February 25, 2022

Mr. Jordan Dyer
Fieldgate Properties Limited
5400 Yonge Street, Suite 300
Toronto, Ontario
M2N 5R5

Via Electronic Mail:
jordand@fieldgateproperties.com

Dear Mr. Dyer:

Reference: **BRM-00801554-G0**
Preliminary Geotechnical Report
1600 Kerns Road
Burlington, Ontario

1. Introduction

This report was originally issued on October 18, 2018. Reported physical site conditions at that time were based on observations made during drilling operations carried out by EXP Services Inc. (EXP) on October 11 to 16, 2018. For the purposes of this updated report, a follow-up site visit was made by EXP on February 24, 2021. Physical site conditions observed during the February 24, 2021 site visit were found to be the essentially the same as those observed during the October 11 to 16, 2018 drilling operations. As such, the observations, analyses, conclusions and recommendations included herein remain valid.

It is our understanding that the property located at 1600 Kerns Road, Burlington, Ontario is to be redeveloped into a 3 to 4 storey residential condominium building with a single basement level. A single storey multi-unit commercial building currently on site will be demolished to make way for the new development. No concept layout plans are available for the proposed construction. EXP Services Inc. (EXP) was requested to prepare a preliminary geotechnical report for the proposed construction.

This preliminary geotechnical investigation was carried out in conjunction with a Slope Stability Assessment. A report on the Slope Stability Assessment is being provided under separate cover.

Six (6) boreholes were advanced over readily accessible locations on the site for preliminary geotechnical investigation and slope stability assessment purposes. Based on the information obtained, a preliminary geotechnical assessment of the site for the proposed development is presented in this report. Once design plans are finalized, additional borings will likely be required to confirm conditions in unexplored portions of the property.

2. Fieldwork

Six (6) boreholes designated as Boreholes (BHs) 1 to 6 were advanced at the site at the locations indicated on the attached Drawing No. 1 for preliminary geotechnical and slope stability assessment purposes. Borehole 7 was drilled for slope stability assessment purposes and is shown on Drawing No. 1 for the sake of completeness. Boreholes 1 to 6 were advanced to depths of approximately 8.2 to 12.3 m. Monitoring wells were installed in Boreholes 5 and 6.

3. Subsoil and Groundwater Conditions

The subsurface stratigraphy at this site as revealed in Boreholes 1 to 6 consists of pavement structure over fill, clayey silt till and clayey silt underlain by shale bedrock. Detailed soil descriptions are provided in the borehole logs, Drawing Nos. 2 to 7. The "Notes on Sample Description" preceding the borehole logs form an integral part of and should be read in conjunction with this report.

Pavement Structure

Pavement structure comprising approximately 90 to 145 mm asphaltic concrete over approximately 100 to 290 mm granular base was encountered from surface in Boreholes 1 to 6.

Fill

Fill was encountered below the pavement structure in Boreholes 1 and 6. The fill extends to depths of approximately 7.2 to 10.2 m (~Elevation 128.5 to 130.4 m). The fill consists of reworked clayey silt with some gravel, medium grained sand pockets and occasional glass and ceramic fragments. The fill is generally brown to grey with reddish brown and black stained pockets. In Borehole 6 the colour of the fill changes to brown to reddish brown below approximately 2.2 m depth (~Elevation 136.5 m). Moisture contents in the fill were measured between approximately 16 and 38 percent.

Clayey Silt Till

Clayey silt till was intersected below the pavement structure in Boreholes 2 to 5 and extends to termination depth of approximately 9.7 m (~Elevation 127.6 to 129.2 m). The clayey silt till contains fine sand seams, trace gravel and occasional boulder fragments. Numerous shale fragments were noted within the clayey silt till below approximately 9.5 m depth (~Elevation 127.9 m) in Borehole 4. The clayey silt till is brown to reddish brown in colour with grey pockets, becoming grey with reddish brown pockets below approximately 5.6 to 7.2 m depth (~Elevation 131.7 to 132.5 m). The consistency of the clayey silt till is hard becoming stiff to very stiff below approximately 5.6 to 7.7 m depth (~Elevation 130.4 to 131.8 m). Moisture contents in the clayey silt till varied between approximately 10 and 18 percent.

Clayey Silt

Clayey silt was contacted below the fill in Boreholes 1 and 6. Borehole 6 was terminated in the clayey silt at approximately 8.2 m depth (~Elevation 129.4 m). The clayey silt was fully penetrated at a depth of approximately 11.8 m (~Elevation 126.9 m) in Borehole 5. The clayey silt contains trace gravel and tree roots. The clayey silt is grey to black in colour. The consistency of the clayey silt is firm. Moisture contents recorded in this deposit were between 28 and 48 percent. The clayey silt was interpreted as being a former creek bed deposit.

Shale Bedrock

Shale bedrock of the Georgian Bay Formation was encountered below the clayey silt in Borehole 1. The contact surface of the shale bedrock is at approximately 11.8 m depth corresponding to approximate Elevation 126.9 m. Borehole 1 was terminated in the shale bedrock at approximately 12.3 m depth (~Elevation 126.4 m).

Groundwater

Groundwater was detected at depths of approximately 4.7 to 8.6 m in Boreholes 1, 3 and 6 upon completion of drilling. Boreholes 2, 4 and 5 were dry upon completion of augering. After elapsed times of four (4) to five (5) days, groundwater was observed in the monitoring wells in Boreholes 5 and 6 at approximately 6.3 and 3.6 m depth (~Elevation 131.9 and 134.0 m), respectively. The groundwater in Boreholes 1 and 6 emanates from the deep fill while groundwater in Borehole 5 emanates from the more pervious seams within the clayey silt till. Due to the short monitoring period, the measured groundwater level is not considered stabilized, and seasonal fluctuations of the groundwater levels at the site should be anticipated.

4. Preliminary Geotechnical Assessment

The proposed development consists of a 3 to 4 storey residential condominium building with a single basement level. The comments included in this report refer to the investigated areas only. Should finalized building plans involve uninvestigated areas, including the building envelope of the existing site structure, it is recommended that additional boreholes should be advanced in those areas to evaluate the consistency of the subsurface conditions and the competency of subsurface soil to support the proposed structure.

4.1 Foundations

Based on the subsoil conditions revealed in Boreholes 2 to 5, favorable soil conditions exist for the proposed development. For one (1) basement levels, it is expected that the basement will be located approximately 3.5 m below grade (~Elevation 133.9 to 135.4 m). For this configuration, the structure can be supported on conventional spread and strip footings founded on the hard, clayey silt till at or below these elevations. For preliminary design purposes, geotechnical reaction of up to 500 kPa at Serviceability Limit States (SLS) and geotechnical resistance of up to 750 kPa at Ultimate Limit States (ULS) may be considered for design of the footings to support the proposed structure. These design values are subject to inspection during construction. Any foundations close to Boreholes 1 and 6 may have to be extended/deepened so that the fill would not be within the zone of influence of the footings.

In the area of Boreholes 1 and 6, soil at the anticipated single basement level consists of fill which is not suitable for foundation support. It is suggested that the proposed building envelope be kept away from deep fill areas. If this cannot be achieved, deep foundations would be required for support of the structure in these areas. Geotechnical resistance of up to 5,000 kPa (ULS) is available for caissons founded in sound shale expected at approximately 2 m below the contact Elevation of ~126.9 m where weathered shale was encountered in Borehole 1. Additional borings and rock coring is recommended to validate rock elevations and competency to support the recommended design bearing value.

4.2 Excavation and Backfill

Excavation is expected to be relatively straight forward. Normal hydraulic backhoe or similar equipment can be utilized for the bulk excavation into the fill and clayey silt till. Groundwater seepages in the clayey silt till and fill should be readily controlled by pumping from local sumps. The excavated clayey silt till can be considered as Type 2 soil and the fill as Type 3 soil as per the classification in the Occupational Health and Safety Act.

Where there is insufficient room to facilitate an open cut excavation, shoring should be provided. A shoring design specialist should be retained for design of the shoring system. The shoring system may be a soldier pile and lagging system for supporting streets or a contiguous caisson wall to provide support to adjacent structures. It is understood that tiebacks are not permitted along the north and east property boundaries where city streets abut. Use of rakers will be required for shoring support in these areas.

Granular 'B' or equivalent materials are recommended for backfilling service trenches in the clayey silt till or fill deposits.

4.3 Slab-on-Grade

Normal slab-on-grade construction can be utilized in the clayey silt till for the one (1) basement level scheme. Within the weak fill area in Borehole 1, the subgrade would have to be improved by subexcavation of up to 600 mm and replacement with compacted granular material for normal slab-on-grade construction. A 200 mm clear stone layer can be used as a moisture barrier between the subgrade and the slab for both scenarios.

4.4 Permanent Drainage

Perimeter and underfloor drains are recommended for the proposed single basement scheme. Depending on whether an open cut excavation or shoring is used, either weeping tiles or wall drains are recommended around the exterior of the perimeter walls to prevent the built up of hydrostatic pressure behind the walls.

Groundwater information as it pertains to volumes of groundwater to be permanently managed, requirements for Permit To Take Water (PTTW), suitability of groundwater quality for discharge to the municipal sewer system, mapping of groundwater conditions and soil infiltration capabilities for design of Low Impact Development infrastructure are all addressed in the Hydrogeological report prepared for this site by EXP.

Collection of groundwater monitoring information to address groundwater level seasonality will be undertaken by EXP as part of future Hydrogeological scope of work.

4.5 Earthquake Considerations

Based on the preliminary subsoil conditions encountered, the Site Class for this site is "C" if the building is placed within the native soil areas.

4.6 Pre-construction Condition Surveys

Pre-construction condition surveys of surrounding buildings are recommended as per Burlington Engineering Services/Site Engineering requirements.

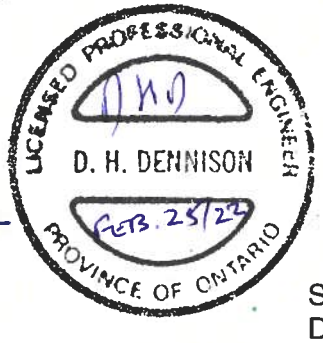
5. General Comments

This assessment is based on limited borehole information obtained from the drilling at six (6) locations on the site. Once the design is finalized and existing development is demolished, additional boreholes should be advanced at the site to examine subsurface conditions in more detail for the geotechnical design for the structure.

We trust that this report is satisfactory for your purpose. Should you have any questions or comments regarding the work carried out, please do not hesitate to contact this office.

Yours truly,

EXP Services Inc.



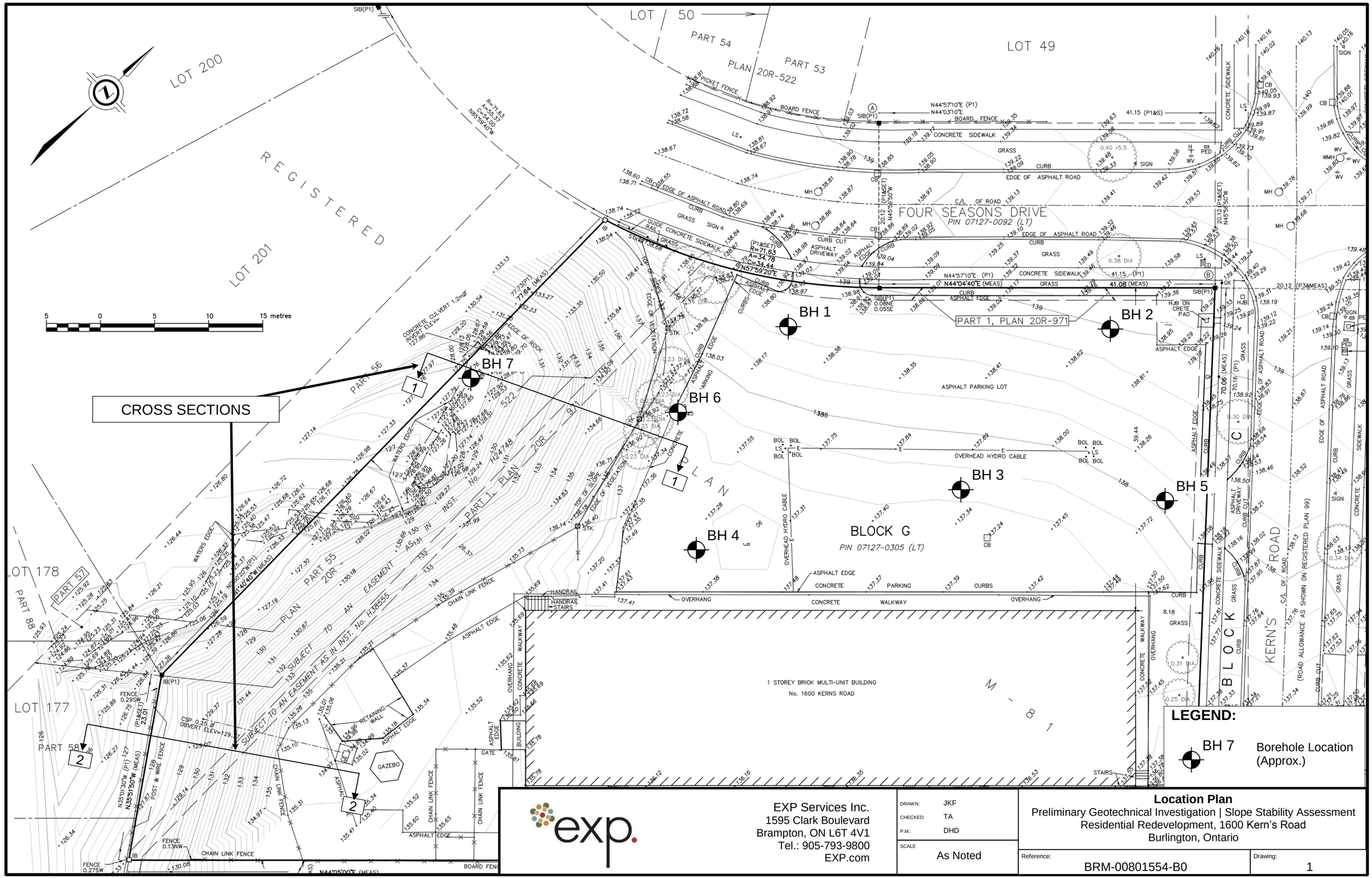
Stephen S. M. Cheng
Digitally signed by Stephen S. M. Cheng
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David Dennison, P. Eng.
Senior Project Manager
Geotechnical Division

Stephen S.M. Cheng, P. Eng.
Discipline Manager
Geotechnical Division

Enclosures: Borehole Location Plan – Drawing 1
Notes on Sample Descriptions – Drawing No. 1A
Log of Boreholes – Drawing Nos. 2 to 8

Drawings



LEGEND:

BH 7 — Borehole Location (Approx.)

EXP Services Inc.
1595 Clark Boulevard
Brampton, ON L6T 4V1
Tel.: 905-793-9800
EXP.com

DRAWN:	JKF
CHECKED:	TA
P.M.:	DHD
SCALE	As Noted

Location Plan
Preliminary Geotechnical Investigation | Slope Stability Assessment
Residential Redevelopment, 1600 Kern's Road
Burlington, Ontario

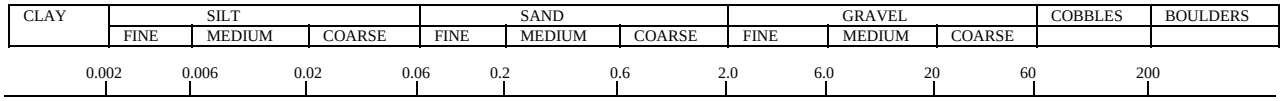
Reference: BRM-00801554-B0

Drawing: 1

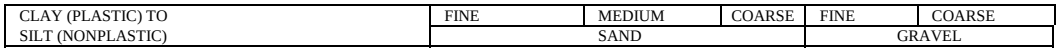
Notes on Sample Descriptions and Soil Types — Drawing 1A

1. All sample descriptions included in this report follow the Canadian Foundations Engineering Manual soil classification system. This system follows the standard proposed by the International Society for Soil Mechanics and Foundation Engineering. Laboratory grain size analyses provided by **exp** also follow the same system. Others may use different classification systems; one such system is the Unified Soil Classification. Please note that, with the exception of those samples where a grain size analysis has been made, all samples are classified visually. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

ISSMFE SOIL CLASSIFICATION



EQUIVALENT GRAIN DIAMETER IN MILLIMETERS



UNIFIED SOIL CLASSIFICATION

2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional geotechnical site investigation.

3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of

till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

4. Excerpt from “OHSA Regulations for Construction Projects,” Part III, Section 226:

- **Soil Types**

Type 1 Soil

a) is hard, very dense and only able to be penetrated with difficulty by a small sharp object;
b) has a low natural moisture content and a high degree of internal strength;
c) has no signs of water seepage; and
d) can be excavated only by mechanical equipment.

Type 2 Soil

a) is very stiff, dense and can be penetrated with moderate difficulty by a small sharp object;
b) has a low to medium natural moisture content and a medium degree of internal strength; and
c) has a damp appearance after it is excavated.

Type 3 Soil

a) is stiff to firm and compact to loose in consistency or is previously excavated soil;
b) exhibits signs of surface cracking;
c) exhibits signs of water seepage;
d) if it is dry, may run easily into a well-defined conical pile; and
e) has a low degree of internal strength.

Type 4 Soil

a) is soft to very soft and very loose in consistency, very sensitive and upon disturbance is significantly reduced in natural strength;
b) runs easily or flows, unless it is completely supported before excavating procedures;
c) has almost no internal strength;
d) is wet or muddy; and
e) exerts substantial fluid pressure on its supporting system. O. Reg. 213/91, s. 226.

Log of Borehole 1

Project No. BRM-00801554-B0 | Drawing No. 2

Project: Geotechnical Investigation | Sheet No. 1 of 2

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 12, 2018

Drill Type: CME 55, Solid Stem Augers

Datum: Geodetic

Auger Sample ☒ | Combustible Vapour Reading □

SPT (N) Value ○ ▨ | Natural Moisture ×

Dynamic Cone Test ——— | Plastic and Liquid Limit ⊢○

Shelby Tube ■ | Undrained Triaxial at % Strain at Failure ⊕

Field Vane Test S | Penetrometer ▲

Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
~ 140 mm **ASPHALTIC CONCRETE** over ~ 180 mm **GRANULAR BASE** over **FILL**: Reworked clayey silt, some gravel, medium grained sand pockets, glass fragments, brown to grey, black pockets, moist	138.67 ~138.5	0 1	7 7	×		21.5
Becoming brown to reddish brown sand and gravel, red brick, glass and ceramic fragments, moist	~136.5	2 3	4 3	×		
Becoming wet	~134.2 ~133.9	4 5 6	7 3 2	×		

Groundwater ▽

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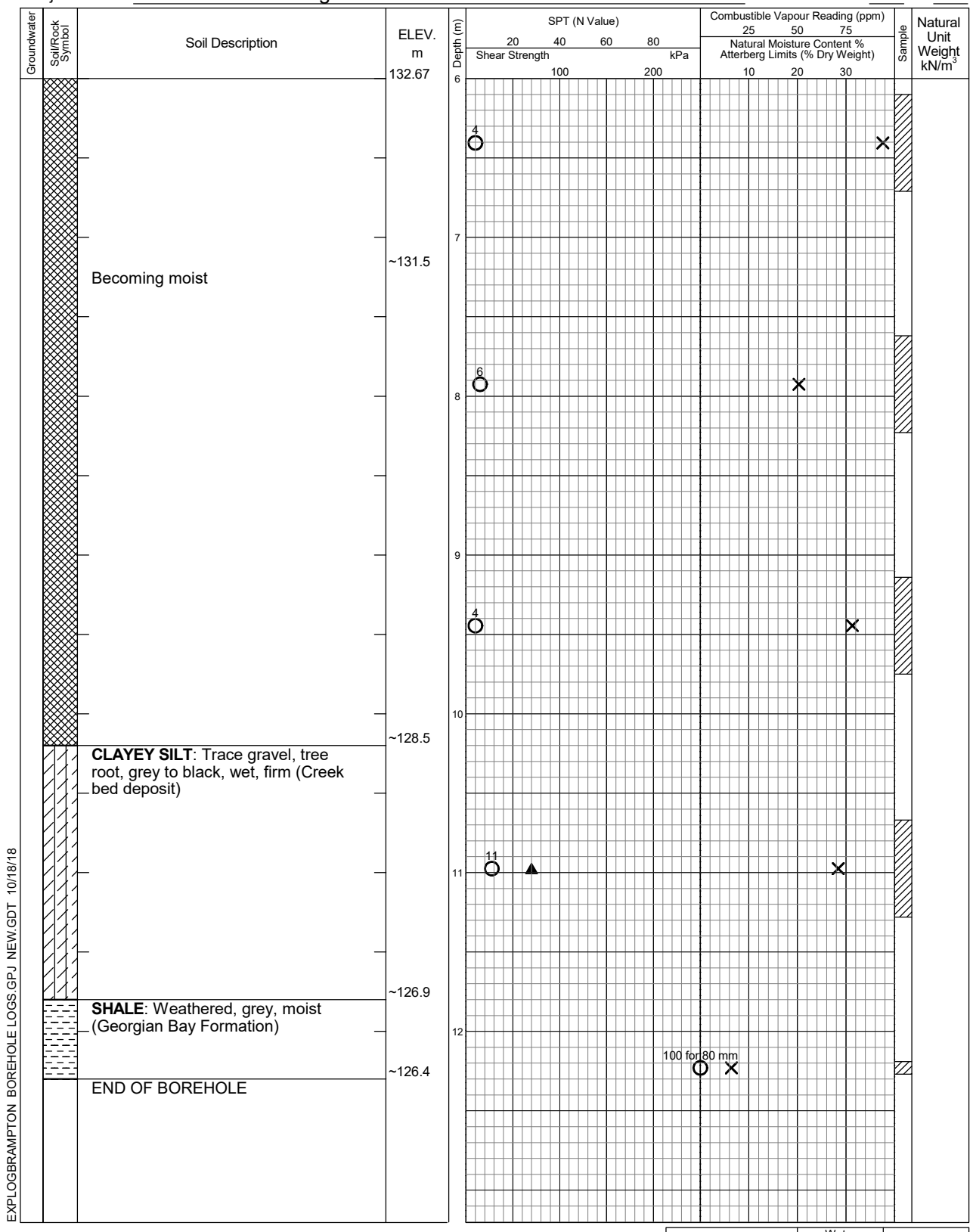
Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	4.82	8.61

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 1

Project No. BRM-00801554-B0 Drawing No. 2

Project: Geotechnical Investigation Sheet No. 2 of 2



EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	4.82	8.61

Log of Borehole 2

Project No. BRM-00801554-B0

Drawing No. 3

Project: Geotechnical Investigation

Sheet No. 1 of 2

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 12, 2018

Drill Type: CME 55, Solid Stem Augers

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		~ 145 mm **ASPHALTIC CONCRETE** over ~ 190 mm **GRANULAR BASE** over **CLAYEY SILT TILL**: Fine sand seams, trace gravel, brown, moist, hard	138.92 ~138.8	0 1 2 3 4 5 6	7 23 42 46 41 47			22.1 22.4 22.3 22.7

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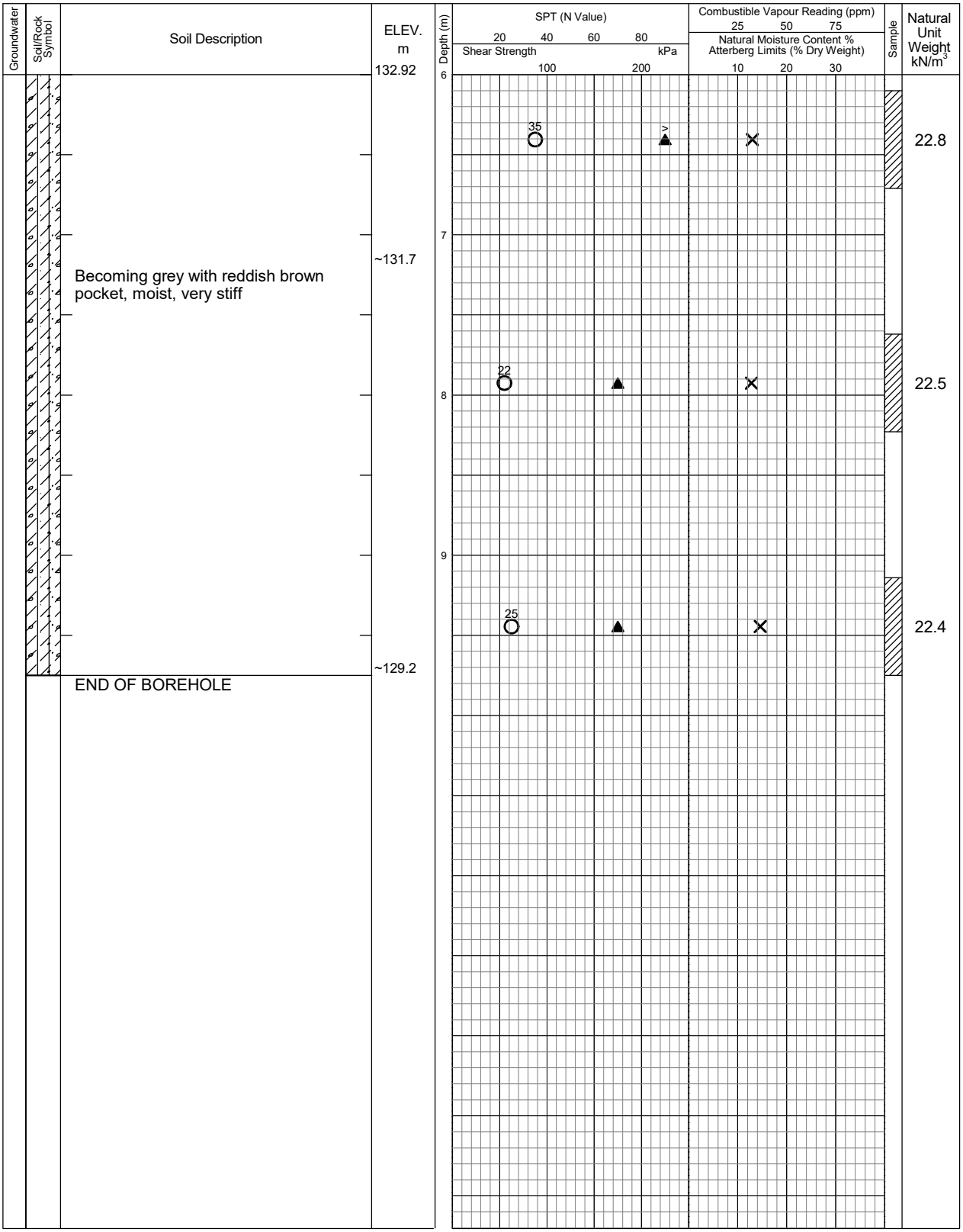
Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	Dry	Open

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 2

Project No. BRM-00801554-B0 Drawing No. 3

Project: Geotechnical Investigation Sheet No. 2 of 2



EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	Dry	Open

Log of Borehole 3

Project No. BRM-00801554-B0 | Drawing No. 4

Project: Geotechnical Investigation | Sheet No. 1 of 2

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 11, 2018

Drill Type: CME 55, Solid Stem Augers

Datum: Geodetic

Auger Sample ☒ | Combustible Vapour Reading □

SPT (N) Value ○ ▨ | Natural Moisture ×

Dynamic Cone Test — | Plastic and Liquid Limit ⊢○

Shelby Tube ■ | Undrained Triaxial at % Strain at Failure ⊕

Field Vane Test S | Penetrometer ▲

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		~ 100 mm **ASPHALTIC CONCRETE** over ~ 100 mm **GRANULAR BASE** over **CLAYEY SILT TILL**: Fine sand seams, trace gravel, occasional boulder fragments, brown, reddish brown pockets, moist, hard	137.63 ~137.5	0	19			21.5
				1	34			22.5
				2	38			22.5
				3	37			22.4
				4	40			23.2
				5	30			23.0
		Becoming grey with reddish brown pockets	~131.9	6				

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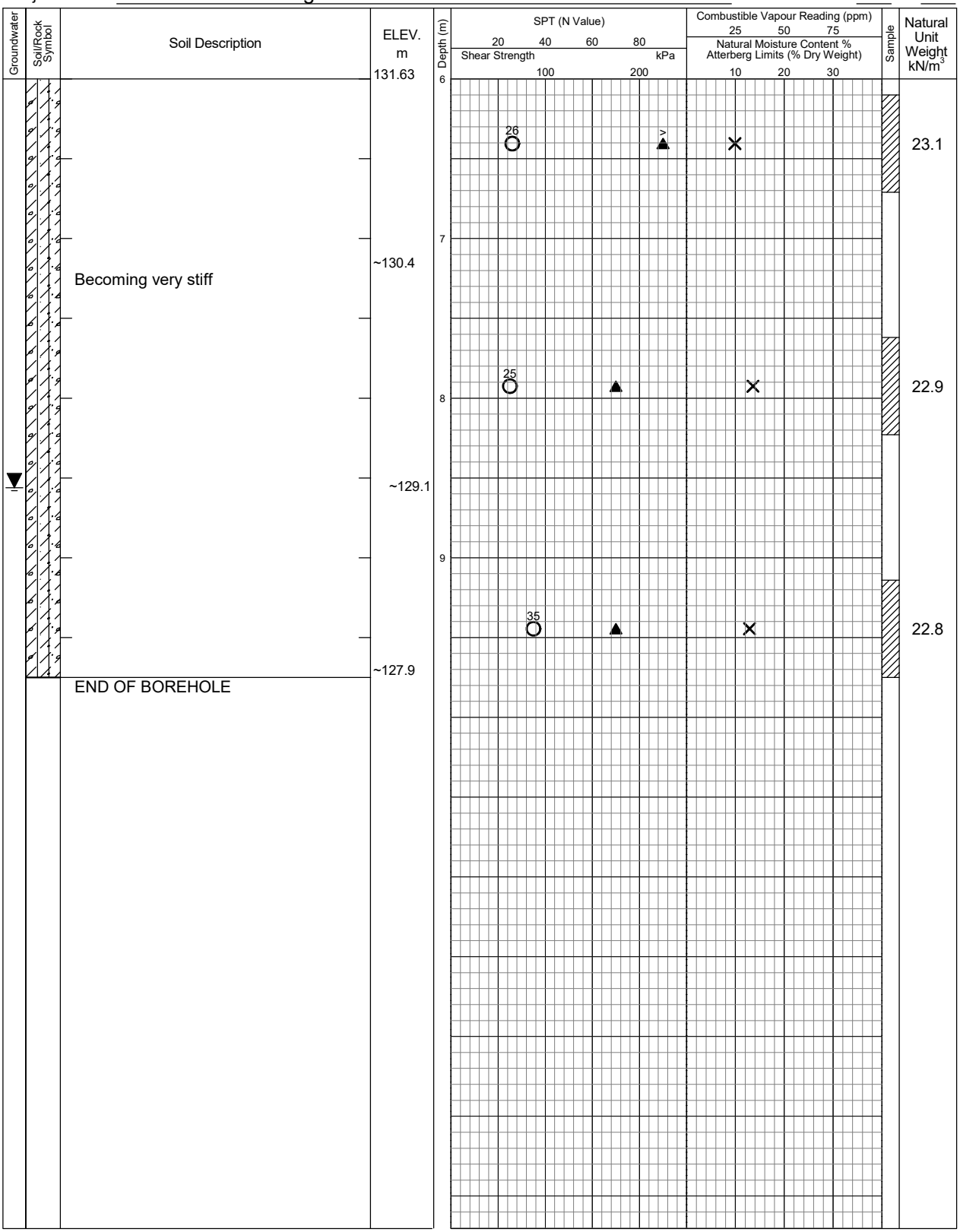
Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	8.58	9.19

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 3

Project No. BRM-00801554-B0 Drawing No. 4

Project: Geotechnical Investigation Sheet No. 2 of 2



Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	8.58	9.19

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 4

Project No. BRM-00801554-B0 | Drawing No. 5

Project: Geotechnical Investigation | Sheet No. 1 of 2

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 11, 2018

Drill Type: CME 55, Solid Stem Augers

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Natural Unit Weight kN/m³
~ 90 mm **ASPHALTIC CONCRETE** over ~ 125 mm **GRANULAR BASE** over **CLAYEY SILT TILL**: Fine sand seams, trace gravel, occasional boulder fragments, brown, reddish brown and grey pockets, moist, hard	137.35 ~137.3	0	13		
		1	22		22.0
		2	26		22.1
		2.5	52		
		3	29		22.3
		4			
		4.5	30		22.3
Becoming grey with reddish brown pockets, stiff to very stiff	~131.8	5			
		6			

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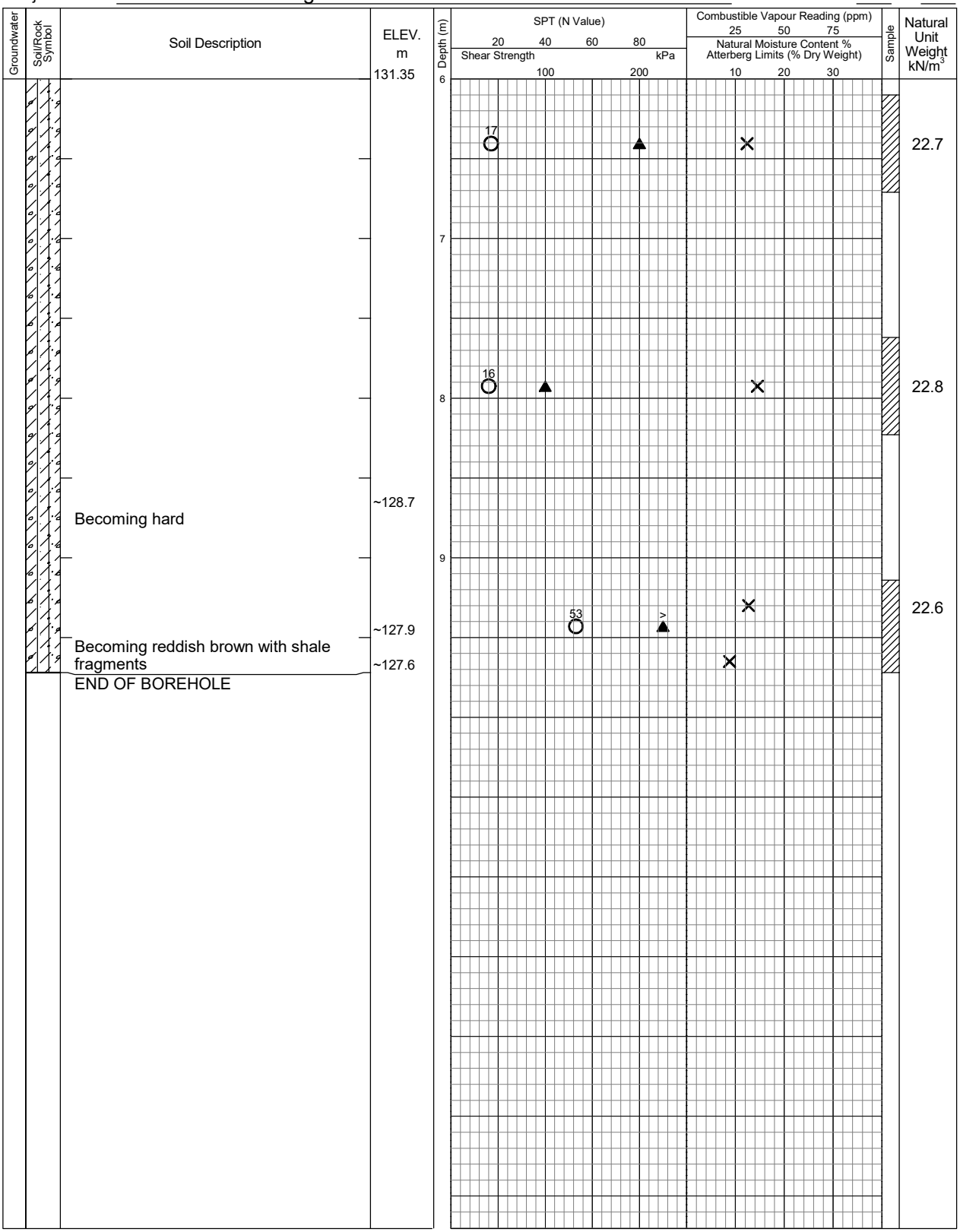
Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	Dry	9.7

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 4

Project No. BRM-00801554-B0 Drawing No. 5

Project: Geotechnical Investigation Sheet No. 2 of 2



Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	Dry	9.7

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 5

Project No. BRM-00801554-B0 | Drawing No. 6

Project: Geotechnical Investigation | Sheet No. 1 of 2

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 11, 2018

Drill Type: CME 55, Solid Stem Augers

Datum: Geodetic

Auger Sample ☒
SPT (N) Value ○ ▨
Dynamic Cone Test —
Shelby Tube ■
Field Vane Test ✚ S

Combustible Vapour Reading □
Natural Moisture ×
Plastic and Liquid Limit ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Penetrometer ▲

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) 20 40 60 80 / Shear Strength 100 200 kPa	Combustible Vapour Reading (ppm) 25 50 75 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30	Sample	Natural Unit Weight kN/m³
		~ 110 mm **ASPHALTIC CONCRETE** over ~ 290 mm **GRANULAR BASE** over **CLAYEY SILT TILL**: Fine sand seams, trace gravel, occasional boulder fragments, brown with reddish brown pockets, moist, hard	138.16 ~138.1	0	11			
				1	28			22.1
				2	44			22.5
				3	41			22.4
				4	40			22.9
				5	35			22.4
		Becoming grey with reddish brown pockets	~132.5	6				

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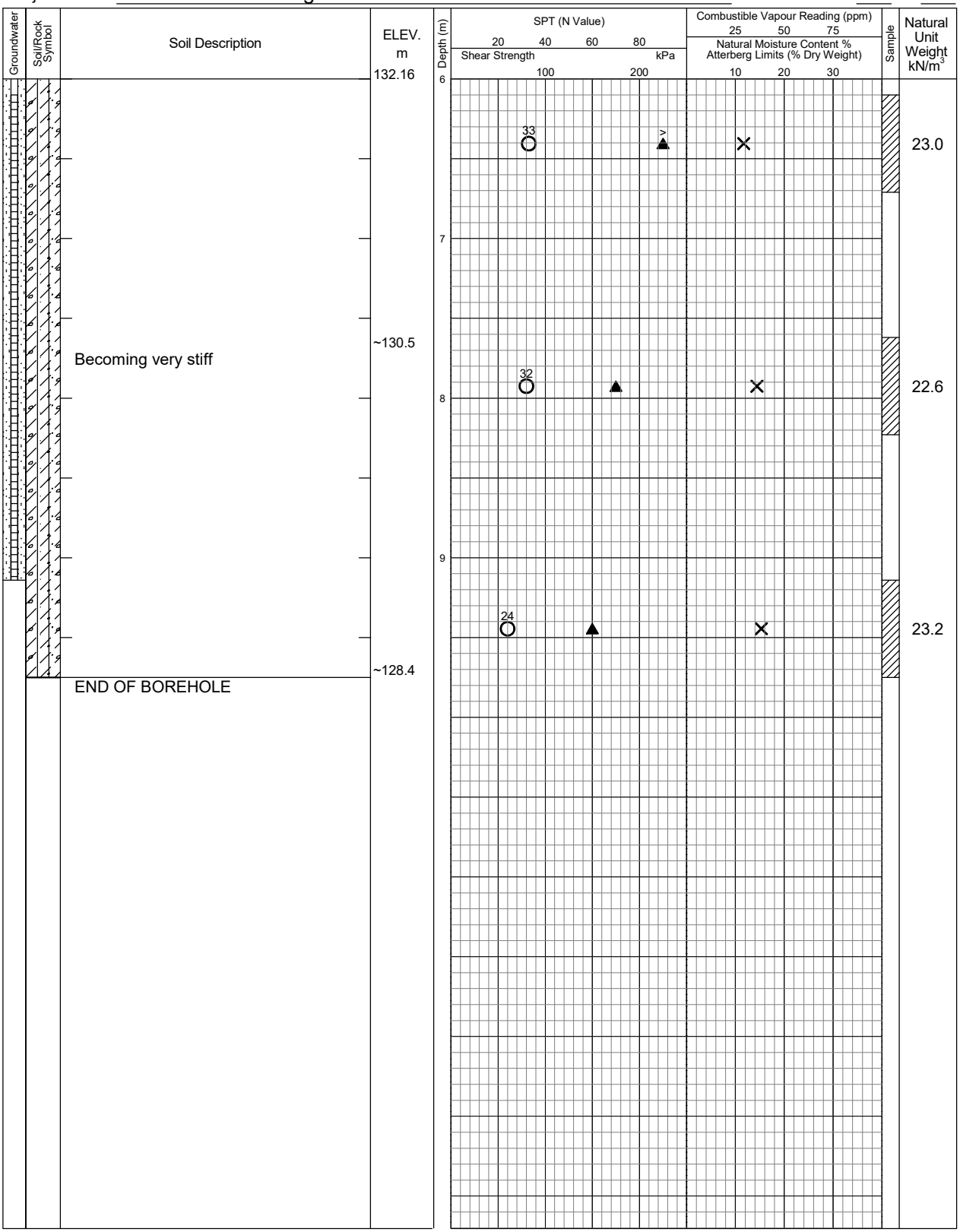
Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	Dry	Open
October 12, 2018	8.47	9.19
October 15, 2018	7.82	
October 16, 2018	6.31	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 5

Project No. BRM-00801554-B0 Drawing No. 6

Project: Geotechnical Investigation Sheet No. 2 of 2



EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	Dry	Open
October 12, 2018	8.47	9.19
October 15, 2018	7.82	
October 16, 2018	6.31	

Log of Borehole 6

Project No. BRM-00801554-B0

Drawing No. 7

Project: Geotechnical Investigation

Sheet No. 1 of 2

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 12, 2018

Drill Type: CME 55, Solid Stem Augers

Datum: Geodetic

Auger Sample

SPT (N) Value

Dynamic Cone Test

Shelby Tube

Field Vane Test

Combustible Vapour Reading

Natural Moisture

Plastic and Liquid Limit

Undrained Triaxial at % Strain at Failure

Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Sample	Natural Unit Weight kN/m³
		~ 135 mm **ASPHALTIC CONCRETE** over ~ 250 mm **GRANULAR BASE** over **FILL**: Clayey silt, trace gravel, brown to grey, reddish brown pockets, moist to wet	137.58 ~137.4	0 1 2 3 4 5 6	7 8 5 6 8 9			21.6
			~132.9					

Continued Next Page

Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	4.65	Open
October 12, 2018	3.29	7.69
October 15, 2018	3.57	
October 16, 2018	3.57	

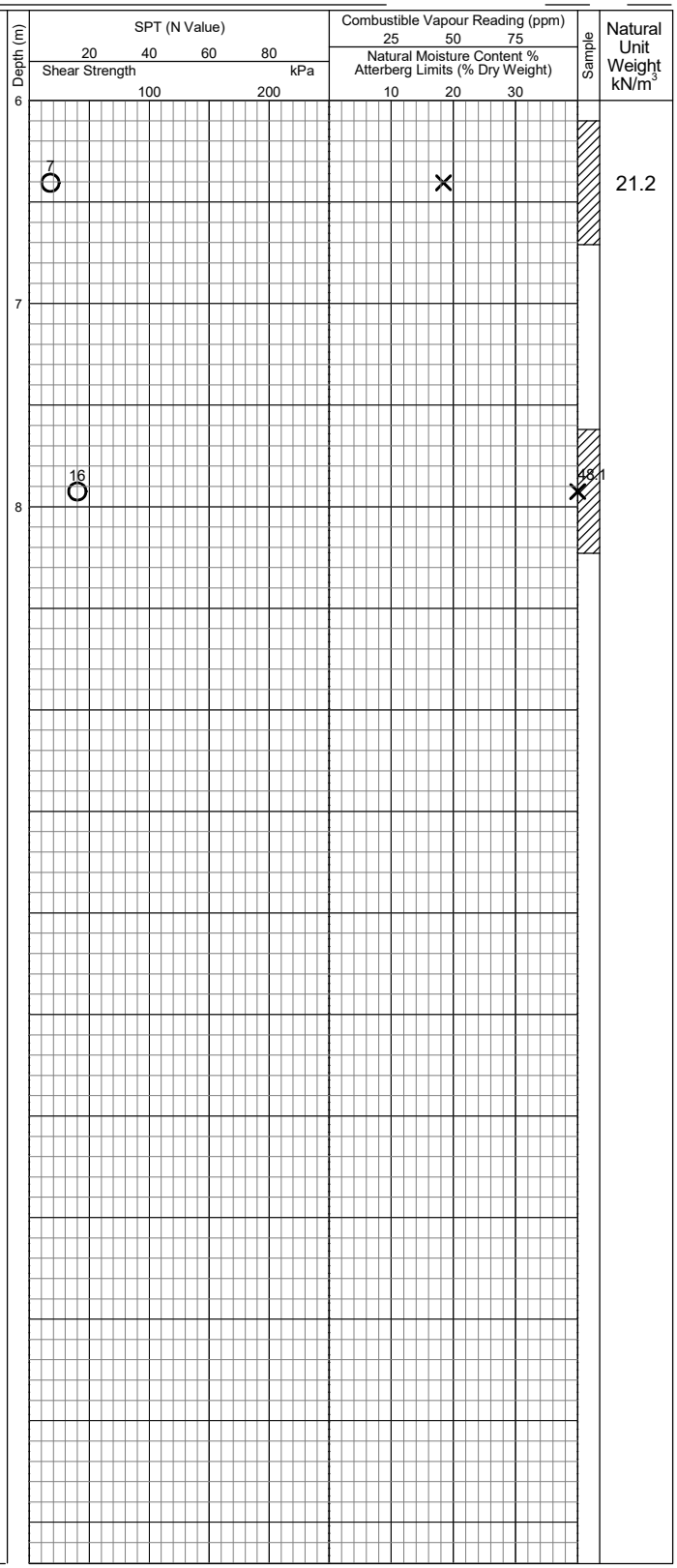
EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 6

Project No. BRM-00801554-B0 Drawing No. 7

Project: Geotechnical Investigation Sheet No. 2 of 2

Soil Description	ELEV. m
	131.58
	~130.4
CLAYEY SILT: Sand and gravel layers, decayed tree roots, silt pockets, grey to black, wet, compact (Creek bed deposit)	
	~129.4
END OF BOREHOLE	



Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	4.65	Open
October 12, 2018	3.29	7.69
October 15, 2018	3.57	
October 16, 2018	3.57	

EXPLOGBRAMPTON BOREHOLE LOGS.GPJ NEW.GDT 10/18/18

Log of Borehole 7

Project No. BRM-00801554-B0

Drawing No. 8

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 1600 Kerns Rd., Burlington

Date Drilled: October 16, 2018

Drill Type: Manual Hammer (70 lb)

Datum: Geodetic

Auger Sample

SPT (N) Value

Dynamic Cone Test

Shelby Tube

Field Vane Test (S)

Combustible Vapour Reading

Natural Moisture

Plastic and Liquid Limit

Undrained Triaxial at % Strain at Failure

Penetrometer

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
▼		**CLAYEY SILT**: Trace gravel, reddish brown, black seams in upper ~300 mm, wet, soft	127.86	0
			~127.7	
				1
			~126.5	
		CLAYEY SILT TILL: Fine sand seams, trace gravel, shale lenses, olive grey, moist hard		
			~126.0	
		TERMINATED UPON PRACTICAL REFUSAL TO SAMPLING EQUIPMENT		

SPT (N Value): 20 40 60 80

Shear Strength: 100 200 kPa

Combustible Vapour Reading (ppm): 25 50 75

Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

Sample

Natural Unit Weight kN/m³

3

4

85 for 250 mm

Elapsed Time	Water Level (m)	Hole Open to (m)
On Completion	0.2	0.91

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