Michael S. Killam, P.Eng.

Report Distribution:

- Minto Communities Inc.
- Paterson Group Inc.

8.0 REFERENCES

City of Ottawa – Public Works and Services Department – Surface Operations Branch. “Material Application Policy – Revision 3.2”, dated October 31, 2011.

Freeze, R.A., and Cherry, J.A. “Groundwater”. Prentice-Hall, Inc., 1979.

Mississippi Valley Conservation Authority and Rideau Valley Conservation Authority, “Mississippi-Rideau Source Protection Plan”, Effective January 1, 2015.

"Mud Creek Subwatershed study" Prepared for the City of Ottawa, dated October 2015.

Natural Resources Canada. “Urban Geology of the National Capital Region”, mapping released 1994.

Ontario Ministry of Northern Development and Mines “Geology of Ontario, Ontario Geological Survey Special Volume 4”, Queen's Printer for Ontario, 1992.

Paterson Group Inc. “Final Geotechnical Investigation – Mahogany Community – First Line Road, Ottawa, Ontario”, November 21, 2007.

Paterson Group Inc. “Supplemental Geotechnical Investigation – Mahogany Community – First Line Road, Ottawa, Ontario”, November 21, 2007.

APPENDIX 1

Drawing PG0675-1 – Test Hole Location Plan

PG0675-1 – Soil Profile and Test Data Sheets

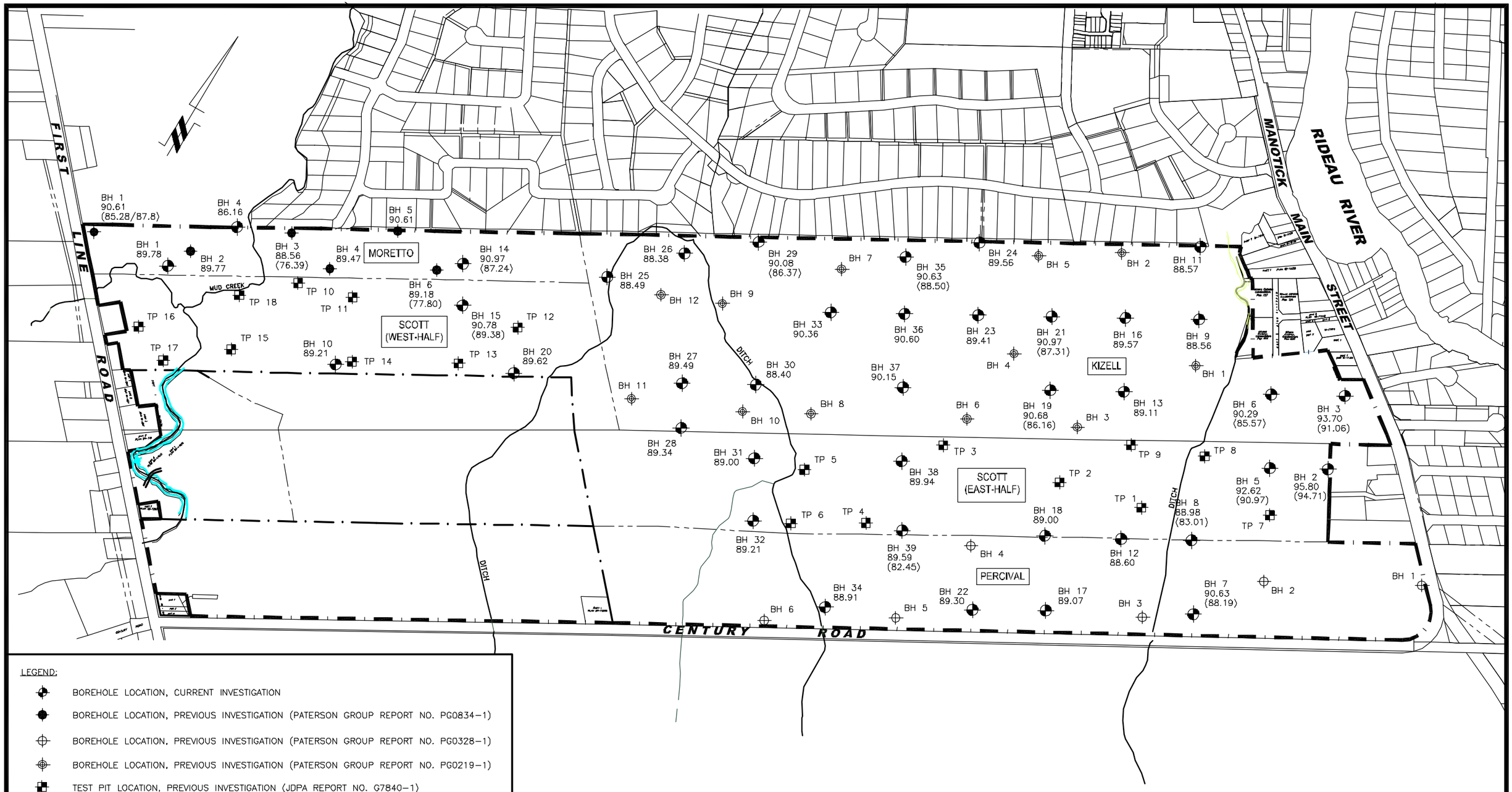
PG0834-1 – Soil Profile and Test Data Sheets

PG0328-1 – Soil Profile and Test Data Sheets

PG0219-1 – Soil Profile and Test Data Sheets

G7840-1 – Soil Profile and Test Data Sheets

Symbols and Terms



LEGEND:

- BOREHOLE LOCATION, CURRENT INVESTIGATION
- BOREHOLE LOCATION, PREVIOUS INVESTIGATION (PATERSON GROUP REPORT NO. PG0834-1)
- BOREHOLE LOCATION, PREVIOUS INVESTIGATION (PATERSON GROUP REPORT NO. PG0328-1)
- BOREHOLE LOCATION, PREVIOUS INVESTIGATION (PATERSON GROUP REPORT NO. PG0219-1)
- TEST PIT LOCATION, PREVIOUS INVESTIGATION (JDPA REPORT NO. G7840-1)
- 88.56 GROUND SURFACE ELEVATION (m)
- (76.39) PRACTICAL REFUSAL TO AUGERING/DCPT ELEVATION (m)

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Scale:	1:7500
Des.:	SM
Dwn:	MPG
Chkd:	CDS

MINTO DEVELOPMENTS INC.

GEOTECHNICAL INVESTIGATION
MAHOGANY COMMUNITY-FIRST LINE ROAD
OTTAWA, ONTARIO

TEST HOLE LOCATION PLAN

Dwg. No. PG0675-4
Report No.: PG0675-2
Date: 08/2007

11x17

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH 1

BORINGS BY CME 45 Power Auger **DATE** 16 Jul 07

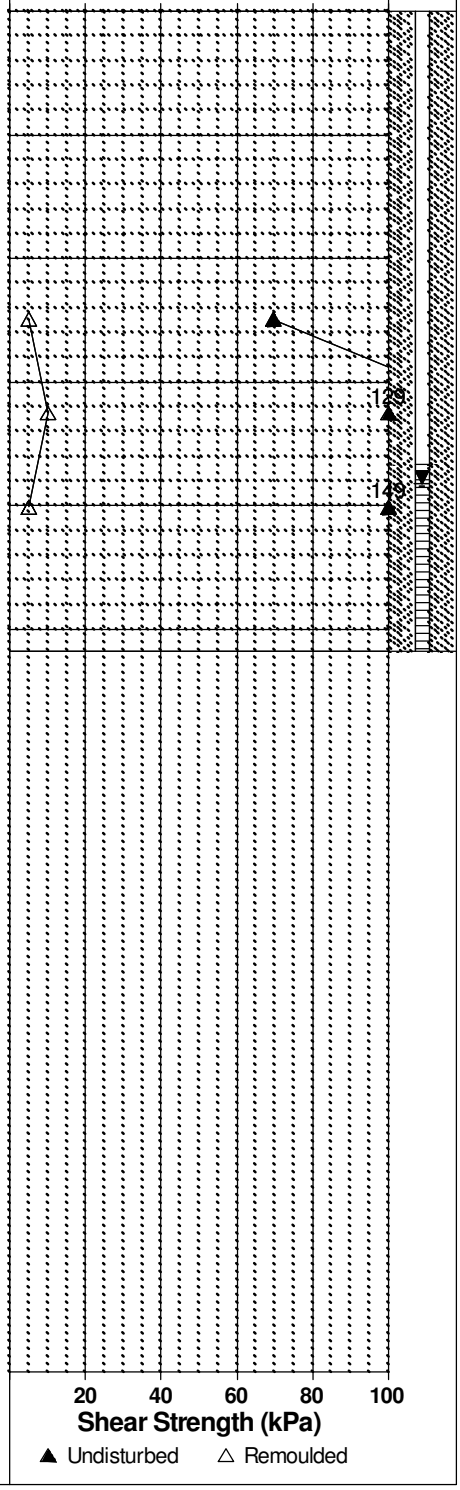
SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.78
TOPSOIL 0.20							
Loose, brown **SILTY SAND**, trace clay 1.07		SS	1	100	5	1	88.78
Stiff, brown **SILTY CLAY**, some sand seams		SS	2	100	3	2	87.78
- very stiff and grey by 2.7m depth						3	86.78
		SS	3	100	2	4	85.78
5.18						5	84.78
End of Borehole							
(GWL @ 3.82m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction



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SOIL PROFILE AND TEST DATA

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Mahogany Community - First Line Road
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FILE NO. PG0675

REMARKS

HOLE NO. BH 2

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE									
TOPSOIL 0.15						0	95.80		
GLACIAL TILL: Brown sand with gravel and cobbles		AU	1						
1.09		AU	2			1	94.80		
End of Borehole									
Practical refusal to augering @ 1.09m depth									
(GWL @ 0.87m-July 23/07)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %
20 40 60 80

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH 3

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	93.70
TOPSOIL 0.13		AU	1				
GLACIAL TILL: Brown silty sand with gravel and cobbles		SS	2	67	50+	1	92.70
						2	91.70
2.64							
End of Borehole							
Practical refusal to augering @ 2.64m depth							
(GWL @ 1.51m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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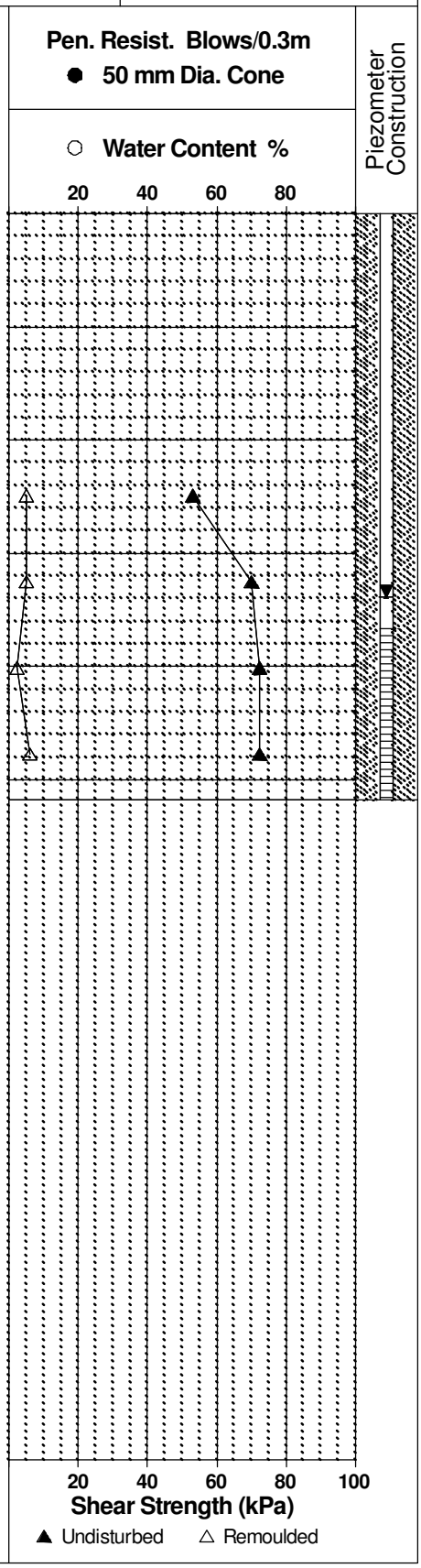
FILE NO. PG0675

REMARKS

HOLE NO. BH 4

BORINGS BY CME 45 Power Auger **DATE** 16 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	86.16
TOPSOIL 0.20							
Loose, brown **SAND**							
1.07		SS	1	50	5	1	85.16
		SS	2	100	1	2	84.16
Stiff, grey **SILTY CLAY**, some sand						3	83.16
						4	82.16
5.18						5	81.16
End of Borehole							
(GWL @ 3.38m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH 5

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	92.62
TOPSOIL 0.15		AU	1				
GLACIAL TILL: Dense to very dense, brown silty sand with gravel and cobbles		AU	2			1	91.62
1.65		SS	3		50+		
End of Borehole							
Practical refusal to augering @ 1.65m depth							
(GWL @ 0.62m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

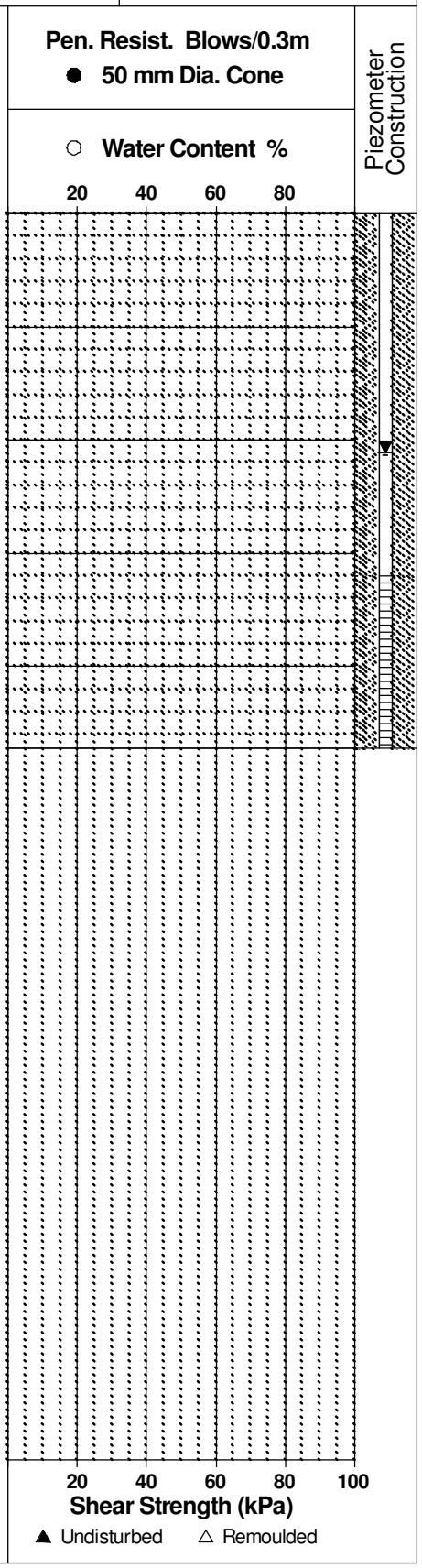
FILE NO. PG0675

REMARKS

HOLE NO. BH 6

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION		STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							0	90.29
TOPSOIL	0.23							
Compact, brown **SANDY SILT**, some clay	0.46							
Stiff, brown **SILTY CLAY** with sand seams	1.22		SS	1	100	11	1	89.29
Compact to loose, brown **SANDY SILT** with clay	2.13		SS	2	100	6	2	88.29
			SS	3	25	12	3	87.29
GLACIAL TILL: Loose to compact, brown silty sand with gravel and cobbles			SS	4	75	22	4	86.29
	4.72		SS	5	100	50+		
End of Borehole								
Practical refusal to augering @ 4.72m depth								
(GWL @ 2.11m-July 23/07)								



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH 7

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.63
TOPSOIL 0.20							
GLACIAL TILL: Loose, brown silty sand with gravel and cobbles		SS	1	75	7	1	89.63
		SS	2	75	4	2	88.63
2.44							
End of Borehole							
Practical refusal to augering @ 2.44m depth							
(GWL @ 1.76m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

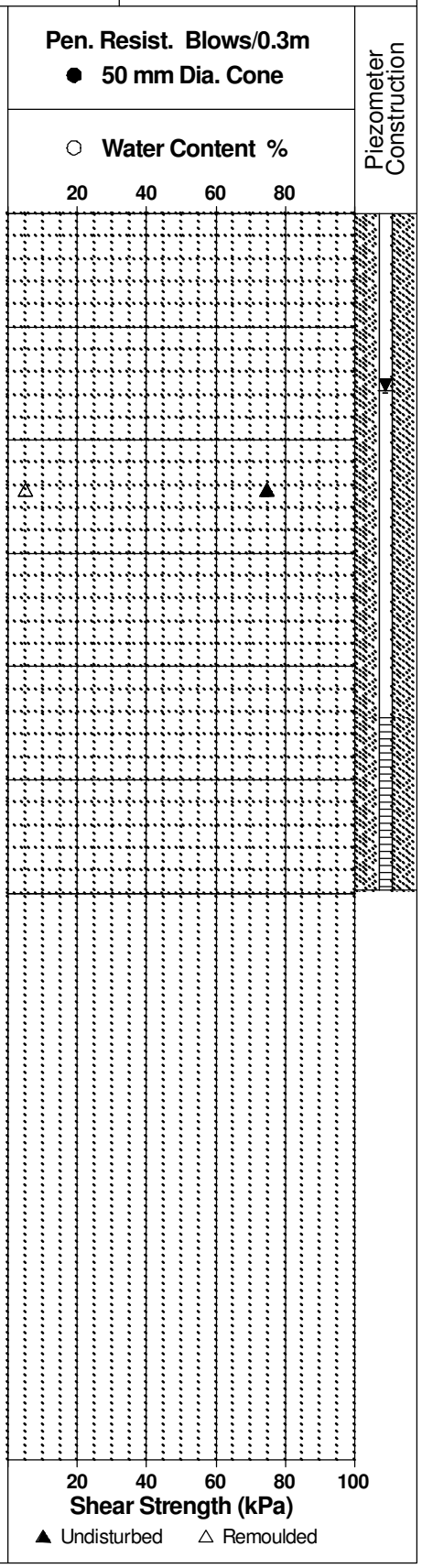
FILE NO. PG0675

REMARKS

HOLE NO. BH 8

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.98
TOPSOIL 0.18							
Loose, brown **SILTY SAND**, some clay 0.60		AU	1				
		SS	2	100	10	1	87.98
Stiff, brown **SILTY CLAY**, some sand seams		SS	3	100	7	2	86.98
2.74							
		SS	4	100	20	3	85.98
GLACIAL TILL: Compact to dense, brown silty sand with gravel and cobbles						4	84.98
		SS	5	50	48	5	83.98
5.97							
End of Borehole						6	82.98
Practical refusal to augering @ 5.97m depth							
(GWL @ 1.56m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
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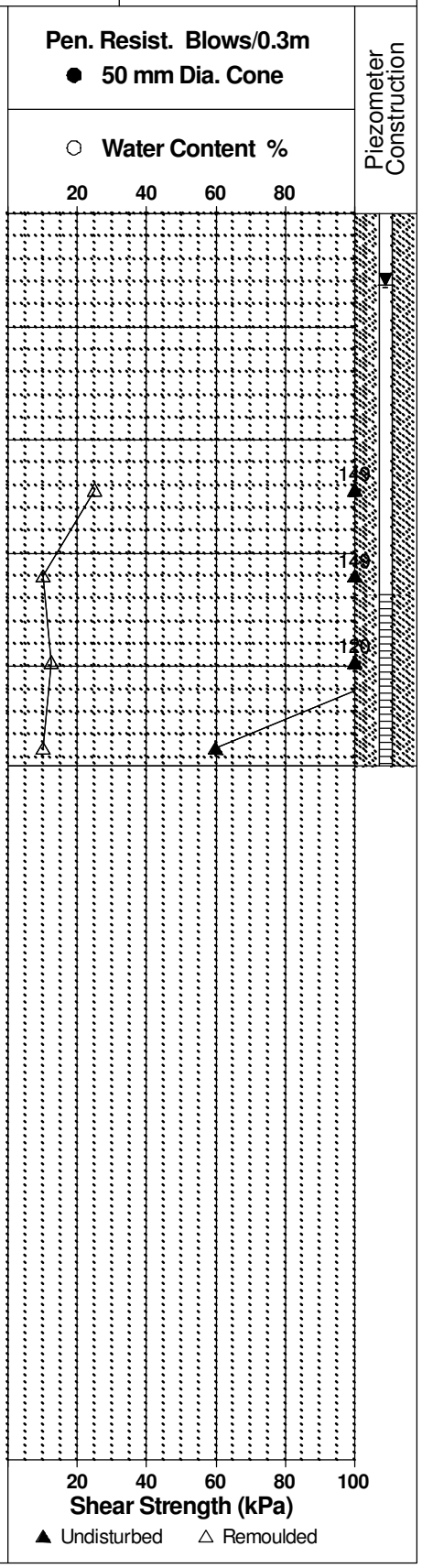
FILE NO. PG0675

REMARKS

HOLE NO. BH 9

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION		STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE								
TOPSOIL	0.25		AU	1			0	88.56
Compact, brown **SILTY SAND**, trace clay	0.46		SS	2	100	10	1	87.56
Very stiff, brown **SILTY CLAY**, some sand seams			SS	3	100	9	2	86.56
- very stiff to stiff and grey by 3.4m depth							3	85.56
	4.88						4	84.56
End of Borehole								
(GWL @ 0.63m-July 23/07)								



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SOIL PROFILE AND TEST DATA

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FILE NO. PG0675

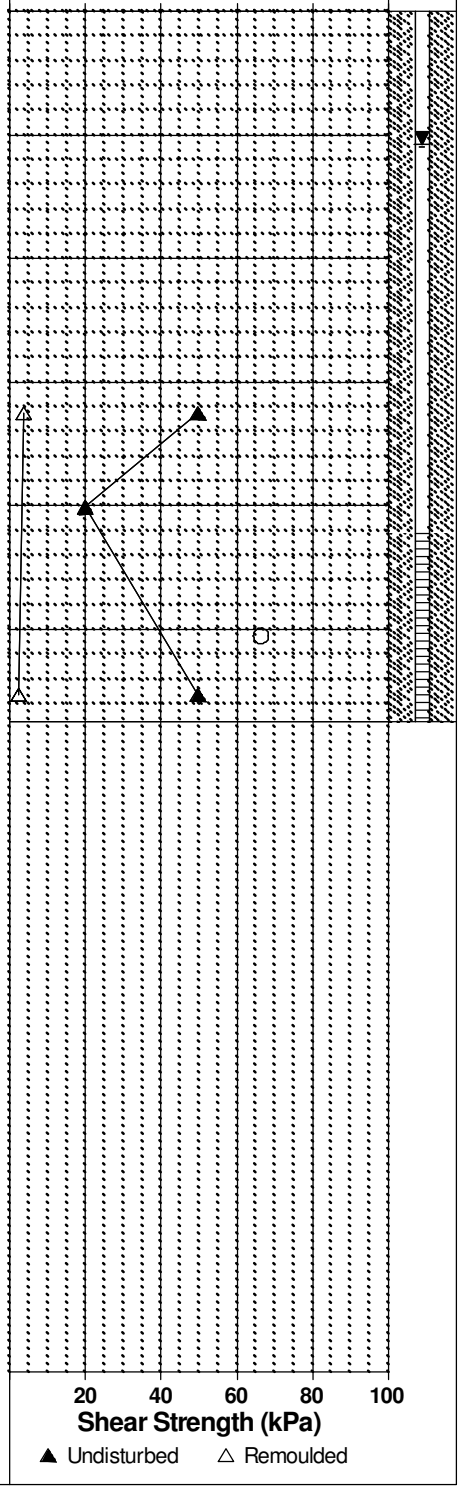
REMARKS

HOLE NO. BH10

BORINGS BY CME 45 Power Auger **DATE** 16 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.21
TOPSOIL 0.20							
Loose to very loose, brown **SILTY SAND**, some clay and seashells		SS	1	100	6	1	88.21
		SS	2	100	3	2	87.21
2.13							
		SS	3	100	4	3	86.21
Firm, brown **SILTY CLAY**							
- soft to firm and grey by 3.7m depth						4	85.21
		TW	4	88		5	84.21
5.74							
End of Borehole							
(GWL @ 1.08m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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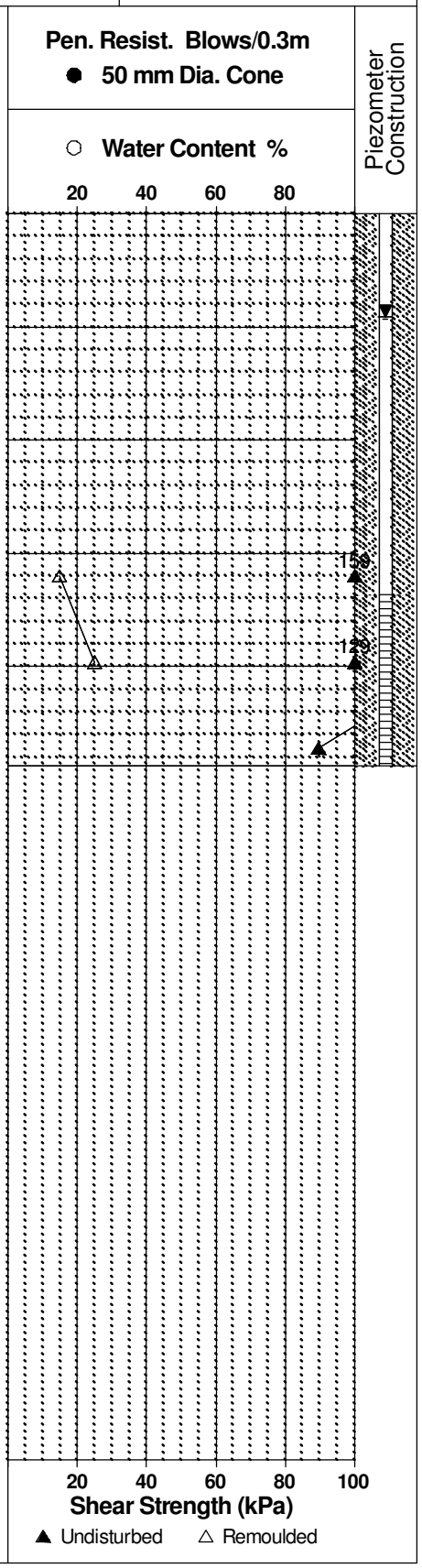
FILE NO. PG0675

REMARKS

HOLE NO. BH11

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.57
TOPSOIL 0.20		AU	1				
Compact, brown **SILTY SAND**, trace clay 0.46		SS	2	100	16	1	87.57
		SS	3	100	12	2	86.57
Very stiff to stiff, brown **SILTY CLAY**		SS	4	100	7	3	85.57
						4	84.57
4.88		AU	5				
End of Borehole							
(GWL @ 0.91m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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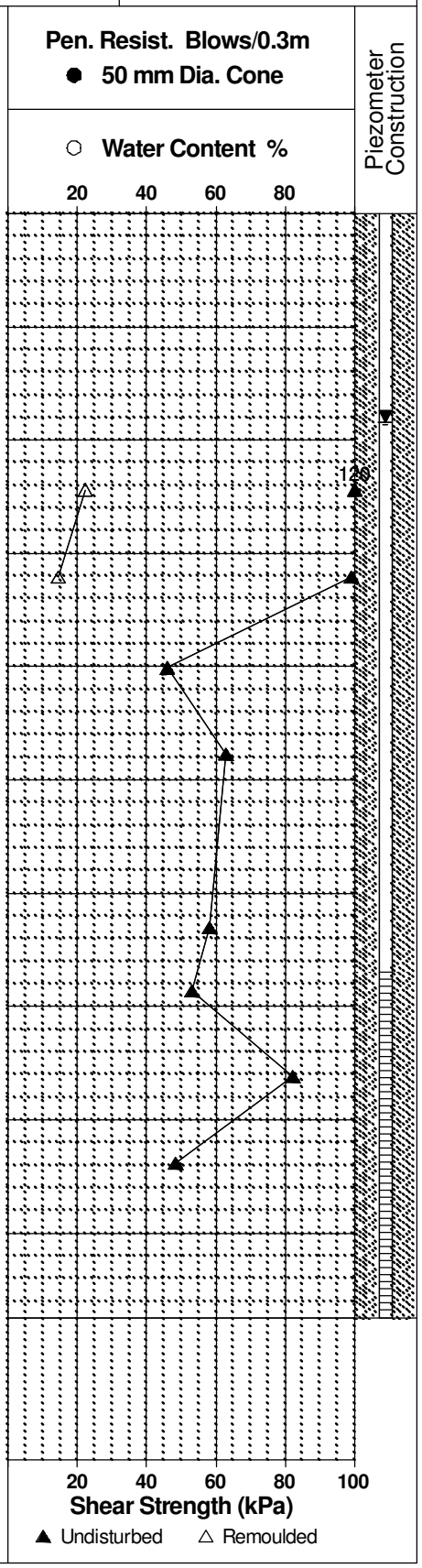
FILE NO. PG0675

REMARKS

HOLE NO. BH12

BORINGS BY CME 45 Power Auger **DATE** 9 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.60
TOPSOIL 0.20							
Compact, brown **SILTY SAND**, trace clay		SS	1	100	10	1	87.60
1.07		SS	2	100	3	2	86.60
Stiff, brown **SILTY CLAY**, some sand seams						3	85.60
- firm to stiff and grey by 3.7m depth						4	84.60
						5	83.60
						6	82.60
						7	81.60
						8	80.60
						9	79.60
9.75		SS	3	100	1		
End of Borehole							
(GWL @ 1.84m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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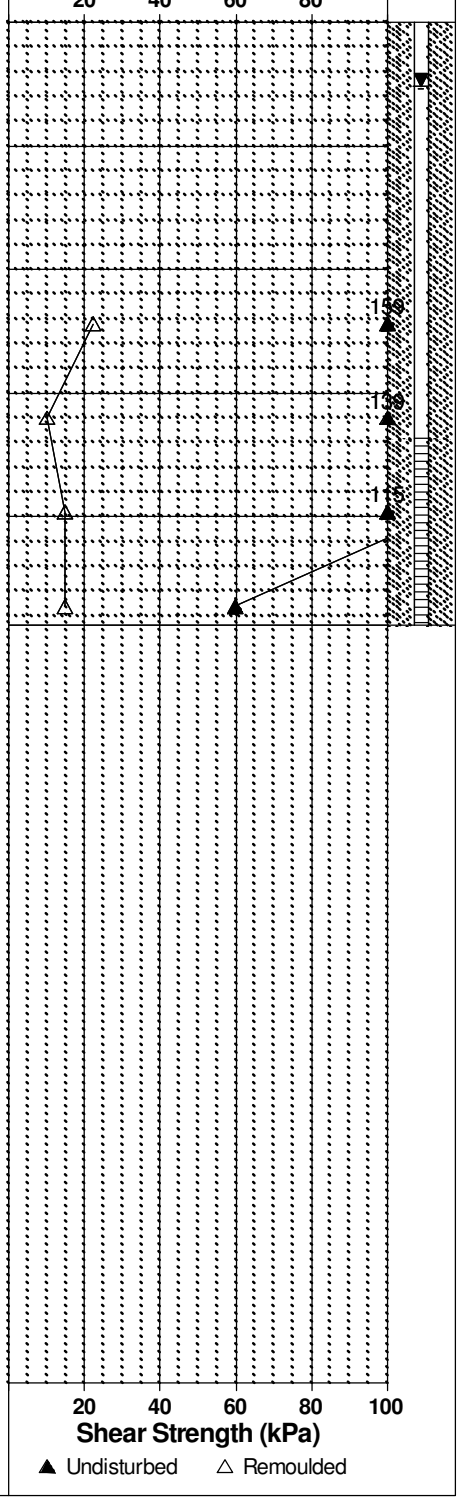
FILE NO. PG0675

REMARKS

HOLE NO. BH13

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.11		
TOPSOIL 0.25									
Compact to loose, brown **SILTY SAND**, trace clay 1.07		SS	1	100	8	1	88.11		
		SS	2	100	8	2	87.11		
Very stiff, brown **SILTY CLAY**, some sand seams						3	86.11		
- stiff and grey by 4.3m depth						4	85.11		
4.88									
End of Borehole									
(GWL @ 0.52m-July 23/07)									



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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FILE NO. PG0675

REMARKS

HOLE NO. BH14

BORINGS BY CME 45 Power Auger **DATE** 16 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.97
TOPSOIL 0.15		AU	1				
		SS	2	75	90+	1	89.97
GLACIAL TILL: Dense, brown silty sand with gravel and cobbles		SS	3	67	53	2	88.97
		SS	4	50	54	3	87.97
3.73 End of Borehole							
Practical refusal to augering @ 3.73m depth							
(BH dry-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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Mahogany Community - First Line Road
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FILE NO. PG0675

REMARKS

HOLE NO. BH15

BORINGS BY CME 45 Power Auger **DATE** 16 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.78
TOPSOIL 0.18							
GLACIAL TILL: Very dense, brown silty sand with gravel and cobbles		SS	1	67	50+	1	89.78
1.40							
End of Borehole							
Practical refusal to augering @ 1.40m depth							
(GWL @ 1.16m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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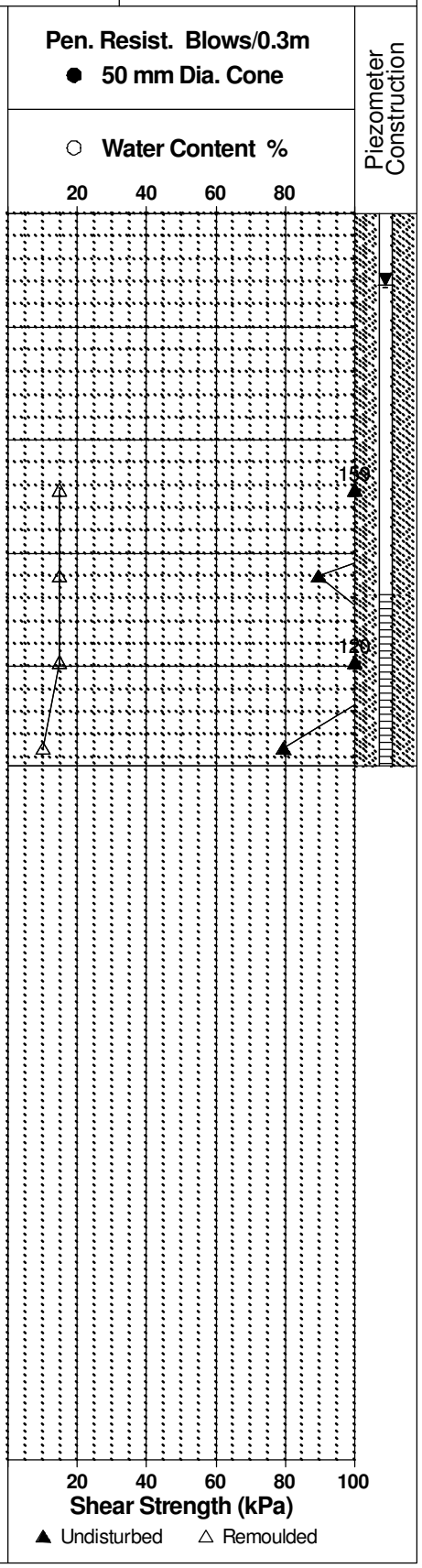
FILE NO. PG0675

REMARKS

HOLE NO. BH16

BORINGS BY CME 45 Power Auger **DATE** 11 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.57
TOPSOIL 0.23							
Loose, brown **SILTY SAND**, trace clay		SS	1	100	4	1	88.57
1.22							
		SS	2	100	4	2	87.57
Very stiff to stiff, brown **SILTY CLAY**						3	86.57
- grey by 3.4m depth						4	85.57
4.88							
End of Borehole							
(GWL @ 0.63m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
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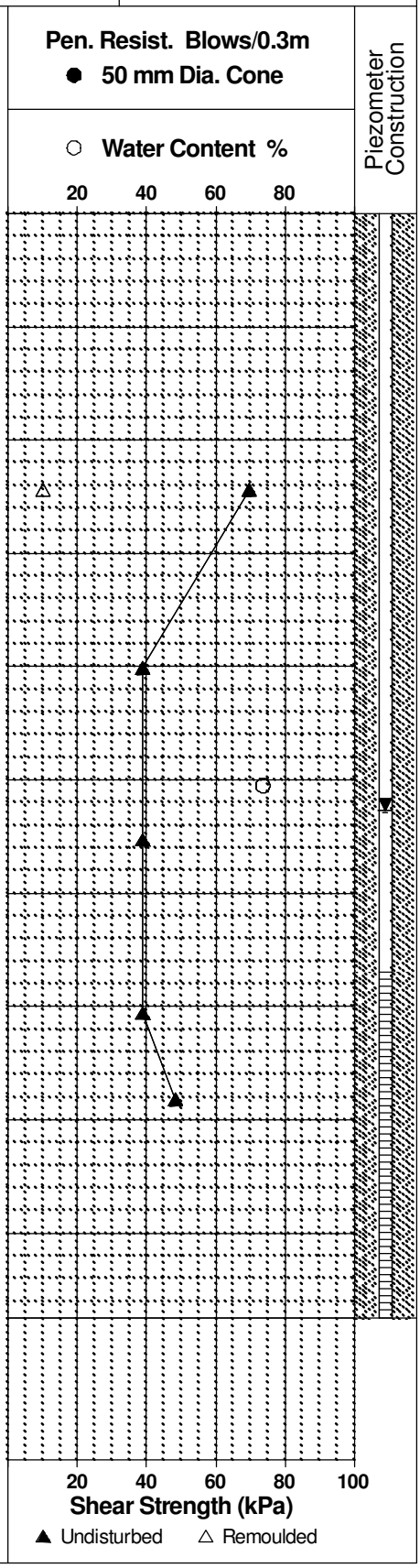
FILE NO. PG0675

REMARKS

HOLE NO. BH17

BORINGS BY CME 45 Power Auger **DATE** 9 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.07
TOPSOIL 0.20							
Brown **SILTY CLAY** 0.60		AU	1				
Loose, grey-brown **SANDY SILT**, trace clay 1.22		SS	2	100	7	1	88.07
		SS	3	100	5	2	87.07
Stiff, brown **SILTY CLAY**, some sand seams							
- firm and grey by 2.7m depth		SS	4	100	1	3	86.07
		TW	5	100		4	85.07
						5	84.07
		TW	6	100		6	83.07
						7	82.07
						8	81.07
8.84		SS	7	100	11		
GLACIAL TILL: Stiff, grey silty clay with gravel and cobbles						9	80.07
		SS	8	75	16		
9.75							
End of borehole							
(GWL @ 5.27m-July 23/07)							



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SOIL PROFILE AND TEST DATA

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Mahogany Community - First Line Road
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FILE NO. PG0675

REMARKS

HOLE NO. BH18

BORINGS BY CME 45 Power Auger **DATE** 9 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.00
TOPSOIL 0.20							
Compact, brown **SILTY SAND**, some clay 1.06		SS	1	100	10	1	88.00
		SS	2	100	7	2	87.00
Stiff, brown **SILTY CLAY**, some sand seams		SS	3	100	4	3	86.00
- firm and grey by 3.7m depth						4	85.00
4.98						5	84.00
End of Borehole							
(GWL @ 1.38m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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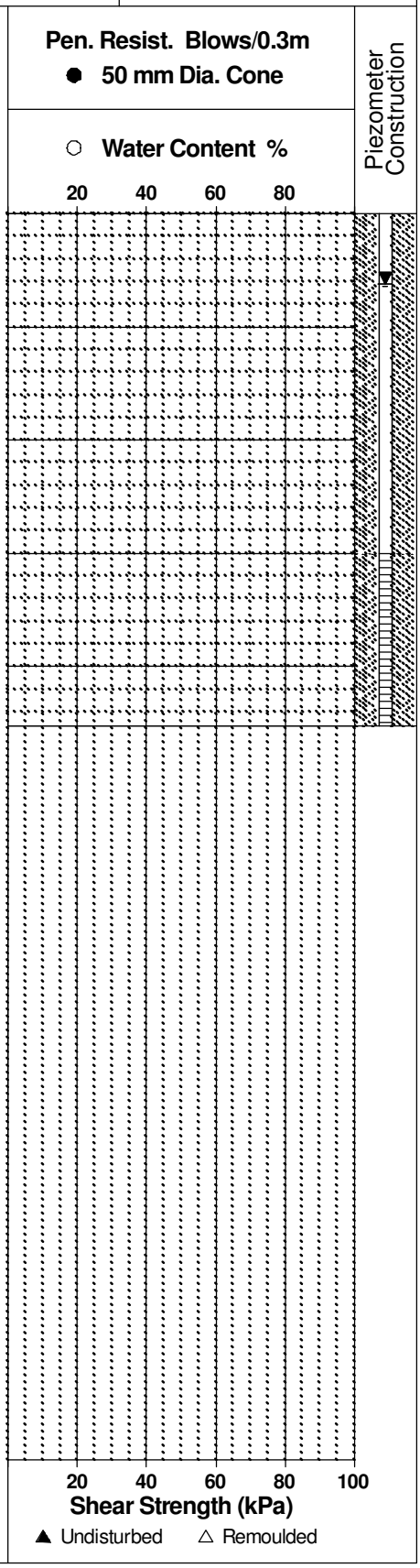
FILE NO. PG0675

REMARKS

HOLE NO. BH19

BORINGS BY CME 55 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.68
TOPSOIL 0.20							
Loose, brown **SILTY SAND**, trace clay		SS	1	100	9	1	89.68
1.37							
		SS	2	50	22	2	88.68
GLACIAL TILL: Compact to very dense, brown silty sand with clay, gravel and cobbles		SS	3	50	69	3	87.68
		SS	4	50	25	4	86.68
4.52							
End of Borehole							
Practical refusal to augering @ 4.52m depth							
(GWL @ 0.62m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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FILE NO. PG0675

REMARKS

HOLE NO. BH20

BORINGS BY CME 45 Power Auger **DATE** 16 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0	89.62		
TOPSOIL 0.20									
Loose, brown **SILTY SAND**, trace clay 1.07		SS	1	100	7	1	88.62		
		SS	2	100	4	2	87.62		
Very stiff, brown **SILTY CLAY**, some sand seams						3	86.62		
- stiff to very stiff and grey by 3.7m depth						4	85.62		
5.18						5	84.62		
End of Borehole									
(GWL @ 2.17m-July 23/07)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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FILE NO. PG0675

REMARKS

HOLE NO. BH21

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.97
TOPSOIL 0.20							
Very stiff, brown **SILTY CLAY**							
- some gravel by 0.5m depth		SS	1	75	12	1	89.97
1.52		SS	2	100	50+		
GLACIAL TILL: Compact, brown silty sand with clay, gravel and cobbles						2	88.97
		SS	3	50	15	3	87.97
3.66							
End of Borehole							
Practical refusal to augering @ 3.66m depth							
(GWL @ 0.42m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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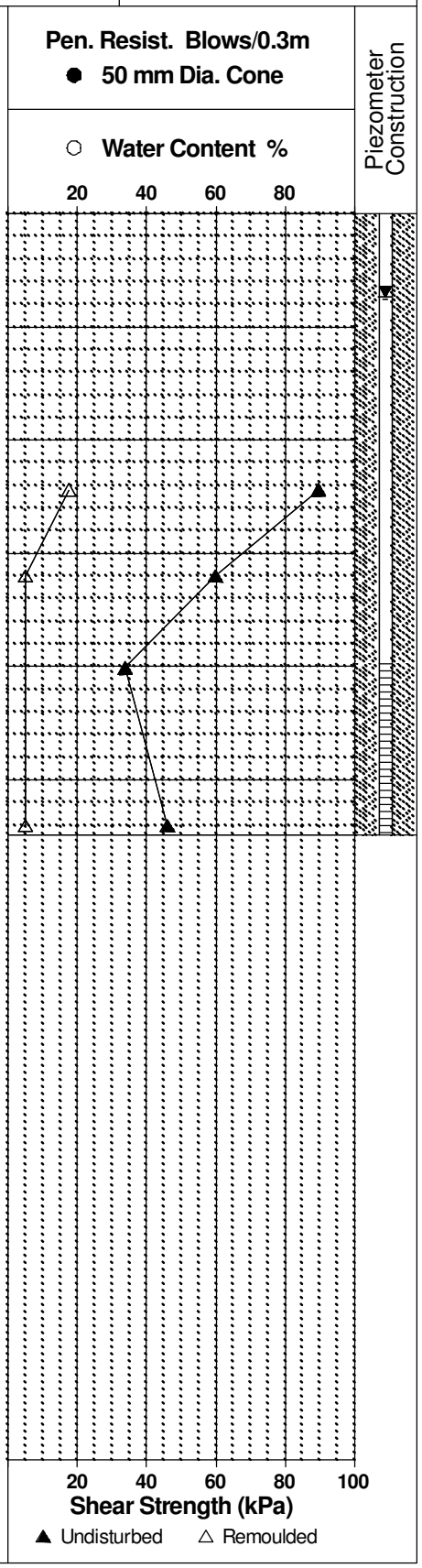
FILE NO. PG0675

REMARKS

HOLE NO. BH22

BORINGS BY CME 45 Power Auger **DATE** 9 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.30
TOPSOIL 0.25							
Loose, brown **SILTY SAND**, trace clay 0.90		SS	1	100	7	1	88.30
		SS	2	100	3	2	87.30
Stiff, brown **SILTY CLAY**, trace sand						3	86.30
- firm and grey by 3.4m depth						4	85.30
		TW	3	100		5	84.30
5.49							
End of Borehole							
(0.74m-July 23/07)							



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SOIL PROFILE AND TEST DATA

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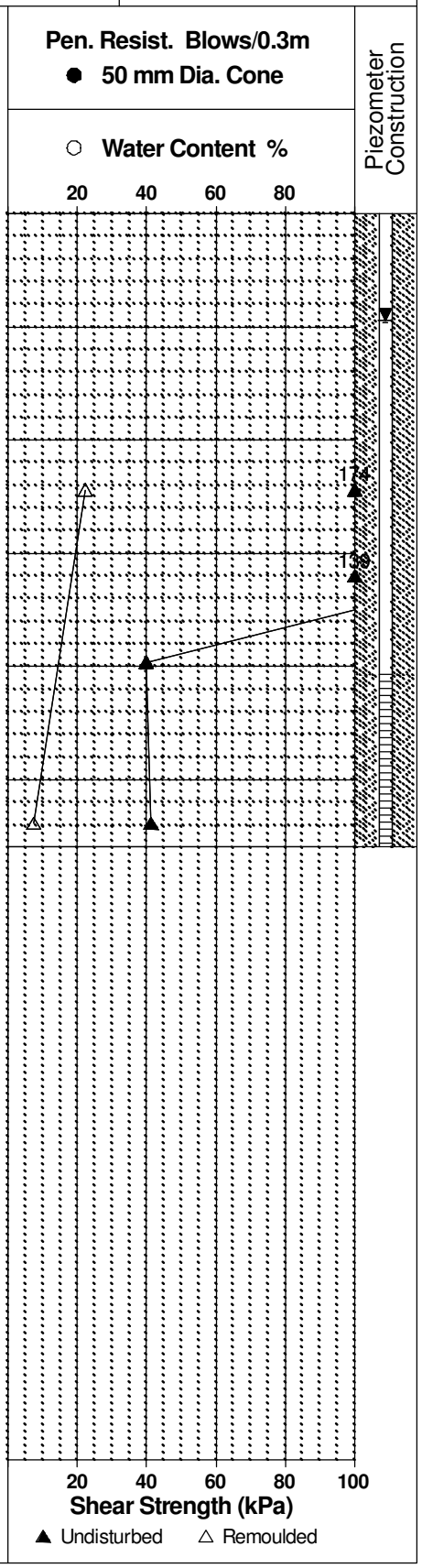
FILE NO. PG0675

REMARKS

HOLE NO. BH23

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.41
TOPSOIL 0.20		AU	1				
		SS	2	100	6	1	88.41
		SS	3	100	6	2	87.41
Very stiff to stiff, brown **SILTY CLAY**, trace sand						3	86.41
- stiff to firm and grey by 3.4m depth						4	85.41
		TW	4	98		5	84.41
5.59							
End of Borehole							
(GWL @ 0.94m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
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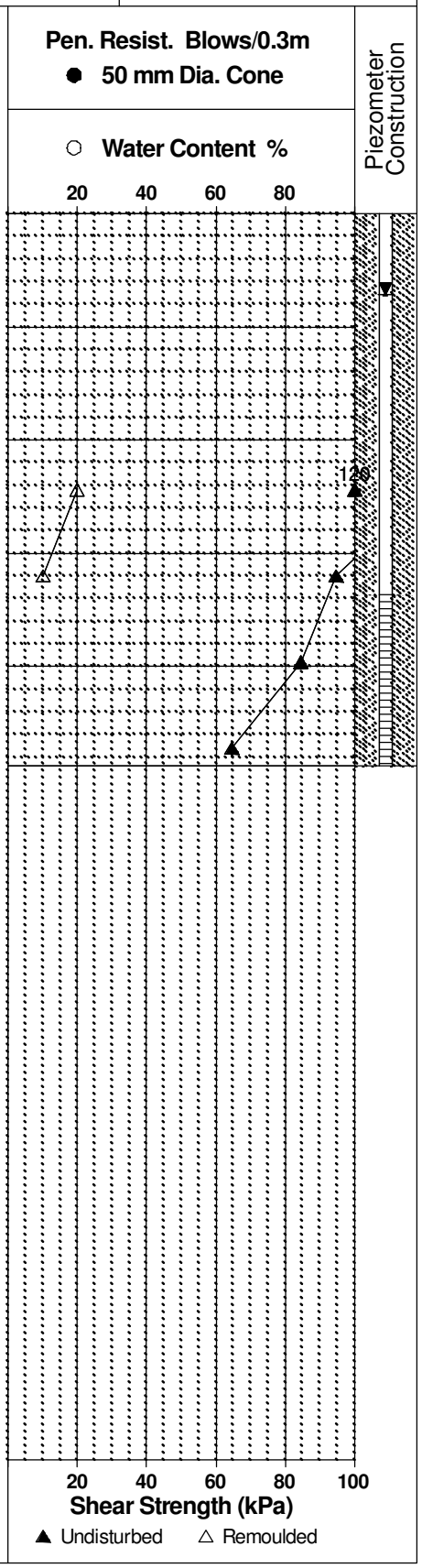
FILE NO. PG0675

REMARKS

HOLE NO. BH24

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.56
TOPSOIL 0.25							
		SS	1	100	4	1	88.56
		SS	2	100	6	2	87.56
Very stiff to stiff, brown **SILTY CLAY**, some sand seams							
- stiff and grey by 3.7m depth						3	86.56
4.88						4	85.56
End of Borehole							
(GWL @ 0.71m-July 23/07)							



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28 Concourse Gate, Unit 1, Ottawa, ON K2E 7T7

SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

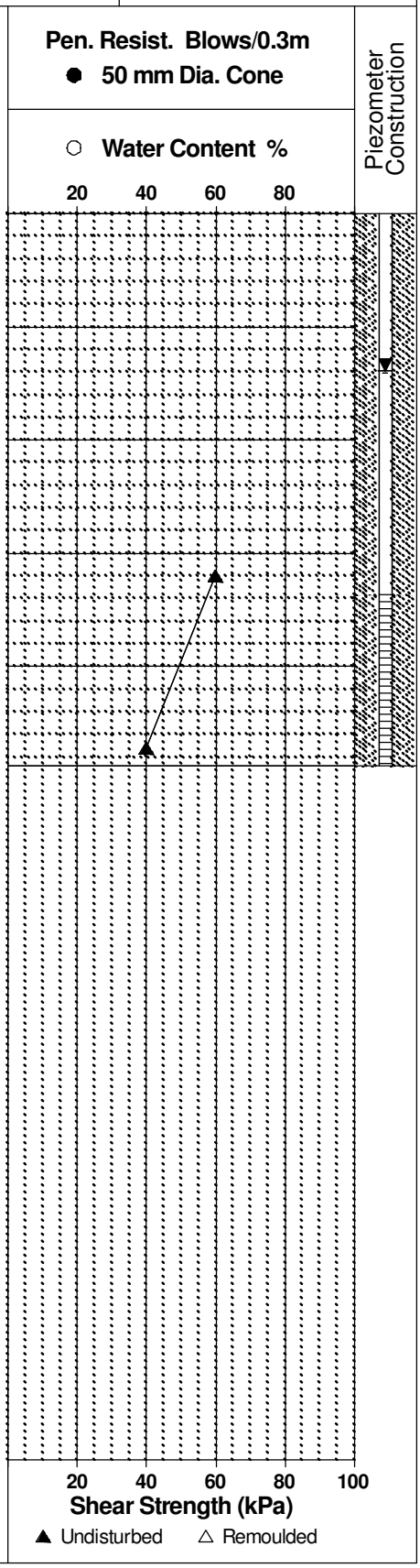
FILE NO. PG0675

REMARKS

HOLE NO. BH25

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.49
TOPSOIL 0.25							
Very dense, brown **SILTY SAND**, trace clay and gravel		SS	1	67	50+	1	87.49
1.22							
		SS	2	0	1	2	86.49
Stiff, brown **SILTY CLAY**		SS	3	100	4		
- stiff to firm and grey by 3.0m depth						3	85.49
		TW	4	100		4	84.49
4.88							
End of Borehole							
(GWL @ 1.39m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

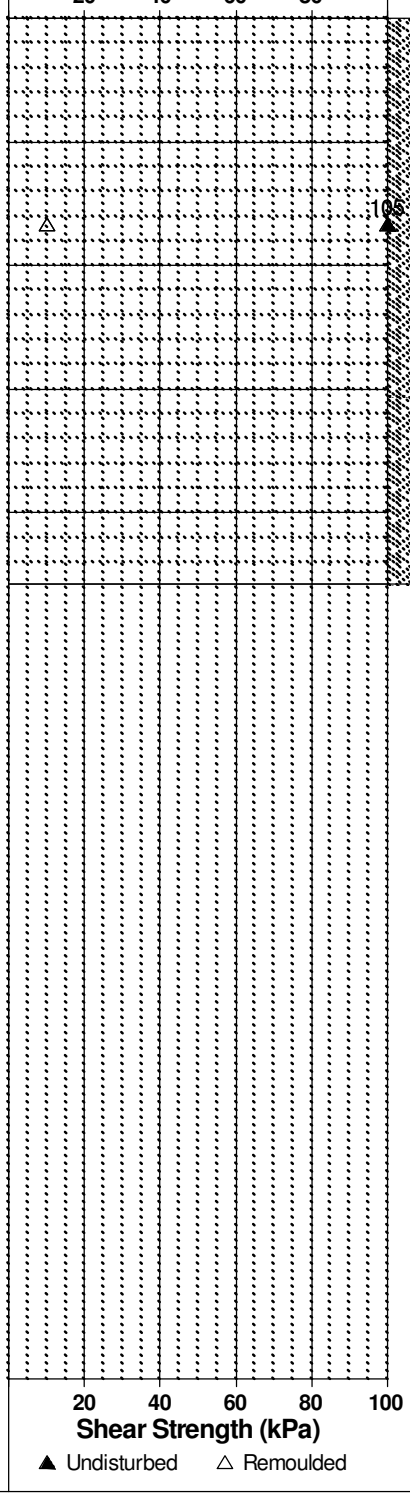
REMARKS

HOLE NO. BH26

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.38
TOPSOIL 0.18							
Very stiff, brown **SILTY CLAY**, some sand seams		SS	1	100	6	1	87.38
1.98							
Loose, brown **SANDY SILT**						2	86.38
2.59		SS	2	12	6		
GLACIAL TILL: Compact, grey sandy silt with gravel and cobbles		SS	3	42	18	3	85.38
		SS	4	38	13	4	84.38
4.57							
End of Borehole							
Practical refusal to augering @ 4.57m depth							
(GWL @ 1.55m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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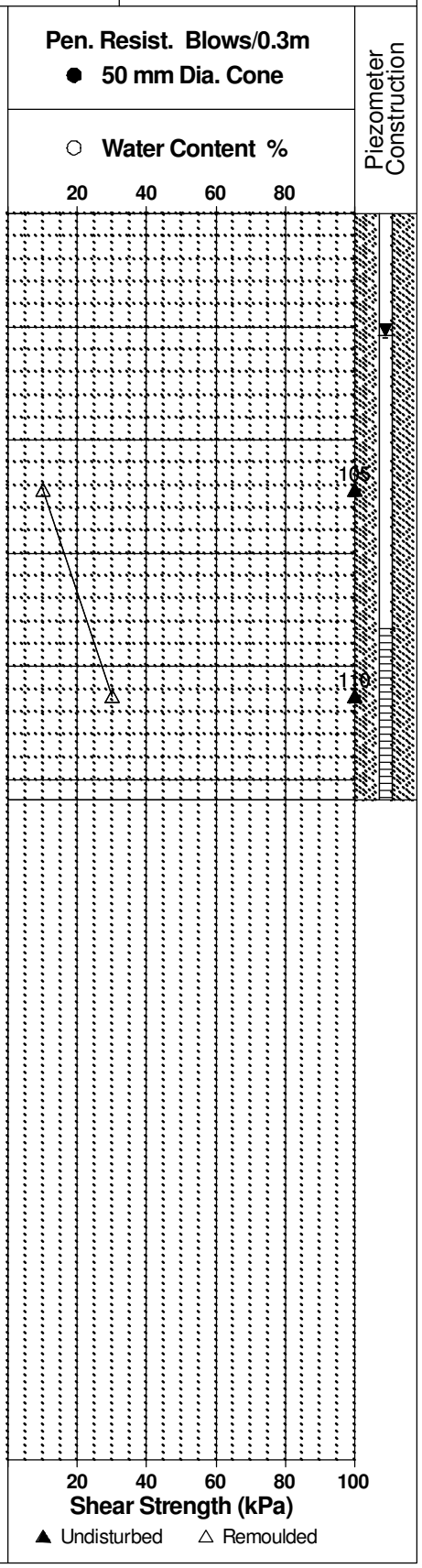
FILE NO. PG0675

REMARKS

HOLE NO. BH27

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.49
TOPSOIL 0.20							
		SS	1	100	6	1	88.49
		SS	2	100	5	2	87.49
Very stiff, brown **SILTY CLAY**, some sand seams							
- grey by 2.7m depth						3	86.49
		SS	3	50	1		
						4	85.49
5.18		SS	4	0	1	5	84.49
End of Borehole							
(GWL @ 1.08m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
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Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

REMARKS

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

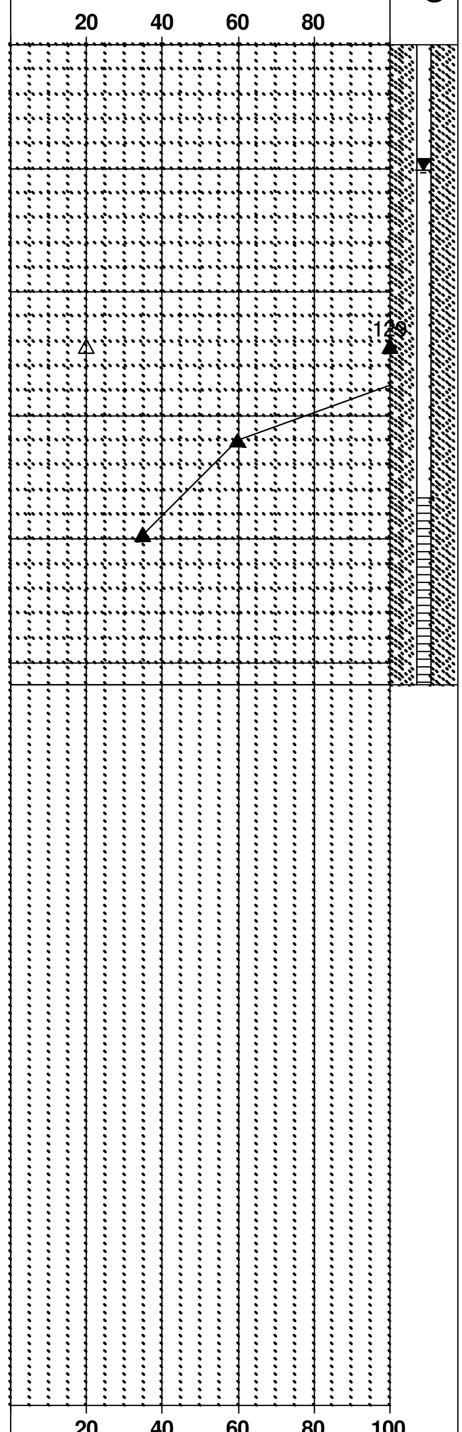
FILE NO. PG0675

HOLE NO. BH28

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.34
TOPSOIL 0.20							
Compact, brown **SILTY SAND**, trace clay 0.90							
		SS	1	50	10	1	88.34
		SS	2	100	4		
Very stiff to stiff, brown **SILTY CLAY**, some sand seams						2	87.34
						3	86.34
- stiff to firm and grey by 3.4m depth							
						4	85.34
5.18		TW	3	96		5	84.34
End of Borehole							
(GWL @ 1.02m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %



Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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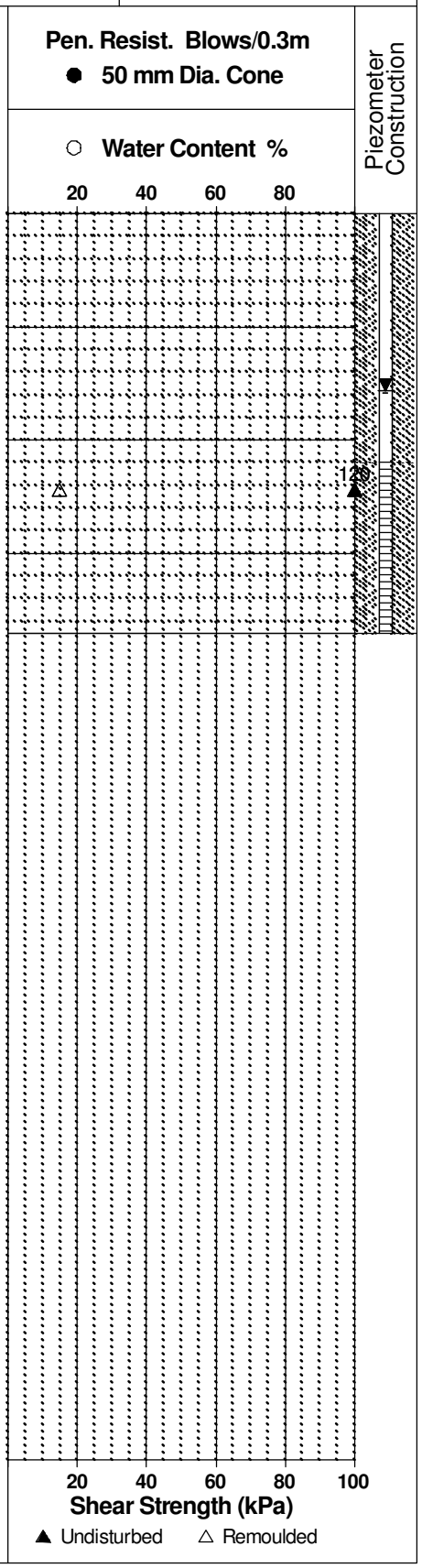
FILE NO. PG0675

REMARKS

HOLE NO. BH29

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.08
TOPSOIL 0.25		AU	1				
Very stiff, brown **SILTY CLAY**, some sand		SS	2	100	7	1	89.08
		SS	3	100	6	2	88.08
2.90							
GLACIAL TILL: Very stiff, brown silty clay with sand, gravel and cobbles		SS	4	75	20	3	87.08
3.71							
End of Borehole							
Practical refusal to augering @ 3.71m depth							
(GWL @ 1.56m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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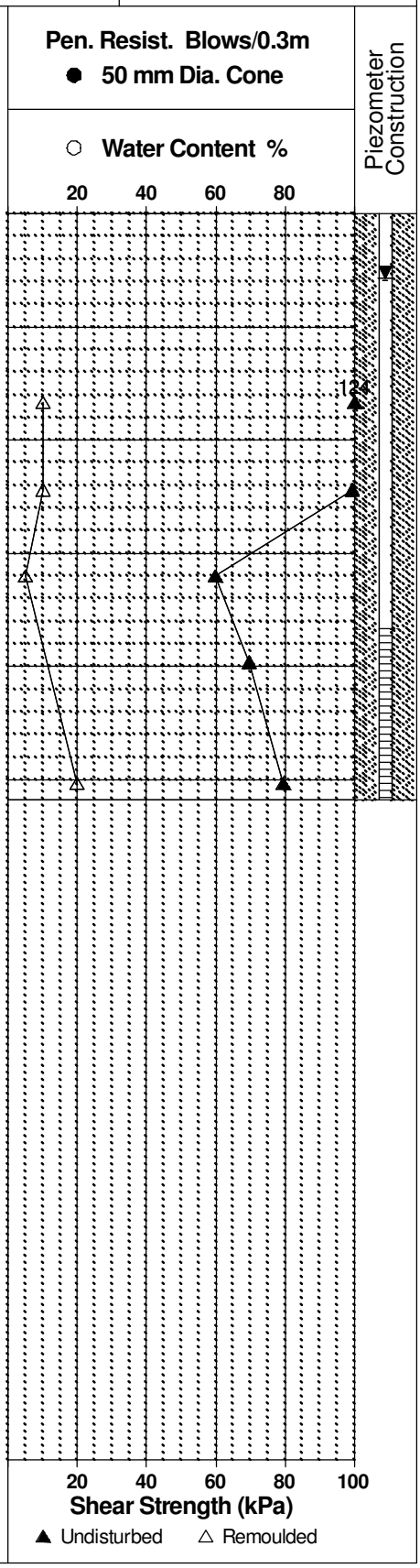
FILE NO. PG0675

REMARKS

HOLE NO. BH30

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.40
TOPSOIL 0.20							
		SS	1	100	5	1	87.40
Very stiff to stiff, brown **SILTY CLAY**, some sand seams						2	86.40
- stiff and grey by 2.7m depth						3	85.40
						4	84.40
5.18						5	83.40
End of Borehole							
(GWL @ 0.57m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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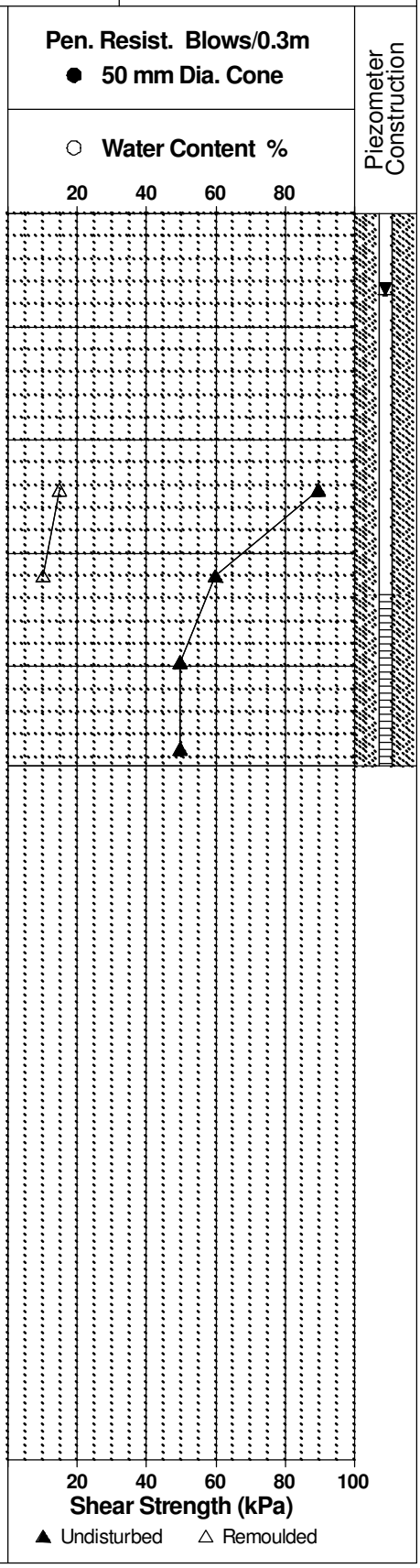
FILE NO. PG0675

REMARKS

HOLE NO. BH31

BORINGS BY CME 45 Power Auger **DATE** 13 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.00
TOPSOIL 0.20							
Loose, brown **SILTY SAND**, trace clay 0.90		SS	1	100	5	1	88.00
		SS	2	100	4	2	87.00
Stiff, brown **SILTY CLAY**, some sand seams						3	86.00
- firm and grey by 3.4m depth						4	85.00
4.88							
End of Borehole							
(GWL @ 0.71m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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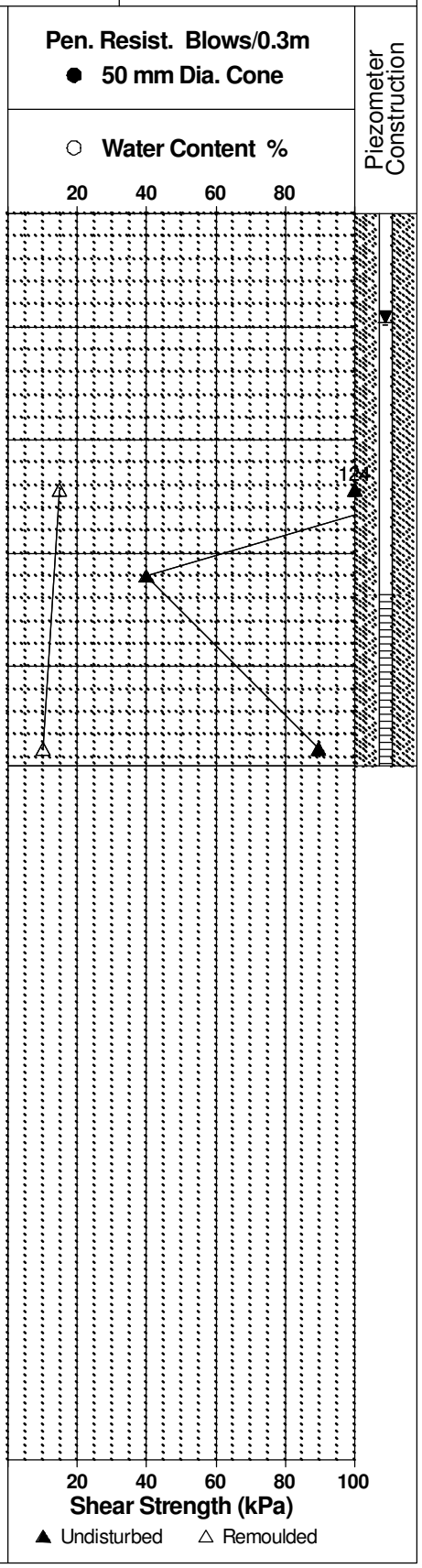
FILE NO. PG0675

REMARKS

HOLE NO. BH32

BORINGS BY CME 45 Power Auger **DATE** 13 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.21
TOPSOIL 0.23							
Loose, brown **SILTY SAND**, trace clay 0.60		SS	1	100	4	1	88.21
Very stiff to firm, brown **SILTY CLAY**, some sand seams		SS	2	100	6	2	87.21
- firm to stiff and grey by 3.4m depth		TW	3	100		3	86.21
						4	85.21
4.88 End of Borehole							
(GWL @ 0.96m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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FILE NO. PG0675

REMARKS

HOLE NO. BH33

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.36
TOPSOIL 0.25							
		SS	1	100	11	1	89.36
Very stiff, brown **SILTY CLAY**, some sand seams		SS	2	100	6	2	88.36
						3	87.36
- grey by 3.5m depth						4	86.36
4.37							
End of Borehole							
(GWL @ 0.85m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

120
194

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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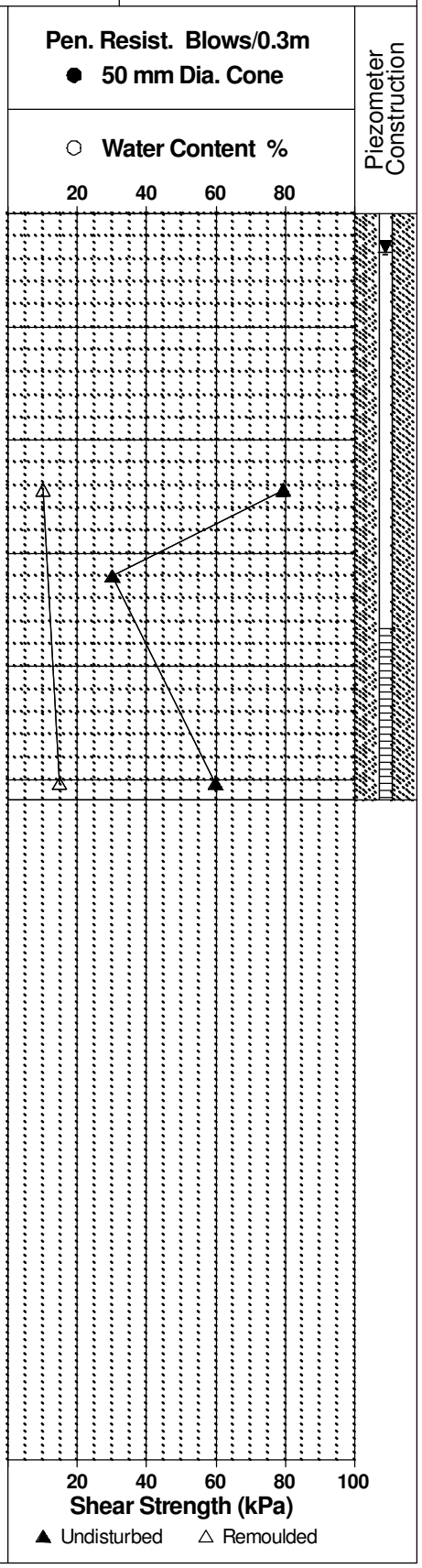
FILE NO. PG0675

REMARKS

HOLE NO. BH34

BORINGS BY CME 45 Power Auger **DATE** 13 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.91
TOPSOIL 0.20							
Loose, brown **SILTY SAND**, some clay 1.07		SS	1	100	7	1	87.91
		SS	2	100	5	2	86.91
Stiff, brown **SILTY CLAY**, some sand seams							
- firm to stiff and grey by 2.7m depth						3	85.91
		TW	3	100		4	84.91
5.18						5	83.91
End of Borehole							
(GWL @ 0.34m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH35

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.63
TOPSOIL 0.25							
Very stiff, brown **SILTY CLAY**, some sand seams		SS	1		14	1	89.63
1.52							
GLACIAL TILL: Very stiff, brown silty clay with sand, gravel and cobbles 2.13		SS	2		18	2	88.63
End of Borehole							
Practical refusal to augering @ 2.13m depth							
(BH dry-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

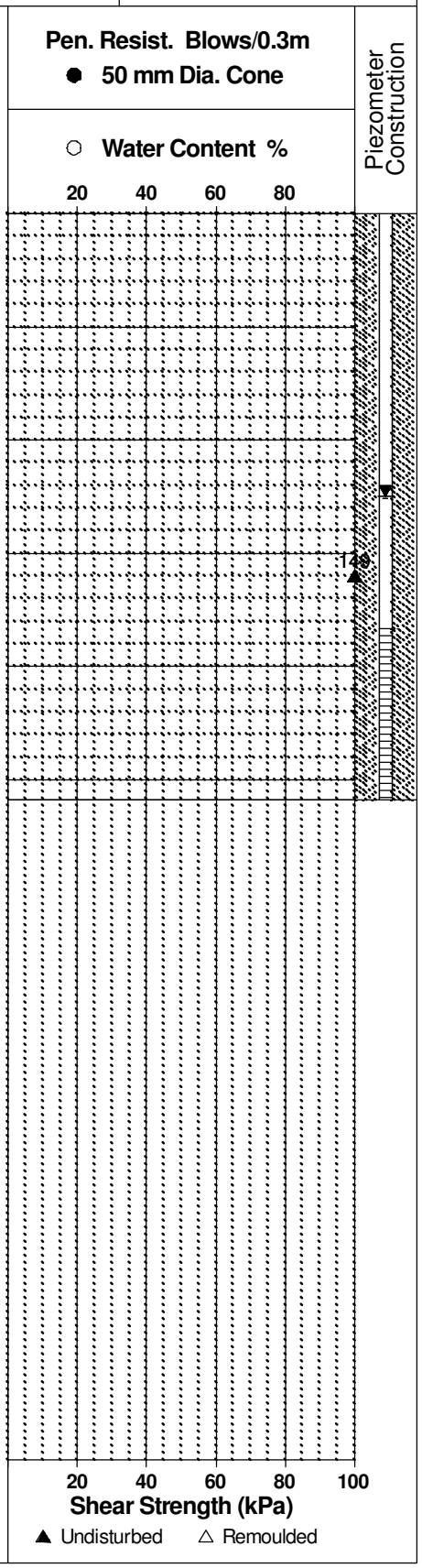
FILE NO. PG0675

REMARKS

HOLE NO. BH36

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.60
TOPSOIL 0.25							
Stiff, brown **SILTY CLAY**, some sand seams		SS	1	100	11	1	89.60
1.98		SS	2	100	23	2	88.60
GLACIAL TILL: Very stiff, brown clayey silt with sand, gravel and cobbles						3	87.60
						4	86.60
5.18		SS	3	50	22	5	85.60
End of Borehole							
(GWL @ 2.50m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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FILE NO. PG0675

REMARKS

HOLE NO. BH37

BORINGS BY CME 45 Power Auger **DATE** 10 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.15
TOPSOIL 0.20							
		SS	1	100	8	1	89.15
Very stiff to firm, brown **SILTY CLAY**, trace sand		SS	2	100	6	2	88.15
						3	87.15
						4	86.15
- stiff and grey by 4.3m depth							
4.98						5	85.15
End of Borehole							
(GWL @ 1.92m-July 23/07)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

124

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

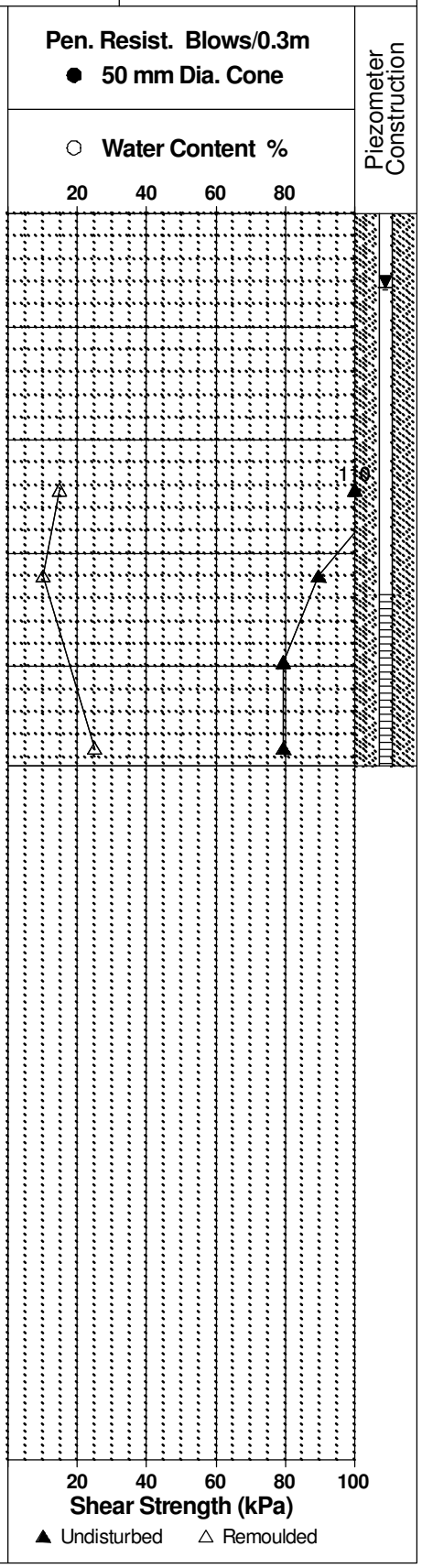
FILE NO. PG0675

REMARKS

HOLE NO. BH38

BORINGS BY CME 45 Power Auger **DATE** 12 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.94
TOPSOIL 0.25							
Loose, brown **SILTY SAND**, trace clay 1.07		SS	1	100	4	1	88.94
		SS	2	100	3	2	87.94
Very stiff to stiff, brown **SILTY CLAY**, some sand						3	86.94
- stiff and grey by 3.5m depth						4	85.94
4.88							
End of Borehole							
(GWL @ 0.65m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Mahogany Community - First Line Road
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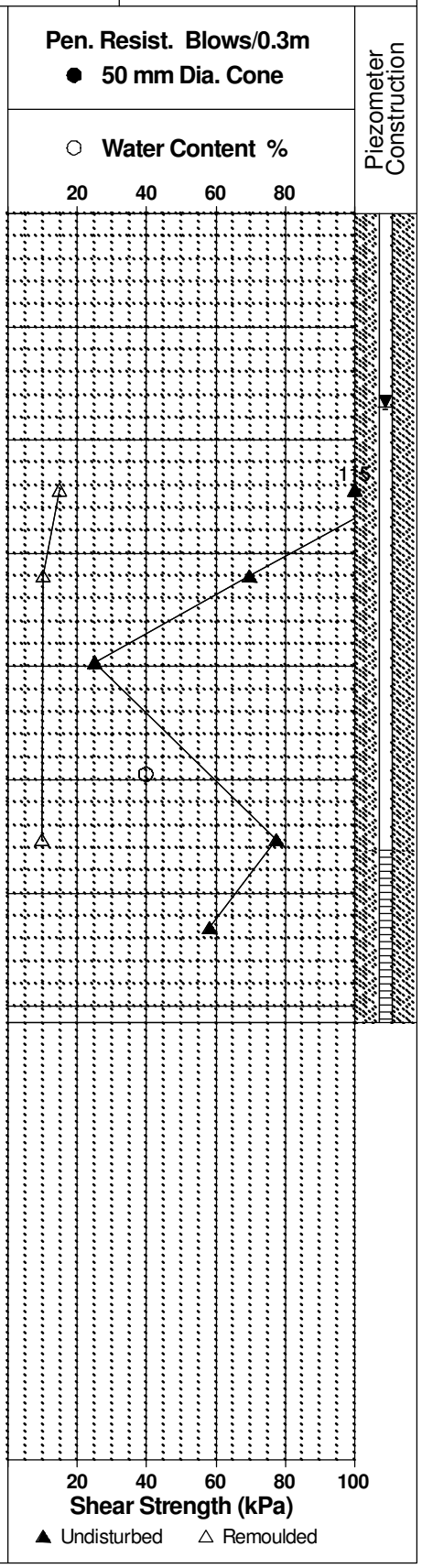
FILE NO. PG0675

REMARKS

HOLE NO. BH39

BORINGS BY CME 45 Power Auger **DATE** 13 Jul 07

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.59
TOPSOIL 0.23		AU	1				
Loose, brown **SILTY SAND**, trace clay 0.90		SS	2	100	6	1	88.59
		SS	3	100	5	2	87.59
Very stiff to stiff, brown **SILTY CLAY**, some sand seams						3	86.59
- firm to stiff and grey by 3.4m depth						4	85.59
		TW	4	100		5	84.59
6.40						6	83.59
GLACIAL TILL: Very stiff, grey silty clay with gravel and cobbles 7.14		SS	5	33	50+	7	82.59
End of Borehole							
Practical refusal to augering @ 7.14m depth							
(GWL @ 1.71m-July 23/07)							



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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH40

BORINGS BY CME 55 Power Auger **DATE** 14 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.10
TOPSOIL 0.20		AU	1				
Very stiff, brown **SILTY CLAY**, some sand		SS	2	100	4	1	88.10
- stiff by 1.5m depth		SS	3	100	3	2	87.10
- stiff to firm and grey by 2.7m depth						3	86.10
						4	85.10
5.03						5	84.10
End of Borehole							
(GWL @ 3.21m-Jan. 25/08)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH41

BORINGS BY CME 55 Power Auger **DATE** 14 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.29
TOPSOIL 0.15		AU	1				
		SS	2	100	3	1	88.29
		SS	3	100	3	2	87.29
Very stiff to stiff, brown **SILTY CLAY**, some sand							
- firm to stiff and grey by 3.0m depth						3	86.29
						4	85.29
		TW	4	100		5	84.29
						6	83.29
6.70		SS	5	100	4		
		SS	6	67	9	7	82.29
Loose, grey **SANDY SILT**		SS	7	50	5	8	81.29
8.53							
Dense, grey **SILTY SAND**						9	80.29
		SS	8	100	23		
9.75							
End of Borehole							
(GWL @ 1.00m-Jan. 25/08)							

Pen. Resist. Blows/0.3m
50 mm Dia. Cone

Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

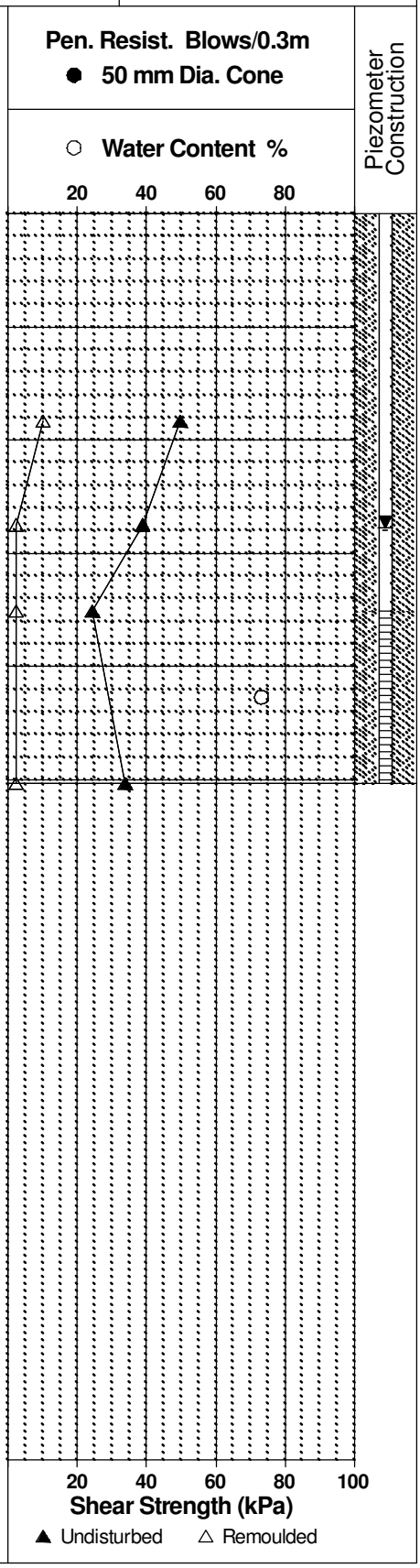
FILE NO. PG0675

REMARKS

HOLE NO. BH42

BORINGS BY CME 55 Power Auger **DATE** 14 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.10
TOPSOIL 0.18		AU	1				
Stiff, brown **SILTY CLAY**		SS	2	100	4	1	88.10
- firm by 1.2m depth		SS	3	50	2	2	87.10
- soft to firm and grey by 2.9m depth		TW	4	100		3	86.10
						4	85.10
5.03						5	84.10
End of Borehole							
(GWL @ 2.77m-Jan. 25/08)							



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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
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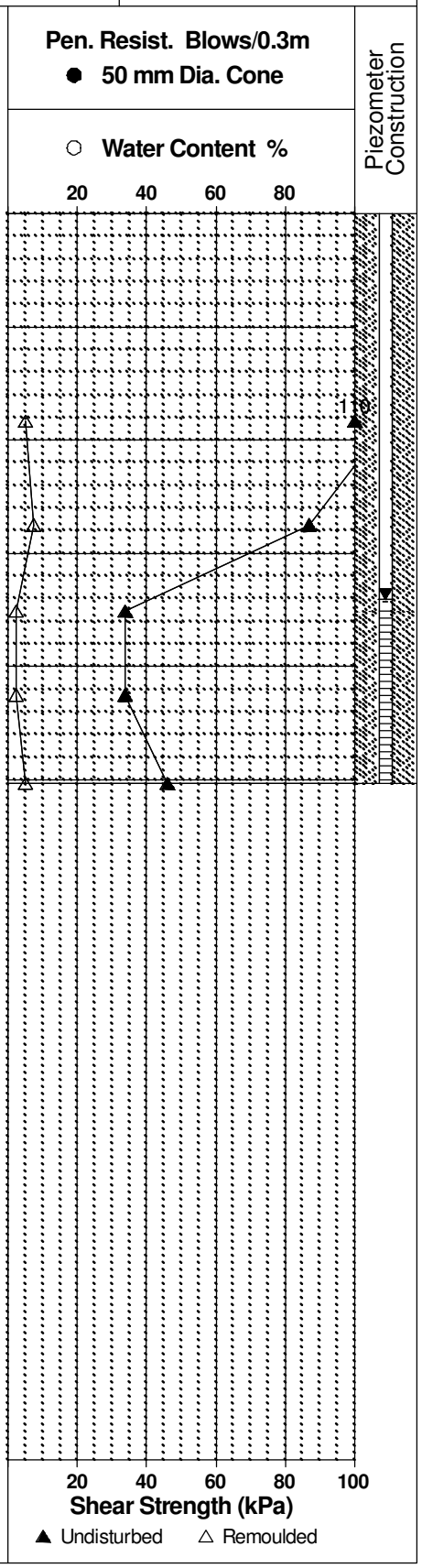
FILE NO. PG0675

REMARKS

HOLE NO. BH43

BORINGS BY CME 55 Power Auger **DATE** 14 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.52
TOPSOIL 0.15		AU	1				
Very stiff, brown **SILTY CLAY**, some sand		SS	2	100	4	1	88.52
- stiff by 1.8m depth		SS	3	100	3	2	87.52
- firm and grey by 2.7m depth						3	86.52
						4	85.52
5.03						5	84.52
End of Borehole							
(GWL @ 3.41m-Jan. 25/08)							



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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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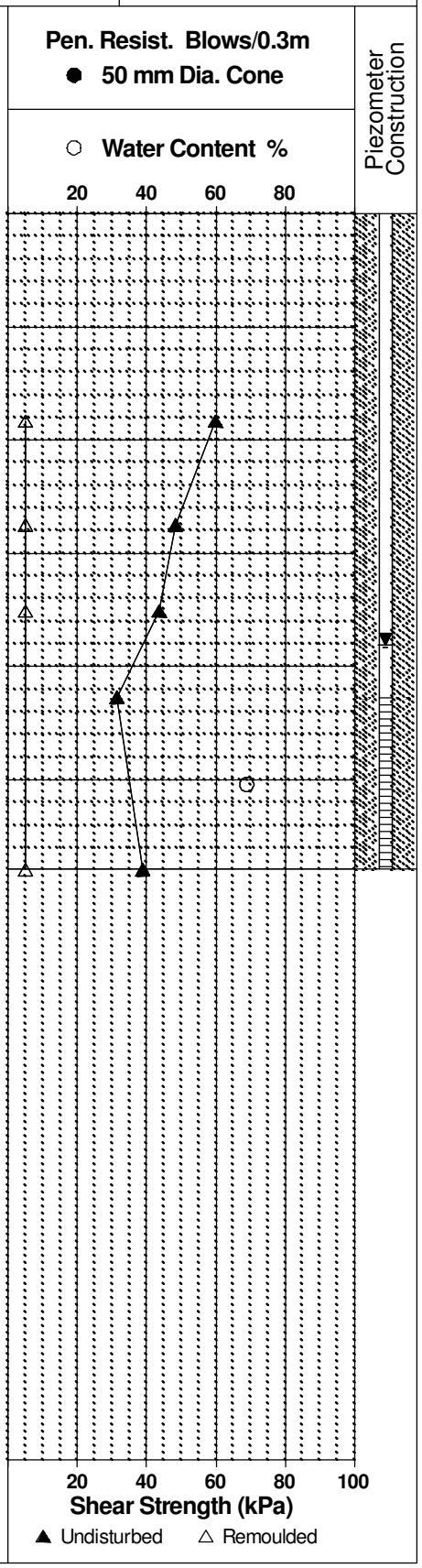
FILE NO. PG0675

REMARKS

HOLE NO. BH44

BORINGS BY CME 55 Power Auger **DATE** 15 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.43
TOPSOIL 0.18		AU	1				
Very stiff to stiff, brown **SILTY CLAY**, some sand		SS	2	100	5	1	88.43
- firm by 1.5m depth		SS	3	100	3	2	87.43
- grey by 3.0m depth						3	86.43
						4	85.43
		TW	4	100		5	84.43
5.79							
End of Borehole							
(GWL @ 3.81m-Jan. 25/08)							



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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

FILE NO. PG0675

REMARKS

HOLE NO. BH45

BORINGS BY CME 55 Power Auger **DATE** 14 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.35
TOPSOIL 0.15		AU	1				
Loose, brown **SILTY SAND**, trace clay 1.22		SS	2	100	5	1	88.35
Stiff, brown **SILTY CLAY**		SS	3	100	3	2	87.35
- soft to firm and grey by 2.1m depth						3	86.35
		TW	4	100		4	85.35
- stiff by 4.4m depth							
5.03						5	84.35
End of Borehole							
(GWL @ 1.46m-Jan. 25/08)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

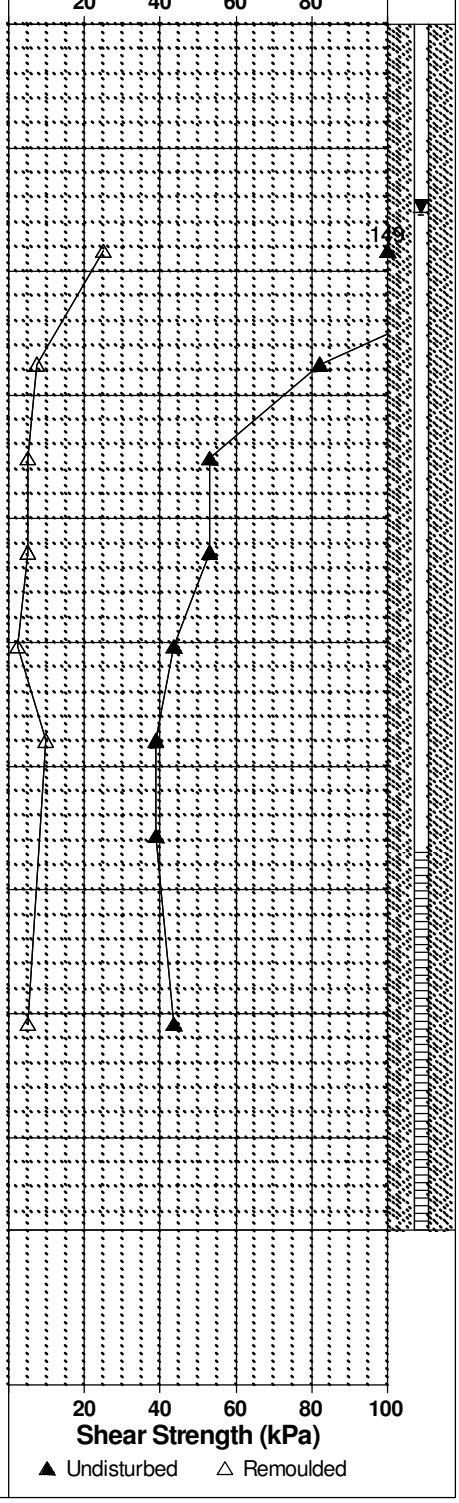
FILE NO. PG0675

REMARKS

HOLE NO. BH46

BORINGS BY CME 55 Power Auger **DATE** 15 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.03
TOPSOIL 0.15		AU	1				
		SS	2	100	6	1	88.03
		SS	3	100	3	2	87.03
Very stiff to stiff, brown **SILTY CLAY**, some sand							
- stiff to firm and grey by 3.0m depth						3	86.03
						4	85.03
						5	84.03
						6	83.03
		SS	4	100	1	7	82.03
8.53						8	81.03
Loose, grey **SILTY SAND**, some gravel						9	80.03
		SS	5	42	6		
9.75							
End of Borehole							
(GWL @ 1.52m-Jan. 25/08)							



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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
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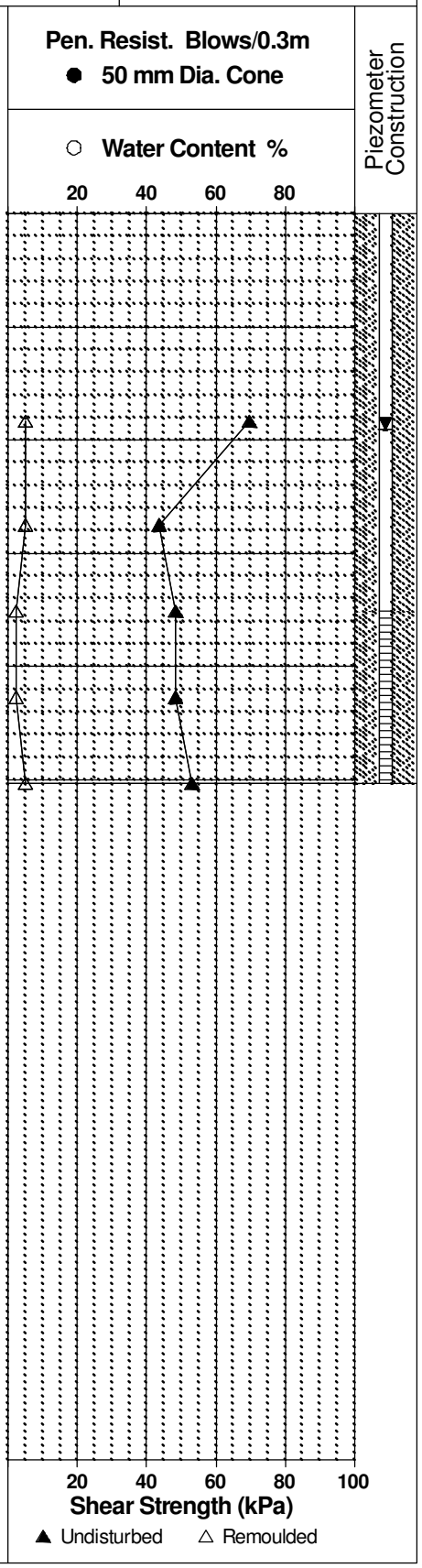
FILE NO. PG0675

REMARKS

HOLE NO. BH47

BORINGS BY CME 55 Power Auger **DATE** 15 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.91
TOPSOIL 0.20		AU	1				
Stiff, brown **SILTY CLAY**, some sand		SS	2	50	6	1	87.91
- stiff to firm by 1.5m depth		SS	3	100	3	2	86.91
- grey by 2.9m depth						3	85.91
- stiff by 4.4m depth						4	84.91
5.03						5	83.91
End of Borehole							
(GWL @ 1.90m-Jan. 25/08)							



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SOIL PROFILE AND TEST DATA

Supplemental Geotechnical Investigation
Mahogany Community - First Line Road
Ottawa, Ontario

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FILE NO. PG0675

REMARKS

HOLE NO. BH48

BORINGS BY CME 55 Power Auger **DATE** 14 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.95
TOPSOIL 0.18							
Loose, brown **SILTY SAND**, trace clay 0.60		AU	1				
		SS	2	100	5	1	87.95
Very stiff to stiff, brown **SILTY CLAY**, some sand		SS	3	100	4	2	86.95
- firm to stiff and grey by 2.7m depth						3	85.95
		TW	4	100		4	84.95
5.03						5	83.95
End of Borehole							
(GWL @ 1.92m-Jan. 25/08)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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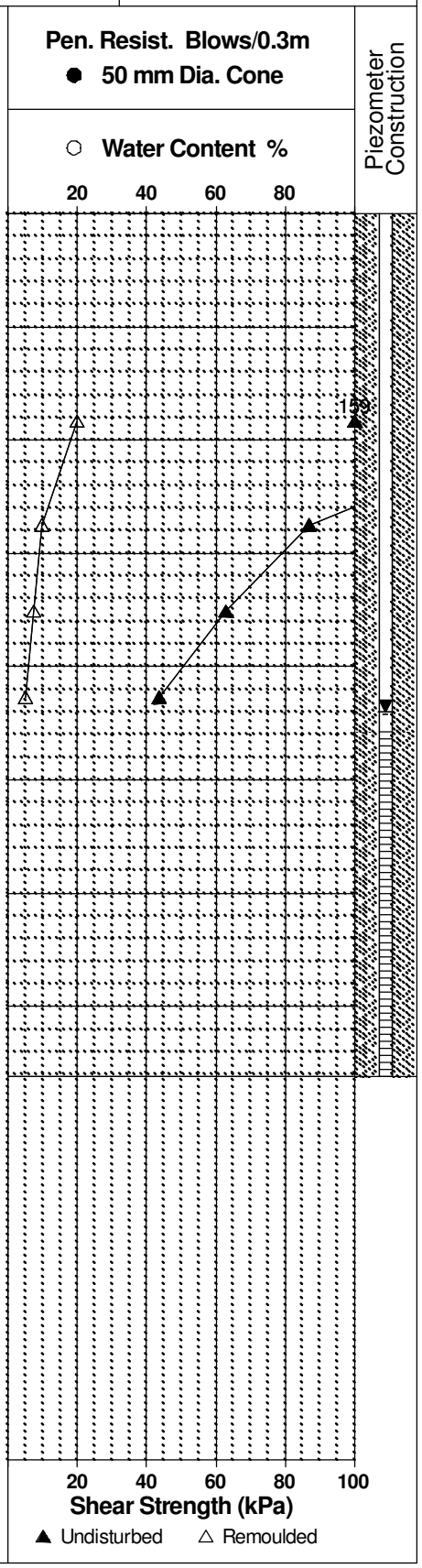
FILE NO. PG0675

REMARKS

HOLE NO. BH49

BORINGS BY CME 55 Power Auger **DATE** 15 Jan 08

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.59
TOPSOIL 0.20		AU	1				
		SS	2	100	7	1	88.59
		SS	3	100	2	2	87.59
Very stiff to stiff, brown **SILTY CLAY**, some sand							
- stiff to firm and grey by 3.0m depth						3	86.59
		SS	4	100	4	4	85.59
5.33						5	84.59
		SS	5	25	12		
		SS	6	75	50+	6	83.59
Compact to dense, grey **SILTY** fine **SAND**						7	82.59
7.62							
End of Borehole							
(GWL @ 4.40m-Jan. 25/08)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

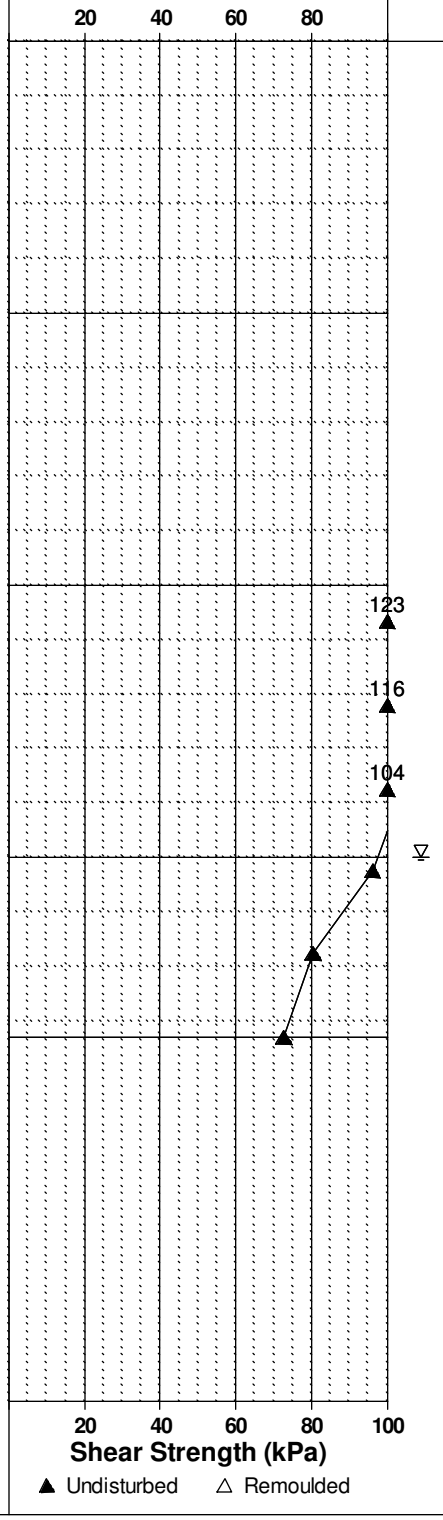
BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 1

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Brown **TOPSOIL**						0	
0.15							
Very stiff, brown **CLAYEY SILT,** some organics		G	1				
0.91						1	
		G	2				
Very stiff to stiff, brown-grey **SILTY CLAY**						2	
		G	3			3	
		G	4				
3.66							
End of Test Pit							
(GWL @ 3.0m depth)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

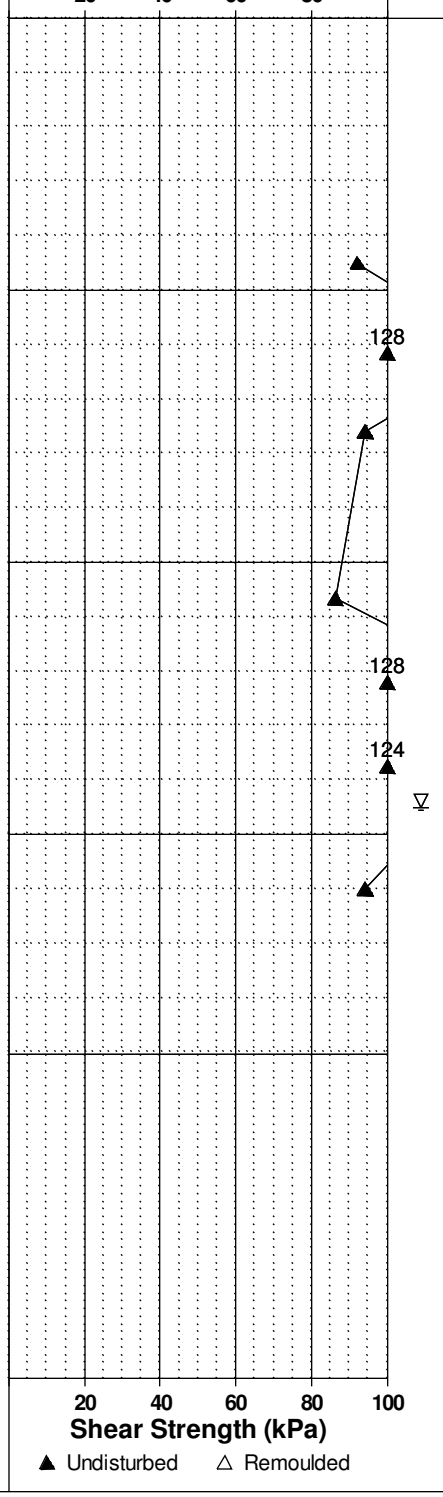
BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 2

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL**							
0.20							
Very stiff, brown **CLAYEY SILT**		G	5				
0.76						1	
		G	6				
Very stiff to stiff, brown-grey **SILTY CLAY**						2	
		G	7				
		G	8			3	
3.81							
End of Test Pit							
(GWL @ 2.9m depth)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

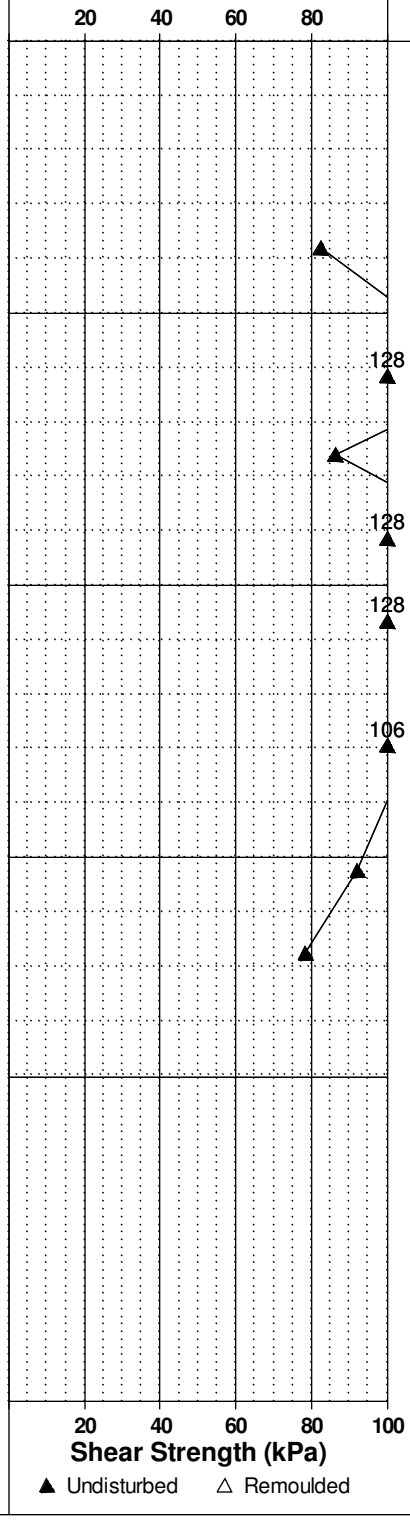
BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 3

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL**							
0.20							
Very stiff, brown **CLAYEY SILT**							
0.71		G	9				
		G	10			1	
Very stiff to stiff, brown-grey **SILTY CLAY**						2	
		G	11			3	
3.66		G	12				
Compact, blue grey **SANDY SILT**							
3.81							
End of Test Pit							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
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DATUM

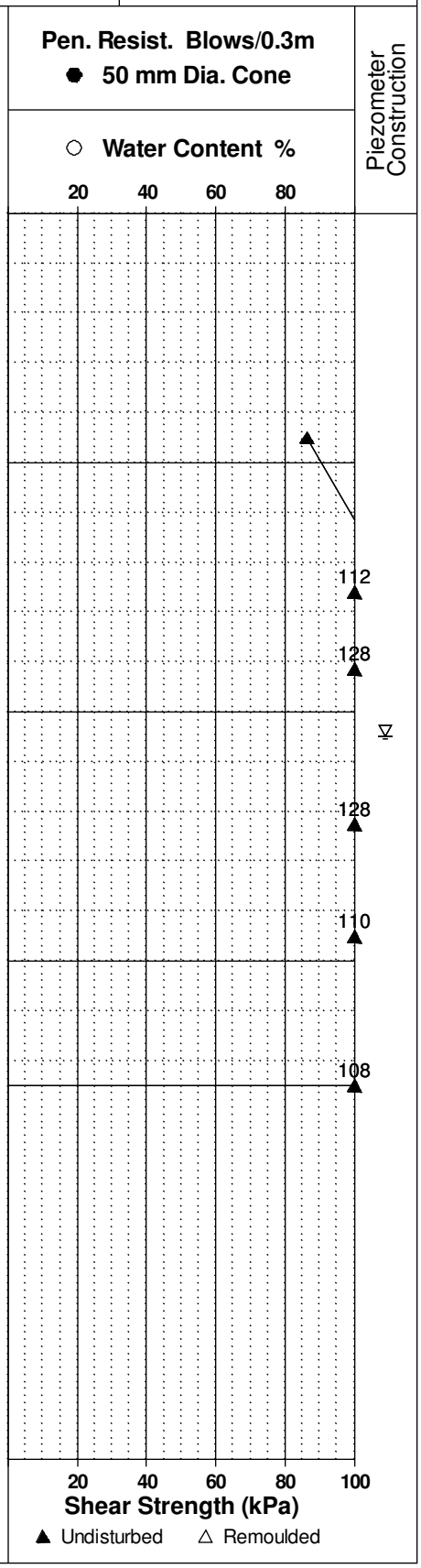
REMARKS

BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL**							
0.15							
Very stiff, brown **CLAYEY SILT**							
0.76		G	13			1	
Very stiff, brown-grey **SILTY CLAY**						2	
		G	14				
		G	15			3	
3.50							
End of Test Pit							
(GWL @ 2.1m depth)							



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
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DATUM

REMARKS

BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 5

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
Brown **TOPSOIL** 0.20									
Very stiff, brown **CLAYEY SILT,** some organics 0.76		G	16			1		128 / 128 ▽	
Very stiff to stiff, brown-grey **SILTY CLAY**		G	17			2		128 / 123 / 108	
		G	18			3			
3.50 End of Test Pit									
(GWL @ 1.5m depth)									

Water Content % scale: 20 40 60 80

Shear Strength (kPa) scale: 20 40 60 80 100

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
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DATUM

REMARKS

BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 6

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL**							
0.18							
Very stiff, brown **CLAYEY SILT,** some organics							
0.60		G	19				
Very stiff, brown to blue grey **SILTY CLAY**						1	
		G	20			2	
2.74							
GLACIAL TILL: Compact silty sand-gravel, some clay, cobbles and boulders						3	
		G	21				
3.50							
End of Test Pit							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

116
120
118
118

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

FILE NO. G7840

HOLE NO. TP 7

BORINGS BY Backhoe **DATE** July 20, 2000

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
Brown **TOPSOIL** 0.20									
GLACIAL TILL: Compact, brown silty sand-gravel, some cobbles and boulders		G	22			1			
		G	23			2			
2.90 End of Test Pit (TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

20 40 60 80

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
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DATUM

REMARKS

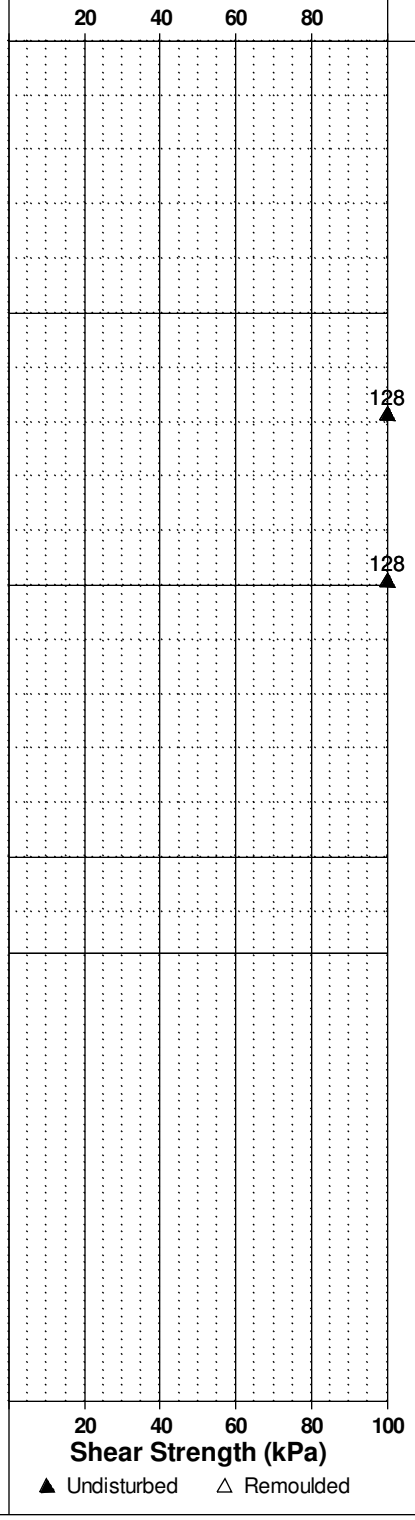
BORINGS BY Backhoe **DATE** July 20, 2000

FILE NO. G7840

HOLE NO. TP 8

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL** 0.20							
Very stiff, brown **CLAYEY SILT,** some organics		G	1				
0.91						1	
Very stiff, grey-brown **SILTY CLAY**							
		G	2			2	
2.13							
GLACIALT ILL: Compact, brown silty sand-gravel, some cobbles and boulders						3	
		G	3				
3.35							
End of Test Pit							
(TP dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
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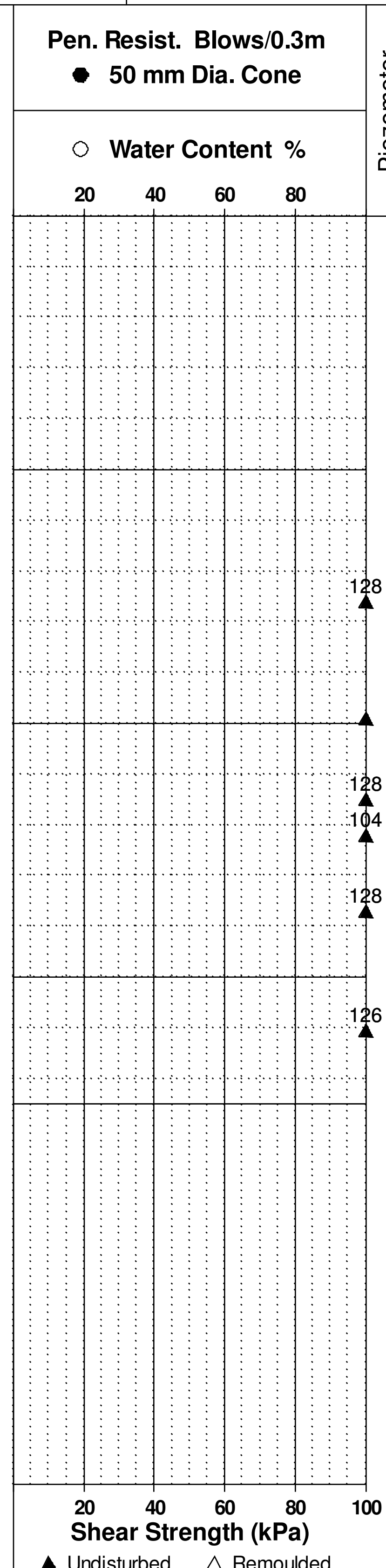
DATUM	FILE NO. G7840
REMARKS	HOLE NO. TP 9
BORINGS BY Backhoe	DATE July 20, 2000

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	% RECOVERY	N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL** 0.15							
Very stiff, brown **CLAYEY SILT,** some organics 0.76		G	27				
Very stiff, brown-grey **SILTY CLAY**						1	
						2	
		G	28				
						3	
3.50		G	29				
End of Test Pit							
(TP dry upon completion)							



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

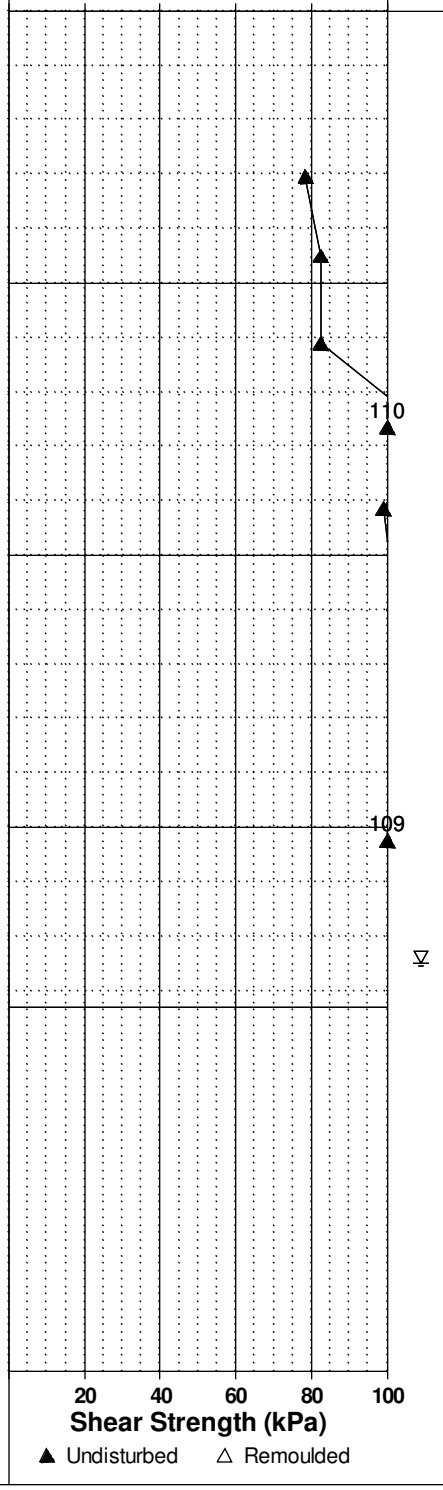
FILE NO. G7840

HOLE NO. TP10

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Brown **TOPSOIL** 0.13							
Compact, light brown **SANDY SILT**		G	30				
0.60		G	31			1	
		G	32				
Stiff to very stiff, brown-grey to grey **SILTY CLAY**						2	
		G	33			3	
3.66							
End of Test Pit							
(GWL @ 3.5m depth)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

Piezometer Construction



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

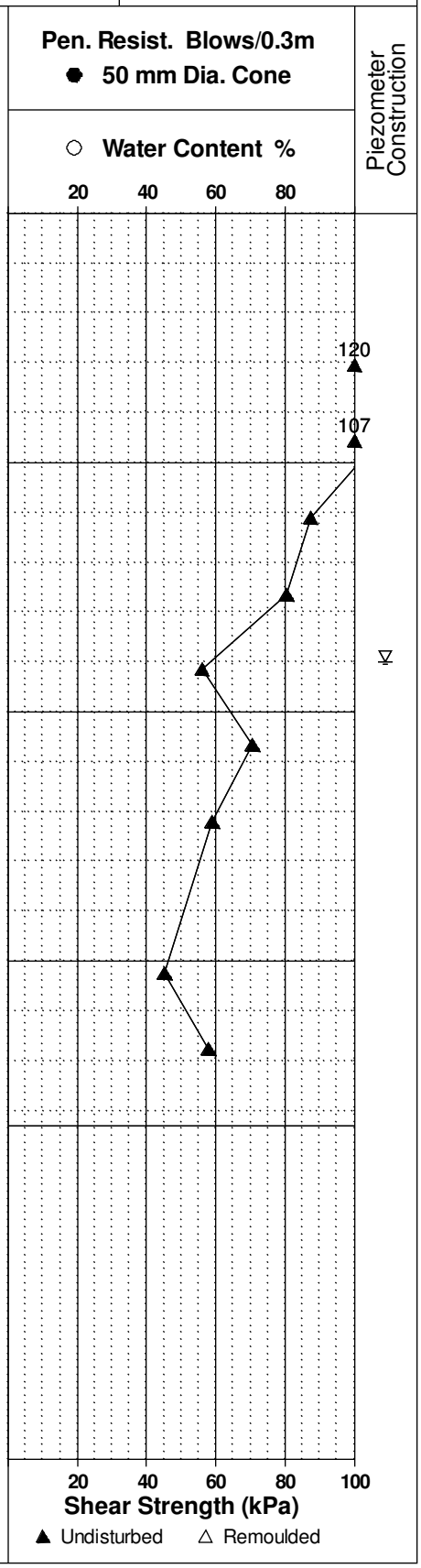
REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.15							
Compact, brown **SANDY SILT**		G	34				
0.60		G	35				
		G	36			1	
		G	37				
Very stiff to stiff, grey-brown to grey **SILTY CLAY**						2	
		G	38			3	
3.66							
End of Test Pit							
(GWL @ 1.8m depth)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP12

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
TOPSOIL 0.15						0	
Very stiff to stiff, grey-brown **SILTY CLAY**		G	39				
		G	40			1	
2.13						2	
GLACIAL TILL: Compact, grey silt, some sand, gravel, cobbles and boulders		G	41				
		G	42				
2.74							
End of Test Pit TP terminated on inferred bedrock at 2.74m depth (GWL @ 1.8m depth)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

105

123 ▽

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

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REMARKS

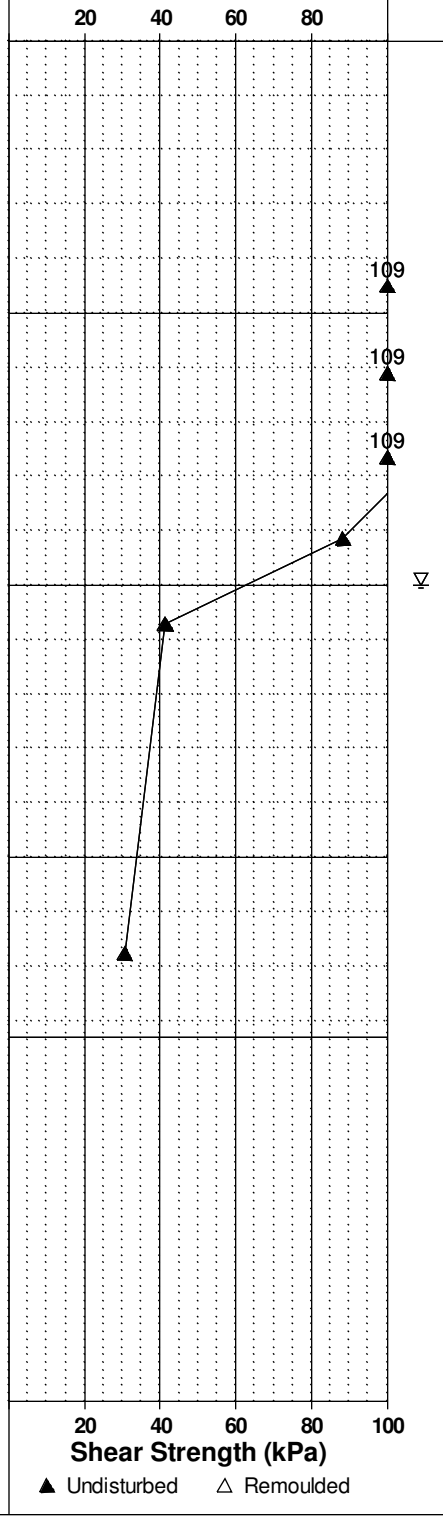
BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP13

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.08							
Very stiff, dark brown **CLAYEY SILT**		G	43			1	
1.20							
Brown **SANDY SILT** 1.37		G	44				
Very stiff to firm, brown-grey **CLAYEY SILT,** occasional gravel		G	45			2	
		G	46				
3.05						3	
Firm, grey **SILTY CLAY,** some sand layers and pockets		G	47				
3.66							
End of Test Pit							
(GWL @ 2.0m depth)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
Manotick, Ontario

DATUM

REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP14

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.05									
Dark grey **CLAYEY SILT** 0.30									
Brown **SILTY SAND** interbedded with sandy silt		G	48			1			
		G	49						
1.83									
Very stiff to soft, grey-brown **SILTY CLAY**		G	50			2			
		G	51						
		G	52			3			
3.66									
End of Test Pit									
(TP dry upon completion)									

Pen. Resist. Blows/0.3m: ● 50 mm Dia. Cone; ○ Water Content %

Water Content % scale: 20, 40, 60, 80

115

Shear Strength (kPa): 20, 40, 60, 80, 100

▲ Undisturbed △ Remoulded

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Geotechnical Investigation
Parcels 2 and 9, Rideau Valley Drive
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REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP15

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.13							
Compact, brown **SILTY SAND/SANDY SILT**		G	53			1	
1.07							
		G	54				
		G	55				
Firm, grey to brown **CLAYEY SILT** interlayered with sandy silt						2	
		G	56				
2.90							
Firm, grey **SILTY CLAY**						3	
		G	57				
3.66							
End of Test Pit							
(GWL @ 2.0m depth)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone

○ Water Content %

20 40 60 80

Piezometer Construction

▽

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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Geotechnical Investigation
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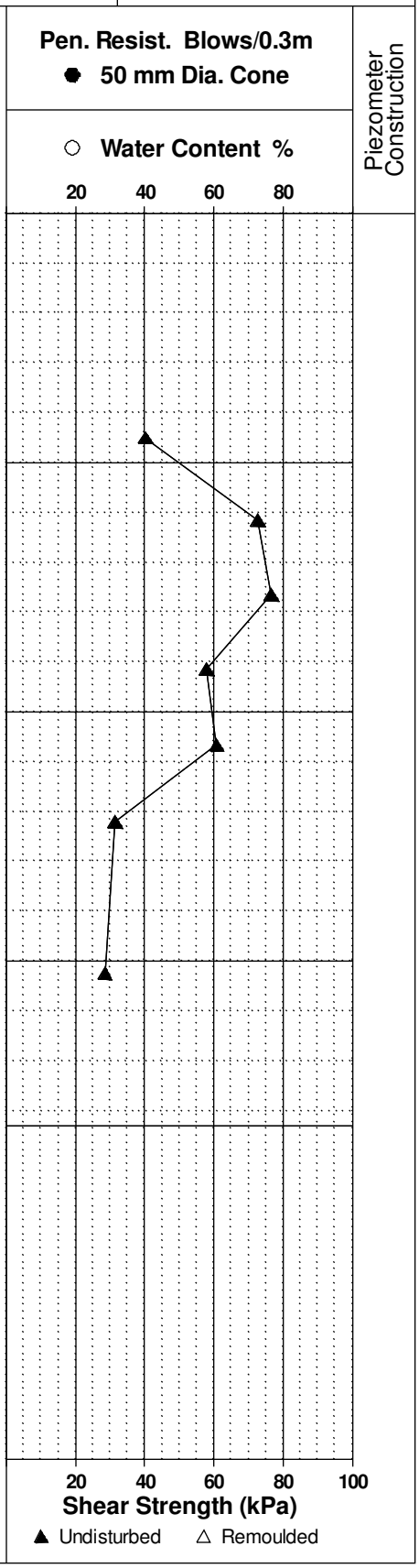
REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP16

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
TOPSOIL 0.15						0	
Compact, brown **SILTY SAND**		G	58				
0.91						1	
		G	59				
Stiff to firm, grey-brown **CLAYEY SILT,** some sandy silt pockets		G	60				
2.44						2	
Compact, grey **SILT**							
		G	61				
3.66						3	
End of Test Pit							
(TP dry upon completion)							



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REMARKS

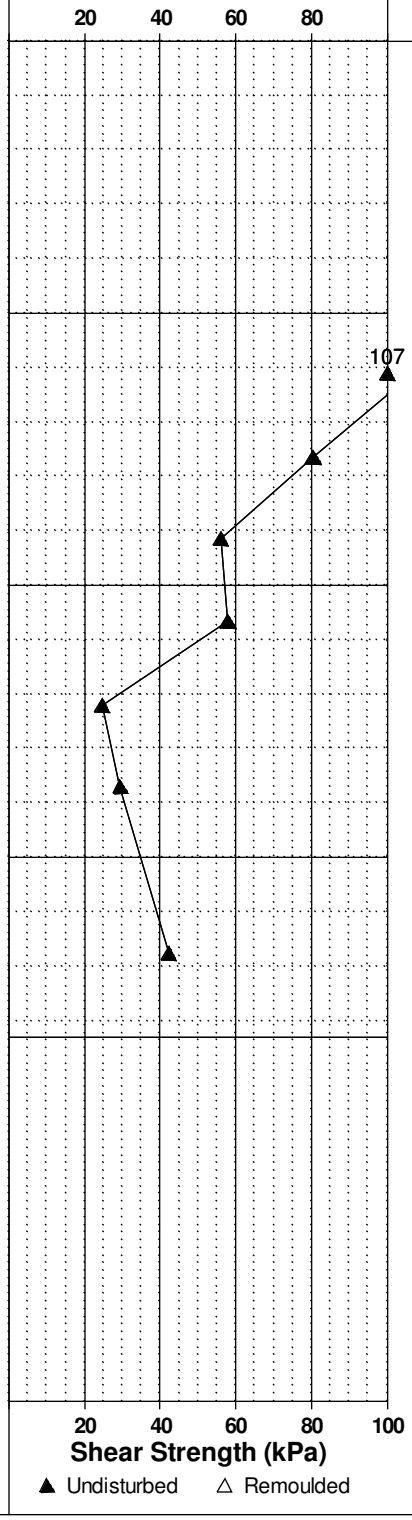
BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP17

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.25							
Red-brown **SILTY SAND**		G	62				
0.91						1	
		G	63				
Very stiff to firm, grey-brown **CLAYEY SILT**						2	
						3	
		G	64				
3.66							
End of Test Pit							
(TP dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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DATUM

REMARKS

BORINGS BY Backhoe **DATE** July 27, 2000

FILE NO. G7840

HOLE NO. TP18

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)	Pen. Resist. Blows/0.3m ● 50 mm Dia. Cone / ○ Water Content %	Piezometer Construction
GROUND SURFACE						0			
TOPSOIL 0.20									
Brown **SILTY SAND** 0.40									
Firm, brown **CLAYEY SILT**		G	65			1			
1.07									
Compact, brown-grey **SANDY SILT/SILTY SAND**		G	66			2			
		G	67						
2.74									
End of Test Pit TP terminated on bedrock or large boulder at 2.74m depth (TP dry upon completion)									

Pen. Resist. Blows/0.3m: 20 40 60 80

Water Content %: 20 40 60 80

Shear Strength (kPa): 20 40 60 80 100

▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Kizzel Property, West of Manotick Main Street
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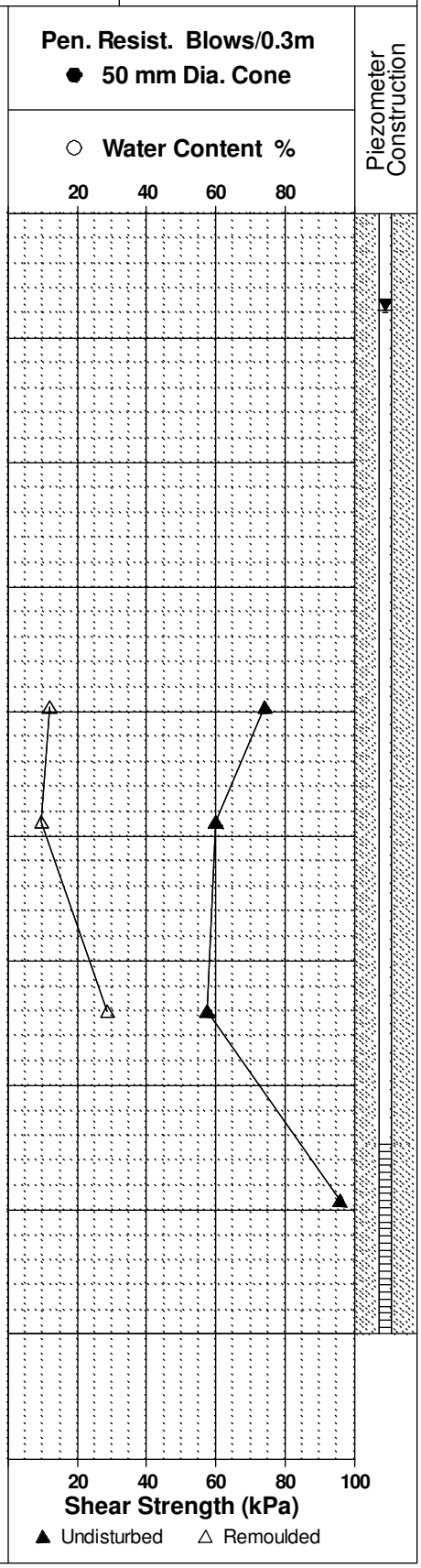
REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 7, 04

FILE NO. PG0219

HOLE NO. BH 1

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.15		AU	1				
		SS	2	79	10	1	
Very stiff to stiff, brown **SILTY CLAY**		SS	3	100	7	2	
		SS	4	100	5		
- grey by 3.0m depth		SS	5	100	3	3	
		SS	4	100	1	4	
		SS	5	100	W	5	
7.92						6	
GLACIAL TILL: Compact, grey clayey silt with gravel, cobbles and boulders		SS	6	29	11	7	
8.89						8	
End of Borehole							
(GWL @ 0.78m-May 19/04)							



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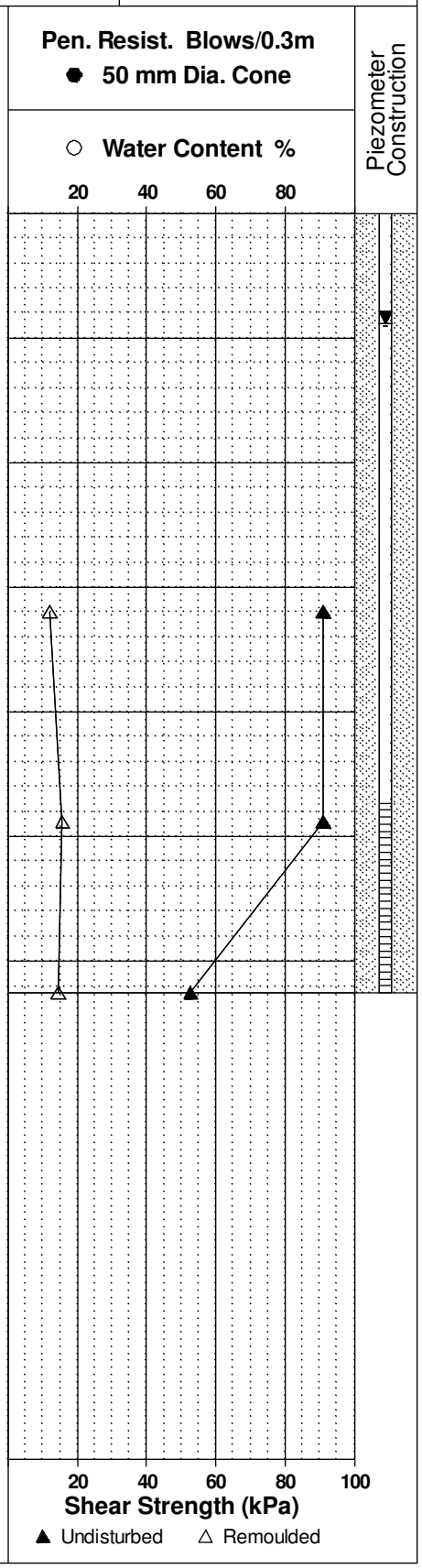
REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 7, 04

FILE NO. PG0219

HOLE NO. BH 2

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay		AU	1				
0.20		SS	2	100	6	1	
Very stiff to stiff, brown **SILTY CLAY**		SS	3	100	6	2	
		SS	4	100	7		
- grey by 2.9m depth						3	
		TW	5			4	
						5	
		SS	6	100	1		
6.25						6	
End of Borehole							
(GWL @ 0.88m-May 19/04)							



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DATUM

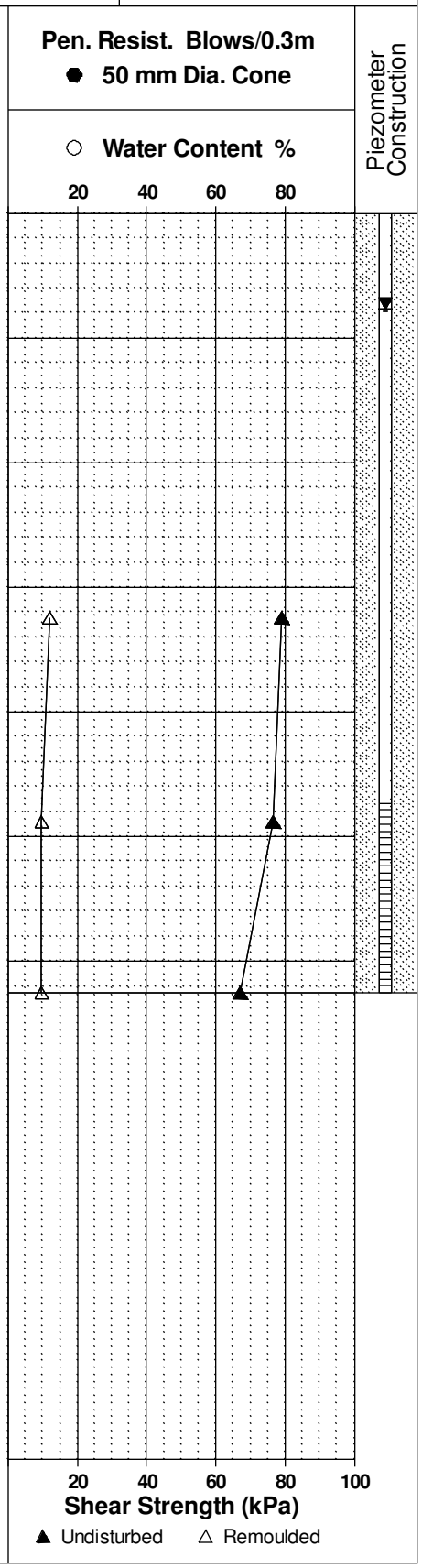
REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 7, 04

FILE NO. PG0219

HOLE NO. BH 3

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.15							
		SS	1	100	6	1	
Very stiff to stiff, brown **SILTY CLAY**, trace sand seams		SS	2	100	6	2	
		SS	3	100	4	3	
- grey by 2.9m depth						4	
						5	
		SS	4	100	2	6	
6.25							
End of Borehole							
(GWL @ 0.77m-May 19/04)							



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REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Cultivated silty clay 0.15 Very stiff, brown **SILTY CLAY**						0	
0.76							
GLACIAL TILL: Dense, grey-brown clayey silt with sand, gravel and cobbles 1.01		SS	1	42	23	1	
		SS	2	42	24	2	
GLACIAL TILL: Compact to very dense, grey-brown sandy silt with gravel, cobbles and boulders		SS	3	75	59	3	
3.81							
End of Borehole							
(GWL @ 0.82m-May 19/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 7, 04

FILE NO. PG0219

HOLE NO. BH 5

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.09		AU	1				
Stiff, brown **SILTY CLAY**, trace sand seams 1.17		SS	2	83	13	1	
GLACIAL TILL: Compact, brown sandy silt with gravel, cobbles and boulders		SS	3	17	9	2	
		SS	4	21	11		
3.05		SS	5	50	30	3	
GLACIAL TILL: Dense, brown clayey silt with gravel, cobbles and boulders		SS	6	33	29	4	
		SS	7	50	33	5	
5.94							
End of Borehole							
(GWL @ 1.35m-May 19/04)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH 6

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.15							
Very stiff to stiff, brown **SILTY CLAY**		SS	1	100	7	1	
		SS	2	100	5	2	
		SS	3	100	16		
2.90						3	
GLACIAL TILL: Compact to very dense, grey sandy silt with gravel, cobbles and boulders		SS	4	58	28	4	
		SS	5	62	44	5	
5.18							
GLACIAL TILL: Grey clayey silt with gravel, cobbles and boulders 5.59		SS	6	100	65+		
End of Borehole							
(GWL @ 0.93m-May 19/04)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**
○ **Water Content %**

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH 7

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
Cultivated silty clay 0.20						0	
Very stiff to stiff, brown **SILTY CLAY**		SS	1	42	5	1	
		SS	2	100	4	2	
2.44							
GLACIAL TILL: Compact, brown sandy silt with gravel, cobbles and boulders		SS	3	100	6	3	
		SS	4	58	26	4	
4.57							
GLACIAL TILL: Dense to compact, grey-brown clayey silt with gravel, cobbles and boulders		SS	5	67	16	5	
		SS	6	67	37		
5.79							
End of Borehole							
(GWL @ 1.51m-May 19/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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BORINGS BY CME 55 Power Auger **DATE** May 11, 04

FILE NO. PG0219

HOLE NO. BH 8

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.20		AU	1				
Very stiff, brown **SILTY CLAY**						1	
1.12		SS	2	83	21		
		SS	3	100	18	2	
GLACIAL TILL: Compact, brown sandy silt with gravel, cobbles and boulders							
- grey by 3.0m depth		SS	4	12	23	3	
						4	
- dense to very dense by 4.6m depth		SS	5	54	49	5	
		SS	6	64	64+		
5.74							
End of Borehole							
(GWL @ 1.31m-May 19/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH 9

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.20							
		SS	1	100	11	1	
Stiff, brown **SILTY CLAY**		SS	2	100	4	2	
		SS	3	100	2	3	
- grey by 3.0m depth							
3.96						4	
GLACIAL TILL: Loose to compact, grey sandy silt with gravel, cobbles and boulders		SS	4	100	5	5	
		SS	5	83	13	6	
6.25							
End of Borehole							
(GWL @ 1.13m-May 19/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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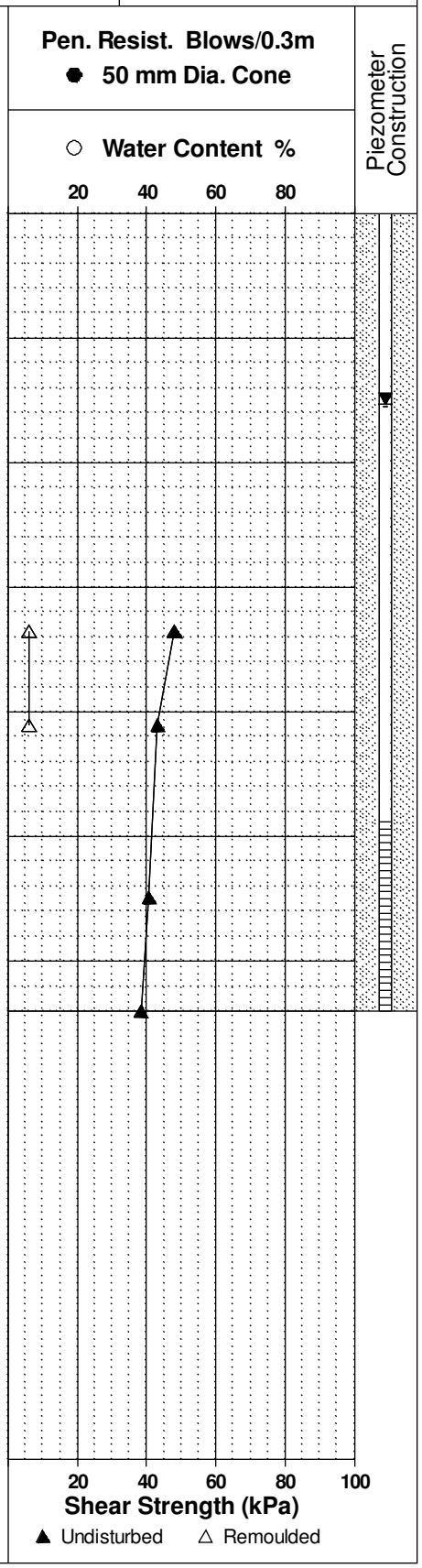
BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH10

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.15		AU	1				
Stiff, brown **SILTY CLAY**		SS	2	75	5	1	
		SS	3	100	4	2	
- firm and grey by 2.3m depth		SS	4	100	4	3	
						4	
		SS	5	100	1	5	
6.40						6	
End of Borehole							
(GWL @ 1.53m-May 19/04)							



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BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH11

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.20		AU	1				
Very stiff, brown **SILTY CLAY**		SS	2	100	11	1	
1.52		SS	3	62	21	2	
GLACIAL TILL: Compact to very dense, brown sandy silt to silty sand with gravel, cobbles and boulders		SS	4		15	3	
		SS	5	83	28	4	
		SS	6	50	76	5	
5.79							
End of Borehole							
(GWL @ 2.20m-May 19/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

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DATUM

REMARKS

BORINGS BY CME 55 Power Auger **DATE** May 10, 04

FILE NO. PG0219

HOLE NO. BH12

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
Cultivated silty clay 0.15							
Very stiff, brown **SILTY CLAY**							
0.76							
Loose, brown **SILTY SAND**		SS	1	100	7	1	
1.52							
Very stiff to stiff **SILTY CLAY** with sand seams		SS	2	100	2	2	
2.29							
		SS	3	58	34	3	
GLACIAL TILL: Dense to compact, brown to grey sandy silt with gravel, cobbles and boulders						4	
		SS	4	50	14	5	
		SS	5	67	13		
5.79							
End of Borehole							
(GWL @ 2.11m-May 19/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Percival Property, Main Street at Century Road
Ottawa (Manotick), Ontario

DATUM

REMARKS

BORINGS BY CME 55 Power Auger **DATE** Jul 15, 04

FILE NO. PG0328

HOLE NO. BH 1

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.20							
GLACIAL TILL: Dense to very dense, brown silty sand with gravel, cobbles and boulders		SS	1	50	46	1	
		SS	2	46	52	2	
		SS	3	58	42		
		SS	4	58	44	3	
		SS	5	54	46	4	
4.47							
Compact, grey **SANDY SILT**, trace gravel		SS	6	58	24	5	
5.49							
Dense, grey **SILTY SAND**						6	
		SS	7	75	49		
6.71							
End of Borehole							
(GWL @ 2.07-July 23/O4)							

Pen. Resist. Blows/0.3m
● **50 mm Dia. Cone**

○ **Water Content %**

20 40 60 80

Piezometer Construction

20 40 60 80 100

Shear Strength (kPa)

▲ Undisturbed △ Remoulded

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REMARKS

BORINGS BY CME 55 Power Auger **DATE** Jul 15, 04

FILE NO. PG0328

HOLE NO. BH 2

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE							
TOPSOIL 0.15						0	
GLACIAL TILL: Dense to very dense, brown silty sand with gravel, cobbles and boulders		SS	1	54	43	1	
1.93		SS	2		62+		
End of Borehole							
Practical refusal to augering @ 1.93m depth. Two probeholes drilled beside BH 2, refusal to augering @ 1.22m and 1.37m depth.							
(BH dry upon completion)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %
20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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Percival Property, Main Street at Century Road
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REMARKS

BORINGS BY CME 55 Power Auger **DATE** Jul 15, 04

FILE NO. PG0328

HOLE NO. BH 3

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.18							
Firm, brown-grey **SILTY CLAY**		SS	1	100	2	1	
		SS	2	100	1	2	
3.04						3	
Grey **SILT** 3.10		SS	3	38	23		
GLACIAL TILL: Compact, grey silty sand with gravel, cobbles and boulders		SS	4	29	12	4	
		SS	5	29	15	5	
6.35		SS	6	40	50+	6	
End of Borehole							
(GWL @ 0.86-July 23/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %

20 40 60 80

Piezometer Construction

20 40 60 80 100
Shear Strength (kPa)
▲ Undisturbed △ Remoulded

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Geotechnical Investigation
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DATUM

REMARKS

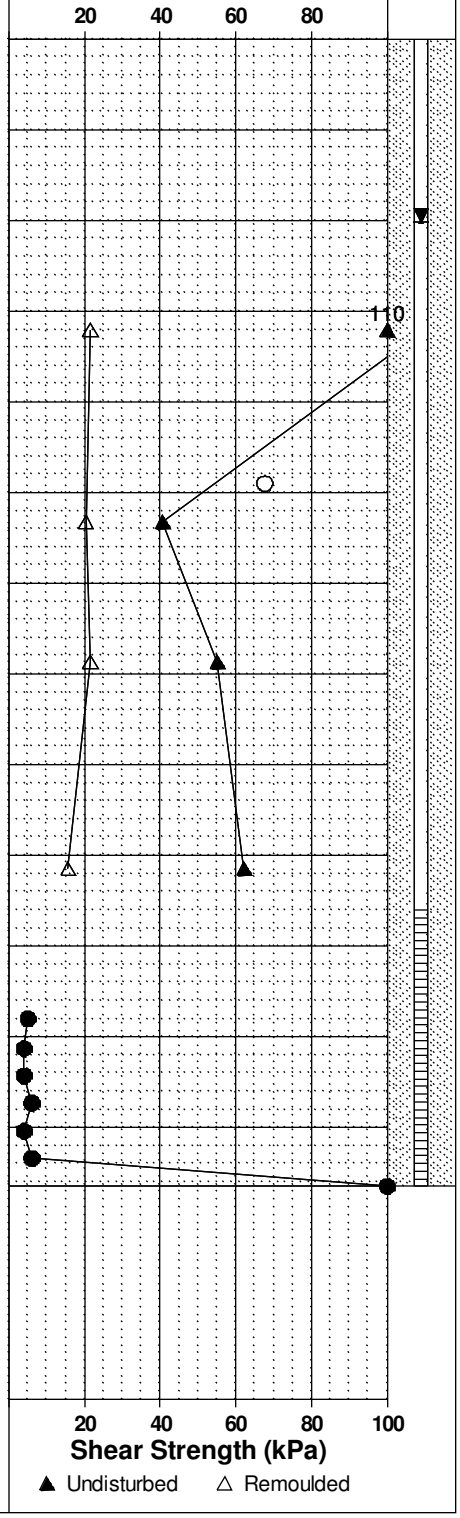
BORINGS BY CME 55 Power Auger **DATE** Jul 15, 04

FILE NO. PG0328

HOLE NO. BH 4

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.23							
Loose, brown **SILTY SAND**, some clay		SS	1	100	4	1	
1.52		SS	2	100	6	2	
Very stiff, brown **SILTY CLAY**, trace fine sand		SS	3	100	2	3	
- firm and grey by 3.5m depth		SS	4	100	W	4	
		TW	1			5	
		SS	5	100	W	6	
- stiff by 6.7m depth						7	
		SS	6	100	W	8	
						9	
10.80						10	
Dynamic Cone Penetration Test commenced @ 10.80m depth Inferred **SILTY CLAY**						11	
12.65						12	
End of Borehole Refusal to DCPT @ 12.65m depth (GWL @ 2.01-July 23/04)							

Pen. Resist. Blows/0.3m
● 50 mm Dia. Cone
○ Water Content %



Piezometer Construction

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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Percival Property, Main Street at Century Road
Ottawa (Manotick), Ontario

DATUM

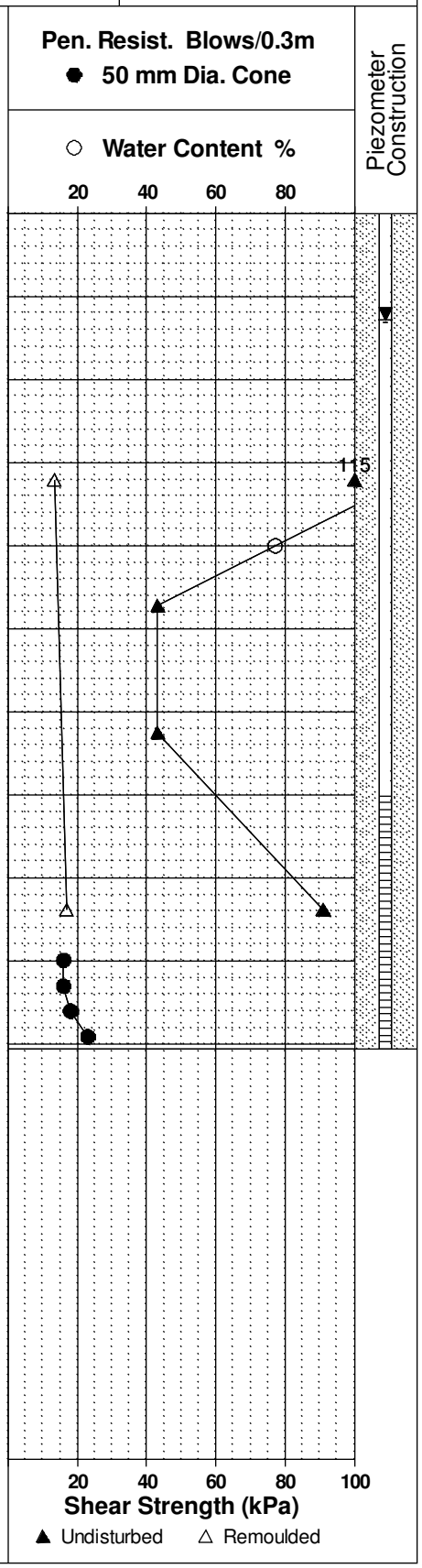
REMARKS

BORINGS BY CME 55 Power Auger **DATE** Jul 15, 04

FILE NO. PG0328

HOLE NO. BH 5

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.20							
Very loose, brown **SILTY SAND**, some clay		SS	1	100	2	1	
1.42							
Very stiff, brown **SILTY CLAY**		SS	2	100	2	2	
		SS	3	100	2		
- firm and grey by 3.0m depth						3	
		TW	1			4	
		SS	4	100	W	5	
						6	
- occasional silt layers		SS	5	100	1	7	
		TW	2			8	
- stiff by 8.0m depth							
8.84							
Dynamic Cone Penetration Test commenced @ 8.84m depth						9	
10.06						10	
Inferred **GLACIAL TILL** or **SILT**							
End of Borehole							
(GWL @ 1.28-July 23/04)							



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SOIL PROFILE AND TEST DATA

Geotechnical Investigation
Percival Property, Main Street at Century Road
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DATUM

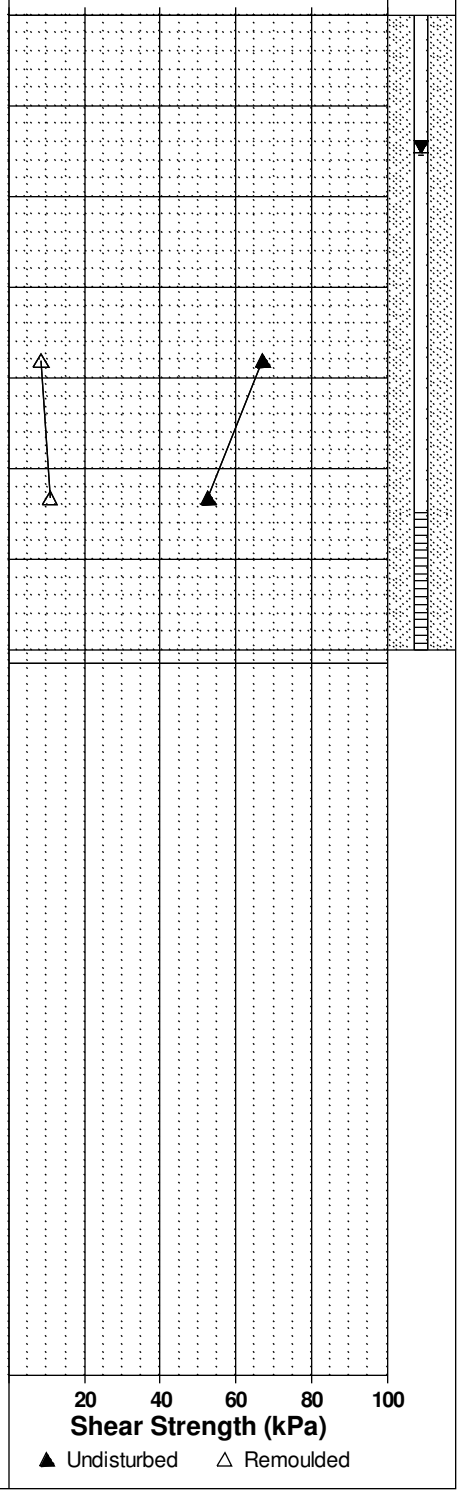
REMARKS

BORINGS BY CME 55 Power Auger **DATE** Jul 16, 04

FILE NO. PG0328

HOLE NO. BH 6

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	
TOPSOIL 0.30							
Very loose, brown **SILTY FINE SAND**, some clay 1.32		SS	1	100	3	1	
Stiff, brown **SILTY CLAY**, trace sand		SS	2	100	2	2	
		SS	3	100	1		
- grey by 3.0m depth		SS	4	100	1	3	
		TW	1			4	
						5	
6.25						6	
Start of DCPT @ 7.0m depth		SS	5	79	5		
GLACIAL TILL: Loose, grey silty sand with gravel, cobbles and boulders 7.14						7	
Refusal to DCPT @ 7.14 m depth							
End of Borehole							
(GWL @ 1.52-July 23/04)							



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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
First Line Road
Ottawa, Ontario

DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

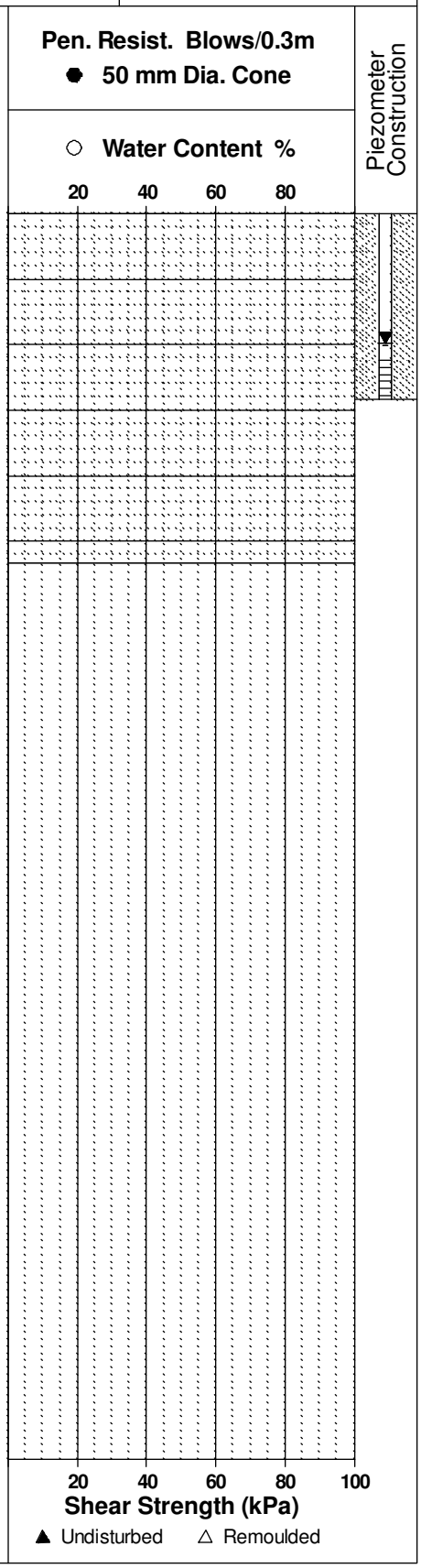
FILE NO. PG0834

REMARKS

HOLE NO. BH 1

BORINGS BY CME 75 Power Auger **DATE** Jun 15, 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	90.61
TOPSOIL 0.25							
Compact, brown **SILTY SAND**		SS	1	75	11	1	89.61
		SS	2	80	50+		
- boulder from 1.8 to 2.7m depth						2	88.61
2.74							
GLACIAL TILL: Very dense, brown silty sand with gravel, cobbles and boulders		SS	3	75	85+	3	87.61
						4	86.61
5.33						5	85.61
End of Borehole							
Practical refusal to augering @ 5.33m depth							
(GWL @ 1.98m-June 30/06)							
Probehole drilled 1m north of BH 1, practical refusal to augering @ 2.84m depth							



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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
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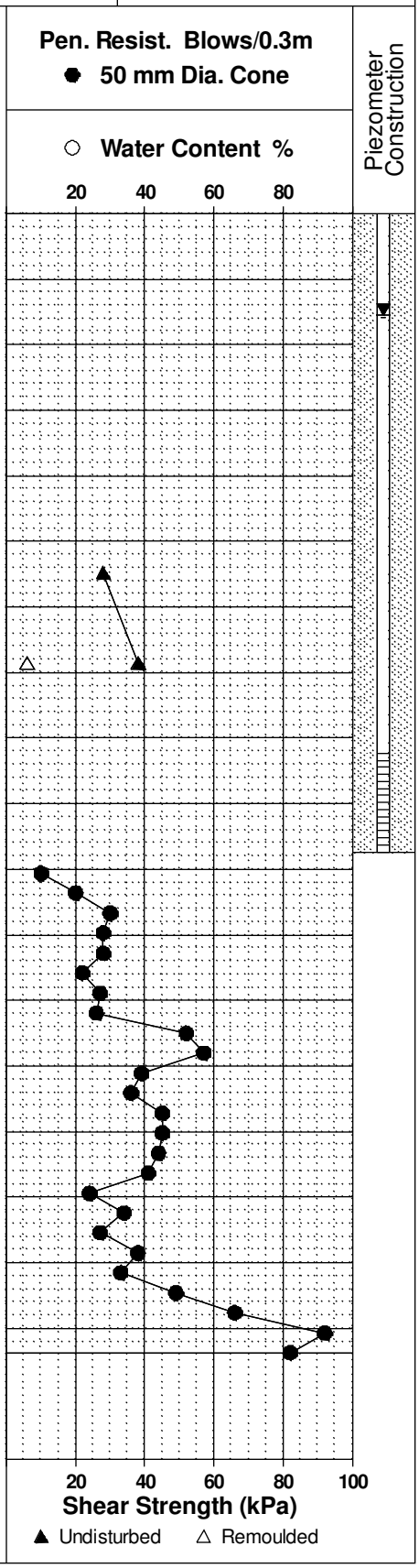
FILE NO. PG0834

REMARKS

HOLE NO. BH 2

BORINGS BY CME 75 Power Auger **DATE** Jun 16, 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.77
TOPSOIL 0.25							
Loose to very loose, brown **SANDY SILT** 1.40		SS	1	67	6	1	88.77
Brown interbedded **CLAYEY SILT** and **SILTY SAND** 2.13		SS	2	100	3	2	87.77
		SS	3	100	3	3	86.77
Firm, brown **CLAYEY SILT** to **SILTY CLAY**, some sand		SS	4	100	1	4	85.77
		SS	5	100	1	5	84.77
- grey by 3.7m depth						6	83.77
		TW	6	100		7	82.77
7.62							
Loose to compact, grey **SANDY SILT** with some clay to 8.2m depth		SS	7	83	7	8	81.77
		SS	8	67	14	9	80.77
9.75		SS	9	100	15		
Dynamic Cone Penetration Test commenced @ 9.75m depth						10	79.77
Inferred **SANDY SILT**						11	78.77
12.10						12	77.77
						13	76.77
Inferred **GLACIAL TILL**						14	75.77
						15	74.77
						16	73.77
17.37						17	72.77
End of Borehole							
(GWL @ 1.55m-June 30/06)							



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SOIL PROFILE AND TEST DATA

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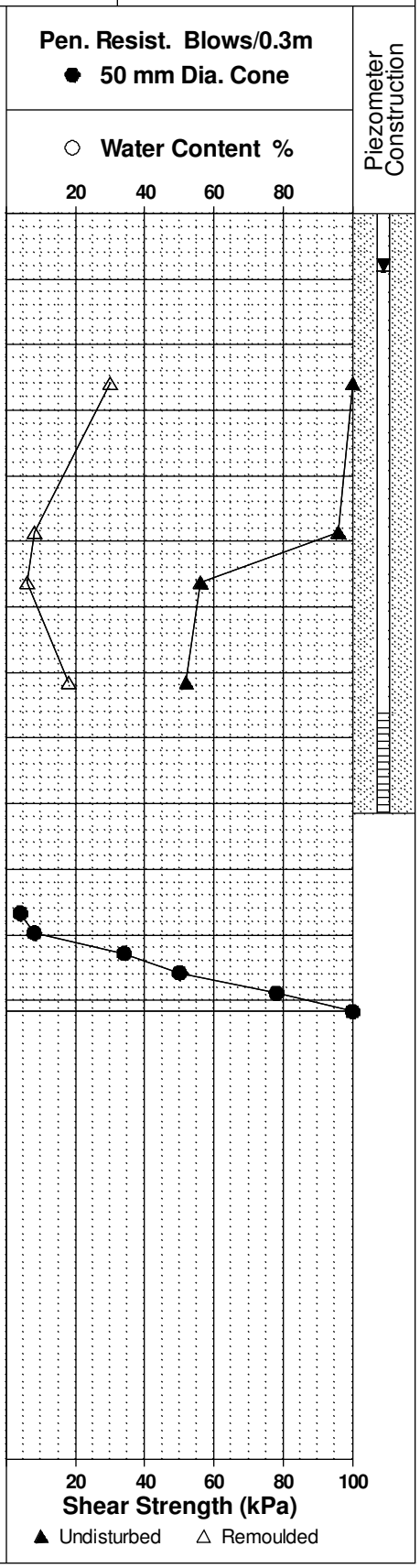
FILE NO. PG0834

REMARKS

HOLE NO. BH 3

BORINGS BY CME 55 Power Auger **DATE** Jun 19, 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	88.56
TOPSOIL 0.25							
Very loose, brown **SANDY SILT** 1.37		SS	1	100	2	1	87.56
Very stiff, brown **SILTY CLAY**		SS	2	100	2	2	86.56
- stiff and grey by 2.9m depth		SS	3	100	1	3	85.56
		SS	4	100	1	4	84.56
						5	83.56
- sand pockets from 6.1 to 6.7m depth		SS	5	100	1	6	82.56
7.46						7	81.56
Loose to very loose, grey **SILTY SAND**		SS	6	50	6	8	80.56
8.68		SS	7	100	1		
GLACIAL TILL: Compact, grey silty sand with gravel, cobbles and boulders 9.75		SS	8	100	21	9	79.56
Dynamic Cone Penetration Test commenced @ 9.75m depth						10	78.56
Inferred **GLACIAL TILL**						11	77.56
12.17						12	76.56
End of Borehole							
DCPT refusal @ 12.17m depth							
(GWL @ 0.87m-June 30/06)							



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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
First Line Road
Ottawa, Ontario

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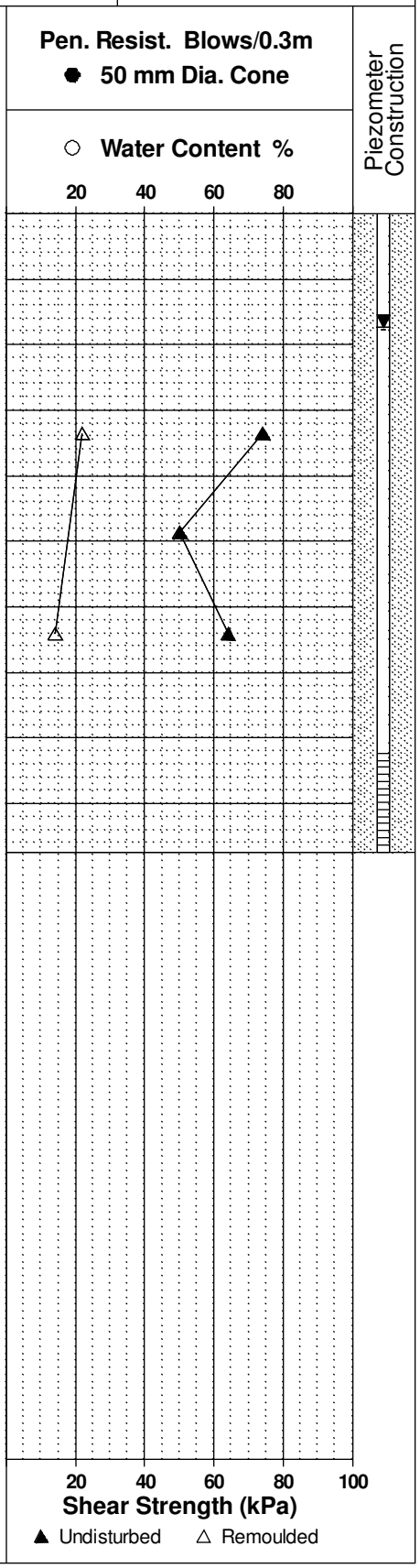
FILE NO. PG0834

REMARKS

HOLE NO. BH 4

BORINGS BY CME 55 Power Auger **DATE** Jun 19, 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.47
TOPSOIL 0.25							
Very loose, brown **SANDY SILT**		SS	1	100	1	1	88.47
2.13		SS	2	100	1	2	87.47
Stiff, brown **SILTY CLAY**, some sand seams		SS	3	100	1	3	86.47
- grey by 3.7m depth		SS	4	100	1	4	85.47
		TW	5	92		5	84.47
6.70						6	83.47
Very loose to loose, grey **SILTY SAND** with clay seams and gravel		SS	6	100	1	7	82.47
		SS	7	75	12	8	81.47
		SS	8	12	9	9	80.47
9.75		SS	9	75	7		
End of Borehole							
(GWL @ 1.73m-June 30/06)							



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SOIL PROFILE AND TEST DATA

Preliminary Geotechnical Investigation
First Line Road
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DATUM Ground surface elevations provided by Annis, O'Sullivan, Vollebekk Ltd.

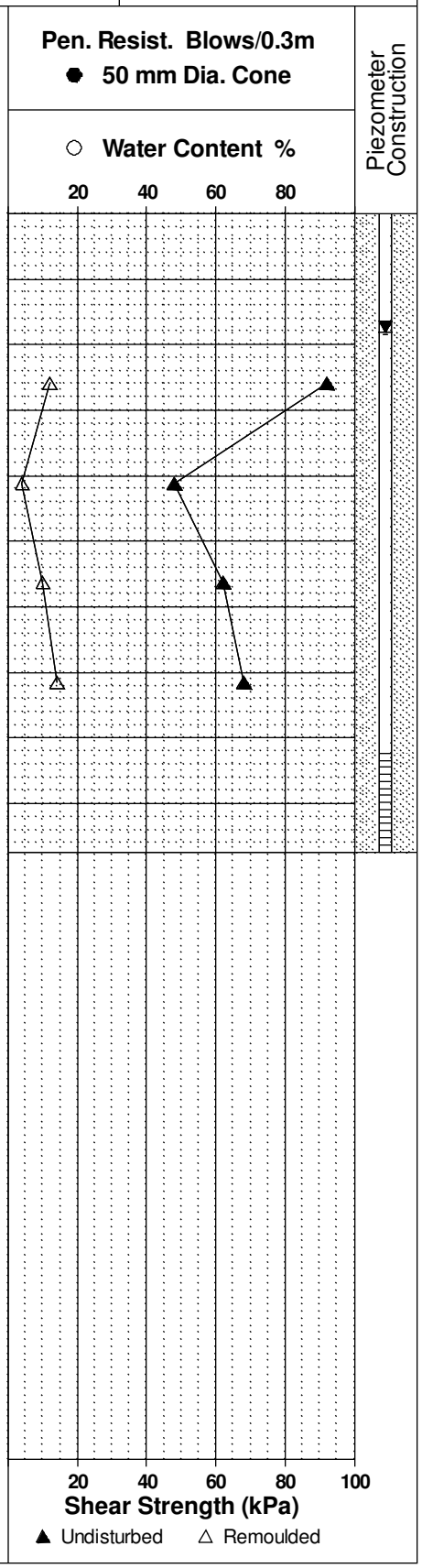
FILE NO. PG0834

REMARKS

HOLE NO. BH 5

BORINGS BY CME 55 Power Auger **DATE** Jun 19, 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.77
TOPSOIL 0.25							
Very loose, brown **SILTY SAND** with clay 1.37		SS	1	100	3	1	88.77
Stiff, brown **SILTY CLAY** with sand seams and sea shells		SS	2	100	2	2	87.77
- grey by 2.9m depth		SS	3	100	1	3	86.77
		TW	4	88		4	85.77
		SS	5	100	3	5	84.77
7.92		SS	6	100	1	6	83.77
Very loose, grey **SILTY SAND** with clay seams		SS	7	100	1	7	82.77
9.75		SS	8	100	1	8	81.77
End of Borehole						9	80.77
(GWL @ 1.81m-June 30/06)							



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First Line Road
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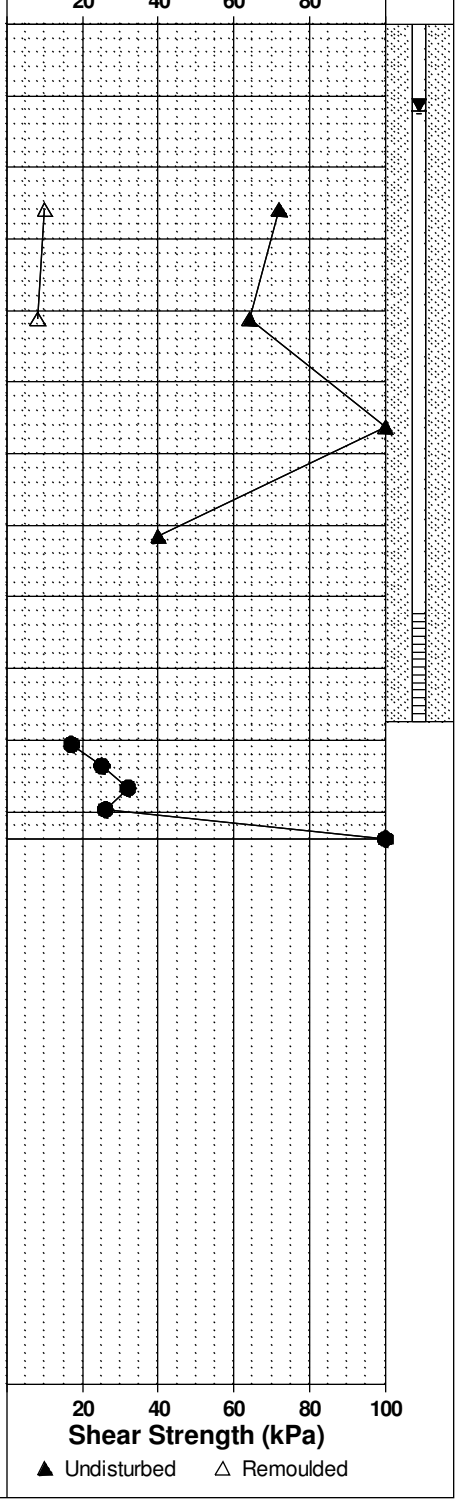
FILE NO. PG0834

REMARKS

HOLE NO. BH 6

BORINGS BY CME 55 Power Auger **DATE** Jun 20, 06

SOIL DESCRIPTION	STRATA PLOT	SAMPLE TYPE	SAMPLE NUMBER	SAMPLE % RECOVERY	SAMPLE N VALUE or RQD	DEPTH (m)	ELEV. (m)
GROUND SURFACE						0	89.18
TOPSOIL 0.28							
Very loose, brown **SILTY SAND** with clay 1.37		SS	1	75	3	1	88.18
Stiff to very stiff, brown **SILTY CLAY** with occasional sand seams		SS	2	100	4	2	87.18
- grey by 2.9m depth		SS	3	100	1	3	86.18
		SS	4	100	1	4	85.18
		SS	5	100	1	5	84.18
- firm by 7.0m depth						6	83.18
8.23		TW	6	100		7	82.18
GLACIAL TILL: Loose to very loose, grey silty sand with gravel, cobbles and boulders		SS	7	75	7	8	81.18
		SS	8	75	1	9	80.18
10.06						10	79.18
Dynamic Cone Penetration Test commenced @ 10.06m depth 11.38						11	78.18
Inferred **GLACIAL TILL**							
End of Borehole							
DCPT refusal @ 11.38m depth							
(GWL @ 1.22m-June 30/06)							



SYMBOLS AND TERMS

SOIL DESCRIPTION

Behavioural properties, such as structure and strength, take precedence over particle gradation in describing soils. Terminology describing soil structure are as follows:

Desiccated	-	having visible signs of weathering by oxidation of clay minerals, shrinkage cracks, etc.
Fissured	-	having cracks, and hence a blocky structure.
Varved	-	composed of regular alternating layers of silt and clay.
Stratified	-	composed of alternating layers of different soil types, e.g. silt and sand or silt and clay.
Well-Graded	-	Having wide range in grain sizes and substantial amounts of all intermediate particle sizes (see Grain Size Distribution).
Uniformly-Graded	-	Predominantly of one grain size (see Grain Size Distribution).

The standard terminology to describe the strength of cohesionless soils is the relative density, usually inferred from the results of the Standard Penetration Test (SPT) 'N' value. The SPT N value is the number of blows of a 63.5 kg hammer, falling 760 mm, required to drive a 51 mm O.D. split spoon sampler 300 mm into the soil after an initial penetration of 150 mm.

Relative Density	'N' Value	Relative Density %
Very Loose	<4	<15
Loose	4-10	15-35
Compact	10-30	35-65
Dense	30-50	65-85
Very Dense	>50	>85

The standard terminology to describe the strength of cohesive soils is the consistency, which is based on the undisturbed undrained shear strength as measured by the in situ or laboratory vane tests, penetrometer tests, unconfined compression tests, or occasionally by Standard Penetration Tests.

Consistency	Undrained Shear Strength (kPa)	'N' Value
Very Soft	<12	<2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very Stiff	100-200	15-30
Hard	>200	>30

SYMBOLS AND TERMS (continued)

SOIL DESCRIPTION (continued)

Cohesive soils can also be classified according to their “sensitivity”. The sensitivity is the ratio between the undisturbed undrained shear strength and the remoulded undrained shear strength of the soil.

Terminology used for describing soil strata based upon texture, or the proportion of individual particle sizes present is provided on the Textural Soil Classification Chart at the end of this information package.

ROCK DESCRIPTION

The structural description of the bedrock mass is based on the Rock Quality Designation (RQD).

The RQD classification is based on a modified core recovery percentage in which all pieces of sound core over 100 mm long are counted as recovery. The smaller pieces are considered to be a result of closely-spaced discontinuities (resulting from shearing, jointing, faulting, or weathering) in the rock mass and are not counted. RQD is ideally determined from NXL size core. However, it can be used on smaller core sizes, such as BX, if the bulk of the fractures caused by drilling stresses (called “mechanical breaks”) are easily distinguishable from the normal in situ fractures.

RQD %	ROCK QUALITY
90-100	Excellent, intact, very sound
75-90	Good, massive, moderately jointed or sound
50-75	Fair, blocky and seamy, fractured
25-50	Poor, shattered and very seamy or blocky, severely fractured
0-25	Very poor, crushed, very severely fractured

SAMPLE TYPES

SS	-	Split spoon sample (obtained in conjunction with the performing of the Standard Penetration Test (SPT))
TW	-	Thin wall tube or Shelby tube
PS	-	Piston sample
AU	-	Auger sample or bulk sample
WS	-	Wash sample
RC	-	Rock core sample (Core bit size AXT, BXL, etc.). Rock core samples are obtained with the use of standard diamond drilling bits.

SYMBOLS AND TERMS (continued)

GRAIN SIZE DISTRIBUTION

MC%	-	Natural moisture content or water content of sample, %
LL	-	Liquid Limit, % (water content above which soil behaves as a liquid)
PL	-	Plastic limit, % (water content above which soil behaves plastically)
PI	-	Plasticity index, % (difference between LL and PL)
Dxx	-	Grain size which xx% of the soil, by weight, is of finer grain sizes These grain size descriptions are not used below 0.075 mm grain size
D10	-	Grain size at which 10% of the soil is finer (effective grain size)
D60	-	Grain size at which 60% of the soil is finer
Cc	-	Concavity coefficient = $(D30)^2$ / (D10 x D60)
Cu	-	Uniformity coefficient = D60 / D10

Cc and Cu are used to assess the grading of sands and gravels:
Well-graded gravels have: $1 < Cc < 3$ and $Cu > 4$
Well-graded sands have: $1 < Cc < 3$ and $Cu > 6$
Sands and gravels not meeting the above requirements are poorly-graded or uniformly-graded.
Cc and Cu are not applicable for the description of soils with more than 10% silt and clay
(more than 10% finer than 0.075 mm or the #200 sieve)

CONSOLIDATION TEST

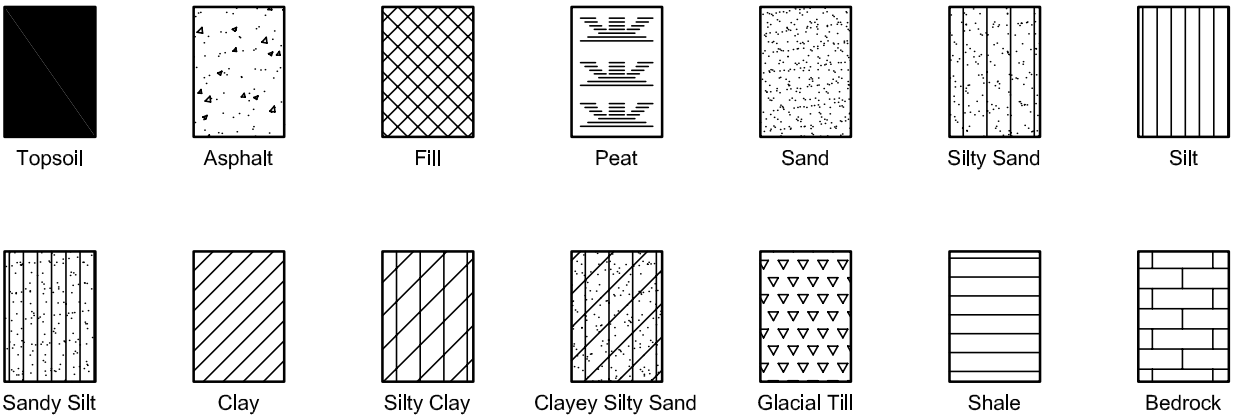
p'_o	-	Present effective overburden pressure at sample depth
p'_c	-	Preconsolidation pressure of (maximum past pressure on) sample
Ccr	-	Recompression index (in effect at pressures below p'_c)
Cc	-	Compression index (in effect at pressures above p'_c)
OC Ratio		Overconsolidaton ratio = p'_c / p'_o
Void Ratio		Initial sample void ratio = volume of voids / volume of solids
Wo	-	Initial water content (at start of consolidation test)

PERMEABILITY TEST

k	-	Coefficient of permeability or hydraulic conductivity is a measure of the ability of water to flow through the sample. The value of k is measured at a specified unit weight for (remoulded) cohesionless soil samples, because its value will vary with the unit weight or density of the sample during the test.

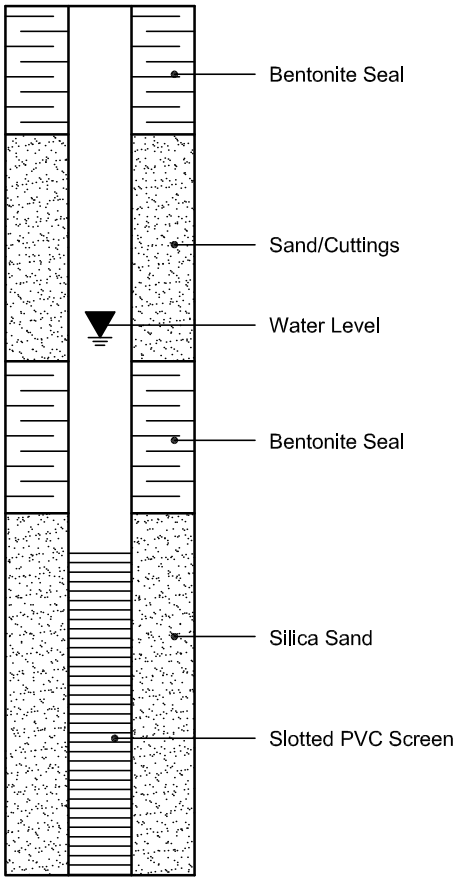
SYMBOLS AND TERMS (continued)

STRATA PLOT

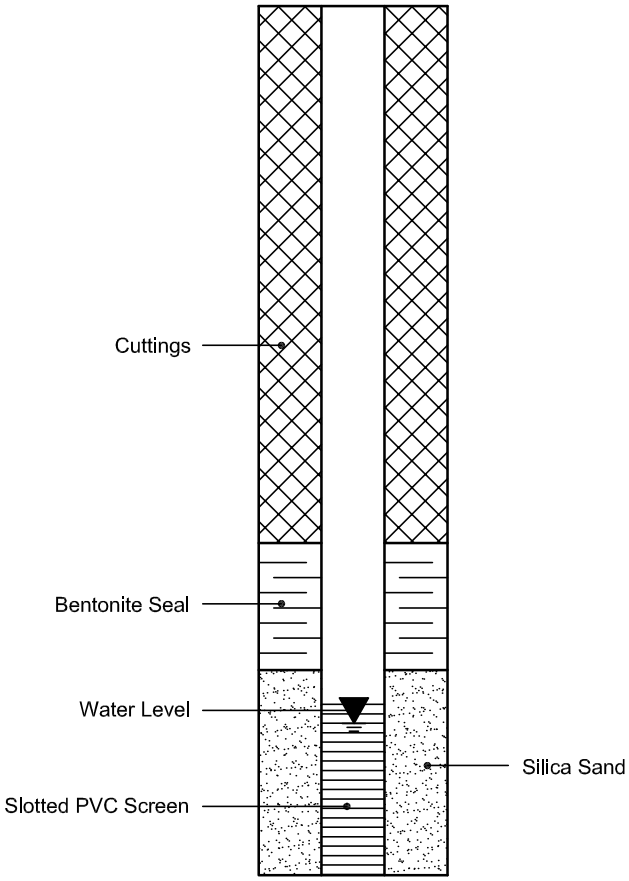


MONITORING WELL AND PIEZOMETER CONSTRUCTION

MONITORING WELL CONSTRUCTION



PIEZOMETER CONSTRUCTION



APPENDIX 2

Drawing PG4045-1 – Site Plan

Drawing PG4045-2 – MOECC Water Well Location Plan

Drawing PG4045-3 – Bedrock Geology

Drawing PG4045-4 – Overburden Geology

patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

MINTO COMMUNITIES INC.

GROUNDWATER IMPACT ASSESSMENT - PHASE 2 TO 4
MAHOGANY COMMUNITY - MANOTICK MAIN STREET

OTTAWA, ONTARIO

Title:

SITE PLAN

Scale: N.T.S.	Date: 03/2017
Drawn by: MPG	Report No.: PG4045-REP.01
Checked by: MK	Dwg. No.: **PG4045-1**
Approved by: MK	Revision No.: 0

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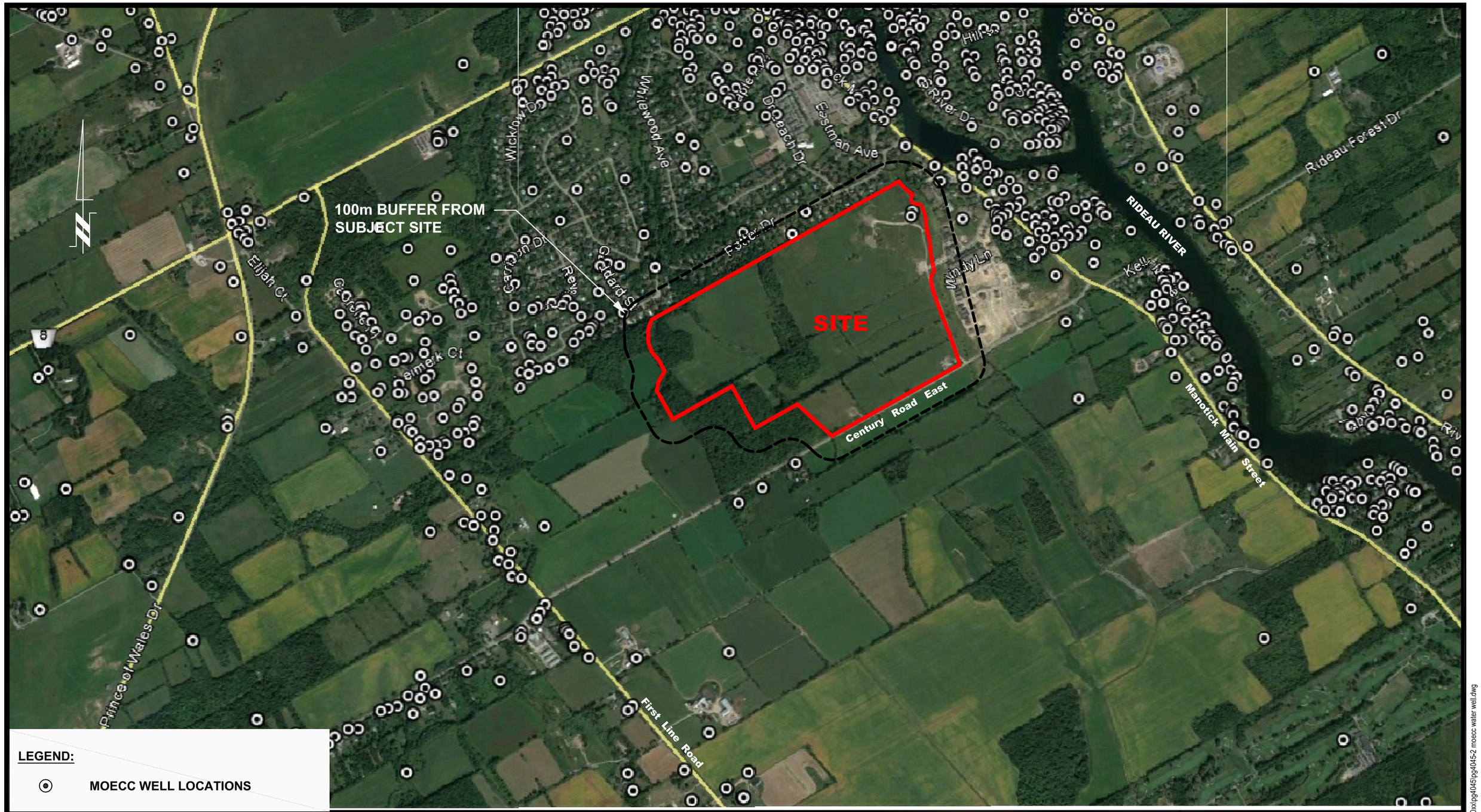

LEGEND:

⊙ MOECC WELL LOCATIONS

patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

MINTO COMMUNITIES INC.

GROUNDWATER IMPACT ASSESSMENT - PHASE 2 TO 4
MAHOGANY COMMUNITY - MANOTICK MAIN STREET

OTTAWA, ONTARIO

Title:

MOECC WATER WELL LOCATION PLAN

Scale: N.T.S	Date: 03/2017
Drawn by: MPG	Report No.: PG4045-REP.01
Checked by: MK	Dwg. No.: PG4045-2
Approved by: MK	Revision No.: 0

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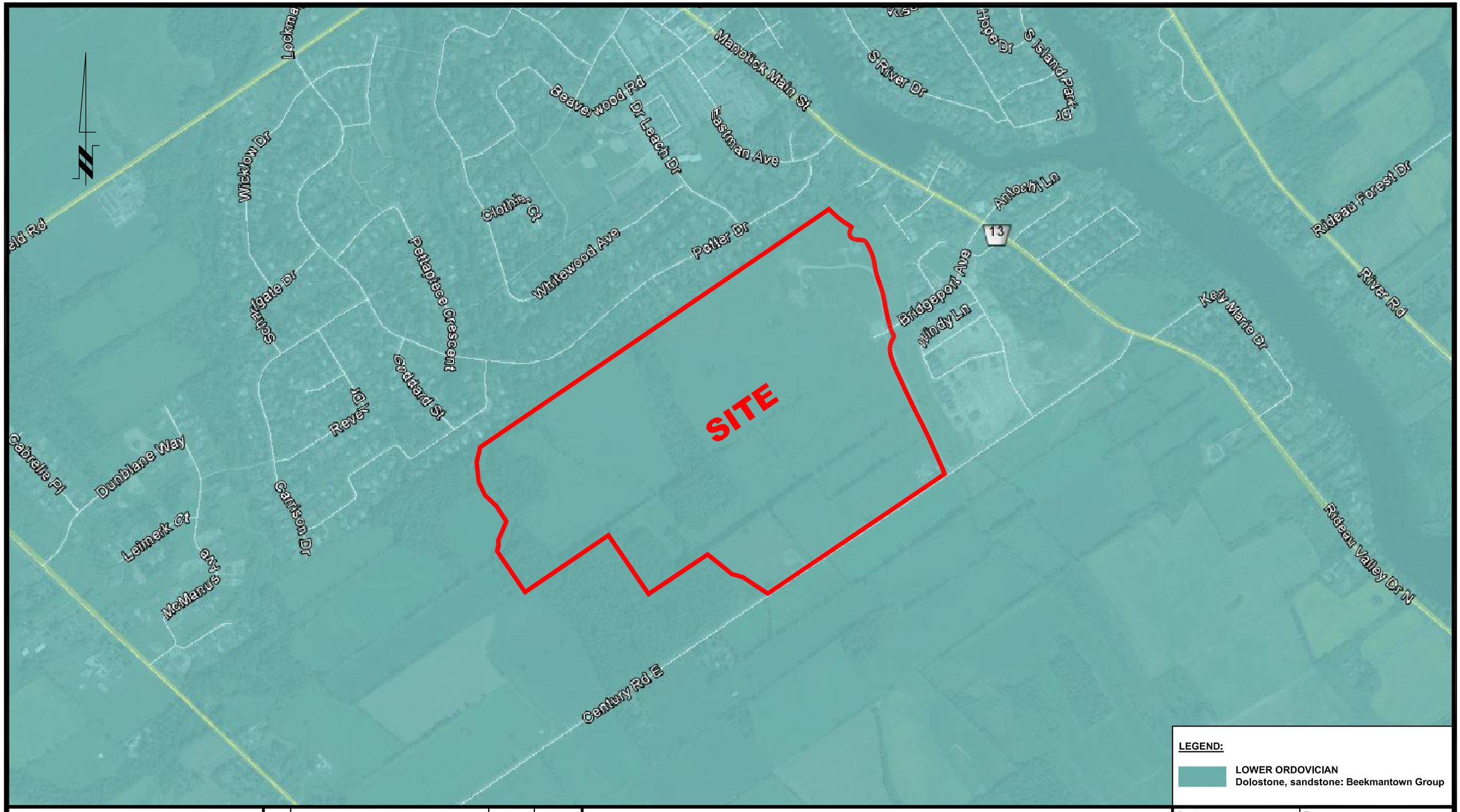

LEGEND:

LOWER ORDOVICIAN
Dolostone, sandstone: Beekmantown Group

patersongroup
consulting engineers

154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

MINTO COMMUNITIES INC.

GROUNDWATER IMPACT ASSESSMENT - PHASE 2 TO 4
MAHOGANY COMMUNITY - MANOTICK MAIN STREET

OTTAWA, ONTARIO

Title:

BEDROCK GEOLOGY

Scale: N.T.S.	Date: 03/2017
Drawn by: MPG	Report No.: PG4045-REP.01
Checked by: MK	Dwg. No.: PG4045-3
Approved by: MK	Revision No.: 0

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patersongroup
consulting engineers
154 Colonnade Road South
Ottawa, Ontario K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

NO.	REVISIONS	DATE	INITIAL
0			

MINTO COMMUNITIES INC.

GROUNDWATER IMPACT ASSESSMENT - PHASE 2 TO 4
MAHOGANY COMMUNITY - MANOTICK MAIN STREET

OTTAWA, ONTARIO

Title:

OVERBURDEN GEOLOGY

Scale: N.T.S.	Date: 03/2017
Drawn by: MPG	Report No.: PG4045-REP.01
Checked by: MK	Dwg. No.: PG4045-4
Approved by: MK	Revision No.: 0

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APPENDIX 3

Table 1 – PG0675 – Summary of Groundwater Levels

Table 1 - PG0675 - Summary of Groundwater Levels				
Borehole Number	**Ground Surface Elevation (m)**	**Groundwater Level (m)**		**Recording Date**
		Depth	**Elevation**	
BH 1	89.78	3.82	85.96	July 23, 2007
BH 2	95.80	0.87	94.93	July 23, 2007
BH 3	93.70	1.51	92.19	July 23, 2007
BH 4	86.16	3.38	82.78	July 23, 2007
BH 5	92.62	0.62	92.00	July 23, 2007
BH 6	90.29	2.11	88.18	July 23, 2007
BH 7	90.63	1.76	88.87	July 23, 2007
BH 8	88.98	1.56	87.42	July 23, 2007
BH 9	88.56	0.63	87.93	July 23, 2007
BH 10	89.21	1.08	88.13	July 23, 2007
BH 11	88.57	0.91	87.66	July 23, 2007
BH 12	88.60	1.84	86.76	July 23, 2007
BH 13	89.11	0.52	88.59	July 23, 2007
BH 14	90.97	Dry at 3.7 m	--	July 23, 2007
BH 15	90.78	1.16	89.62	July 23, 2007
BH 16	89.57	0.63	88.94	July 23, 2007
BH 17	89.07	5.27	83.80	July 23, 2007
BH 18	89.00	1.38	87.62	July 23, 2007
BH 19	90.68	0.62	90.06	July 23, 2007
BH 20	89.62	2.17	87.45	July 23, 2007
BH 21	90.97	0.42	90.55	July 23, 2007
BH 22	89.30	0.74	88.56	July 23, 2007
BH 23	89.41	0.94	88.47	July 23, 2007
BH 24	89.56	0.71	88.85	July 23, 2007

Table 1 (continued)
Summary of Groundwater Levels

Borehole Number	Ground Surface Elevation (m)	Measured Groundwater Level (m)		Recording Date
		Depth	Elevation	
BH 25	88.49	1.39	87.10	July 23, 2007
BH 26	88.38	1.55	86.83	July 23, 2007
BH 27	89.49	1.08	88.41	July 23, 2007
BH 28	89.34	1.02	88.32	July 23, 2007
BH 29	90.08	1.56	88.52	July 23, 2007
BH 30	88.40	0.57	87.83	July 23, 2007
BH 31	89.00	0.71	88.29	July 23, 2007
BH 32	89.21	0.96	88.25	July 23, 2007
BH 33	90.36	0.85	89.51	July 23, 2007
BH 34	88.91	0.34	88.57	July 23, 2007
BH 35	90.63	Dry at 2.5	--	July 23, 2007
BH 36	90.60	2.50	88.10	July 23, 2007
BH 37	90.15	1.92	88.23	July 23, 2007
BH 38	89.94	0.65	89.29	July 23, 2007
BH 39	89.59	1.71	87.88	July 23, 2007
BH 40	89.10	3.21	85.89	January 25, 2008
BH 41	89.29	1.00	88.29	January 25, 2008
BH 42	89.10	2.77	86.33	January 25, 2008
BH 43	89.52	3.41	86.11	January 25, 2008
BH 44	89.43	3.81	85.62	January 25, 2008
BH 45	89.35	1.46	87.89	January 25, 2008
BH 46	89.03	1.52	87.51	January 25, 2008
BH 47	88.91	1.90	87.01	January 25, 2008
BH 48	89.00	1.92	87.08	January 25, 2008
BH 49	89.59	4.40	85.19	January 25, 2008

Notes: Borehole elevations provided by Annis O'Sullivan Vollebekk.

APPENDIX 4

MOECC Individual Water Well Records

Ontario — Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)*

Well Record

Regulation 903 Ontario Water Resources Act

Measurements recorded in: [X] Metric [ ] Imperial

Page 1 of 2

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	
	TAGART CONSTRUCTION LIMITED		[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
3167 ALBION ROAD	OTTAWA	ON	K1V6K3	(613) 521-3000.

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
POTTER DR & MANOTICK MAIN ST.	RIDEAU (NORTH GOWER)	3	BF

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA CAREFTON.	MANOTICK	Ontario	

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	369289	5009077.		TW2

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
GREY/BLUE	CLAY			0.00	7.63
GREY	TILL	STONES, GRAVEL, BOULDERS		7.63	11.14
GREY	DOLOMITE			11.14	11.60 (38')

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.00	11.28	Bentonite	0.35
1.00	11.60	Bentonite (Holeplug)* (*well abandoned*)	0.14

Method of Construction

[ ] Cable Tool [ ] Diamond [X] Rotary (Conventional) [ ] Jetting [ ] Rotary (Reverse) [ ] Driving [ ] Boring [ ] Digging [X] Air percussion [ ] Other, *specify*

Well Use

[ ] Public [ ] Commercial [ ] Not used [ ] Domestic [ ] Municipal [ ] Dewatering [ ] Livestock [X] Test Hole [ ] Monitoring [ ] Irrigation [ ] Cooling & Air Conditioning [ ] Industrial [ ] Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
5.88	Steel A589	0.48 + 0.51	11.28	

Construction Record - Screen

N/A.

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

[ ] Water Supply [ ] Replacement Well [X] Test Hole [ ] Recharge Well [ ] Dewatering Well [ ] Observation and/or Monitoring Hole [ ] Alteration (Construction) [ ] Abandoned, Insufficient Supply [ ] Abandoned, Poor Water Quality [X] Abandoned, other, *specify* Localin [ ] Other, *specify*

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh	Untested	Other, specify
11.4	[ ]	[ ]	[X]	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
11.28	11.60	15.24
0.00	11.28	22.86

Results of Well Yield Testing (TOC)

After test of well yield, water was: [X] Clear and sand free [ ] Other, *specify*

If pumping discontinued, give reason: N/A.

Pump intake set at (m/ft): 37m (44')

Pumping rate (l/min / GPM): 45lpm 10gpm

Duration of pumping: 2 hrs + 0 min

Final water level end of pumping (m/ft): 3.29m (10.79')

If flowing give rate (l/min / GPM): N/A.

Recommended pump depth (m/ft): N/A.

Recommended pump rate (l/min / GPM): N/A.

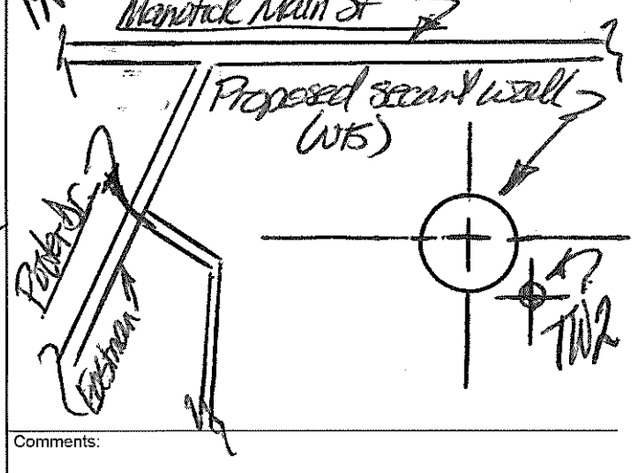
Well production (l/min / GPM): 350-450 lpm (4h)

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	2.91		
1	3.05	1	3.17
2	3.07	2	3.15
3	3.08	3	3.13
4	3.10	4	3.12
5	3.11	5	3.11
10	3.15	10	3.07
15	3.17.	15	3.04
20	3.19	20	3.02
25	3.21	25	3.00
30	3.23	30	2.98
40	3.24	40	2.96
50	3.26	50	2.95
60	3.27.	60	2.94

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
STANTON DRILLING INC	4875

Business Address (Street Number/Name)	Municipality
BOX 219, 57 FIELDCREST DR	PAKENHAM

Province	Postal Code	Business E-mail Address
ON	K0A 2X0	Stantondrilling@bell.net

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
(613) 624-5662	STANTON, PERRY

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0086		2012/04/18

Well owner's information package delivered	Date Package Delivered	Date Work Completed
[ ] Yes [X] No		2012/03/15

Ministry Use Only

Audit No. Z 133016

Received MAY 29 2012

Ontario — Ministry of the Environment

Measurements recorded in: [X] Metric [ ] Imperial

Well Tag No. *(Place Sticker and/or Print Below)*

Well Record

Regulation 903 Ontario Water Resources Act

Page 2 of 2

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	
	PLEASANT CONSTRUCTION LIMITED		[ ] Well Constructed by Well Owner

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
3187 ASTON ROAD	OTTAWA	ON	K1V 8K3	(613) 521-3020

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
PETER DR & MANOTICK MAIN ST.	RIDEAU (NORTH GOWER)	3	BF.

County/District/Municipality	City/Town/Village	Province	Postal Code
OTTAWA/CARLETON	MANOTICK	Ontario	

UTM Coordinates NAD 83	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
	18	369294	5009098		TW-1

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
GREY/BLUE	CLAY			0.00	7.63
GREY	TILL	SAND, GRAVEL, BOULDERS		7.63	11.07
GREY	DOLOMITE			11.07	14.50

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0.00	11.43	Bentonite	0.40
4.27	14.50	Bentonite (Holeplug)	0.22
		* well abandoned (X)	

Method of Construction

[ ] Cable Tool
[X] Rotary (Conventional)
[ ] Rotary (Reverse)
[ ] Boring
[X] Air percussion
[ ] Other, *specify*
[ ] Diamond
[ ] Jetting
[ ] Driving
[ ] Digging

Well Use

[ ] Public
[ ] Domestic
[ ] Livestock
[ ] Irrigation
[ ] Industrial
[ ] Other, *specify*
[ ] Commercial
[ ] Municipal
[X] Test Hole
[ ] Cooling & Air Conditioning
[ ] Not used
[ ] Dewatering
[X] Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
15.88	Steel/A53B	0.48 + .46	11.43	

Construction Record - Screen N/A.

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To

Status of Well

[ ] Water Supply
[ ] Replacement Well
[X] Test Hole
[ ] Recharge Well
[ ] Dewatering Well
[X] Observation and/or Monitoring Hole
[ ] Alteration (Construction)
[ ] Abandoned, Insufficient Supply
[ ] Abandoned, Poor Water Quality
[X] Abandoned, other, *specify* location
[ ] Other, *specify*

Water Details

Water found at Depth (m/ft)	Gas	Kind of Water: Fresh	Untested	Other, specify
12.19	[ ]	[ ]	[X]	
Water found at Depth (m/ft)	Gas	Kind of Water: Fresh	Untested	Other, specify
	[ ]	[ ]	[ ]	
Water found at Depth (m/ft)	Gas	Kind of Water: Fresh	Untested	Other, specify
	[ ]	[ ]	[ ]	

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
11.43	14.50	15.24
0.00	11.43	20.96

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
STANTON DRILLING INC	4865

Business Address (Street Number/Name)	Municipality
BOX 219, 157 FIVE ROADS RD	PAKENHAM

Province	Postal Code	Business E-mail Address
ON	K0A 2X0	stanton.drilling@bell.net

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
(613) 624-5672	STANTON, PETER

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
0086		2012/04/12

Results of Well Yield Testing (TCC)

After test of well yield, water was:
[ ] Clear and sand free
[ ] Other, *specify* N/A.

If pumping discontinued, give reason: * OBSERVATION

Pump intake set at (m/ft): WELL FOR

Pumping rate (l/min / GPM): PUMP TEST ON

Duration of pumping: WELL LISTED 133016 min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM): N/A.

Recommended pump depth (m/ft): N/A.

Recommended pump rate (l/min / GPM): N/A.

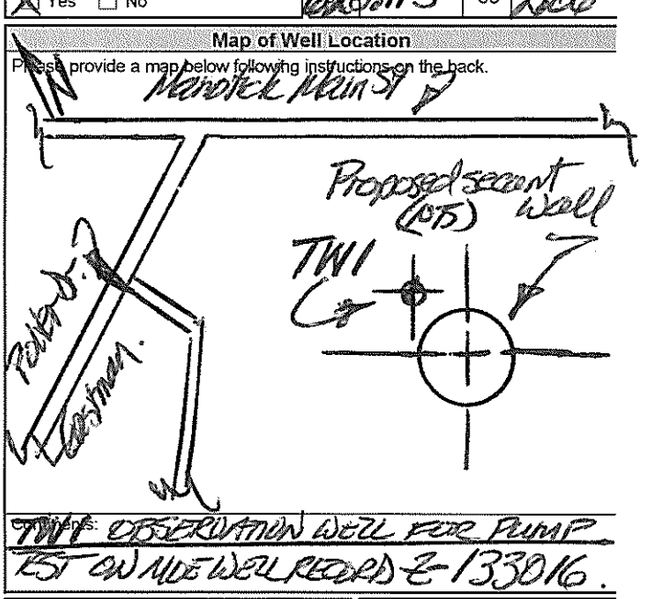
Well production (l/min / GPM): 45 lpm (GPM)

Disinfected? [X] Yes [ ] No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	2.88	0	3.14
1	—	1	—
2	—	2	—
3	—	3	—
4	—	4	—
5	—	5	—
10	—	10	—
17	3.05	17	2.97
20	—	20	—
25	—	25	—
32	3.09	30	—
46	3.10	40	—
50	—	50	—
60	3.115	60	2.86

Map of Well Location

Please provide a map below following instructions on the back.



Comments: TW1 OBSERVATION WELL FOR PUMP TEST ON MOE WELL RECORD # 133016.

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
[ ] Yes [X] No	Y Y Y Y M M D D	Audit No. z133017
	Date Work Completed 2012/03/23	MAY 29 2012 Received

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)*

Tag#: A133692

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
12/2 POTTER DRIVE	MANOTICK		
County/District/Municipality	**City/Town/Village**	**Province**	**Postal Code**
		Ontario	K4M1B3
UTM Coordinates NAD 83 Zone 18 Easting 446249 Northing 5007493	**Municipal Plan and Sublot Number**	**Other**	

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
	Raised Well Casing above ground, as per code requirements, and install vermon proof well cap				

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		N/A	

Method of Construction

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Other, *specify* _____

☐ Diamond ☐ Jetting ☐ Driving ☐ Digging

Well Use

☐ Public ☑ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, *specify* _____

☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning

☐ Not used ☐ Dewatering ☐ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
	N/A			

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
	N/A			

Status of Well

☑ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☑ Untested ☐ Other, *specify*
Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☑ Untested ☐ Other, *specify*
Water found at Depth (m/ft)	☐ Gas	Kind of Water: ☐ Fresh ☑ Untested ☐ Other, *specify*

Hole Diameter

Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
N/A		

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify* _____

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping _____ hrs + _____ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min / GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

Well production *(l/min / GPM)*

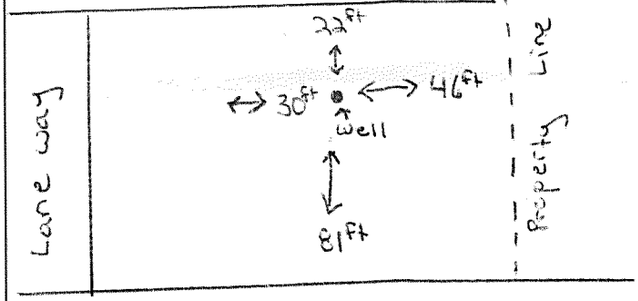
Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.

House



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
C+N Electric Ltd.	6364
Business Address (Street Number/Name)	**Municipality**
5640 Manotick Main	Ottawa
Province	**Postal Code**	**Business E-mail Address**
Ont	K4M1B3	
Bus. Telephone No. (inc. area code)	**Name of Well Technician (Last Name, First Name)**
6139232884	Sadler Ron
Well Technician's Licence No.	**Signature of Technician and/or Contractor**	**Date Submitted**
T637		2012/12/07

Well owner's information package delivered ☐ Yes ☑ No

Date Package Delivered: Dec 10/2012

Date Work Completed: 2012/12/07

Ministry Use Only

Audit No. Z109064

Received JAN 04 2013

Ontario — Ministry of the Environment

Measurements recorded in: ☐ Metric ☐ Imperial

Well Tag No. *(Place Sticker and/or Print Below)* A 133692

Well Record

Regulation 903 Ontario Water Resources Act

Page _____ of _____

[redacted]

Address of Well Location (Street Number/Name)	Township	Lot	Concession
1212 Potter Dr	Manotick		
County/District/Municipality	**City/Town/Village**	**Province**	**Postal Code**
	Ottawa	Ontario	K4M1C8
UTM Coordinates Zone / Easting / Northing	**Municipal Plan and Sublot Number**	**Other**	
NAD 83 18 446249 5074993			

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
			Raised well casing above ground as per code requirments, and installed vermon proof well cap.		

Annular Space

Depth Set at (m/ft) From	Depth Set at (m/ft) To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
		N/A	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
N/A
☐ Air percussion
☐ Other, *specify* _____

Well Use

☐ Public ☐ Commercial ☐ Not used
☑ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify* _____

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
	N/A			

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
	N/A			

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth From	Hole Diameter Depth To	Diameter (cm/in)
☐ Gas	☐ Fresh ☑ Untested ☐ Other, *specify*			
☐ Gas	☐ Fresh ☑ Untested ☐ Other, *specify*	N/A		
☐ Gas	☐ Fresh ☑ Untested ☐ Other, *specify*			

Results of Well Yield Testing

After test of well yield, water was:
☑ Clear and sand free
☐ Other, *specify* _____

If pumping discontinued, give reason:

Pump intake set at (m/ft): 50 ft

Pumping rate (l/min / GPM): 20 GPM

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (m/ft): 15.1 ft

If flowing give rate (l/min / GPM):

Recommended pump depth (m/ft): 50 ft

Recommended pump rate (l/min / GPM):

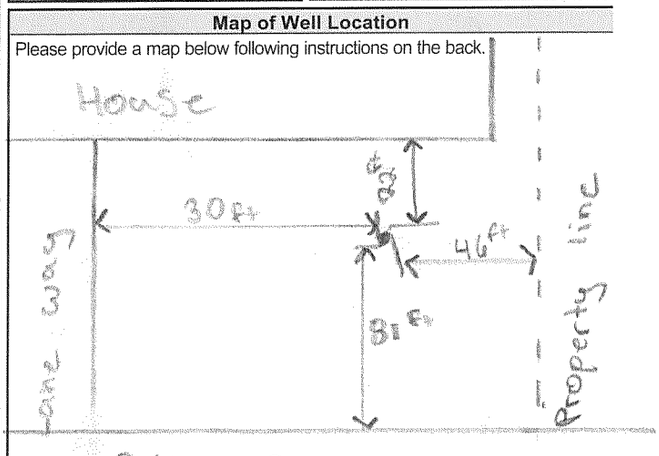
Well production (l/min / GPM):

Disinfected? ☑ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	13 ft		
1	13 ft	1	15
2	13.1 ft	2	14.9
3	13.4 ft	3	14.7
4	13.5 ft	4	14.3
5	14 ft	5	13.9
10	14.6 ft	10	13.1
15	14.6 ft	15	
20	14.8 ft	20	
25	14.8 ft	25	
30	14.9 ft	30	
40	15 ft	40	
50	15 ft	50	
60	15.1 ft	60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

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C+N Electric Ltd.	6364
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5640 Manotic Main	
Province	**Postal Code** / **Business E-mail Address**
Ont	K4M1B3
Bus. Telephone No. (inc. area code)	**Name of Well Technician (Last Name, First Name)**
6136923284	Sadler Ron
Well Technician's Licence No.	**Signature of Technician and/or Contractor** / **Date Submitted**
T637	20130103

Well owner's information package delivered: ☐ Yes ☑ No

Date Package Delivered: YYYY MM DD

Date Work Completed: 20121207

Ministry Use Only

Audit No. Z 109062

Received JAN 17 2013

Map: Well records

This map allows you to search and view well record information from reported wells in Ontario.

Full dataset is available in the Open Data catalogue.

Well ID

Well ID Number: 7246075
Well Audit Number: *Z208992*
Well Tag Number: *A178606*

This table contains information from the original well record and any subsequent updates.

Well Location

Address of Well Location	5521 MANOTICK MAIN STREET
Township	NORTH GOWER TOWNSHIP
Lot	
Concession	
County/District/Municipality	OTTAWA-CARLETON
City/Town/Village	MANOTICK
Province	ON
Postal Code	n/a
UTM Coordinates	NAD83 — Zone 18 Easting: 446191.00 Northing: 5007397.00
Municipal Plan and Sublot Number	
Other	

Overburden and Bedrock Materials Interval

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To
BLCK	GRVL		DNSE	0 m	.31 m
BRWN	SAND	GRVL	SOFT	.31 m	2.44 m
GREY	BLDR	SAND	HARD	2.44 m	4.88 m
BRWN	CLAY	SILT	SOFT	4.88 m	5.79 m
GREY	SILT	SAND	SOFT	5.79 m	7.31 m

Annular Space/Abandonment Sealing Record

Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed
0 m	.31 m	FLUSHMOUNT/ CONCRETE	
.31 m	3.96 m	BENTONITE	
3.96 m	7.31 m	FILTER SAND	

Method of Construction & Well Use

Method of Construction	Well Use
Air Percussion	Monitoring Test Hole

Status of Well

Construction Record - Casing

Inside Diameter	Open Hole or material	Depth From	Depth To
5.2 cm	PLASTIC	0 m	4.27 m

Construction Record - Screen

Outside Diameter	Material	Depth From	Depth To
6.03 cm	PLASTIC	4.27 m	7.31 m

Well Contractor and Well Technician Information

Well Contractor's Licence Number: 7241

Results of Well Yield Testing

After test of well yield, water was	
If pumping discontinued, give reason	
Pump intake set at	
Pumping Rate	
Duration of Pumping	
Final water level	
If flowing give rate	
Recommended pump depth	
Recommended pump rate	
Well Production	
Disinfected?	

Draw Down & Recovery

Draw Down Time(min)	Draw Down Water level	Recovery Time(min)	Recovery Water level
SWL			
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
45		45	
50		50	
60		60	

Water Details

Water Found at Depth	Kind

Hole Diameter

Depth From	Depth To	Diameter
0 m	7.31 m	11.43 cm

Audit Number: Z208992

Date Well Completed: July 02, 2015

Date Well Record Received by MOE: August 05, 2015

Updated: March 20, 2017
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- Drinking water,
- Environment maps,
- Well water

Glen Murray

Minister of the Environment and Climate Change

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