



SOILTEST SERVICES LTD.

GEOTECHNICAL, ENVIRONMENTAL AND MATERIALS ENGINEERS

**FOUNDATION INVESTIGATION
PROPOSED CAR DEALERSHIP BUILDINGS
1100 EGLINTON AVENUE EAST
TORONTO, ONTARIO**

Prepared for:

Circon Construction Corporation
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1.0 **INTRODUCTION**

Soiltest Services Ltd. was retained by Circon Construction Corporation to carry out a foundation investigation for the proposed car dealership buildings at 1100 Eglinton Avenue East, Toronto, Ontario.

At the time of the field work, the former inn on the park building had been demolished and the site was vacant. The ground surface was covered with snow.

We understand that a new Lexus Dealership building, a new Toyota Dealership building and a new service facility building will be developed at the site. Locations and layouts of the buildings are shown on the appended Borehole Location Plan, Plate 1.

Based on the foregoing, we understand that the purpose of the investigation is to reveal the subsurface soils and groundwater conditions at the site and, based on this information, to determine the relevant soil properties for the design and construction of building foundations and pavement.

2.0 FIELD WORK

The field work for this investigation was carried out on February 7 and 8, 2007, and consisted of twenty-two boreholes which were put down to depths of between 2.0 m and 6.5 m below the existing grade at the locations shown on the appended Borehole Location Plan, Plate 1.

The boreholes were advanced using a truck mounted drilling rig equipped with continuous flight augers, supplied and operated by a specialist drilling contractor. Standard penetration tests were carried out at frequent intervals of depth in the boreholes to obtain representative soil samples and to measure the penetration resistance of the various soil strata. Recorded 'N' values were used to infer the consistency or the compactness condition of the substrata.

Water level measurement was taken in the open boreholes during drilling and on completion of the field work.

The field work for this project was supervised by Mr. Gordon Lo, P.Eng. He directed the drilling operation, sampling and in-situ testing. He also observed groundwater conditions in the open boreholes and prepared field borehole logs.

Upon completion of the field work, the soil samples were brought to our laboratory for detailed visual examination. To supplement this work, moisture content tests, grain size distribution tests and plasticity index tests were carried out on representative soil samples. Results of the laboratory tests are presented on the appended borehole logs, grain size distribution graph and plasticity chart.

The ground surface elevations at the borehole locations were referred to the spot elevations, as shown on Site Plan, Drawing No. A-1 prepared by Plaston Architect Limited.

3.0 **SUBSURFACE CONDITIONS**

The stratigraphy encountered at the site, as revealed in the boreholes, comprised of topsoil and pavement underlain by fills, followed by clayey silt till.

Details of the subsurface conditions encountered in the boreholes at the site are summarized below, and are presented on the appended Borehole Logs. It should be noted that the subsurface conditions are confirmed at the borehole locations only, and may vary at other locations, particularly with respect to depths of the fills.

3.1 **Topsoil/Pavement/Fills**

Boreholes BH1 and BH6 encountered a surficial deposit of topsoil, 80 mm to 150 mm thick. Boreholes BH2, BH3, BH5, BH7, BH8, BH11, BH12, BH21 and BH22 encountered a pavement consisting of 50 mm to 90 mm thick asphalt on 150 mm to 250 mm thick granular base.

The topsoil at Boreholes BH1 and BH6, the pavement at Boreholes BH2, BH3, BH5, BH7, BH8, BH11, BH12, BH21 and BH22, and the ground surfaces at the remaining boreholes were underlain by a surficial deposit of fills which extended to depths of between 0.6 m (BH5) and 4.0 m (BH11) below grade.

The fills generally consisted of silty sand, fine sand and/or sand and gravel which at Boreholes BH1, BH4, BH6, BH14, BH18 and BH21 were underlain by clayey silt fill. Moisture contents ranged from 5.4% to 11.6%. Standard penetration tests in the deposit gave N-values ranging from 7 to more than 100 blows/0.3 m. Based on the test results, together with a visual and tactile examination of the samples recovered, we considered that the fills have generally loose to very dense conditions.

3.2 Clayey Silt Till

The fills at the site, except Boreholes BH19 and BH20, were underlain by a surficial deposit of clayey silt till which extended to the limit of the investigation, i.e. depths of between 2.0 m and 6.5 m below grade. The deposit contained a trace of fine gravel.

Atterberg Limit tests were carried out on two clayey silt till samples. Results of the Atterberg Limit tests (see Plasticity Chart, Plate 25) indicate that the liquid limits range from 18.8% to 19.8%. The plastic limits range from 11.2% to 12.2%. In addition, the plasticity indices were in the order of 7.6%. Based on the analytical results, the deposit can be classified to be a clayey silt with low plasticity. Moisture contents ranged from 7.6% to 12.5%. Standard penetration tests in the deposit gave N-values ranging from 16 to more than 100 blows/0.3 m. Based on the test results, together with a visual and tactile examination of the samples recovered, the clayey silt till is considered to have generally very stiff to hard consistencies.

We noted that the clayey silt till at Boreholes BH5 and BH16 contain a fine to medium sand layer. Results of one grain size distribution test on the sand deposit (see Plate 24) indicate that the deposit contained 96% sand and 4% silt size particles. The permeability of the deposit is estimated to be in the order of 10^{-3} cm/sec, indicating a medium permeability. The moisture content of the sand deposit was in the order of 12.5%, indicating a wet condition. The Standard Penetration test in the deposit gave a N-value of 7 blows/0.3 m. Based on the test results, together with a visual and tactile examination of the sample recovered, the fine to medium sand is considered to have a loose relative density.

3.3 Groundwater Conditions

Groundwater observations were made in the open boreholes during drilling and on completion of the field work.

Groundwater was encountered in the sand layer at Borehole BH5 and the sand and gravel fill at Boreholes BH11 and BH13 during drilling. The water levels at Boreholes BH5, BH11 and BH13 were located at depths of 1.22 m, 4.27 m and 2.44 m respectively below the existing grade on completion of the drilling.

An examination of the soil samples indicated that the fine sand fill, silty sand fill and sand and gravel fill were damp which at Boreholes BH11 and BH13 became wet at depths. The clayey silt fill was damp to moist. The clayey silt till were damp to dry.

It is noted that the clayey silt till stratum at Boreholes BH5 and BH16 contained a water bearing sand layer. In addition, a perched water condition occurred in the sand and gravel fill at Boreholes BH11 and BH13 which was underlain by relatively impermeable clayey silt till stratum.

4.0 DISCUSSIONS AND RECOMMENDATIONS

The revealed stratigraphy consists of topsoil and pavement underlain by loose to very dense fills, followed by very stiff to hard clayey silt till.

Details regarding our conclusions and recommendations are outlined in the following sections. The anticipated construction conditions are also discussed, but only to the extent that they may influence decisions. Contractors conducting work associated with this project should be aware that the data and their interpretation presented in this report may not be sufficient to assess all factors that may have an effect upon construction.

4.1 Foundation

The surficial deposits of topsoil, pavement and fills are not considered to be suitable bearing strata. The foundations of the proposed buildings should, therefore, be extended to the underlying very stiff clayey silt till.

4.1.1 New Service Facility Building

Based on the logs of Boreholes BH11 to BH17 inclusive, we recommend that the clayey silt till in the footprint of the new service facility building be suitable for supporting normal spread/strip footings designed to the allowable soil bearing pressure of up to 200 kPa.

We understand that the finished ground floor elevation of the new service facility building is 124.1 m. Based on the borehole data and the finished ground floor elevation, we anticipate that the competent footing subgrade will be reached at depths of between 0.1 m (BH12) and 2.6 m (BH15) below the proposed finished ground floor level.

It is estimated that the total and differential settlements of footings designed to this bearing pressure, would be less than 25 and 20 mm respectively, which are considered to be acceptable for the proposed structure.

Foundations of the former building, if encountered during the foundation excavation of the new building, should be removed and the new foundation should be founded on the underlying competent subgrade.

All exterior footings and footings in unheated areas should have a permanent earth cover of at least 1.2 m or equivalent insulation for frost protection.

To assure that the footings are founded on the undisturbed competent subsoil capable of sustaining the above-mentioned bearing pressure, we recommend that the foundation excavation be inspected and approved by a geotechnical engineer.

4.1.2 New Lexus Dealership Building

Based on the logs of Boreholes BH1 to BH5 inclusive, we recommend that the clayey silt till in the footprint of the new Lexus Dealership building be suitable for supporting normal spread/strip footings designed to the allowable soil bearing pressure of up to 150 kPa.

Based on the borehole logs, we anticipate that the competent clayey silt till subgrade will be reached at depths of between 0.6 m (BH5) and 1.6 m (BH2) below the existing grade.

Caisson Foundations

We note that the elevations of the existing ground surface in the footprint of the new Lexus Dealership building ranged from 120.9 m to 123.4 m. Based on this, we estimate that up to 3.1 m of fill will be placed in the building area to raise the existing ground surface to 124.0 m, the elevation of the proposed finished ground floor elevation of the new Lexus Dealership building.

Based on the borehole logs and the finished ground floor elevation, we anticipate that the competent clayey silt till subgrade will be reached at depths of between 1.2 m (BH5) and 4.2 m (BH1) below the proposed finished ground floor level.

In addition, we anticipate that footing excavations will encounter trench backfills of two storm sewers, a sanitary sewer and a water main. The trench backfills likely extended to depths of between 1.6 m and 7.5 m below the existing grade or between 2.3 m and 10.5 m below the proposed finished ground floor level. The trench backfill is not considered to be a suitable bearing stratum. The foundations of the proposed building should, therefore, be extended to the underlying very stiff to hard clayey silt till.

Based on the foregoing, a suitable foundation type for the proposed building structure would be augered and cast-in-place concrete caissons. Caissons founded at least one diameter into the very stiff clayey silt till can be designed for a bearing capacity of up to 500 kPa. The caissons should have a length of at least 2.5 times the diameter. The center-to-center spacing between caissons must be at least twice the diameter of the largest caisson base.

If the caisson is to be located at the locations of the existing sewers and water main, then the caisson should be founded at a depth of at least one diameter below the sewers and water main. In addition, if the caisson is to be located in the close vicinity of the existing sewers and water main, then the caisson should be founded at a depth that the angle of repose of the caisson is located below the sewers and water main.

It is estimated that the total and differential settlements of caisson foundations designed to this bearing pressure, would be less than 25 and 20 mm respectively, which are considered to be acceptable for the proposed structure.

The caisson installation should be inspected by a geotechnical engineer to ensure that the bearing stratum is adequate. Caisson augering may encounter subsurface seepage from the fills and clayey silt till. A temporary liner will, therefore, be required to seal the hole and to permit adequate cleaning and downhole inspection.

All exterior grade beams and grade beams in unheated areas should have a permanent earth cover of at least 1.2 m or equivalent insulation for frost protection.

4.1.3 New Toyota Dealership Building

Based on the logs of Boreholes BH6 to BH10 inclusive, we recommend that the clayey silt till in the footprint of the new Toyota Dealership building be suitable for supporting normal spread/strip footings designed to the allowable soil bearing pressure of up to 150 kPa.

Based on the borehole logs, we anticipate that the competent clayey silt till subgrade will be reached at depths of between 0.7 m (BH9) and 1.7 m (BH6) below the existing grade.

Caisson Foundations

We note that elevations of the existing ground surface in the footprint of the new Toyota Dealership building ranged from 121.2 m to 123.2 m. Based on this, we estimate that up to 2.8 m of fill will be placed in the building area to raise the existing ground surface to 124.0 m, the elevation of the proposed finished ground floor elevation of the new Toyota Dealership building.

Based on the borehole logs and the finished ground floor elevation, we anticipate that the competent clayey silt till subgrade will be reached at depths of between 1.7 m (BH10) and 4.5 m (BH6) below the proposed finished ground floor level.

In addition, we anticipate that footing excavations will encounter trench backfills of a storm sewer and a water main. The trench backfills likely extended to depths of between 1.6 m and 3.8 m below the existing grade or between 4.8 m and 5.8 m below the proposed finished ground floor level. The trench backfill is not considered to be a suitable bearing stratum. The foundations of the proposed building should, therefore, be extended to the underlying very stiff to hard clayey silt till.

Based on the foregoing, a suitable foundation type for the proposed building structure would be augered and cast-in-place concrete caissons. Caissons founded at least one diameter into the very stiff clayey silt till can be designed for a bearing capacity of up to 500 kPa. The caissons should have a length of at least 2.5 times the diameter. The center-to-center spacing between caissons must be at least twice the diameter of the largest caisson base.

If the caisson is to be located at the locations of the existing sewers and water main, then the caisson should be founded at a depth of at least one diameter below the sewers and water main. In addition, if the caisson is to be located in the close vicinity of the existing sewers and water main, then the caisson should be founded at a depth that the angle of repose of the caisson is located below the sewers and water main.

It is estimated that the total and differential settlements of caisson foundations designed to this bearing pressure, would be less than 25 and 20 mm respectively, which are considered to be acceptable for the proposed structure.

The caisson installation should be inspected by a geotechnical engineer to ensure that the bearing stratum is adequate. Caisson augering may encounter subsurface seepage from the fills and clayey silt till. A temporary liner will, therefore, be required to seal the hole and to permit adequate cleaning and downhole inspection.

All exterior grade beams and grade beams in unheated areas should have a permanent earth cover of at least 1.2 m or equivalent insulation for frost protection.

4.2 Excavation and Groundwater Control

Foundation excavation in the overburden should be straight forward using conventional equipment and may be carried out in accordance with the current Occupational Health and Safety Act.

The sides of the excavations in the fills and clayey silt till are expected to be temporarily stable at 1:1 slopes. Where vertical excavations are required, the sides of the excavation should be supported to comply with the safety regulations.

No major construction problems due to groundwater, are anticipated with foundation excavations. Provision should, however, be made for the control of any surface water runoff and subsurface seepage from the fills and clayey silt till by pumping from local sumps, as and where required.

4.3 Slab-On-Grade Construction

The subgrade for the slab-on-grade is likely to consist of silty sand fill, fine sand fill, and sand and gravel fill which are considered to be suitable for slab-on-grade construction.

All topsoil and any deleterious fill should be stripped from the building areas and the proposed subgrade then re-compacted from the surface to at least 95% of its Standard Proctor maximum dry density. Any soft or wet spots found in the subgrade should be removed and replaced with approved fills, compatible with the subgrade conditions. All fills to be laid in the building area should be placed in 150 to 200 mm thick lifts and compacted to at least 95% of the material's Standard Proctor maximum dry density.

After subgrade preparation, a layer of well-graded, free-draining granular material (O.P.S.S. Granular 'A'), at least 150 mm thick and uniformly compacted to 98% of its Standard Proctor maximum dry density, should be placed under the floor slab to provide a uniform bearing surface and to act as a vapour barrier.

4.4 Native Backfill

It is anticipated that the silty sand fill, fine sand fill, sand and gravel fill, and clayey silt till will be suitable for reuse as backfills to the foundation walls, grade beams and trenches.

All fills should be approved on-site materials or imported granular materials. In settlement sensitive areas such as in the building, road pavement, etc., the backfills should be placed in horizontal layers less than 200 mm thick and uniformly compacted to at least 95% of its Standard Proctor maximum dry density.

Should construction be carried out in the winter season, particular attention should be given to make sure frozen material is not used as backfill. Frequent inspection by geotechnical personnel should be carried out during construction to examine and approve subgrade and backfill materials, ensure proper placement and compaction operations, and verify the compaction by in-situ density testing using nuclear gauges.

4.5 Pavement Design

The subgrade of the pavement is likely to consist of silty sand fill, fine sand fill, and sand and gravel fill. Considering the traffic requirements and subsoil conditions, the following pavement designs are recommended.

	Light Duty Pavement	Medium Duty Pavement
Asphalt	50 mm	75 mm
Granular 'A' Base Course	200 mm	150 mm
Granular 'B' Sub-Base Course	-	150 mm

After stripping topsoil and any deleterious materials from the pavement area, the exposed subgrade should be proof-rolled, in the presence of geotechnical personnel, by at least six passes of a heavy roller having a rated capacity of at least 8 tonnes. Any soft or wet spots found in the subgrade should be removed and replaced with an approved fill, compatible with the subgrade conditions. All fills should be placed in 150 to 200 mm thick lifts and compacted to at least 95% of the material's Standard Proctor maximum dry density.

After approval of the subgrade, the granular sub-base and base course materials should be placed in layers not exceeding 200 mm before compaction and should be compacted to at least 98% of their respective Standard Proctor maximum dry densities. The sub-base and base course materials should meet the requirements established by O.P.S. Specification Form 1010. The placing, spreading and rolling of the asphalt mixture should also conform to the current O.P.S. Specifications. The compaction of the granular and asphalt materials should be monitored by frequent field density tests.

5.0 GENERAL STATEMENT

The comments and recommendations presented in this report are based on the subsurface conditions obtained from the boreholes and the field and laboratory tests. Our responsibility is limited to an accurate interpretation of the soil and groundwater conditions prevailing at the location investigated.

The comments given in this report are intended only for the guidance of the design engineers, and on the assumption that the design will be in accordance with the acceptable applicable codes and standards. No other warranty expressed or implied is made as to the nature of the recommendations. The contents of this report are not intended for use by other parties or for other purposes. It may or may not contain sufficient information for other uses.

SOILTEST SERVICES LTD.



Gordon Lo, M.Eng., P.Eng.



ENCLOSURE

Borehole Location Plan
Borehole Log Sheets
Grain Size Distribution Graph
Plasticity Chart

LIST OF ABBREVIATIONS

PENETRATION RESISTANCE

'N' STANDARD PENETRATION RESISTANCE: THE NUMBER OF BLOWS REQUIRED TO ADVANCE A STANDARD SPLIT BARREL SAMPLER 0.30 m INTO THE SUBSOIL, DRIVEN BY MEANS OF A HAMMER, HAVING 63.5 kg MASS, FALLING FREELY A DISTANCE OF 0.76 m.

DYNAMIC PENETRATION RESISTANCE: THE NUMBER OF BLOWS REQUIRED TO ADVANCE A 51 mm DIAMETER 60 DEGREE STEEL CONE FITTED TO THE END OF 45 mm O.D. DRILL RODS, 0.3 m INTO THE SUBSOIL. THE DRIVING ENERGY BEING 475 J PER BLOW.

SOIL DESCRIPTION

COHESIVE SOIL		COHESIONLESS SOIL	
CONSISTENCY	C_u STRENGTH kPa	RELATIVE DENSITY	'N' VALUE BLOWS/0.3 m
VERY SOFT.....	0 - 12	VERY LOOSE.....	0 - 4
SOFT.....	12 - 25	LOOSE.....	4 - 10
FIRM.....	25 - 50	COMPACT.....	10 - 30
STIFF.....	50 - 100	DENSE.....	30 - 50
VERY STIFF.....	100 - 200	VERY DENSE.....	> 50
HARD.....	> 200		

TYPE OF SAMPLE

AS - AUGER SAMPLE	SS - SPLIT BARREL SAMPLE
CS - CHUNK SAMPLE	ST - SLOTTED TUBE SAMPLE
FS - FOIL SAMPLE	TW - THIN-WALLED OPEN
OS - OESTERBERG SAMPLE	TP - THIN-WALLED PISTON
RC - ROCK CORE	WS - WASHED SAMPLE

PH - SAMPLER ADVANCED HYDRAULICALLY
PM - SAMPLER ADVANCED MANUALLY
WH - SAMPLER ADVANCED BY STATIC WEIGHT

■ - DEPTH AT WHICH 'UNDISTURBED' SAMPLE WAS EXTRACTED
☒ - DEPTH AT WHICH DISTURBED SAMPLE WAS EXTRACTED
☐ - SAMPLING ATTEMPT WITH NO RECOVERY



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH1

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	120.9										
		Topsoil (150 mm) brown, loose Silty Sand Fill		1	SS	7	11.4	●		○			
1		Clayey Silt Fill, damp	119.8	2	SS	17		●					
2		grey Clayey Silt Till with fine gravel damp to dry		3	SS	23	11.0	●		○	—		LL = 19.8% PL = 12.2% PI = 7.6%
3				4	SS	16		●					
4					5	SS	22		●				
5													
5				115.9	6	SS	100+	7.6			○	—	
5		End of Borehole											
6		Borehole dry on completion											
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 2



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Ciron Construction Corporation

Log of Borehole BH2

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	121.9										
		Asphalt (90 mm)		1	AS								
		brown, compact Silty Sand Fill damp		2	SS	34	7.2		●		○		
1				120.3	3	SS	27	11.3		●		○	
2		v. stiff hard grey Clayey Silt Till with fine gravel, damp to dry		4	SS	26			●				
3					5	SS	100+	9.0		●		○	
4													
5				116.9	6	SS	100+			●			
5		End of Borehole											
6		Borehole dry on completion											
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 3



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH3

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	122.1										
		Asphalt (90 mm)		1	AS								
		Granular Base (200 mm)											
		brown, compact											
1		Silty Sand Fill		2	SS	24							
		damp											
			120.5										
2				3	SS	37	10.7						
3		v. stiff		4	SS	59							
		hard											
		grey											
		Clayey Silt Fill		5	SS	100+							
		damp to dry											
4													
5			117.1	6	SS	53							
		End of Borehole											
		Borehole dry on completion											
6													
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 4



Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH4

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks	
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20			
								0		Ground Surface	123			
		brown, compact Sand and Gravel Fill		1	AS									
		grey, compact Clayey Silt Fill	122.1											
1		grey Clayey Silt Till with fine gravel damp to dry v. stiff hard		2	SS	28								
2				3	SS	16	11.1							
3				4	SS	34								
4				5	SS	34								
5				6	SS	100+								
5				End of Borehole	118									
6		Borehole dry on completion												
7														
8														
9														
10														

Drill Method: S/S Auger

Drill Date: February 7, 2007

Hole Size: 100 mm

SOILTEST SERVICES LTD.
2220 Midland Avenue, Unit 87
Toronto, Ontario
M1P 3E6

Datum: Geodetic

Checked by: Gordon Lo

Plate: 5



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH5

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	123.4										
		Asphalt (64 mm)											
		Granular Base (200 mm)	122.8	1	AS								
		brown, compact Silty Sand Fill											
1				2	SS	29							
		brown, loose Fine to Medium Sand wet											
2				3	SS	7	12.5						
		grey Clayey Silt Fill with fine gravel damp to dry											
3				4	SS	41							
		v. stiff											
4		hard											
5			118.4	6	SS	100+							
		End of Borehole											
6		Caved in to 1.45 m on completion											
		Water level at 1.22 m on completion											
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 6



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH6

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks	
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20			
0		Ground Surface	121.2											
0		Topsoil (80 mm) brown, compact		1	SS	78								
0.5		Sandy Clayey Silt Fill with gravel damp		2	SS	19	11.1							
1.5		loose Clayey Silt Fill, moist	119.5	3	SS	21								
2.5		grey Clayey Silt Till with gravel damp		4	SS	18	12.5							
3.5				5	SS	21								
4.5				very stiff hard										
5.0		End of Borehole	116.2	6	SS	100+								
6.0		Borehole dry on completion												
7.0														
8.0														
9.0														
10.0														

Drill Method: S/S Auger
Drill Date: February 8, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 7



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH7

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	122.1										
		Asphalt (64 mm)		1	AS								
		Granular Base (200 mm)											
		brown, compact											
1		Sandy Clayey Silt Fill, damp		2	SS	36	10.9						
		Topsoil	121										
2				3	SS	31							
3				4	SS	42							
		very stiff											
		hard											
		grey Clayey Silt Till with gravel damp to dry		5	SS	100+							
5			117.1	6	SS	100+							
		End of Borehole											
		Borehole dry on completion											
6													
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 8



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Ciron Construction Corporation

Log of Borehole BH8

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	122										
0		Asphalt (90 mm)		1	AS								
0		Granular Base (200 mm)											
0		brown, compact											
0		Silty Sand Fill		2	SS	15							
0		and Fine Sand Fill											
0		damp	120.6										
1				3	SS	31	10.4						
2		very stiff											
2		hard		4	SS	100+							
3		grey											
3		Clayey Silt Till		5	SS	100+							
3		with gravel											
3		damp											
4													
5			117	6	SS	100+							
5		End of Borehole											
6		Borehole dry on completion											
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 9



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH9

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks	
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20			
								0		Ground Surface	122.5			
0		Granular Base (250 mm) brown, compact Silty Sand Fill with gravel, damp	121.8	1	AS									
1		grey Clayey Silt Till with gravel damp to dry very stiff hard	117.5	2	SS	37								
				3	SS	39								
2				4	SS	56	10.3							
3				5	SS	100+								
4														
5						6	SS	100+						
5		End of Borehole												
6		Borehole dry on completion												
7														
8														
9														
10														

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 10



Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH10

Sheet: 1 of 1

SUBSURFACE PROFILE			SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10		
0		Ground Surface	123.2									
0		brown, compact Sand and Gravel Fill, damp		1	AS							
1		compact Clayey Silt Fill, damp	122.3	2	SS	35						
2		grey Clayey Silt Till with gravel damp very stiff hard		3	SS	43	10.2					
3				4	SS	42						
4				5	SS	62						
5				6	SS	100+						
5			End of Borehole	118.2								
6		Borehole dry on completion										
7												
8												
9												
10												

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 11



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH11

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
								0		Ground Surface	127.5		
0		Asphalt (90 mm)		1	AS								
0		Granular Base (200mm)											
0		Silty Sand Fill											
1		Clayey Silt Fill		2	SS	15							
1		Fine Sand Fill											
2		Sand and Gravel Fill		3	SS	36							
3		Fine Sand Fill		4	SS	57							
4		Fine Sand Fill		5	SS	46							
4		grey, very stiff Clayey Silt Till with gravel	123.5	6	SS	38	10.4						
6				7	SS	37							
7		End of Borehole	121										
7		Water level at 4.27 m on completion											
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 8, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 12



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH12

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test		Water Content		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	blows/ft		%			
								10	30	10	20		
0		Ground Surface	126.9										
0		Asphalt (50 mm) Granular Base (200 mm)		1	AS								
1		brown, dense to very dense Sand and Gravel Fill damp		2	SS	58	5.4						
				3	SS	66							
2				4	SS	50							
3			become moist at 2.8 m	123.9									
4		grey, very stiff to hard Clayey Silt Till with gravel damp		5	SS	31							
5				6	SS	58							
6				7	SS	45							
6			120.4										
7		End of Borehole											
8		Borehole dry on completion											
9													
10													

Drill Method: S/S Auger
Drill Date: February 8, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 13



Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH13

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	124.8										
0		brown, compact Sand and Gravel Fill		1	AS								
1		brown, loose Silty Sand Fill, damp		2	SS	15							
2		brown, very dense Sand and Gravel Fill, wet		3	SS	8							
3		Concrete (150 mm)	121.6	4	SS	100+							
4		grey, very stiff Clayey Silt Till with gravel damp		5	SS	100+							
4				6	SS	48	10.9						
5			119.8	7	SS	32							
5		End of Borehole											
6		Water level at 2.44 m on completion											
7													
8													
9													
10													

Drill Method: S/S Auger

Drill Date: February 8, 2007

Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic

Checked by: Gordon Lo

Plate: 14



Project No: 2061087-1

Log of Borehole BH14

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	blows/ft					
								10	30	10	20		
0		Ground Surface	127.3										
0		brown Sand and Gravel Fill, damp		1	AS								
1		grey Clayey Silt Fill with gravel, damp		2	SS	20							
2				3	SS	21							
3		brown Sand and Gravel Fill with clayey silt layers damp to moist		4	SS	20							
3		compact dense		5	SS	40							
4			123.5										
4		grey, very stiff to hard Clayey Silt Till with gravel damp		6	SS	52	10.5						
5			122.3										
5		End of Borehole											
6		Borehole dry on completion											
7													
8													
9													
10													

Drill Method: S/S Auger

Drill Date: February 8, 2007

Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic

Checked by: Gordon Lo

Plate: 15



Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH15

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	124										
0.5		brown, very dense Sand and Gravel Fill damp		1	AS								
1.0				2	SS	100+							
1.5				3	SS	100+							
2.5		brown, compact Silty Sand Fill with gravel, damp	121.4	4	SS	21							
3.5				5	SS	43							
4.5		very stiff hard grey Clayey Silt Till with gravel damp to dry											
5.0				6	SS	100+							
5.0		End of Borehole	119										
6.0		Borehole dry on completion											
7.0													
8.0													
9.0													
10.0													

Drill Method: S/S Auger
 Drill Date: February 8, 2007
 Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
 Checked by: Gordon Lo
 Plate: 16



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH16

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test		Water Content %		Well Data	Remarks	
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	blows/ft		%				
								10	30	10	20			
0		Ground Surface	124.5											
0		brown, loose Silty Sand Fill with gravel, damp	123.8	1	AS									
1		grey, very stiff to hard Clayey Silt Till with gravel damp		2	SS	41	11.0							
2				3	SS	37								
3				4	SS	39								
4				5	SS	37								
5				6	SS	43								
5				grey, dense Medium Sand, wet	119.5									
6		End of Borehole												
6		Borehole wet on completion												
7														
8														
9														
10														

Drill Method: S/S Auger
Drill Date: February 8, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 17



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH17

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	blows/ft		%			
								10	30	10	20		
0		Ground Surface	124.4										
0		brown, very dense Sand and Gravel Fill damp		1	AS								
1				2	SS	62	11.6						
2				3	SS	87							
2.5		boulder or concrete		4	SS	100+							
3			121.5										
4		grey, very stiff Clayey Silt Till with fine gravel damp		5	SS	95							
5			119.4	6	SS	38							
5		End of Borehole											
6		Borehole dry on completion											
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 8, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 18



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH18

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	123.7										
		Sand and Gravel Fill		1	AS								
		Silty Sand Fill, damp											
1		Clayey Silt Fill, damp	122.7	2	SS	26							
		grey, very stiff Clayey Silt Till with fine gravel damp											
2			121.7	3	SS	37							
		End of Borehole											
		Borehole dry on completion											
3													
4													
5													
6													
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 8, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 19



Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH19

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	123.7										
0	[Cross-hatched symbol]	brown, very dense Sand and Gravel Fill damp		1	AS								
1				2	SS	100+							
2				3	SS	100+							
2		End of Borehole											
3		Borehole dry on completion											
4													
5													
6													
7													
8													
9													
10													

Drill Method: S/S Auger

Drill Date: February 8, 2007

Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic

Checked by: Gordon Lo

Plate: 20



Project No: 2061087-1
Project: Proposed New Car Dealership Buildings
Location: 1100 Eglinton Avenue East, Toronto, On.
Client: Circon Construction Corporation

Log of Borehole BH20

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
								0		Ground Surface	123.6		
	X	brown, very dense Silty Sand Fill with gravel, damp		1	AS								
1		brown, very dense Sand and Gravel Fill damp		2	SS	100+							
2				121.6	3	SS	100+						
		End of Borehole											
		Borehole dry on completion											
3													
4													
5													
6													
7													
8													
9													
10													

Drill Method: S/S Auger Drill Date: February 7, 2007 Hole Size: 100 mm	SOILTEST SERVICES LTD. 2220 Midland Avenue, Unit 87 Toronto, Ontario M1P 3E6	Datum: Geodetic Checked by: Gordon Lo Plate: 21
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Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH21

Sheet: 1 of 1

SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
0		Ground Surface	123.8										
		Asphalt (65 mm)											
		Granular Base (200 mm)		1	AS								
		Clayey Silt Fill, damp	123.2										
1		grey, very stiff Clayey Silt Till with fine gravel damp		2	SS	25							
2				121.8	3	SS	31						
		End of Borehole											
		Borehole dry on completion											
3													
4													
5													
6													
7													
8													
9													
10													

Drill Method: S/S Auger
Drill Date: February 7, 2007
Hole Size: 100 mm

SOILTEST SERVICES LTD.
 2220 Midland Avenue, Unit 87
 Toronto, Ontario
 M1P 3E6

Datum: Geodetic
Checked by: Gordon Lo
Plate: 22



Project No: 2061087-1

Project: Proposed New Car Dealership Buildings

Location: 1100 Eglinton Avenue East, Toronto, On.

Client: Circon Construction Corporation

Log of Borehole BH22

Sheet: 1 of 1

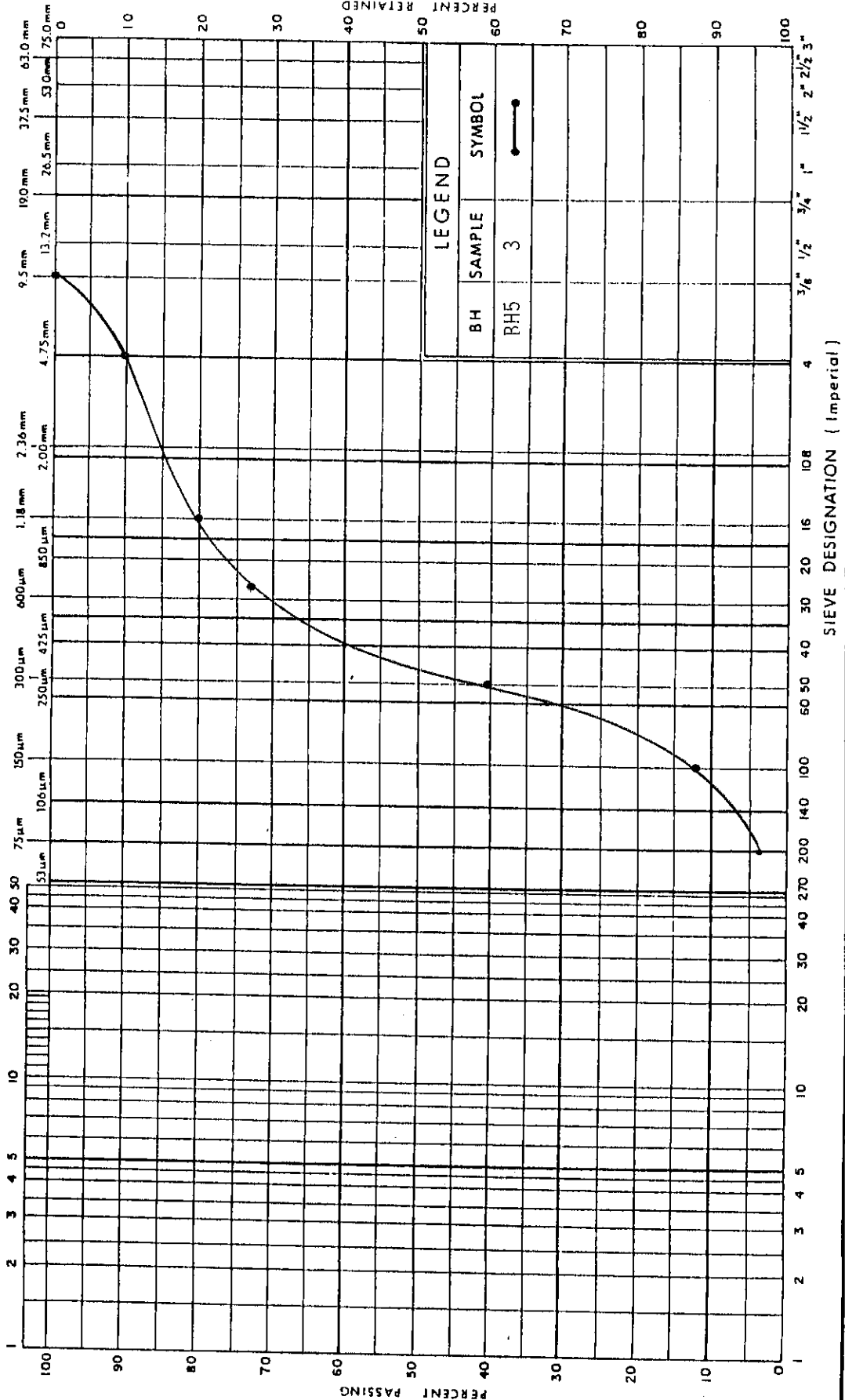
SUBSURFACE PROFILE				SAMPLE				Standard Penetration Test blows/ft		Water Content %		Well Data	Remarks
Depth (m)	Symbol	Description	Elevation (m)	Number	Type	Blows/ft	Water Content %	10	30	10	20		
								0		Ground Surface	123		
		Asphalt (50 mm)		1	AS								
		Granular Base (200 mm)											
1		brown, compact Fine Sand Fill with gravel, damp	121.9	2	SS	34							
		grey, very stiff Clayey Silt Till with fine gravel, damp											
2			121	3	SS	40							
		End of Borehole											
		Borehole dry on completion											
3													
4													
5													
6													
7													
8													
9													
10													

Drill Method: S/S Auger	SOILTEST SERVICES LTD.	Datum: Geodetic
Drill Date: February 8, 2007	2220 Midland Avenue, Unit 87	Checked by: Gordon Lo
Hole Size: 100 mm	Toronto, Ontario	Plate: 23
	M1P 3E6	

UNIFIED SOIL CLASSIFICATION SYSTEM

CLAY & SILT		SAND			GRAVEL	
		Fine	Medium	Coarse	Fine	Coarse

MINISTRY SIEVE DESIGNATION (Metric)



LEGEND

BH	SAMPLE	SYMBOL
BH5	3	●

GRAIN SIZE DISTRIBUTION

MEDIUM TO FINE SAND

FIG No

REF. NO. 2061087-1

PLATE NO. 24

SOILTEST SERVICES LTD.

