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May 28, 2020

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RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment (Background Research) of 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario", Dated Apr 30, 2020, Filed with MTCS Toronto Office on N/A, MTCS Project Information Form Number P229-0069-2020, MTCS File Number 0012290

Dear Dr. Morton:

The above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18, has been entered into the Ontario Public Register of Archaeological Reports without technical review.¹

Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require further information, please do not hesitate to send your inquiry to Archaeology@Ontario.ca

cc. Archaeology Licensing Officer
Sukie Leung, IBI Group
Leslie Pavan, Planning Department, City of Mississauga

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Stage 1 Archaeological Assessment (Background Research) of 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario

Submitted to

Redwood Properties
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and

The Ontario Ministry of Heritage, Sport, Tourism and Culture Industries

Prepared by



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Research

Report Type: Original
Archaeological License Number P229, Allan Morton
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April 2020

Table of Contents

EXECUTIVE SUMMARY	II
ACKNOWLEDGEMENTS:	III
1.0 PROJECT CONTEXT	1.1
1.1 DEVELOPMENT CONTEXT	1.1
1.1.1 Objectives	1.1
1.2 HISTORICAL CONTEXT	1.2
1.2.1 Historic Euro-Canadian Resources.....	1.4
1.3 ARCHAEOLOGICAL CONTEXT	1.5
1.3.1 The Natural Environment	1.5
1.3.2 Previously Known Archaeological Sites and Surveys.....	1.6
1.3.3 Summary of Past Archaeological Investigations within 50m.....	1.6
1.3.4 Archaeological Potential.....	1.6
2.0 ANALYSIS AND CONCLUSIONS	2.9
3.0 RECOMMENDATIONS	3.1
4.0 ADVICE ON COMPLIANCE WITH LEGISLATION	4.1
5.0 BIBLIOGRAPHY AND SOURCES	5.1
6.0 IMAGES	6.3
7.0 MAPS	7.1
8.0 EMAILS	8.15
9.0 GEOTECHNICAL REPORT, SOIL ENGINEERS LTD	9.24
LIST OF FIGURES	
Figure 1: Topographic Map Showing Study Area	6.2
Figure 2: Air Photo Showing Study Area	6.3
Figure 3: Development Plan	6.4
Figure 4: Patent Map. Gore of Toronto Township.....	6.5
Figure 5: James Shaw Map of Peel County, 1859.....	6.6
Figure 6: Illustrated Historical Atlas of the County of Peel, 1877.....	6.7
Figure 7: Air Photo of Study Area, 1954.....	6.8
Figure 8: Air Photo of Study Area, 1975.....	6.9
Figure 9: Air Photo of Study Area, 1980.....	6.10
Figure 10: Air Photo of Study Area, 1989.....	6.11
Figure 11: Air Photo of Study Area, 2000.....	6.12
Figure 12: Photograph Location, Numbers, and Directions. Borehole Locations BH1 to BH6.....	6.13
Figure 13: Graphical Representation of all Boreholes from Soil Engineers Ltd.....	6.14

Executive Summary

Bluestone Research (Bluestone) was retained by Redwood Properties to complete a Stage 1 archaeological assessment of the proposed redevelopment at 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario. The assessment was necessary to meet the site plan control application submission requirements set out by the City of Mississauga. The study area is irregular-shaped and measures approximately 156 metres by 101 metres. It totals approximately 0.99 hectares in size.

This assessment was triggered by the Provincial Policy Statement that is informed by the *Planning Act* (Government of Ontario 1990a), which states that decisions affecting planning matters must be consistent with the policies outlined in the larger *Ontario Heritage Act* (1990b). According to Section 2.6.2 of the PPS, “*development and site alteration shall not be permitted on lands containing archaeological resources or areas of archaeological potential unless significant archaeological resources have been conserved.*”

This study involved a review of documents pertaining to the study area including historic maps, aerial photographs and local histories. A property inspection was conducted to confirm that the entire project area is covered in parking lot and a commercial building. Because the subject property is situated within 30 metres from Mimico Creek, the entire study area has archaeological potential. However, because 100% of the property is covered in parking lot and a commercial building, it is completely disturbed and has lost archaeological potential. No further archaeological work is recommended for the study area.

In accordance with Section 1.3.2 “Features indicating that archaeological potential has been removed (‘disturbed’)” of the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the Stage 1 archaeological assessment of the proposed redevelopment at 7085 Goreway Drive, Part of Lot 11, Concession 8, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario has determined that the study area does not exhibit potential for the identification and recovery of archaeological resources and no further work is recommended.

Project Personnel

Licensed Archaeologist:	Allan Morton, PhD (P229)
Project Manager:	Allan Morton, PhD (P229)
Licensed Field Director:	Allan Morton, PhD (P229)
Report Writer:	Allan Morton, PhD (P229)
Senior Review:	Allan Morton, PhD (P229), Marie Morton, MA (P188)

Acknowledgements:

Proponent Contact:	Richard Aubry, Redwood Properties
Ministry of Tourism, Culture and Sport:	Robert von Bitter, Archaeological Sites Database Coordinator

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

1.0 PROJECT CONTEXT

1.1 DEVELOPMENT CONTEXT

Bluestone Research (Bluestone) was retained by Redwood Properties to complete a Stage 1 archaeological assessment of the proposed redevelopment at 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario. The assessment was necessary to meet the site plan control application submission requirements set out by the City of Mississauga. The study area is irregular-shaped and measures approximately 156 metres by 101 metres. It totals approximately 0.99 hectares in size.

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Permission to enter and document the study area was provided by the proponent, Sukie Leung of IBI Group.

1.1.1 Objectives

In compliance with the provincial standards and guidelines set out in the MHSTCI 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the objectives of the Stage 1 Archaeological Overview/Background Study are as follows:

- To provide information about the study area’s geography, history, previous archaeological fieldwork, and current land conditions;
- To evaluate in detail the study area’s archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property; and
- To recommend appropriate strategies for Stage 2 survey.

To meet these objectives Bluestone archaeologists employed the following research strategies:

- A review of relevant archaeological, historic and environmental literature pertaining to the study area;

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

- A review of the land use history, including pertinent historic maps;
- An examination of the Ontario Archaeological Sites Database (ASDB) to determine the presence of known archaeological sites in and around the project area.

1.2 HISTORICAL CONTEXT

The study area consists of approximately 0.99 hectares commercial land consisting of a large commercial building and extensive parking. Both structure and parking lot take up 100% of the property. The study area is located at 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario.

Pre and early Post-contact Aboriginal Resources

Our knowledge of past First Peoples settlement and land use in the Mississauga area is incomplete. Nonetheless, using province-wide (MCCR 1997) and region-specific archaeological data, a generalized cultural chronology for native settlement in the area can be proposed. The following paragraphs provide a basic textual summary of the known general cultural trends and a tabular summary appears in Table 1.

The Paleoindian Period

The first human populations to inhabit Ontario came to the region between 12,000 and 10,000 years ago, coincident with the end of the last period of glaciation. Climate and environmental conditions were significantly different then they are today; local environs would not have been welcoming to anything but short-term settlement. Termed Paleoindians by archaeologists, Ontario first peoples would have crossed the landscape in small groups (i.e., bands or family units) searching for food, particularly migratory game species. In the area, caribou may have provided the staple of the Paleoindian diet, supplemented by wild plants, small game, birds and fish. Given the low density of populations on the landscape at this time and their mobile nature, Paleoindian sites are small and ephemeral. They are usually identified by the presence of fluted projectile points and other finely made stone tools.

Table 1: Cultural Chronology for Native Settlement within the Regional Municipality of Peel

Period		Time Range (circa)	Diagnostic Features	Complexes
Paleoindian	Early	9000 – 8400 B.C.	fluted projectile points	Gainey, Barnes, Crowfield
	Late	8400 – 8000	non-fluted and lanceolate points	Holcombe, Hi-Lo, Lanceolate

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

			B.C.		
Archaic	Early		8000 – 6000 B.C.	serrated, notched, bifurcate base points	Nettling, Bifurcate Base Horizon
	Middle		6000 – 2500 B.C.	stemmed, side & corner notched points	Brewerton, Otter Creek, Stanly/Neville
	Late		2000 – 1800 B.C.	narrow points	Lamoka
			1800 – 1500 B.C.	broad points	Genesee, Adder Orchard, Perkiomen
			1500 – 1100 B.C.	small points	Crawford Knoll
	Terminal		1100 – 850 B.C.	first true cemeteries	Hind
Woodland	Early		800 – 400 B.C.	expanding stemmed points, Vinette pottery	Meadowood
	Middle		400 B.C. – A.D. 600	thick coiled pottery, notched rims; cord marked	Couture
	Late	Western Basin	A.D. 600 – 900	Wayne ware, vertical cord marked ceramics	Riviere au Vase-Algonquin
			A.D. 900 – 1200	first corn; ceramics with multiple band impressions	Young- Algonquin
			A.D. 1200 – 1400	longhouses; bag shaped pots, ribbed paddle	Springwells-Algonquin
			A.D. 1400-1600	villages with earthworks; Parker Festoon pots	Wolf- Algonquin
Contact		Aboriginal	A.D. 1600 – 1700	early historic native settlements	Neutral Huron, Odawa, Wenro
		Euro-Canadian	A.D. 1700-1760	fur trade, missionization, early military establishments	French
			A.D. 1760-1900	Military 1.3 establishments, pioneer settlement	British colonials, UELs

Archaic

The archaeological record of early native life in Southern Ontario indicates a change in lifeways beginning circa 10,000 years ago at the start of what archaeologists call the Archaic Period. The Archaic populations are better known than their Paleoindian predecessors, with numerous sites found throughout the area. The characteristic projectile points of early Archaic populations appear similar in some respects to early varieties and are likely a continuation of early trends. Archaic populations continued to rely heavily on game, particularly caribou, but diversified their diet and exploitation patterns with changing environmental conditions. A seasonal pattern of warm season riverine or lakeshore settlements and interior cold weather occupations has been documented in the archaeological record. Since the large cold weather mammal species that formed the basis of the Paleoindian subsistence pattern became extinct or moved northward with the onset of warmer climate, Archaic populations had a more varied diet, exploiting a range of plant, bird, mammal and fish species. Reliance on specific food resources like fish, deer and nuts becomes more pronounced through time and the presence of more hospitable environs and resource abundance led to the expansion of band and family sizes. In the archaeological record, this is evident in the presence of larger sites and aggregation camps, where several families or bands would come together in times of resource abundance. The change to more preferable environmental circumstances led to a rise in population density. As a result, Archaic sites are more abundant than those from the earlier period. Artifacts typical of these occupations include a variety of stemmed and notched projectile points, chipped stone scrapers, ground stone tools (e.g. celts, adzes) and ornaments (e.g. bannerstones, gorgets), bifaces or tool blanks, animal bone and waste flakes, a by-product of the tool making process.

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

Woodland Period

Significant changes in cultural and environmental patterns are witnessed in the Woodland Period (circa 950 B.C to historic times). The coniferous forests of earlier times were replaced by stands of mixed and deciduous species. Occupations became increasingly more permanent in this period, culminating in major semi-permanent villages by 1,000 years ago. Archaeologically, the most significant changes by Woodland times are the appearance of artifacts manufactured from modeled clay and the construction of house structures. The Woodland Period is often defined by the occurrence of pottery, storage facilities and residential areas similar to those that define the incipient agricultural or Neolithic period in Europe. The earliest pottery was rather crudely made by the coiling method and house structures were simple enclosures.

Iroquoian Period

The primary Late Woodland occupants of the area were the Neutral Nation, an Iroquoian speaking population described by European missionaries. Like other known Iroquoian groups including the Huron (Wendat) and Petun, the Neutral practiced a system of intensive horticulture based on three primary subsistence crops (corn, beans and squash). Neutral villages incorporated a number of longhouses, multi-family dwellings that contained several families related through the female line. The Jesuit Relations describe several Neutral centers in existence in the 17th century, including a number of sites where missions were later established. While precontact Neutral sites may be identified by a predominance of well-made pottery decorated with various simple and geometric motifs, triangular stone projectile points, clay pipes and ground stone implements, sites post-dating European contact are recognized through the appearance of various items of European manufacture. The latter include materials acquired by trade (e.g., glass beads, copper/brass kettles, iron axes, knives and other metal implements) in addition to the personal items of European visitors and Jesuit priests (e.g., finger rings, stoneware, rosaries, glassware). The Neutral were dispersed and their population decimated by the arrival of epidemic European diseases and inter-tribal warfare.

1.2.1 Historic Euro-Canadian Resources

The Crown Patent Map of Toronto Gore Township shows the first owner of the study area as Captain Roxborough under warrant ⁶B/2⁰23. No date is given, but the neighbouring half lot has a patent date of February 7th 1830. Roxborough may be the same individual who was Captain in the Glengarry Light Infantry Regiment in the Campaign upon the Niagara Frontier. Roxborough and a Lieutenant Kerr were wounded during an advance on Fort George by a brigade of American troops (Cruikshank, 1896: 254). No further reference to Captain Roxborough could be identified. There is no evidence of Roxborough living or working on the study area.

The 1859 of Toronto Gore Township shows the study area in a property owned by "Robert Shaw". No structures are indicated on the property. The 1877 Historical Atlas of the County of Peel Map of Toronto Township depicts a well-developed rural landscape with numerous landowners, structures, and early

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

transportation routes, and early town sites. A portion of the 1877 historic map of Toronto Gore Township depicts the study area still owned by “Robert Shaw”. No structures are indicated within the study area. Canada Census records of 1851 shows Robert Shaw living in Toronto Gore Township. He is listed as being born in Ireland, a farmer, with the Wesleyan Methodist Church and 42 years old. Also in the household are Alice (50 born in Ireland) his spouse and children James (25 born in New York), Samuel (20), Margaret (17), Mary (14), Thomas (5). The fact that James is listed as being born in New York implies that Robert and Alice Shaw may have moved from Ireland to New York. After the birth of James in 1826, they moved to Toronto Gore Township. The Canada Census of 1861 shows Robert Shaw, aged 56, a Wesleyan Methodist gentleman born in Ireland. He lived in a log house with his wife Alice (57 born in Ireland), and children James (10) Catherine (4), and Margaret Jane (2).

Robert does not appear in the General Directory for the City of Toronto, and gazetteer of the counties of York and Peel for 1866. Robert and Alice Shaw do not appear in the Canada Census of 1871. It must be noted that historic maps are not always accurate representations of historic land use.

1.3 ARCHAEOLOGICAL CONTEXT

The study area consists of approximately 0.99 hectares commercial land consisting of a large commercial building and extensive parking. Both structure and parking lot take up 100% of the property. The study area is located at 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario.

1.3.1 The Natural Environment

The study area is located within the Peel Plain physiographic region. The Peel Plain physiographic region covers a large area across the central portions of the Regional Municipalities of Peel, York, and Halton. The surface of the plain is characterized by level to gently rolling topography, with a consistent, gradual slope toward Lake Ontario. (Chapman and Putnam 1984: 190).

The soil within the study area is categorized as Malton clay (Hoffman and Richards, 1955). This soil is poorly drained, found on smooth, very gently sloping landforms. It tends to be stone free and is slightly alkaline. This dark grey gleisolic soil has a usual profile of 20 cm of very dark grey clay over poorly defined, very mottled lower horizons. Heavy clay appearing at 0.9 M or less.

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in southwestern Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to water is one of the most commonly used variables for predictive modeling of archaeological site location in Ontario. The closest potable water source to the study area is the Mimico Creek which passes 30 meters south of the study area and is also present on the historic maps. Mimico Creek drains into Lake Ontario to the South.

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

1.3.2 Previously Known Archaeological Sites and Surveys

In order to compile an inventory of archaeological resources, the registered archaeological site records kept by the MHSTCI were consulted. In Ontario, information concerning archaeological sites stored in the ASDB is maintained by the MHSTCI. This database contains archaeological sites registered according to the Borden system. Under the Borden system, Canada is divided into grid blocks based on latitude and longitude. A Borden Block is approximately 13 kilometres east to west and approximately 18.5 kilometres north to south. Each Borden Block is referenced by a four-letter designator and sites within a block are numbered sequentially as they are found. The study area under review is within Borden Block AjGv.

Information concerning specific site locations is protected by provincial policy, and is not fully subject to the *Freedom of Information and Protection of Privacy Act*. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MHSTCI will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the ASDB has shown that there is one archaeological site registered within a one-kilometre radius of the study area (Sites Data Search, 14 April 2020 Government Ontario n.d.). Table 2 summarizes the registered archaeological site within one-kilometre of the study area. The listed site does not fall within the study area.

Table 2: Registered Archaeological Sites within One Kilometre of the Study Area

Borden Number	Site Name	Time Period	Affinity	Site Type	Status
AjGv-345	-	Pre-Contact	Aboriginal	Unknown	No further CHVI

1.3.3 Summary of Past Archaeological Investigations within 50m

There have been no other documented archaeological investigations within 50 metres of the subject property. However, it should be noted that the Ministry of Tourism, Culture and Sport currently does not provide an inventory of archaeological assessments carried out within 50 metres of a property, so a complete inventory of assessments on lands adjacent to the subject property cannot be provided.

1.3.4 Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Bluestone applied archaeological potential criteria commonly used by MHSTCI (Government of Ontario 2011) to determine areas of archaeological potential within the region under study. These variables include proximity to previously identified archaeological sites, distance to

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography and the general topographic variability of the area.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995).

As discussed above, distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect sites locations and types to varying degrees. The MHSTCI categorizes water sources in the following manner:

- Primary water sources: lakes, rivers, streams, creeks;
- Secondary water sources: intermittent streams and creeks, springs, marshes and swamps;
- Past water sources: glacial lake shorelines, relic river or stream channels, cobble beaches, shorelines of drained lakes or marshes; and
- Accessible or inaccessible shorelines: high bluffs, swamp or marshy lake edges, sandbars stretching into marsh.

The closest potable water source to the study area is the Mimico Creek located approximately 30 metres to the south.

Soil texture can be an important determinant of past settlement, usually in combination with other factors such as topography. As indicated previously, the soils within the study area are Malton clay, that is considered poorly-drained and would not be ideal for pre-contact Aboriginal agriculture.

An examination of the ASDB has shown that there is one archaeological site registered within a one-kilometre radius of the study area; and it is located outside the study area.

For Euro-Canadian sites, archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; and properties listed on the municipal register or designated under the *Ontario Heritage Act* or property that local histories or informants have identified with possible historical events. The *Illustrated Historical Atlas of the Peel County* demonstrates that the study area and its environs were occupied by Euro-Canadian settlers by the later 19th century. Much of the established road system and agricultural settlement from that time is still visible today.

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Project Context
April 2020

As specified above, Wilson and Horne note that extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995). Air photos from the City of Mississauga show development of the study area between 1975 and 1980. In 1975, the study area was an open field, but by 1980 there was a commercial building in place in the centre of the property with a parking lot between the building and Goreway Drive. By 1989, a new parking lot was created to the immediate northeast of the building. By 2000 the building was expanded toward Goreway Drive and the parking lot was extended into its current configuration. Archaeological potential has been removed at the building footprint. Photographs of the study area were taken on 15 April 2020. The photographs indicate that 100% of the property is covered in parking lot and a commercial building. Modern parking lot construction involves the complete removal of topsoil in order to expose the more stable subsoil. A layer of crushed stone is laid and then layers of asphalt are applied. The act of creating a modern parking lot completely disturbs the soil. In order to confirm the assumption that the topsoil has been removed, a geotechnical report of the study area was consulted. Conducted in 2016, the Geotechnical Investigation, by Soil Engineers Ltd. reports on the creation of 6 boreholes in the study area. They found that,

“...beneath the existing pavement structure, and a layer of earth fill in places, the site is underlain by strata of silty clay, silty clay till and sandy silt till. The revealed pavement structure consists of an asphaltic concrete layer, 80 to 180 mm in thickness, overlying a layer of granular fill, 250 to 620 mm thick. The granular fill consists of gravel with silty sand and silt.” (Soil Engineers Ltd. 2016: 3)
“The earth fill was found extending to depths ranging from 0.7 to 1.7 m below the pavement surface. The fill consists of silty clay material. (Soil Engineers Ltd. 2016: 4)”

The borehole locations are shown in Figure 12. Figure 13 is a graphic representation of the boreholes showing the pavement capping in all holes. All boreholes include a granular fill immediately below the pavement. Boreholes 1, 2, 3, 5, and 6 have an additional fill layer. The granular layer in borehole 4 rests immediately upon Sandy clay till that is described as “a glacial deposit that has been reworked in places by past glaciation.”

Malcolm Horne of the MHSTCI and John Dunlop, Heritage Supervisor for the City of Mississauga were consulted regarding whether the construction of the parking lot would be considered sufficient disturbance to remove archaeological potential. All parties agreed, that additional evidence was required to confirm the removal of archaeological potential by parking lot construction. The proponent provided a copy of the Geotechnical report. This report was reviewed by Malcolm Horne and John Dunlop. They both agreed

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Analysis and Conclusions
April 2020

that “The parking lot was clearly graded and therefore it is sufficient to recommend no further work.” The email exchange is included in Appendix 8.

When the above listed criteria are applied to the study area, the archaeological potential for pre-contact Aboriginal, post-contact Aboriginal, and Euro-Canadian sites is deemed to be non-existent. Archaeological potential was determined not to be present for the entire study area because it has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources.

Thus, in accordance with Section 1.3.2 of the MHSTCI 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the Stage 1 archaeological assessment of the proposed infrastructure development at 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario has determined that the study area does not exhibit potential for the identification and recovery of archaeological resources and no further work is recommended.

2.0 ANALYSIS AND CONCLUSIONS

The Stage 1 archaeological assessment was carried out in accordance with the Ministry of Tourism, Culture, and Sport's *Standard's and Guidelines for Consultant Archaeologist's* Government of Ontario 2011). A number of factors are employed in determining archaeological potential. Criteria for pre-contact archaeological potential is focused on physiographic variables that include distance from the nearest source of water, the nature of the nearest source/body of water, distinguishing features in the landscape (e. g. ridges, knolls, eskers, wetlands), the types of soils found within the area of assessment and resource availability. Also considered in determining archaeological potential are known archaeological sites within or in the vicinity of the study area. Historic research provides the basis for determining historic archaeological potential. Additionally, the proximity to historic transportation corridors such as roads, rail and water courses also affect the historic archaeological potential.

Archaeological potential was determined not to be present for the entire study area because it has been subject to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Recommendations
April 2020

3.0 RECOMMENDATIONS

In accordance with Section 1.3.2 “Features indicating that archaeological potential has been removed (‘disturbed’)” of the MHSTCI 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the Stage 1 archaeological assessment of the proposed redevelopment at 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario has determined that the study area does not exhibit potential for the identification and recovery of archaeological resources and no further work is recommended.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Advice on Compliance with Legislation
April 2020

4.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological license.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Bibliography and Sources

April 2020

5.0 BIBLIOGRAPHY AND SOURCES

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**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Bibliography and Sources

April 2020

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**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020

6.0 IMAGES

All images will follow on succeeding pages.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 1: Entrance to the study area west side. View to the north.



Photo 2: Entrance to the study area west side. View to the northeast.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 3: West side of study area. View to the northwest.



Photo 4: Northwest corner of the study area west side. View to the north.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 5: Northern extent the study area west side. View to the east.

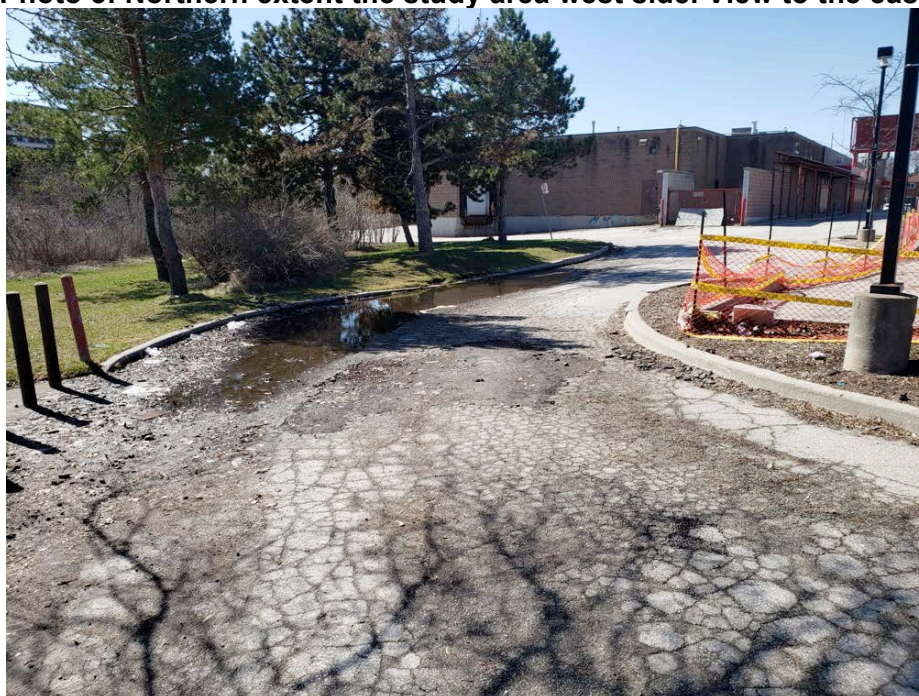


Photo 6: Northeast side of the study area west side. View to the south.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 7: Northeast side of the study area west side. View to the west.



Photo 8: Northeast side of the study area west side. View to the south.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 9: Northeast side of the study area west side. View to the northwest.



Photo 10: East side the study area, north side of building. View to the southeast.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 11: East side the study area, showing west side of building. View to the south.



Photo 12: East side the study area, showing northeast side of building. View to the south.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020



Photo 13: East side the study area, showing east side of building. View to the south.

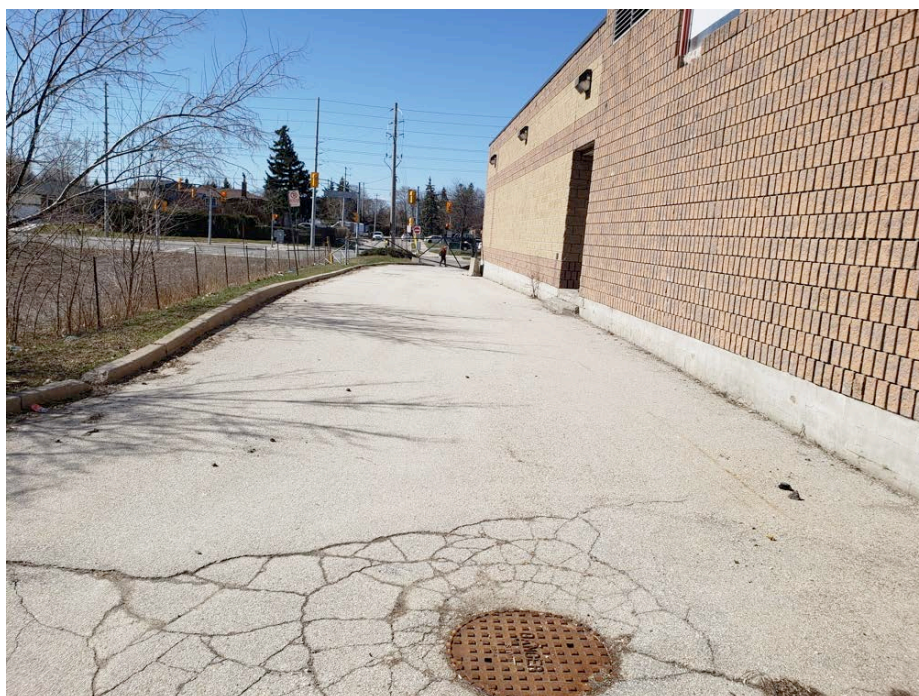


Photo 14: East side the study area, showing northeast side of building. View to the south.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Images

April 2020

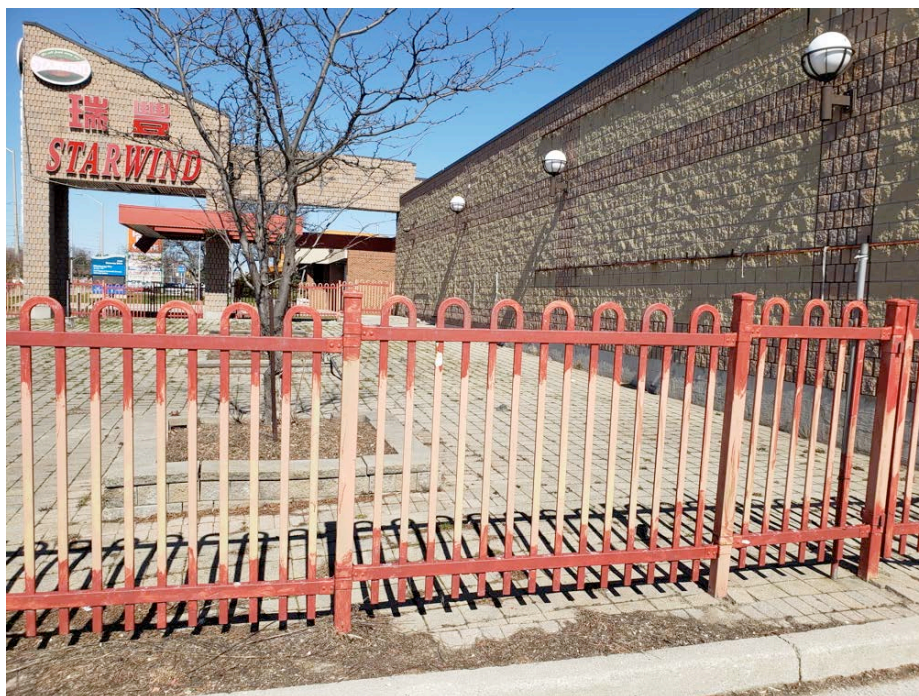


Photo 15: South side of the study area, showing the front of the building on Goreway Drive. View to the west.



Photo 16: South side of the study area, showing the front and west side of the building on Goreway Drive. View to the northeast.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Maps

April 2020

7.0 MAPS

All maps will follow on succeeding pages.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Maps
April 2020

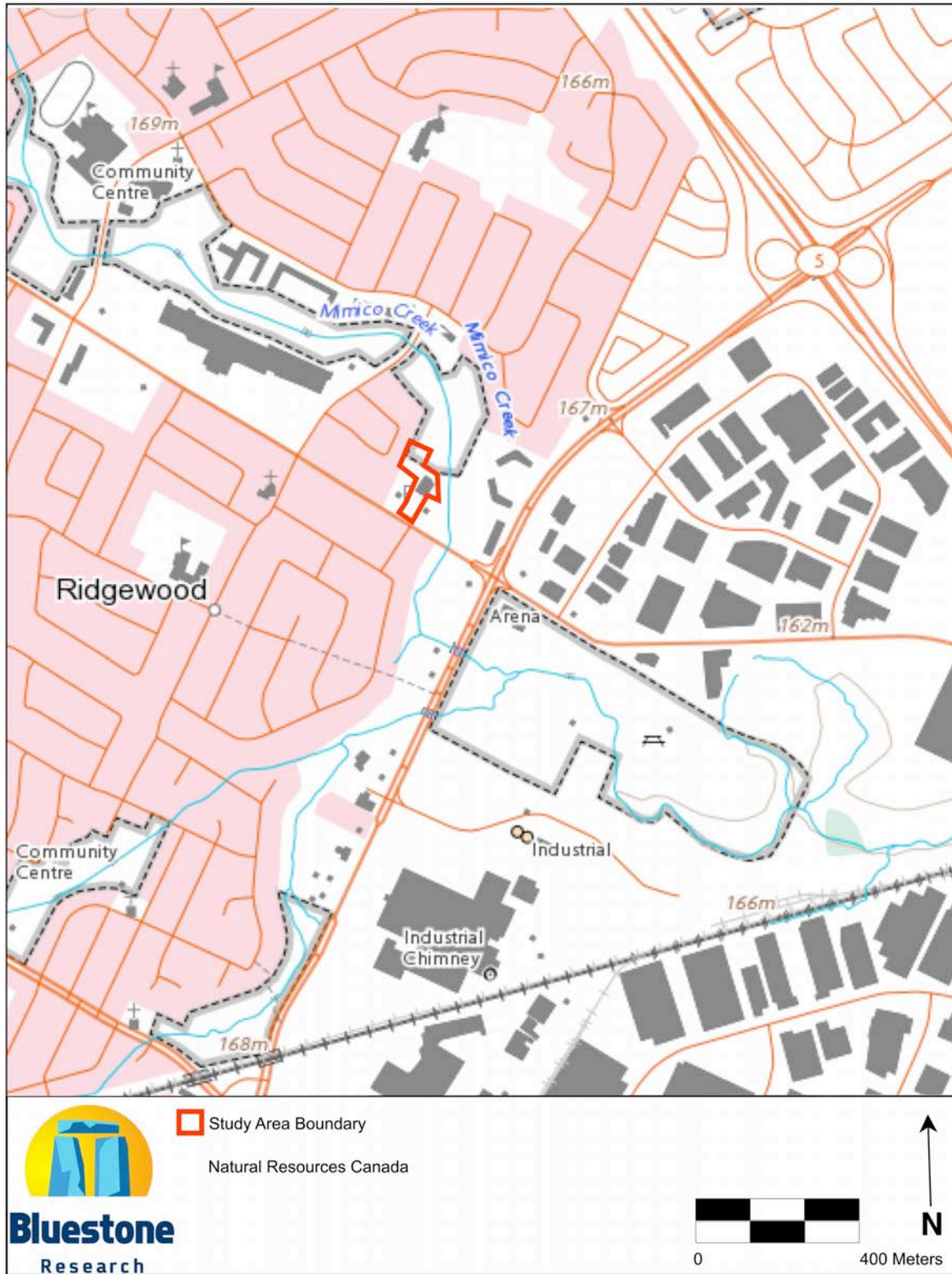


Figure 1: Topographic Map Showing Study Area

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Maps
April 2020



Figure 2: Air Photo Showing Study Area

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020

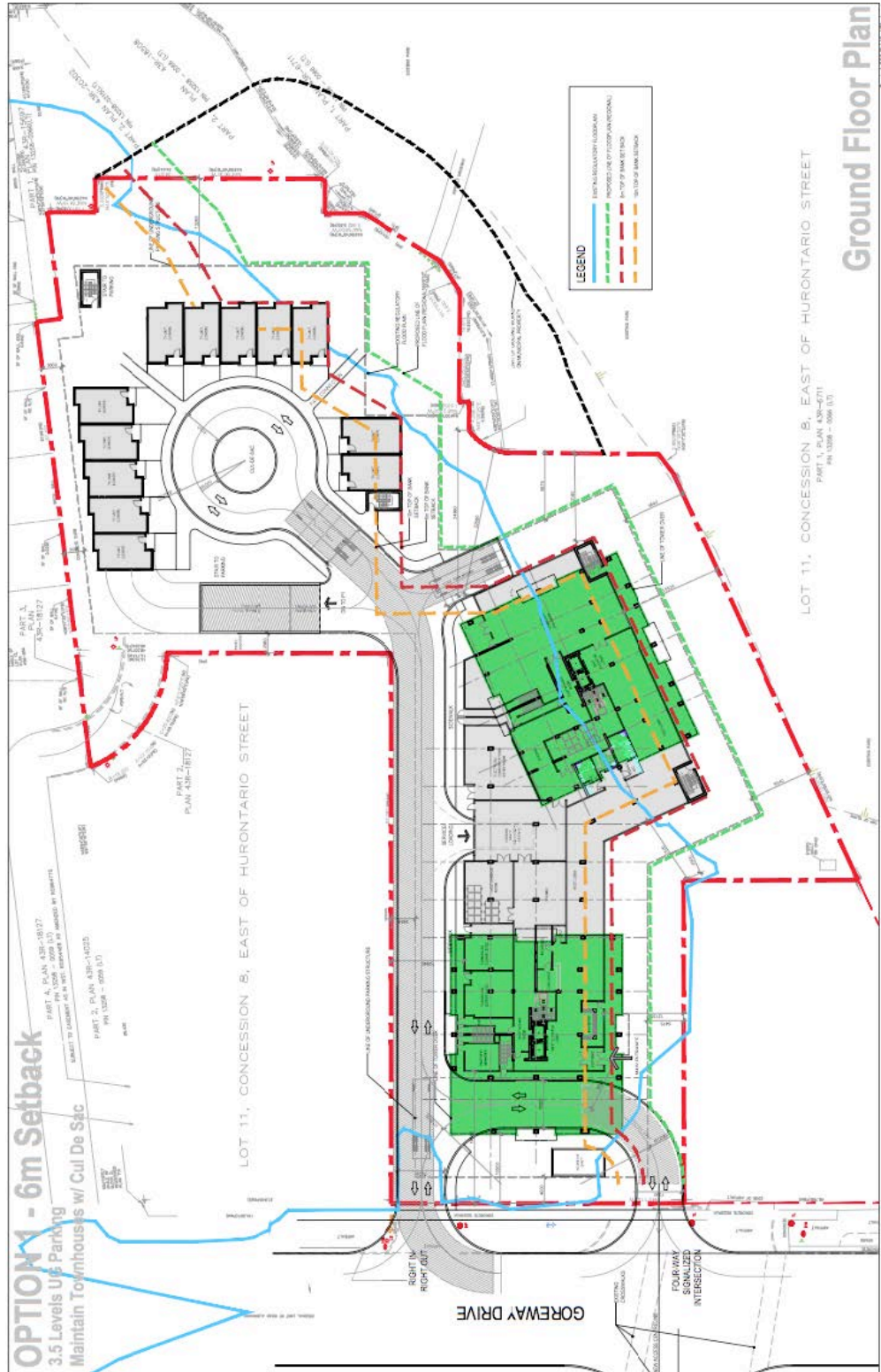


Figure 3: Development Plan

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020

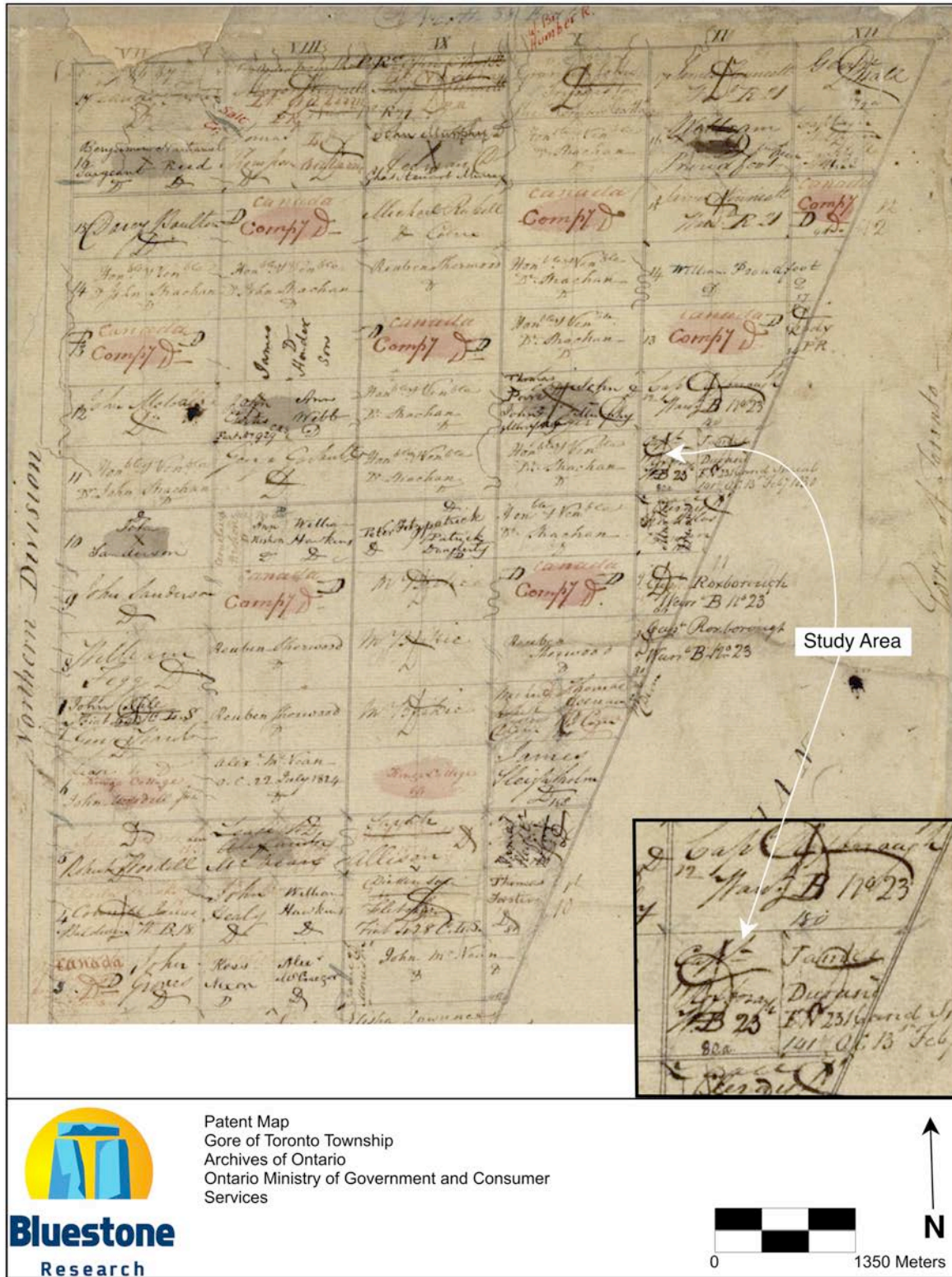


Figure 4: Patent Map. Gore of Toronto Township

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020

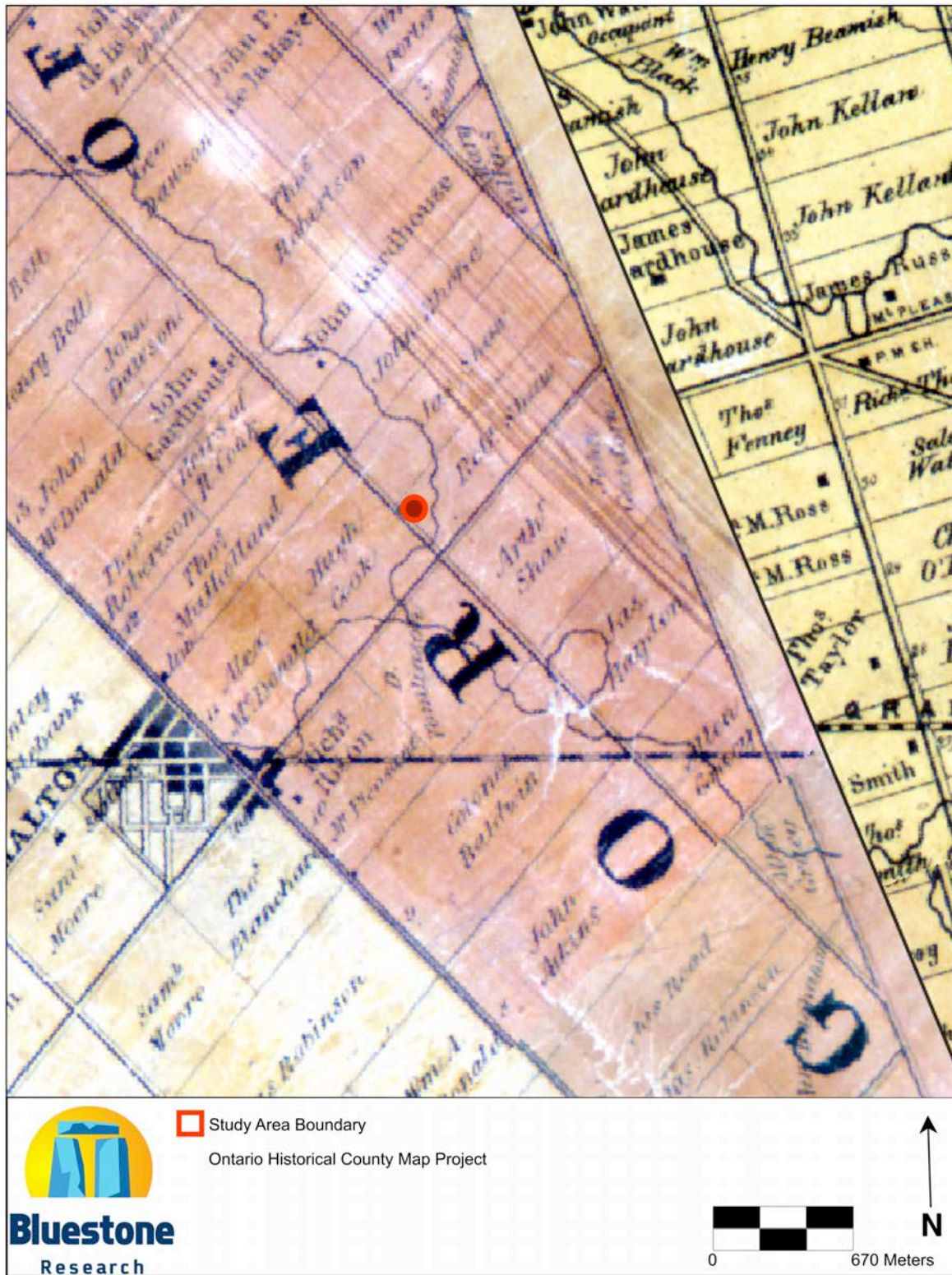


Figure 5: James Shaw Map of Peel County, 1859

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020

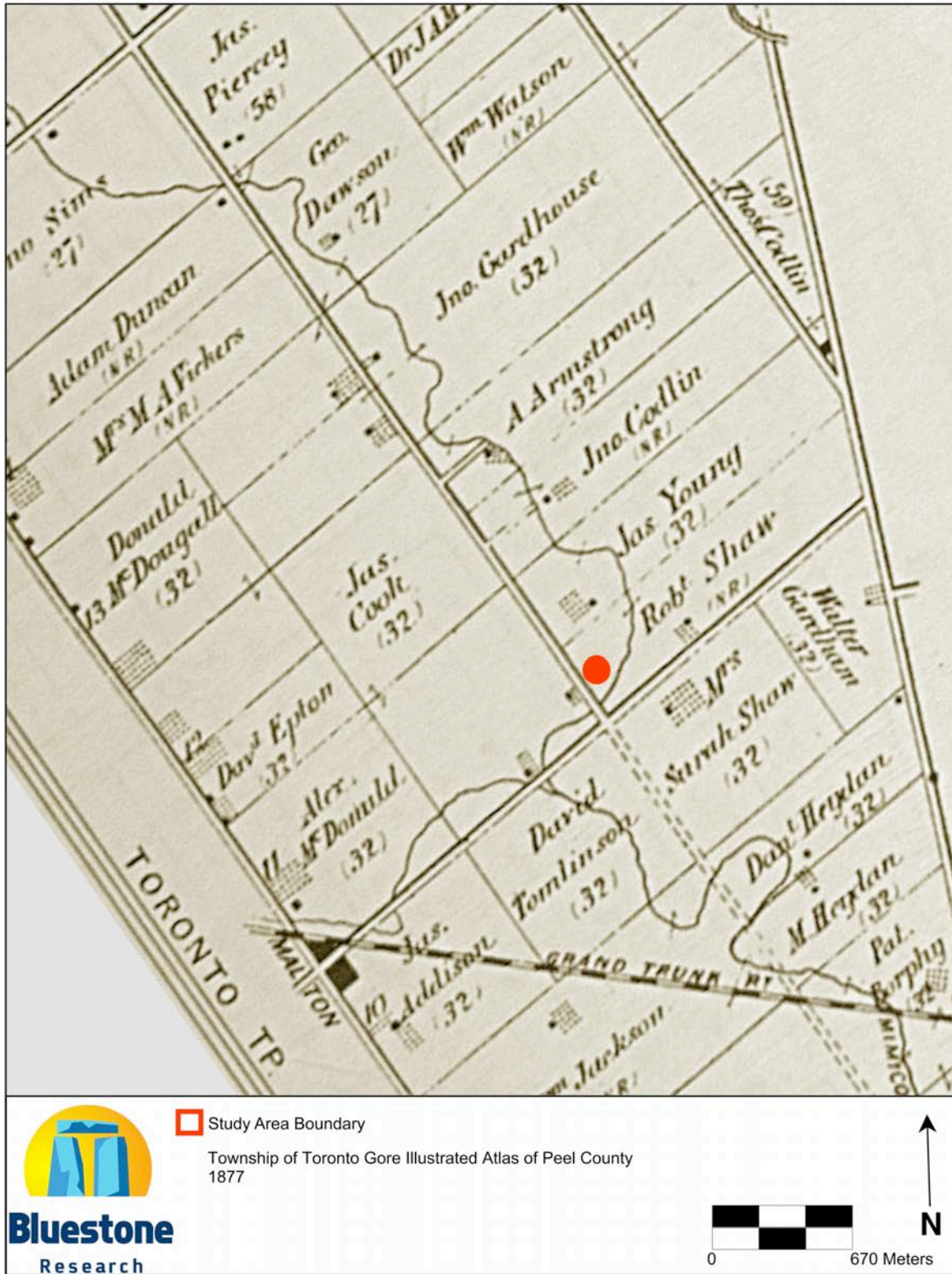


Figure 6: Illustrated Historical Atlas of the County of Peel, 1877

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Maps
April 2020



Figure 7: Air Photo of Study Area, 1954

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020



Figure 8: Air Photo of Study Area, 1975

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Maps
April 2020



Figure 9: Air Photo of Study Area, 1980

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps

April 2020



Figure 10: Air Photo of Study Area, 1989

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020



Figure 11: Air Photo of Study Area, 2000

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020



Figure 12: Photograph Location, Numbers and Directions. Borehole locations are noted as BH1 to BH6

STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE, PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO

Maps
April 2020

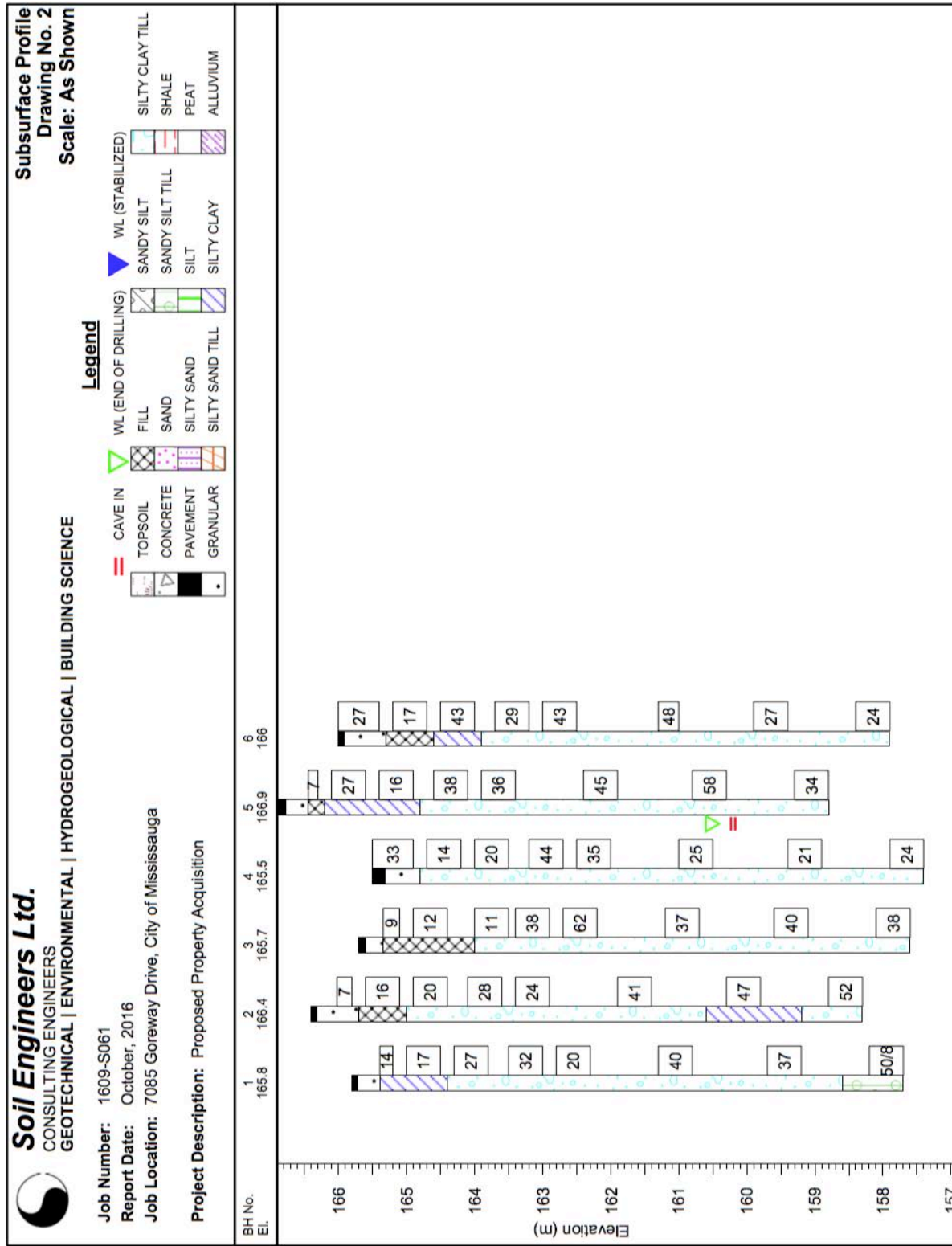


Figure 13: Graphical Representation of all Boreholes from Soil Engineers Ltd.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

8.0 EMAILS

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

From: John Dunlop <John.Dunlop@mississauga.ca>
Subject: RE: Further Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290
Date: April 22, 2020 at 11:47:14 AM EDT
To: "Horne, Malcolm (MHSTCI)" <Malcolm.Horne@ontario.ca>, "allan@bluestonerresearch.ca" <allan@bluestonerresearch.ca>
Cc: "Archaeology (MHSTCI)" <archaeology@ontario.ca>

Hi Allan and Malcolm,

I'm inclined to agree, although I am generally cautious of the terminology used on these borehole reports. 'Fill' is usually not what we, as archaeologists, call fill, but can be natural topsoil.

That being said, in this instance I don't think there is much in the way of natural topsoils, based on these results. The parking lot was clearly graded and therefore it is sufficient to recommend no further work.

Thank you for your thoroughness on this assessment- it is appreciated!

I hope you are both staying safe and healthy.

John



John Dunlop
Supervisor, Heritage Planning
T:289-937-6781
john.dunlop@mississauga.ca

[City of Mississauga](#) | Culture and Heritage Planning Section
Community Services Department, Culture Division
Suite 202, 201 City Centre Drive, Mississauga, ON L5B 4E4

<http://www.mississauga.ca/portal/discover/culture-planning-heritage>

From: Horne, Malcolm (MHSTCI) [<mailto:Malcolm.Horne@ontario.ca>] **Sent:** 2020/04/22 11:27 AM **To:** allan@bluestonerresearch.ca **Cc:** Archaeology (MHSTCI); John Dunlop **Subject:** Further Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290

Hi, Allan. The additional information provided by the geotechnical investigations is sufficient information on which to base a recommendation for no further archaeological assessment in a report that will be accepted by this ministry. Please also confirm with John that this will be sufficient to satisfy the concerns

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

of the City of Mississauga as the approval authority.

Please include a PDF copy of this advice as supplementary documentation to your project report package.

As a standard part of all advice provided to licensees, please note that this advice has been provided by MHSTCI under the assumption that the information submitted by the licensed archaeologist is complete and accurate. The advice provided applies only to the project in question and is not to be used as a precedent for future projects. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or if the information provided by the licensed archaeologist is otherwise found to be inaccurate, incomplete, misleading, or fraudulent.'

Sincerely,

Malcolm Horne
Archaeology Review Officer
Archaeology Program Unit
Ministry of Heritage, Sport, Tourism and Culture Industries
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel. 416-314-7146
Fax 416-314-7175
Email: Malcolm.Horne@ontario.ca

From: allan@bluestonerresearch.ca <allan@bluestonerresearch.ca> **Sent:** April 21, 2020 3:00 PM **To:** John Dunlop <John.Dunlop@mississauga.ca>; Horne, Malcolm (MHSTCI) <Malcolm.Horne@ontario.ca> **Subject:** Re: Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Malcolm and John

More on 7085 Goreway. The proponent provided a Geotech investigation report that includes information about the construction methods of the parking lot. The entire report is attached, but the most revealing points are on page 3, 28, and 29.

Page 3-4 summarizes the top horizons: Pavement, granular fill, and "other fill of unknown origin"

Page 28 shows the locations of the boreholes

Page 29 includes a graphical representation of each borehole. Each borehole shows no topsoil with a layer of pavement, and granular fill.

Do feel this report is solid enough evidence that the topsoil has been removed and that construction disturbance has removed archaeological potential?

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

Many thanks

Allan

Allan Morton PhD RPA
Principal Investigator
Bluestone Research
ON: 905 806 6859
VA: 804 723 8972
www.bluestonereseach.org

On Apr 17, 2020, at 1:29 PM, John Dunlop <John.Dunlop@mississauga.ca> wrote:

Thanks Malcolm and Allan,

I agree- if there are plans or drawings about the parking lot that will be the best solution.

Please let me know if you need anything else, and have a good weekend.

John

From: Horne, Malcolm (MHSTCI) [<mailto:Malcolm.Horne@ontario.ca>] **Sent:** 2020/04/17 1:21 PM **To:** allan@bluestonereseach.ca **Cc:** John Dunlop **Subject:** RE: Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290

Hi, Allan. Drawings of the parking lot or any other documentation would be the best solution. If you end up doing test pits, just get Hannah to switch it to a Stage 1-2 PIF and submit a Stage 1-2 report for the background research and the judgmental test pitting. If it does turn out that you will be monitoring the parking lot removal or another comparable Stage 2 strategy, you can get a further Stage 2 PIF at that point. Depends on how you want to organize your reporting and the results of further background research or any test pitting that you do. You can submit more than one report if you or your proponent want that or wait until everything is done and submit then. Just make sure to add a Stage 2 PIF in there if you move to doing some test pitting. I suggest discussing with Hannah to make sure it goes smoothly; mention my advice and describe situation and she will set you up with what you need. She can contact me if that will help.

Sincerely,

Malcolm Horne
Archaeology Review Officer
Archaeology Program Unit
Ministry of Heritage, Sport, Tourism and Culture Industries

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel. 416-314-7146
Fax 416-314-7175
Email: Malcolm.Horne@ontario.ca

From: allan@bluestoneresearch.ca <allan@bluestoneresearch.ca> **Sent:** April 17, 2020 1:01 PM
To: Horne, Malcolm (MHSTCI) <Malcolm.Horne@ontario.ca> **Cc:** John Dunlop <John.Dunlop@mississauga.ca> **Subject:** Re: Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Malcolm and John

I appreciate your help!

I took photos of the study area on Wednesday, but there was no indication of construction method of the parking lot.

I can excavate some judgmental test pits here and there to check the stratigraphy, but can I do this as part of Stage 1?

Also, the proponent is trying to find some drawings of how the parking lot was made. That might be the answer.

Thanks

Allan

Allan Morton PhD RPA
Principal Investigator
Bluestone Research
ON: 905 806 6859
VA: 804 723 8972
www.bluestoneresearch.org

On Apr 17, 2020, at 12:22 PM, Horne, Malcolm (MHSTCI) <Malcolm.Horne@ontario.ca> wrote:

Hi, Allan. Given the concerns that John has raised, my suggestion would be that you carry out an inspection and some judgmental test pitting. There obviously aren't a lot of places where you are going to be able to put in a test pit; I suggest that there may be some intact soils around the periphery of the paved area. A few test pits along the edges of the paved area could then provide a better picture of the stratigraphy and the construction methods for the parking lot. If the proponent is planning to carry out some geotechnical boreholes or some other testing in preparation for the development, this

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

information may provide insight on the depth of disturbance and the manner of construction.

Sincerely,

Malcolm Horne
Archaeology Review Officer
Archaeology Program Unit
Ministry of Heritage, Sport, Tourism and Culture Industries
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel. 416-314-7146
Fax 416-314-7175
Email: Malcolm.Horne@ontario.ca

From: John Dunlop <John.Dunlop@mississauga.ca> **Sent:** April 17, 2020 10:28
AM To: allan@bluestonererearch.ca **Cc:** Horne, Malcolm (MHSTCI)
<Malcolm.Horne@ontario.ca> **Subject:** RE: Advice re Documentation of Low Potential, 7085 Goreway
Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290

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Hi Allan (and copying Malcolm),

I hope you are both doing well and staying healthy. As Malcolm points out, working from home with small kids sure is a lot of fun, but then we aren't sick so it's by far the better alternative.

I am familiar with this property as it involved significant discussions in requiring the assessment. I hadn't gone in depth on the aerial imagery as you did but City records indicated a single build in the late seventies. My primary concern was related to the construction of the parking lot. All the plans submitted to the City showed none of the usual infrastructure expected in a modern parking lot- catch basins and water management specifically.

Google Earth indicates the presence of some light standards on the majority of the property, but my general concern rests with how the parking garage was built. Given the timeline, it is absolutely plausible that there was grading and a grave pad to achieve a level grade, but the lot could also have been built up on the original grade. It was too difficult to tell based on the review I made of the plans and images available.

The reason for the concern is the proximity to Mimico Creek and several other indigenous sites along the creek which feature burials.

All this to say, I couldn't tell, without doing a thorough Stage 1 myself, whether or not the parking lot would have been considered disturbed or if it is potentially a cap over the original, natural grade. I figured that a property visit may confirm that there is low/no potential, although if this can be determined through other documentation that is acceptable as well.

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
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EMAILS

April 2020

If the recommendation is no further assessment that is completely expected. It's our policy that if I have to actually carry out any of the activities usually done in a Stage 1 (historical map review, aerial imagery review, property visit, etc...), then it's up to a third-party consultant to complete the work on behalf of the proponent.

Thanks,
John

John Dunlop
Supervisor, Heritage Planning
T:289-937-6781
john.dunlop@mississauga.ca

City of Mississauga | Culture and Heritage Planning Section
Community Services Department, Culture Division
Suite 202, 201 City Centre Drive, Mississauga, ON L5B 4E4

<http://www.mississauga.ca/portal/discover/culture-planning-heritage>

From: allan@bluestoneresearch.ca [<mailto:allan@bluestoneresearch.ca>] **Sent:** 2020/04/16 12:24 PM **To:** John Dunlop **Subject:** Fwd: Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290

Hi John

I wonder if you could review the Request for Advice I sent to the Ministry? Malcolm advises me to contact you for your determination or if you have some additional information that might be helpful.

Many thanks

Allan

Allan Morton PhD RPA
Principal Investigator
Bluestone Research
ON: 905 806 6859
VA: 804 723 8972
www.bluestoneresearch.org

Begin forwarded message:

From: "Horne, Malcolm (MHSTCI)" <Malcolm.Horne@ontario.ca>
Subject: Advice re Documentation of Low Potential, 7085 Goreway Drive, Mississauga, P229-0069-2020, MHSTCI File 0012290
Date: April 16, 2020 at 12:01:55 PM EDT

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

To: Allan <allan@bluestonerresearch.ca>

Cc: "Archaeology (MHSTCI)" <archaeology@ontario.ca>

Hi, Allan. I hope the current social distancing isn't affecting you too badly. Though I know that parents of small children are finding it difficult in some cases.

This would certainly appear to be a property with low potential. The aerial photo sequence is particularly convincing given that construction starts only after 1975. However, the City must have made a potential determination to trigger the assessment and the City is currently developing an archaeological master plan. They also do have specific archaeological expertise as part of a substantial heritage planning staff. We therefore advise that you contact John Dunlop at the City of Mississauga to confirm whether there is any additional information that they may have; if not, then our advice is that in this case you do clearly have enough to demonstrate low potential.

Please include a PDF copy of this advice as supplementary documentation to your project report package.

As a standard part of all advice provided to licensees, please note that this advice has been provided by MHSTCI under the assumption that the information submitted by the licensed archaeologist is complete and accurate. The advice provided applies only to the project in question and is not to be used as a precedent for future projects. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or if the information provided by the licensed archaeologist is otherwise found to be inaccurate, incomplete, misleading, or fraudulent.

Sincerely,

Malcolm Horne
Archaeology Review Officer
Archaeology Program Unit
Ministry of Heritage, Sport, Tourism and Culture Industries
401 Bay Street, Suite 1700
Toronto ON M7A 0A7
Tel. 416-314-7146
Fax 416-314-7175
Email: Malcolm.Horne@ontario.ca

From: allan@bluestonerresearch.ca <allan@bluestonerresearch.ca> **Sent:** April 14, 2020 2:15 PM
To: Archaeology (MHSTCI) <archaeology@ontario.ca> **Subject:** Request for advice - P229-0069-2020

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Please see the attached series of maps relating to "Stage 1 Archaeological Assessment (Background Research) of 7085 Goreway Drive, Part of Lot 11, Concession 8, East of Hurontario Street, Historic Gore of Toronto Township, City of Mississauga, Regional Municipality of Peel, Ontario"

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

EMAILS

April 2020

The study area is located within 30 metres of Mimico creek but is literally 100% covered in parking lot and a commercial building. The soil is poorly drained Malton Clay. Although it is on a historic transportation route, the historic maps show no structures.

The creation of a modern parking lot usually requires the removal of topsoil, the application of crushed stone as a base and a capping of asphalt.

As a result, the recommendation would be, "the study area is completely disturbed and has lost archaeological potential. No further archaeological work is recommended for the study area."

Is this recommendation in keeping with a large parking lot?

Many thanks

Allan Morton PhD RPA
Principal Investigator
Bluestone Research
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**STAGE 1 ARCHAEOLOGICAL ASSESSMENT (BACKGROUND RESEARCH) OF 7085 GOREWAY DRIVE,
PART OF LOT 11, CONCESSION 8, EAST OF HURONTARIO STREET, HISTORIC GORE OF TORONTO
TOWNSHIP, CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL, ONTARIO**

Geotechnical Report, Soil Engineers Ltd.

April 2020

9.0 GEOTECHNICAL REPORT, SOIL ENGINEERS LTD.



Soil Engineers Ltd.

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FAX: (705) 721-7864	FAX: (905) 542-2769	FAX: (905) 725-1315	FAX: (416) 754-8516	FAX: (705) 684-8522	FAX: (905) 725-1315	FAX: (905) 542-2769

October 17, 2016

Reference No. 1609-S061

Page 1 of 16

Redwood Properties
330 New Huntington Road, Suite 201
Woodbridge, Ontario
L4H 4C9

Attention: Mr. Richard Aubry

**Re: Geotechnical Investigation
Proposed Property Acquisition
7085 Goreway Drive
City of Mississauga**

Dear Sir:

In accordance with your written authorization dated September 13, 2016, we have completed a borehole investigation for the captioned project and herein present our findings and recommendations.

The purpose of the investigation was to reveal the subsurface conditions and to determine the engineering properties of the disclosed soils for future land development. This investigation is preliminary in nature and the results must be further reviewed once the site grading and details of the proposed development are finalized to assess the requirement for additional borehole investigation.



FIELD WORK

The field work, consisting of 6 boreholes to a depth of 8.1 m, was performed on September 23 and 26, 2016, at the locations shown on the Borehole Location Plan, Drawing No. 1.

The subject site is an existing supermarket, situated northwest of Highway 427 and Derry Road East, in the City of Mississauga. The investigated areas are asphalt-paved, located at the building perimeter and at the existing parking lot. The ground surface is relatively flat and level, with minor undulations.

The holes were advanced at intervals to the sampling depths by a truck- or track-mounted, continuous-flight power-auger machine equipped for soil sampling. Standard Penetration Tests, using the procedures described on the enclosed “List of Abbreviations and Terms”, were performed at the sampling depths. The test results are recorded as the Standard Penetration Resistance (or ‘N’ values) of the subsoil. The relative density of the granular strata and the consistency of the cohesive strata are inferred from the ‘N’ values. Split-spoon samples were recovered for soil classification and laboratory testing.

The field work was supervised and the findings were recorded by a Geotechnical Technician.

The geodetic elevation at each of the borehole locations was obtained by Soil Engineers Ltd. using hand-held Global Navigation Satellite System (GNSS) surveying equipment (Trimble Geoexplorer 6000), accurate to within 0.1 m.



SUBSURFACE CONDITIONS

Detailed descriptions of the encountered subsurface conditions are presented on the Borehole Logs, comprising Figures 1 to 6, inclusive. The revealed stratigraphy is plotted on the Subsurface Profile, Drawing No. 2, and the engineering properties of the disclosed soils are discussed herein.

The investigation has disclosed that beneath the existing pavement structure, and a layer of earth fill in places, the site is underlain by strata of silty clay, silty clay till and sandy silt till.

Pavement Structure (All Boreholes)

The revealed pavement structure consists of an asphaltic concrete layer, 80 to 180 mm in thickness, overlying a layer of granular fill, 250 to 620 mm thick. The granular fill consists of gravel with silty sand and silt. The water content values range from 4% to 12%, with a median of 6%, indicating that the granular fill is in a damp to wet condition.

A grain size analysis was performed on 1 sample of the granular fill. The result is plotted on Figure 7 and it shows that the sample meets the Gradation Requirements of the OPS Specifications for Granular 'B'. Further sampling and testing of the granular fill material should be conducted to assess its suitability for reuse as a granular sub-base for pavement construction. Nonetheless, it can be used as general backfill, bedding material, or subgrade stabilization.



Earth Fill (Boreholes 2, 3, 5 and 6)

The earth fill was found extending to depths ranging from 0.7 to 1.7 m below the pavement surface. The fill consists of silty clay material.

The obtained 'N' values range from 7 to 17, with a median of 12 blows per 30 cm of penetration, indicating that the fill was randomly placed with nominal compaction and has since partially self-consolidated. Its relative density is non-uniform and, in places, loose; therefore, it is unsuitable to support structures sensitive to settlement.

The natural water content values range from 16% to 22%, with a median of 20%, indicating that the fill is in a moist to very moist, generally very moist condition, which corresponds with our sample examinations.

A grain size analysis was performed on 1 representative sample of the earth fill; the result is plotted on Figure 8.

Due to its unknown history and non-uniform density, the earth fill is considered to be unsuitable for supporting structures. For structural use, the fill must be subexcavated, inspected, sorted free of any deleterious material, if detected, and properly compacted.

One must be aware that the samples retrieved from boreholes 10 cm in diameter may not be truly representative of the geotechnical and environmental quality of the fill, and do not indicate whether the topsoil beneath the earth fill was completely stripped. This should be further assessed by laboratory testing and/or test pits.



Silty Clay (Boreholes 1, 2, 5 and 6)

The silty clay was encountered at various depths and it is laminated with sand and silt seams and layers, showing that it is a glaciolacustrine deposit. The clay layer is weathered to a depth of 0.7 m below the pavement surface at Borehole 1.

The obtained 'N' values range from 14 to 47, with a median of 22 blows per 30 cm of penetration, indicating that the consistency of the clay is stiff to hard, being generally very stiff.

The natural water content values range from 10% to 24%, with a median of 19%, indicating that the silty clay is in a damp to very moist, generally moist condition, which corresponds with our sample examinations.

Based on the above findings, the following engineering properties are deduced:

- High frost susceptibility and high soil-adsfreezing potential.
- Low water erodibility.
- Low permeability, with an estimated coefficient of permeability of 10^{-7} cm/sec, an estimated percolation rate of 80 + min/cm, and runoff coefficients of:

Slope	
0% - 2%	0.15
2% - 6%	0.20
6% +	0.28

- A cohesive-frictional soil, its shear strength is derived from consistency and augmented by the internal friction of the silt. Its shear strength is moisture dependent.



- In excavation, the clay will be prone to sloughing if it is exposed for prolonged periods in steep cuts. This would generally be initiated by infiltrating precipitation or groundwater seeping out from the silt and fine sand layers.
- A very poor pavement-supportive material, with an estimated California Bearing Ratio (CBR) value of 3% or less.
- Moderately high corrosivity to buried metal, with an estimated electrical resistivity of 2500 ohm-cm.

Silty Clay Till (All Boreholes)

The silty clay till was encountered at various depths and extends to the maximum investigated depth at Boreholes 2, 3, 4, 5 and 6. It consists of a random mixture of soils; the particle sizes range from clay to gravel, with the clay fraction exerting the dominant influence on its soil properties. The structure of the clay till is heterogeneous and amorphous, showing it is a glacial deposit that has been reworked in places by the past glaciation. The clay till is weathered to depths of 2.2 m and 1.4 m below the pavement surface at Boreholes 3 and 4, respectively.

The samples were found to contain occasional wet sand and silt seams and layers. The till is embedded with occasional cobbles and boulders.

The obtained 'N' values range from 11 to 62, with a median of 35 blows per 30 cm of penetration, showing the consistency of the clay till is stiff to hard, being generally hard. The stiff clay till occurs within the weathered zone.

The Atterberg Limits of 3 representative samples and the natural water content values of all the samples were determined; the results are plotted on the Borehole Logs and summarized below:



Liquid Limit	25%, 28% and 30%
Plastic Limit	16% and 17%
Natural Water Content	9% to 19% (median 13%)

The results show that the clay till is a cohesive material with low plasticity. The natural water content value generally lies below its plastic limits, confirming the generally hard consistency of the till as determined by the 'N' values.

Grain size analyses were performed on 3 representative samples of the silty clay till. The results are plotted on Figure 9.

Based on the above findings, the soil engineering properties pertaining to the project are given below:

- High frost susceptibility and low water erodibility.
- Low permeability, with an estimated coefficient of permeability of 10^{-7} cm/sec, an estimated percolation rate of 80 min/cm, and runoff coefficients of:

Slope	
0% - 2%	0.15
2% - 6%	0.20
6% +	0.28

- A cohesive soil, its shear strength is primarily derived from consistency which is inversely related to its moisture content. It contains sand; therefore, its shear strength is augmented by internal friction.
- It will generally be stable in a relatively steep cut; however, prolonged exposure will allow the fissures in the weathered zone and the wet sand and



silt seams and layers to become saturated, which may lead to localized sloughing.

- A very poor pavement-supportive material, with an estimated CBR value of 3% or less.
- Moderately high corrosivity to buried metal, with an estimated electrical resistivity of 3000 ohm·cm.

Sandy Silt Till (Borehole 1)

The sandy silt till was generally encountered at the lower zone of the stratigraphy and extends to the maximum investigated depth. It consists of a random mixture of soil particle sizes ranging from clay to gravel, with the silt being the predominant fraction. Its structure is heterogeneous, indicating it is a glacial deposit.

Hard resistance to augering was encountered in places, indicating the presence of cobbles and boulders. Occasional wet sand and silt seams and layers were also found in the till mantle.

The obtained 'N' value is 50 blows per 8 cm of penetration, showing that the relative density of the till is very dense.

The natural water content was determined, and the result is plotted on the Borehole Log; the value is 14%, showing the sandy silt till is in a moist condition.

A grain size analysis was performed on the till sample and the result is plotted on Figure 10.



The deduced engineering properties pertaining to the project are given below:

- Moderately high frost susceptibility and moderately low water erodibility.
- Low permeability, with an estimated coefficient of permeability of 10^{-6} cm/sec, depending on the clay and silt content, an estimated percolation rate of 50 to 65 min/cm, and runoff coefficients of:

Slope

0% - 2%	0.15
2% - 6%	0.20
6% +	0.28

- A frictional-cohesive soil, its shear strength is density dependent and is augmented by cementation and cohesion.
- It will slough slowly if submerged in an unconfined state, or from an open-face cut under seepage conditions, particularly in the zone where wet sand and silt layers are prevalent.
- A fair pavement-supportive material, with an estimated CBR value of 8% to 10%.
- Moderately low corrosivity to buried metal, an estimated electrical resistivity of 5000 ohm·cm.

GROUNDWATER CONDITIONS

Groundwater and cave-in were encountered at depths 6.4 m and 6.7 m, respectively, below the prevailing pavement surface at Borehole 5; all other boreholes remained dry upon completion of field work. The measured groundwater level has likely resulted from infiltrated precipitation that was trapped in the fissures of the earth fill or in the sand and silt layers embedded in the till. The groundwater level will fluctuate with the seasons.



The colour changes from brown to grey at depths of 3.0 m and 4.5 m below the prevailing ground surface, indicating that the brown soils in the upper zone have oxidized.

The groundwater yield from the silty clay and tills, due to their low to relatively low permeability, will be small and limited.

ASSESSMENT AND RECOMMENDATIONS

Based on the borehole findings, the geotechnical considerations pertaining to the general construction of the project are presented herein:

The revealed subsurface condition is suitable for development of low-density residences and/or low- or mid-rise buildings. For high-rise buildings with multiple levels of underground parking, it is recommended that deeper boreholes be drilled to determine the founding conditions beneath the basement/underground parking.

The existing earth fill is not suitable to support foundation loads. Where earth fill is required to raise the site or where extended footings are necessary, the existing earth fill can be replaced with and/or upgraded to engineered fill status for normal footings, slab-on-grade and underground services construction. Conventional footings bearing on engineered fill can be designed with a Maximum Allowable Soil Pressure (SLS) of 150 kPa and a Factored Ultimate Bearing Pressure (ULS) of 250 kPa.

The native subsoil is suitable for the construction of normal spread and strip footings. The foundations should be placed beneath the earth fill and weathered soil, onto the sound natural soils. The recommended soil bearing pressures for use



in the footing design, together with the corresponding suitable founding levels, are presented in the following table:

BH No.	Recommended Maximum Allowable Soil Pressure (SLS)/ Factored Ultimate Bearing Pressure (ULS) and Suitable Founding Levels					
	150 kPa (SLS) 250 kPa (ULS)		300 kPa (SLS) 480 kPa (ULS)		400 kPa (SLS) 640 kPa (ULS)	
	Depth (m)	El. (m)	Depth (m)	El. (m)	Depth (m)	El. (m)
1	1.0 or +	164.8 or -	1.6 or +	164.2 or -	4.6 or +	161.2 or -
2	1.6 or +	164.8 or -	2.4 or +	164.0 or -	4.6 or +	161.8 or -
3	2.0 or +	163.7 or -	-	-	2.4 or +	163.3 or -
4	1.0 or +	164.5 or -	2.4 or +	163.1 or -	-	-
5	1.0 or +	165.9 or -	-	-	2.4 or +	164.5 or -
6	-	-	1.6 or +	164.4 or -	-	-

The recommended soil pressures (SLS) for the normal foundations incorporate a safety factor of 3. The total and differential settlements of the footings are estimated to be 25 mm and 15 mm, respectively.

Foundations exposed to weathering, or in unheated areas, should have at least 1.2 m of earth cover for protection against frost action.

For basement construction, perimeter subdrains and dampproofing of the foundation walls may be required. All the subdrains must be encased in a fabric filter to protect them against blockage by silting, and must be connected to a positive outlet.



Some of the occurring soils are frost susceptible and with high soil-adfreezing potential. Special measures must be incorporated into the building construction to prevent serious damage due to soil adfreezing.

The design of the foundations should meet the requirements specified in the latest Ontario Building Code, and the structure should be designed to resist an earthquake force using Site Classification 'D' (stiff soil).

Due to the presence of the earth fill and weathered soil, the footing subgrade must be inspected by either a geotechnical engineer, or a geotechnical technician under the supervision of a geotechnical engineer, to ensure that the subgrade conditions are compatible with the foundation design requirements.

For slab-on-grade construction, the existing earth fill and weathered soil must be subexcavated, inspected and properly recompacted to at least 98% of its maximum Standard Proctor dry density. The slab should be constructed on a granular base, 20 cm thick, consisting of 20-mm Crusher-Run Limestone, or equivalent, compacted to its maximum Standard Proctor dry density.

A Modulus of Subgrade Reaction of 30 MPa/m can be used for the design of the floor slab founded on engineered fill or on sound natural soils.

A Class 'B' bedding, consisting of compacted 20-mm Crusher-Run Limestone, is recommended for the construction of the underground services. Where water-bearing sand and silt seams and layers are present, the sewer joints should be leak-proof, or wrapped with an appropriate waterproof membrane to prevent subgrade migration.



Based on the borehole findings, the recommended pavement design is given in the following table:

Course	Thickness (mm)	OPS Specifications
Asphalt Surface	40	HL-3
Asphalt Binder	50	HL-8
Granular Base	150	20-mm Crusher-Run Limestone or equivalent
Granular Sub-base Parking Access Roads/Fire Route	300 400	50-mm Crusher-Run Limestone or equivalent

The existing asphaltic concrete can be pulverized and mixed with Granular 'A' and reused as Granular 'A' or 'B' provided the gradation meets the OPS Specifications. The existing granular fill, if carefully salvaged, can be reused for subgrade stabilization or structural backfill. In using the granular fill as granular sub-base for road pavement construction, it should be further assessed by laboratory testing on bulk samples collected during construction.

In preparation of the subgrade, the surface should be proof-rolled. The weathered soil and any soft subgrade should be subexcavated and replaced by properly compacted, organic-free earth fill or granular materials. Subdrains should be properly installed below the concrete curbs or gutters on both sides of the roadway. The subdrains should be connected to catch basins where water can be removed.

The recommended soil parameters for the project design are given in the following table:



<u>Unit Weight and Bulk Factor</u>	Unit Weight (kN/m³)	<u>Estimated Bulk Factor</u>	
	Bulk	Loose	Compacted
Earth Fill and Weathered Soil	20.5	1.20	1.00
Sound Tills	22.0	1.33	1.05
Silty Clay	20.5	1.30	0.98

	<u>Lateral Earth Pressure Coefficients</u>		
	Active K_a	At Rest K_o	Passive K_p
Earth Fill and Weathered Soil	0.45	0.55	2.22
Silty Clay and Sound Tills	0.40	0.50	2.50

Excavation should be carried out in accordance with Ontario Regulation 213/91.

Excavations in excess of 1.2 m should be sloped at 1 vertical:1 horizontal for stability.

The tills contain occasional boulders. Extra effort and a properly equipped backhoe will be required for excavation.

For excavation purposes, the types of soils are classified in the following table:

Material	Type
Sound Tills	2
Earth Fill, Silty Clay and Weathered Soil	3

The groundwater yield from the silty clay and tills, due to their low to relatively low permeability, is expected to be small and limited and can generally be controlled by pumping from sumps.



Prospective contractors must assess the in situ subsurface conditions prior to excavation by performing test cuts to at least 0.5 m below the intended bottom of excavation. These test pits should be allowed to remain open for a period of at least 4 hours to assess the trenching conditions.

This geotechnical investigation report is preliminary in nature. The above recommendations must be further reviewed once the detail design for the project is available. If required, additional borehole investigation will need to be carried out for the project.



LIMITATIONS OF REPORT

This report was prepared by Soil Engineers Ltd. for the account of Redwood Properties, and for review by their designated agents, financial institutions, and government agencies. Use of the report is subject to the conditions and limitations of the contractual agreement. The material in it reflects the judgment of Frank Lee, P.Eng., and Bernard Lee, P.Eng., in light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, and/or any reliance on decisions to be made based on it are the responsibility of such Third Parties. Soil Engineers Ltd. accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

SOIL ENGINEERS LTD.

Frank Lee, P.Eng.
FL/BL:dd



Bernard Lee, P.Eng.

ENCLOSURES

Borehole Logs	Figures 1 to 6
Grain Size Distribution Graphs	Figures 7 to 10
Borehole Location Plan	Drawing No. 1
Subsurface Profile	Drawing No. 2

LIST OF ABBREVIATIONS AND DESCRIPTION OF TERMS

The abbreviations and terms commonly employed on the borehole logs and figures, and in the text of the report, are as follows:

SAMPLE TYPES

AS	Auger sample
CS	Chunk sample
DO	Drive open (split spoon)
DS	Denison type sample
FS	Foil sample
RC	Rock core (with size and percentage recovery)
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

SOIL DESCRIPTION

Cohesionless Soils:

<u>'N'</u> (blows/ft)	<u>Relative Density</u>
0 to 4	very loose
4 to 10	loose
10 to 30	compact
30 to 50	dense
over 50	very dense

Cohesive Soils:

PENETRATION RESISTANCE

Dynamic Cone Penetration Resistance:

A continuous profile showing the number of blows for each foot of penetration of a 2-inch diameter, 90° point cone driven by a 140-pound hammer falling 30 inches.

Plotted as '—●—'

Undrained Shear Strength (ksf)

less than 0.25
0.25 to 0.50
0.50 to 1.0
1.0 to 2.0
2.0 to 4.0
over 4.0

'N' (blows/ft)

0 to 2
2 to 4
4 to 8
8 to 16
16 to 32
over 32

Consistency

very soft
soft
firm
stiff
very stiff
hard

Standard Penetration Resistance or 'N' Value:

The number of blows of a 140-pound hammer falling 30 inches required to advance a 2-inch O.D. drive open sampler one foot into undisturbed soil.

Plotted as '○'

WH	Sampler advanced by static weight
PH	Sampler advanced by hydraulic pressure
PM	Sampler advanced by manual pressure
NP	No penetration

Method of Determination of Undrained Shear Strength of Cohesive Soils:

x 0.0 Field vane test in borehole; the number denotes the sensitivity to remoulding

△ Laboratory vane test

□ Compression test in laboratory

For a saturated cohesive soil, the undrained shear strength is taken as one half of the undrained compressive strength

METRIC CONVERSION FACTORS

1 ft = 0.3048 metres

1lb = 0.454 kg

1 inch = 25.4 mm

1ksf = 47.88 kPa



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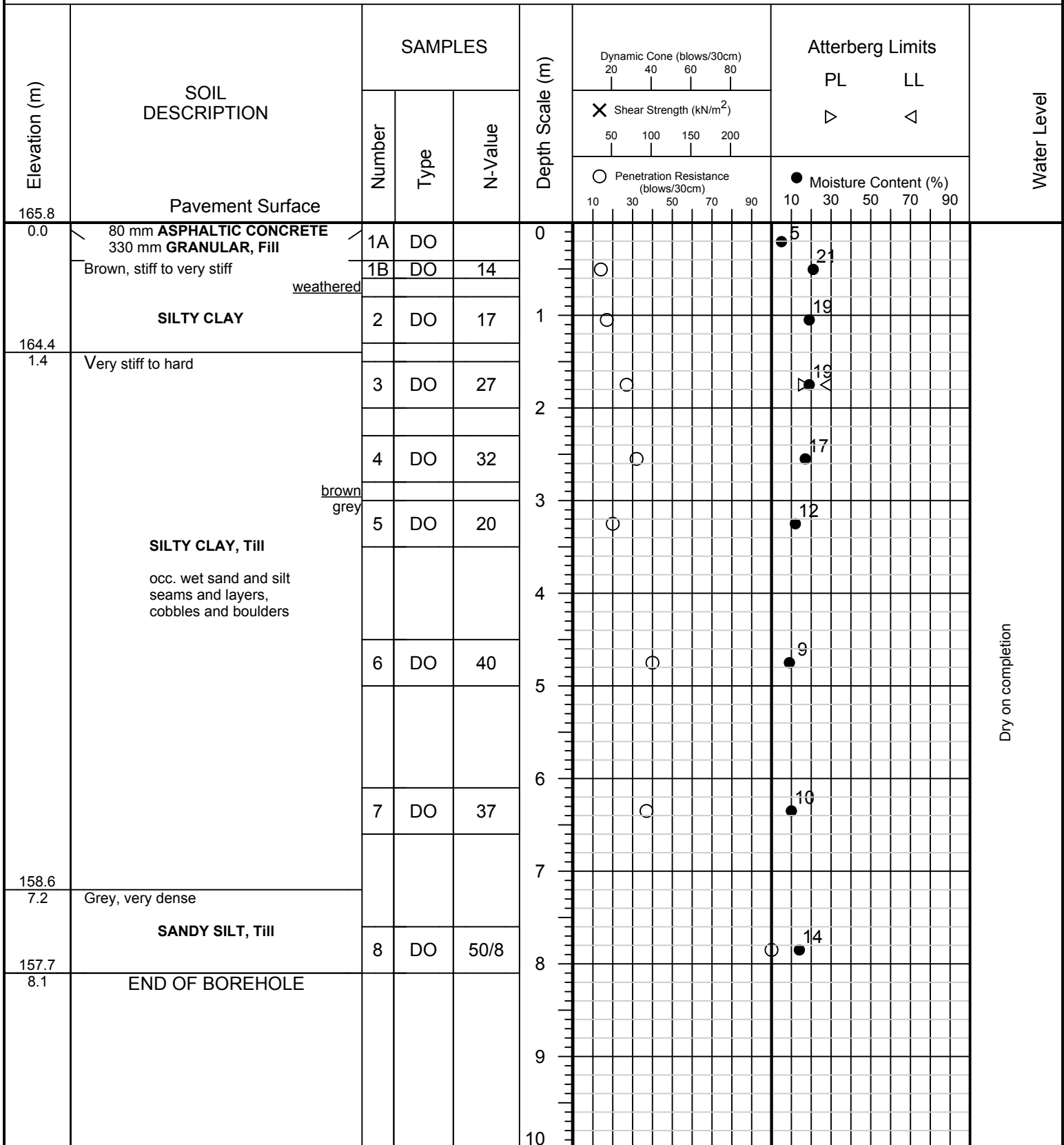
GEOTECHNICAL • ENVIRONMENTAL • HYDROGEOLOGICAL • BUILDING SCIENCE

Project Description: Proposed Property Acquisition

Job Location: 7085 Goreway Drive, City of Mississauga

Method of Boring: Flight-Auger

Drilling Date: September 26, 2016



Dry on completion

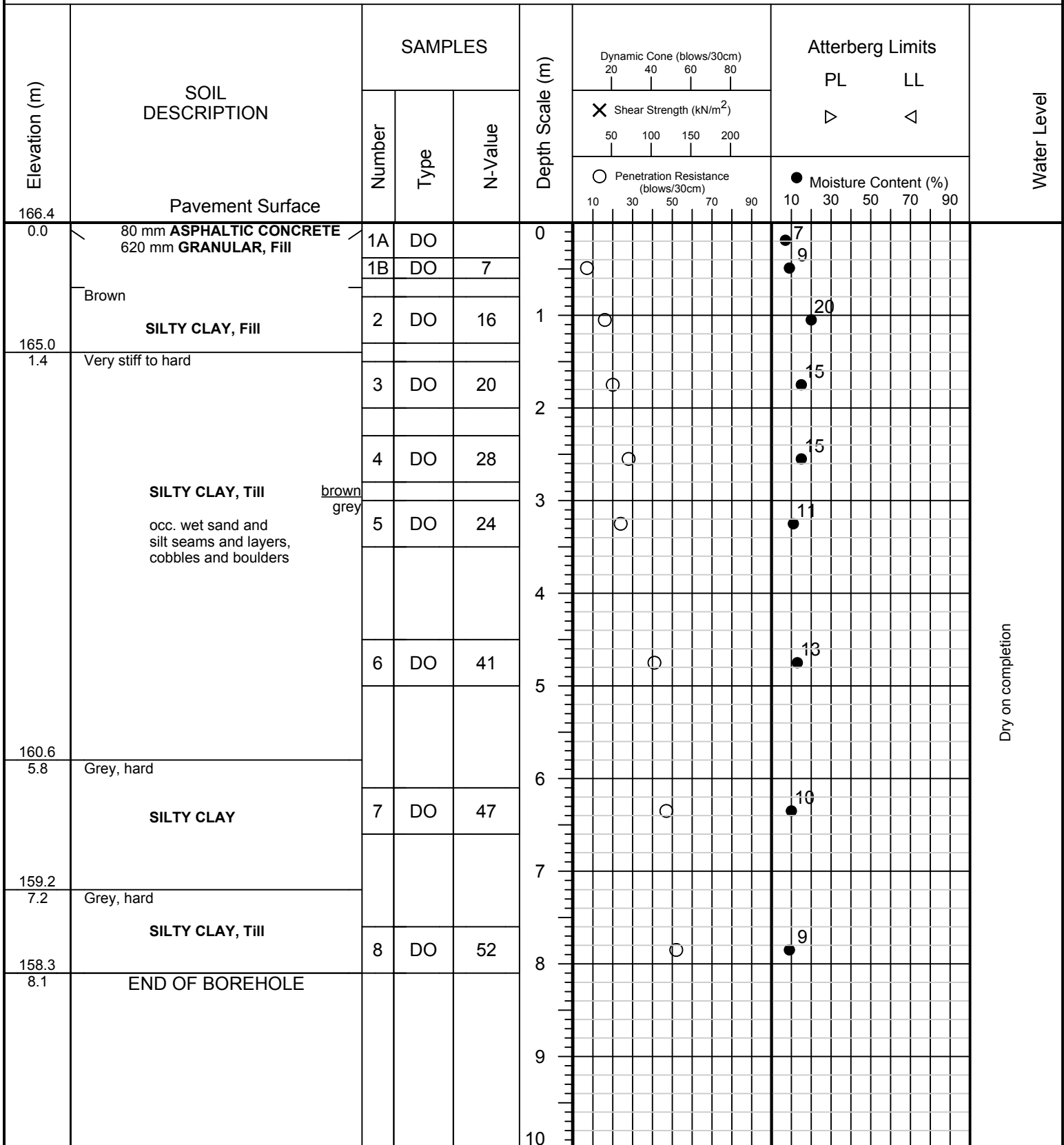


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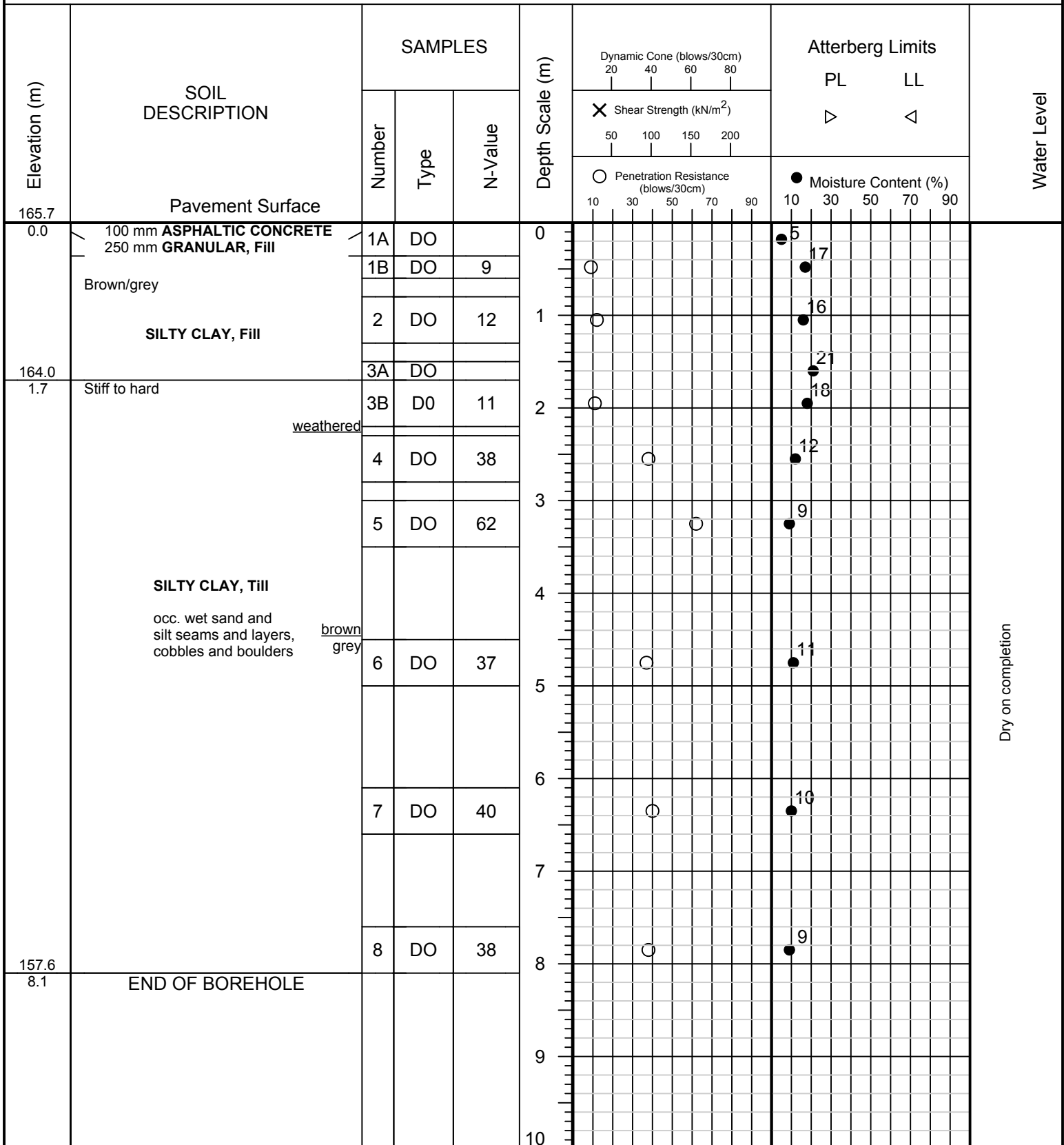


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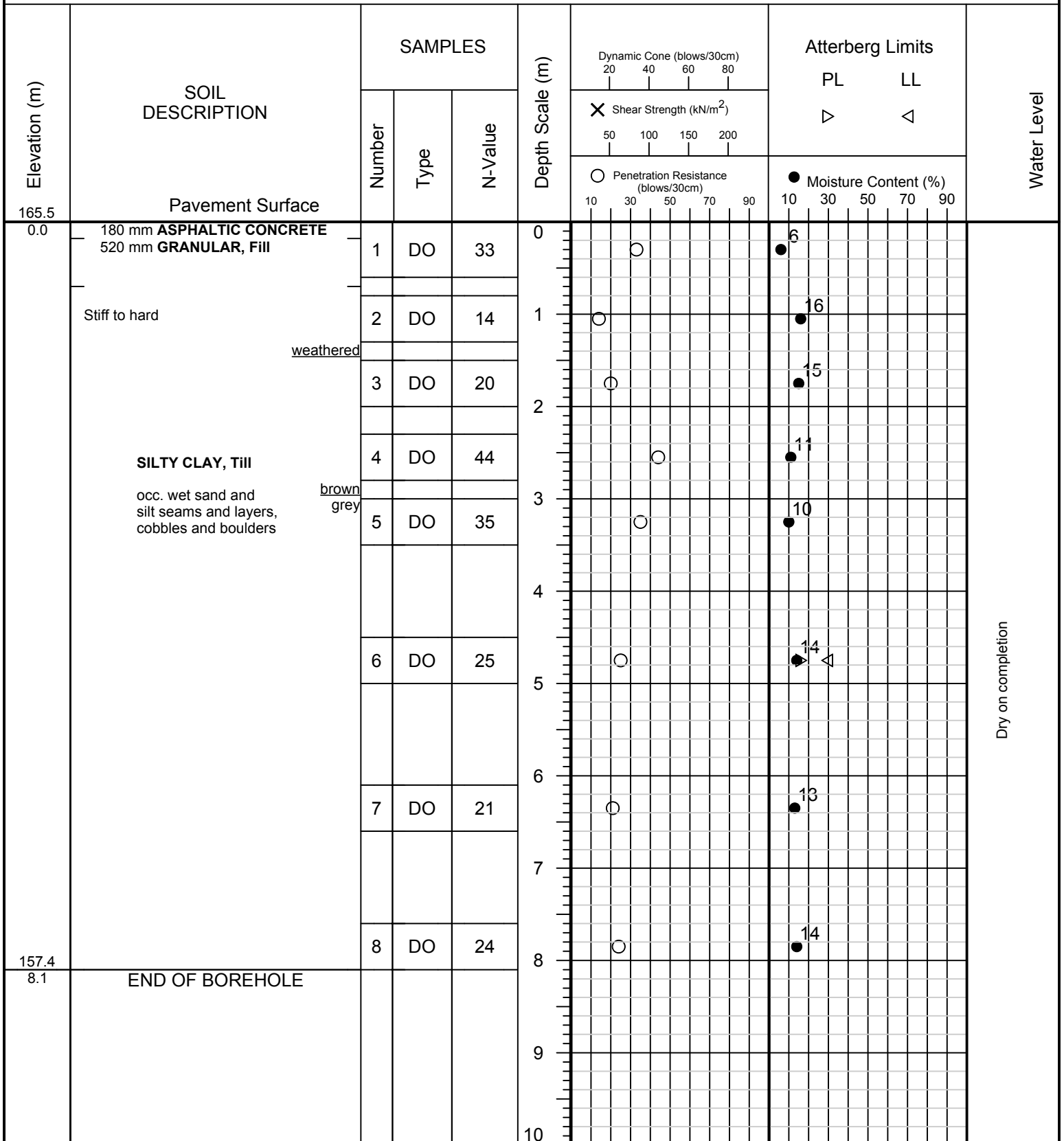


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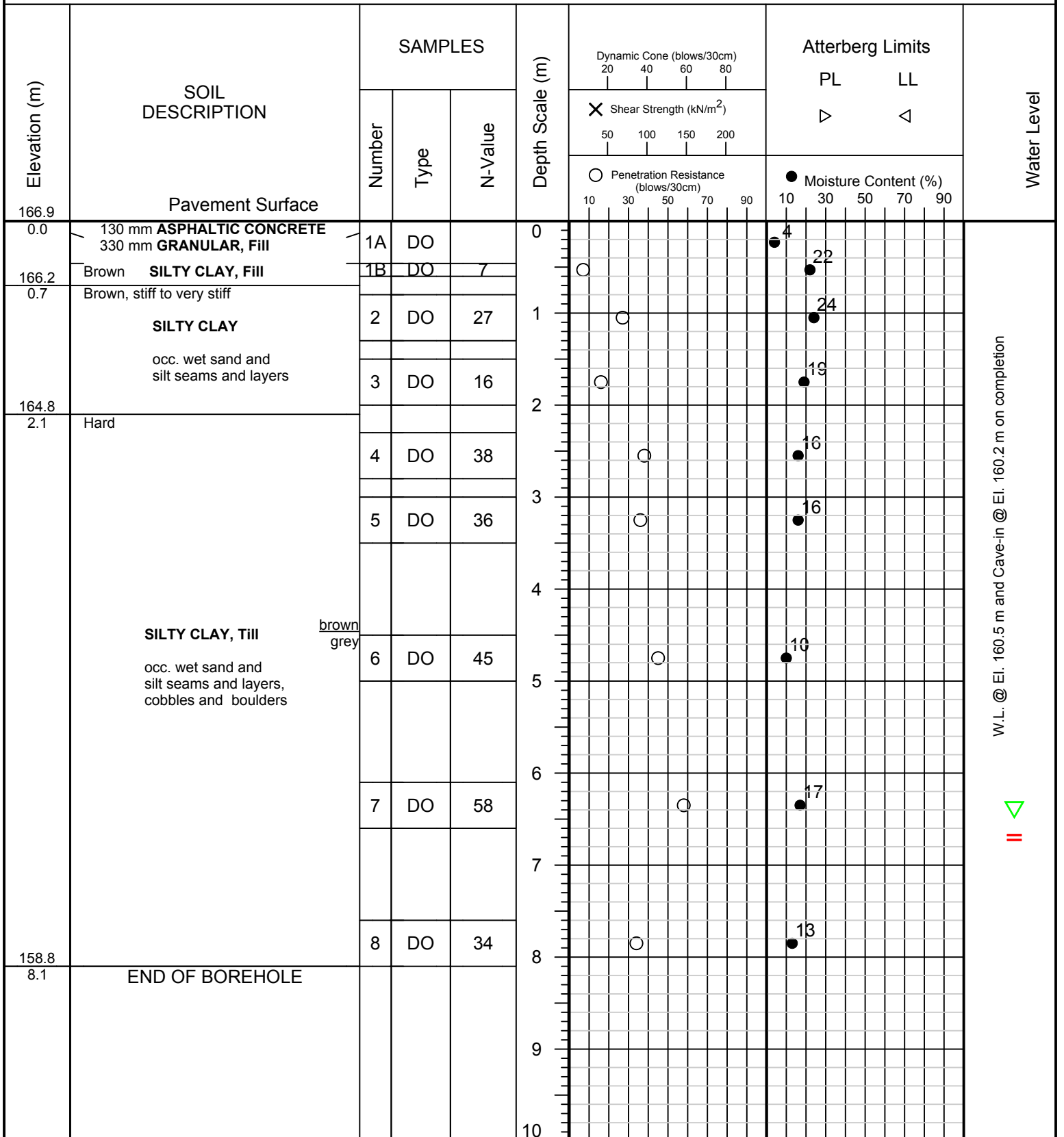


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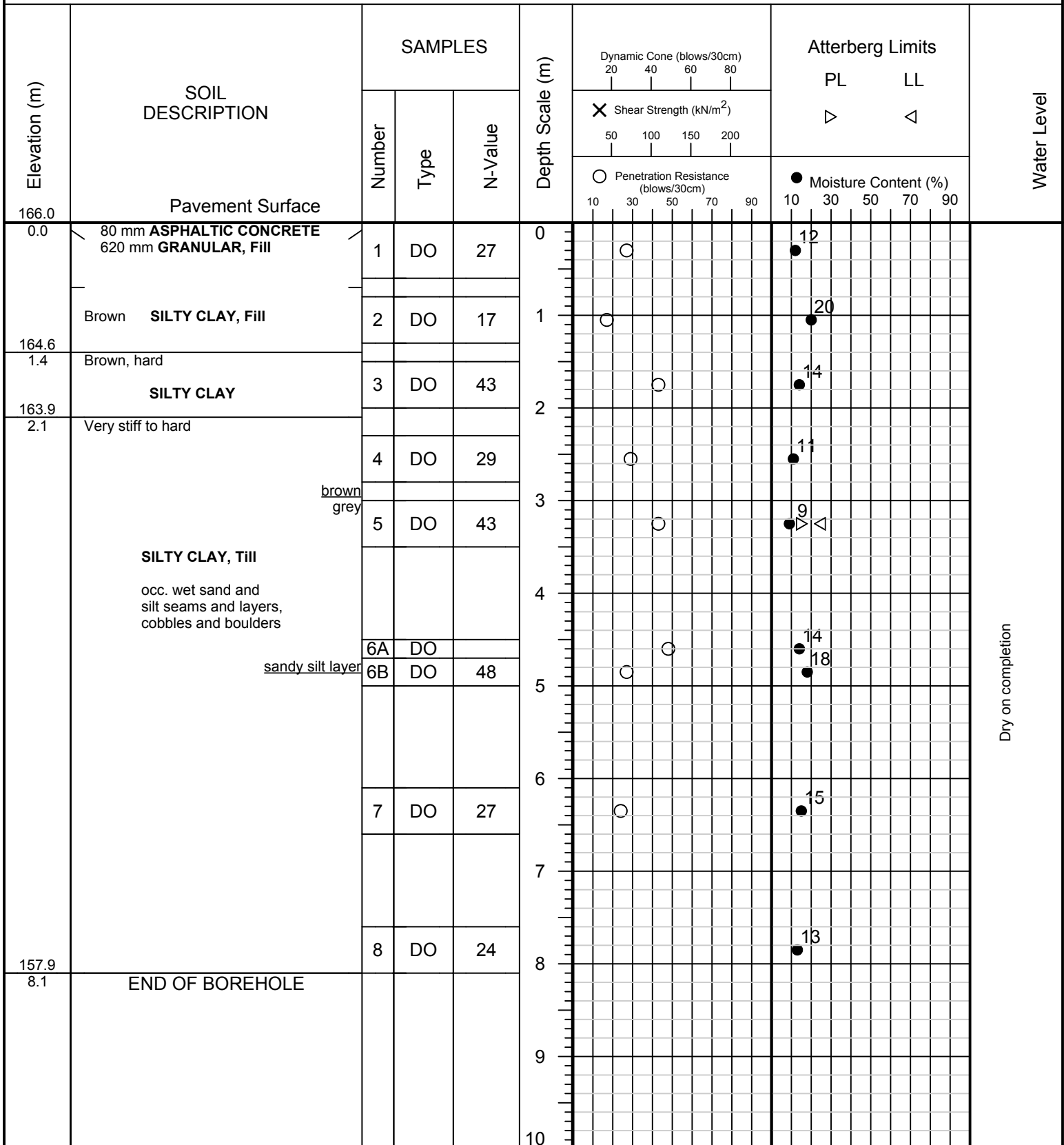


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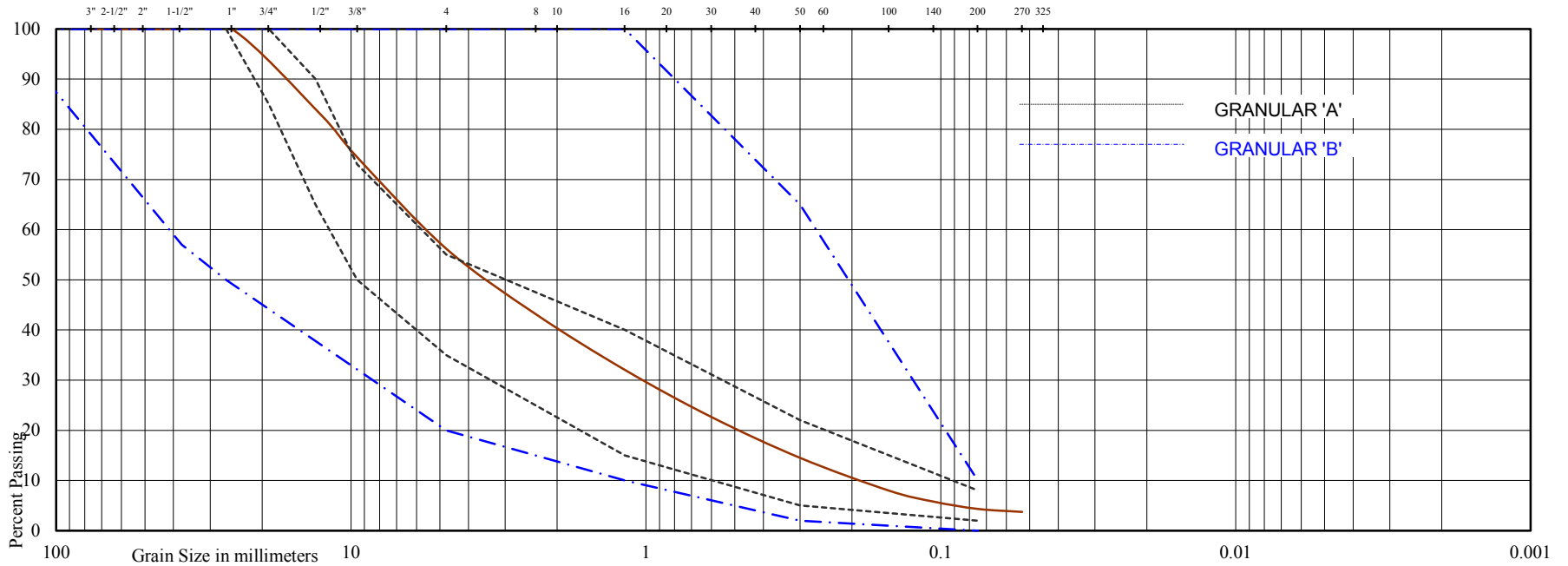


U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL			SAND				SILT	CLAY
COARSE	FINE		COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Property Acquisition
 Location: 7085 Goreway Drive, City of Mississauga
 Borehole No: 2
 Sample No: 1A
 Depth (m): 0.2
 Elevation (m): 166.2

Liquid Limit (%) = -
 Plastic Limit (%) = -
 Plasticity Index (%) = -
 Moisture Content (%) = 7
 Estimated Permeability (cm./sec.) = 10^{-2}

Classification of Sample [& Group Symbol]: GRANULAR, Fill

Figure: 7

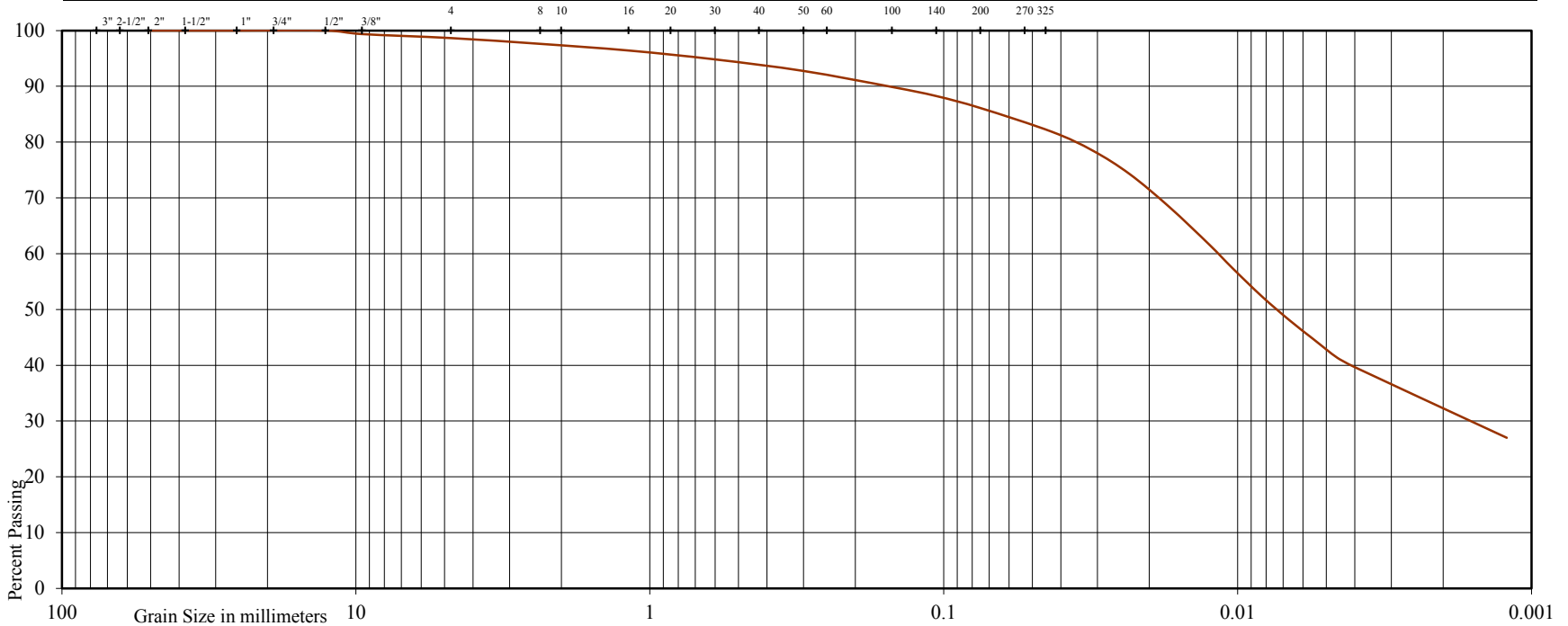


U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL			SAND				SILT	CLAY
COARSE	FINE		COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Property Acquisition

Location: 7085 Goreway Drive, City of Mississauga

Borehole No: 2

Sample No: 2

Depth (m): 1.1

Elevation (m): 165.3

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 20

Estimated Permeability

(cm./sec.) = 10^{-7}

Classification of Sample [& Group Symbol]: SILTY CLAY, Fill
some sand, a tr. of gravel

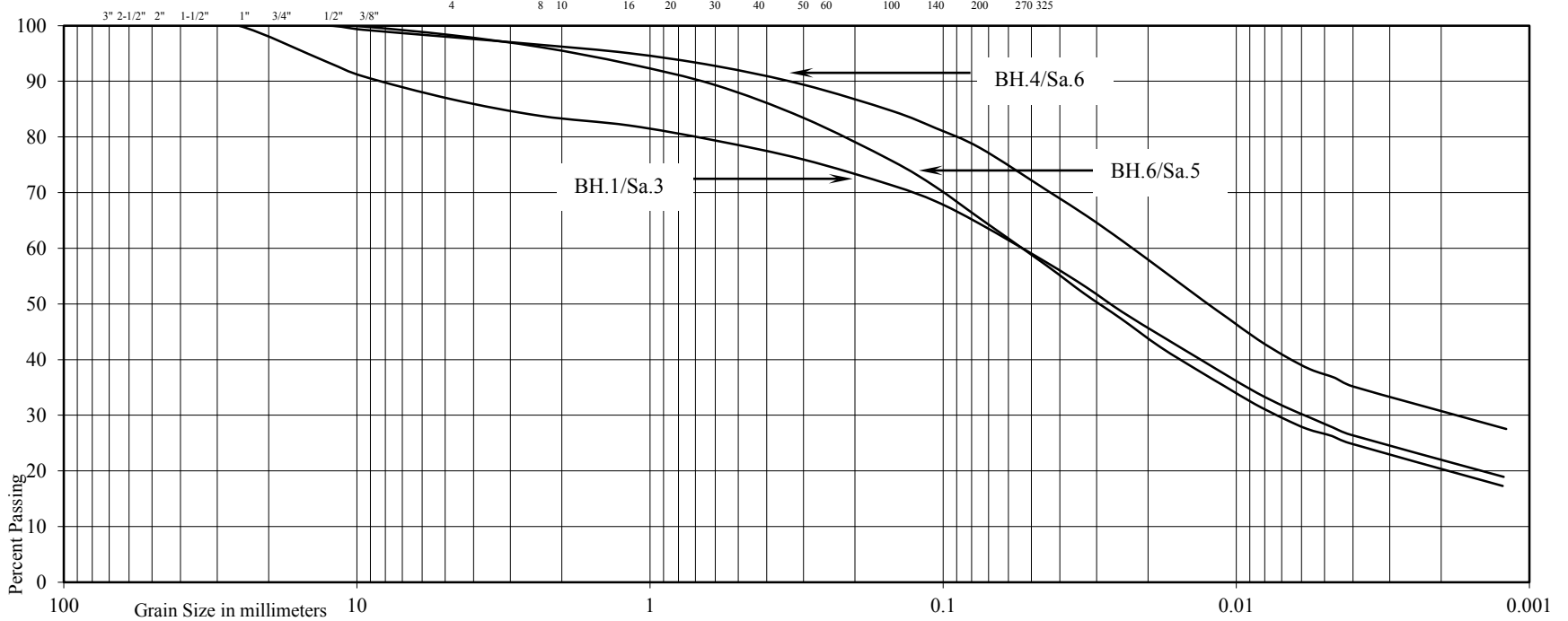
Figure: 8

U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL			SAND				SILT	CLAY
COARSE	FINE		COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Property Acquisition
 Location: 7085 Goreway Drive, City of Mississauga

Borehole No:	1	4	6
Sample No:	3	6	5
Depth (m):	1.7	4.7	3.3
Elevation (m):	164.1	160.8	162.7

BH./Sa.	1/3	4/6	6/5
Liquid Limit (%) =	28	30	25
Plastic Limit (%) =	17	17	16
Plasticity Index (%) =	11	13	9
Moisture Content (%) =	19	14	9
Estimated Permeability			
(cm./sec.) =	10^{-7}	10^{-7}	10^{-7}

Classification of Sample [& Group Symbol]:	SILTY CLAY, Till some sand to sandy, a tr. to some gravel
--	--

Figure: 9

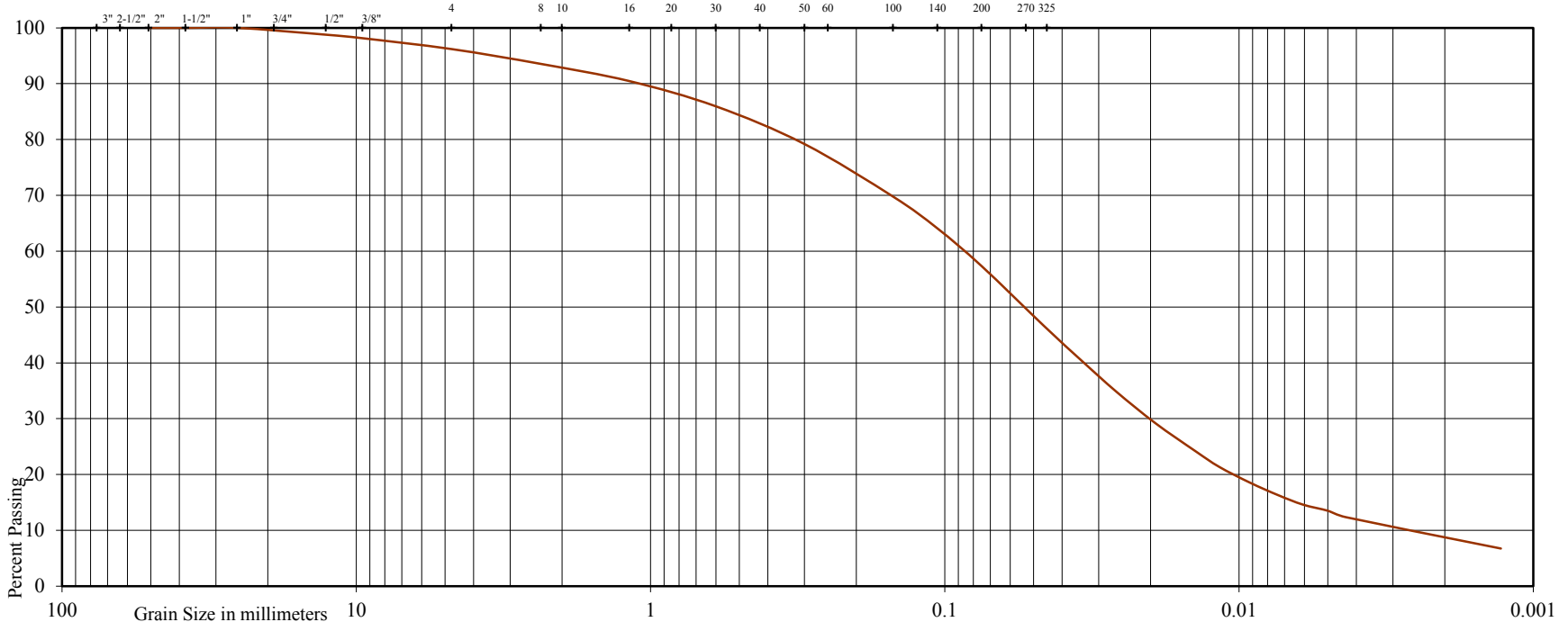


U.S. BUREAU OF SOILS CLASSIFICATION

GRAVEL			SAND				SILT	CLAY
COARSE	FINE		COARSE	MEDIUM	FINE	V. FINE		

UNIFIED SOIL CLASSIFICATION

GRAVEL		SAND			SILT & CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Project: Proposed Property Acquisition

Location: 7085 Goreway Drive, City of Mississauga

Borehole No: 1

Sample No: 8

Depth (m): 7.9

Elevation (m): 157.9

Liquid Limit (%) = -

Plastic Limit (%) = -

Plasticity Index (%) = -

Moisture Content (%) = 14

Estimated Permeability

(cm./sec.) = 10⁻⁶

Classification of Sample [& Group Symbol]: SANDY SILT, Till
 trs. of clay and gravel



BOREHOLE LOCATION PLAN

Ref. No.: 1609-S061

Date: October, 2016

Drawing No.: 1

Scale: NTS Horiz.:

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Subsurface Profile

Drawing No. 2

Scale: As Shown

Job Number: 1609-S061

Report Date: October, 2016

Job Location: 7085 Goreway Drive, City of Mississauga

Project Description: Proposed Property Acquisition

Legend

	CAVE IN		WL (END OF DRILLING)		WL (STABILIZED)
	TOPSOIL		FILL		SILTY CLAY TILL
	CONCRETE		SAND		SHALE
	PAVEMENT		SILTY SAND		PEAT
	GRANULAR		SILTY SAND TILL		ALLUVIUM
			SANDY SILT		
			SANDY SILT TILL		
			SILT		
			SILTY CLAY		

BH No.	1	2	3	4	5	6
El.	165.8	166.4	165.7	165.5	166.9	166

