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TO: Jacobs
245 Consumers Road
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FROM: Eliza Brandy, ASI
Lisa Merritt, ASI

RE: Etobicoke Creek Trunk Sewer Improvements and Upgrades Municipal Class
Environmental Assessment
Archaeological Resources Existing Conditions Memorandum

ASI File: 18EA-161

In advance of Archaeological Services Inc.'s (ASI) Stage 1 Archaeological Assessment report, please find below ASI's review of the existing conditions for archaeological resources captured within the Etobicoke Creek Trunk Sewer Improvements and Upgrades Municipal Class Environmental Assessment Study Area. ASI understands that the contents of this existing conditions memorandum will be used to help inform the project design and selection of a preferred alternative.

ASI will undertake a comprehensive Stage 1 assessment, including a detailed property inspection, once preferred alternatives have been identified for the Project. The Stage 1 report will identify what areas require further assessment and by what methodology they must be surveyed.

Memorandum

1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Jacobs to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Etobicoke Creek Trunk Sewer Improvements and Upgrades Municipal Class Environmental Assessment, in the Regional Municipality of Peel (Figure 1). This project involves proposed improvements and upgrades to Etobicoke Creek Trunk Sewer in an area bounded by Kennedy Road to the west, Steeles Avenue to the north, Dixie Road to the east and Derry Road to the south.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2018) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Tourism, Culture and Sport (MTCS 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act*, RSO (Ministry of the Environment 1990 as amended 2010) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (2000 as amended in 2007, 2011 and 2015).

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by Jacobs on April 18, 2019.

2.0 EXISTING CONDITIONS: BACKGROUND RESEARCH

The following section provides a summary of archaeological existing conditions within the Study Area.

2.1 Historical Context

The purpose of this section, according to the S & G, Section 7.5.7, Standard 1, is to describe the past and present land use and the settlement history and any other relevant historical information pertaining to the Study Area. A summary is first presented of the current understanding of the Indigenous land use of the Study Area. This is then followed by a review of the historical Euro-Canadian settlement history.

2.1.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (BP) (Ferris 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 BP, the environment had progressively warmed (Edwards and Fritz 1988) and populations now occupied less extensive territories (Ellis and Deller 1990).

Between approximately 10,000-5,500 BP, the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to



build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 BP; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 BP and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Ellis et al. 1990; Ellis et al. 2009; Brown 1995:13).

Between 3,000-2,500 BP, populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 BP and exchange and interaction networks broaden at this time (Spence et al. 1990:136, 138) and by approximately 2,000 BP, evidence exists for macro-band camps, focusing on the seasonal harvesting of resources (Spence et al. 1990:155, 164). By 1,500 BP there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 BP - it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch and Williamson 2013:13–15). Bands likely retreated to interior camps during the winter. It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 BP, lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (CE), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson 1990:317). By 1300-1450 CE, this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al. 1990:343). From 1450-1649 CE this process continued with the coalescence of these small villages into larger communities (Birch and Williamson 2013). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. By 1600 CE, the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee¹ and the Huron-Wendat (and their Algonquian allies such as the Nipissing and Odawa) led to the dispersal of the Huron-Wendat.

Shortly after dispersal of the Wendat, Ojibwa began to expand into southern Ontario and Michigan from the east shore of Georgian Bay, west along the north shore of Lake Huron, and along the northeast shore of Lake Superior and onto the Upper Peninsula of Michigan (Rogers 1978:760–762). This history was constructed by Rogers using both Anishinaabek oral tradition and the European documentary record, and notes that it included Chippewa, Ojibwa, Mississauga, and Saulteaux or “Southeastern Ojibwa” groups. Ojibwa, likely Odawa, were first encountered by Samuel de Champlain in 1615 along the eastern shores of Georgian Bay. Etienne Brule later encountered other groups and by 1641, Jesuits had journeyed to Sault Sainte Marie (Thwaites 1896:11:279) and opened the Mission of Saint Peter in 1648 for the occupants of Manitoulin Island and the northeast shore of Lake Huron. The Jesuits reported that these Algonquian peoples lived “solely by hunting and fishing and roam as far as the “Northern sea” to trade for “Furs and Beavers, which are found there in abundance” (Thwaites 1896-1901, 33:67), and “all of these Tribes are nomads, and have no fixed residence, except at certain seasons of the year, when fish are plentiful, and this compels them to remain on the spot” (Thwaites 1896-1901, 33:153). Algonquian-speaking groups were historically documented wintering with the Huron-Wendat, some who

¹ The Haudenosaunee are also known as the New York Iroquois or Five Nations Iroquois and after 1722 Six Nations Iroquois. They were a confederation of five distinct but related Iroquoian-speaking groups – the Seneca, Onondaga, Cayuga, Oneida, and Mohawk. Each lived in individual territories in what is now known as the Finger Lakes district of Upper New York. In 1722 the Tuscarora joined the confederacy.



abandoned their country on the shores of the St. Lawrence because of attacks from the Haudenosaunee (Thwaites 1896-1901, 27:37).

Other Algonquian groups were recorded along the northern and eastern shores and islands of Lake Huron and Georgian Bay - the “Ouasouarini” [Chippewa], the “Outchougai” [Outchougai], the “Atchiligouan” [Achiligouan] near the mouth of the French River and north of Manitoulin Island the “Amikouai, or the nation of the Beaver” [Amikwa; Algonquian] and the “Oumisagai” [Mississauga; Chippewa] (Thwaites 1896-1901, 18:229, 231). At the end of the summer 1670, Father Louys André began his mission work among the Mississagué, who were located on the banks of a river that empties into Lake Huron approximately 30 leagues from the Sault (Thwaites 1896-1901, 55:133-155).

After the Huron had been dispersed, the Haudenosaunee began to exert pressure on Ojibwa within their homeland to the north. While their numbers had been reduced through warfare, starvation, and European diseases, the coalescence of various Anishinaabek groups led to enhanced social and political strength (Thwaites 1896-1901, 52:133) and Sault Sainte Marie was a focal point for people who inhabited adjacent areas both to the east and to the northwest as well as for the Saulteaux, who considered it their home (Thwaites 1896-1901, 54:129-131). The Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. From east to west, these villages consisted of Ganneious, on Napanee Bay, an arm of the Bay of Quinte; Quinte, near the isthmus of the Quinte Peninsula; Ganaraske, at the mouth of the Ganaraska River; Quintio, at the mouth of the Trent River on the north shore of Rice Lake; Ganatsekwyagon (or Ganestiquiagon), near the mouth of the Rouge River; Teyaiagon, near the mouth of the Humber River; and Quinaouatoua, on the portage between the western end of Lake Ontario and the Grand River (Konrad 1981:135). Their locations near the mouths of the Humber and Rouge Rivers, two branches of the Toronto Carrying Place, strategically linked these settlements with the upper Great Lakes through Lake Simcoe. The inhabitants of these villages were agriculturalists, growing maize, pumpkins and squash, but their central roles were that of portage starting points and trading centres for Iroquois travel to the upper Great Lakes for the annual beaver hunt (Konrad 1974; Williamson et al. 2008:50–52). Ganatsekwyagon, Teyaiagon, and Quinaouatoua were primarily Seneca; Ganaraske, Quinte and Quintio were likely Cayuga, and Ganneious was Oneida, but judging from accounts of Teyaiagon, all of the villages might have contained peoples from a number of the Iroquois constituencies (ASI 2013).

During the 1690s, some Ojibwa began moving south into extreme southern Ontario and soon replaced, the Haudenosaunee by force. By the first decade of the eighteenth century, the Michi Saagiig Nishnaabeg (Mississauga Nishnaabeg) had settled at the mouth of the Humber, near Fort Frontenac at the east end of Lake Ontario and the Niagara region and within decades were well established throughout southern Ontario. In 1736, the French estimated there were 60 men at Lake Saint Clair and 150 among small settlements at Quinte, the head of Lake Ontario, the Humber River, and Matchedash (Rogers 1978:761). This history is based almost entirely on oral tradition provided by Anishinaabek elders such as George Copway (Kahgegagahbowh), a Mississauga born in 1818 near Rice Lake who followed a traditional lifestyle until his family converted to Christianity (MacLeod 1992:197; Smith 2000). According to Copway, the objectives of campaigns against the Haudenosaunee were to create a safe trade route between the French and the Ojibwa, to regain the land abandoned by the Huron-Wendat. While various editions of Copway’s book have these battles occurring in the mid-seventeenth century, common to all is a statement that the battles occurred around 40 years after the dispersal of the Huron-Wendat (Copway 1850:88; Copway 1851:91; Copway 1858:91). Various scholars agree with this timeline ranging from 1687, in conjunction with Denonville’s attack on Seneca villages (Johnson 1986:48; Schmalz 1991:21–22) to around the mid- to late-1690s leading up to the Great Peace of 1701 (Schmalz 1977:7; Bowman 1975:20; Smith 1975:215; Tanner 1987:33; Von Gernet 2002:7–8).



Robert Paudash's 1904 account of Mississauga origins also relies on oral history, in this case from his father, who died at the age of 75 in 1893 and was the last hereditary chief of the Mississauga at Rice Lake. His account in turn came from his father Cheneebeesh, who died in 1869 at the age of 104 and was the last sachem or Head Chief of all the Mississaugas. He also relates a story of origin on the north shore of Lake Huron (Paudash 1905:7–8) and later, after the dispersal of the Huron-Wendat, carrying out coordinated attacks against the Haudenosaunee. Francis Assikinack, an Ojibwa of Manitoulin Island born in 1824, provides similar details on battles with the Haudenosaunee (Assikinack 1858:308–309).

Peace was achieved between the Haudenosaunee and the Anishinaabek Nations in August of 1701 when representatives of more than twenty Anishinaabek Nations assembled in Montreal to participate in peace negotiations (Johnston 2004:10). During these negotiations captives were exchanged and the Iroquois and Anishinaabek agreed to live together in peace. Peace between these nations was confirmed again at council held at Lake Superior when the Iroquois delivered a wampum belt to the Anishinaabek Nations.

From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there is no interruption to Anishinaabek control and use of southern Ontario. While hunting in the territory was shared, and subject to the permission of the various nations for access to their lands, its occupation was by Anishinaabek until the assertion of British sovereignty, the British thereafter negotiating treaties with them. Eventually, with British sovereignty, tribal designations changed (Smith 1975:221–222; Surtees 1985:20–21). According to Rogers (1978), by the twentieth century, the Department of Indian Affairs had divided the “Anishinaubag” into three different tribes, despite the fact that by the early eighteenth century, this large Algonquian-speaking group, who shared the same cultural background, “stretched over a thousand miles from the St. Lawrence River to the Lake of the Woods.” With British land purchases and treaties, the bands at Beausoleil Island, Cape Croker, Christian Island, Georgina and Snake Islands, Rama, Sarnia, Saugeen, the Thames, and Walpole, became known as “Chippewa” while the bands at Alderville, New Credit, Mud Lake, Rice Lake, and Scugog, became known as “Mississauga.” The northern groups on Lakes Huron and Superior, who signed the Robinson Treaty in 1850, appeared and remained as “Ojibbewas” in historical documents.

In 1763, following the fall of Quebec, New France was transferred to British control at the Treaty of Paris. The British government began to pursue major land purchases throughout Ontario in the early nineteenth century, and entered into negotiations with various Nations for additional tracts of land as the need arose to facilitate European settlement.

In 1805, the Mississaugas were granted one mile (approximately 1.6 km) on either side of the Credit River, Twelve Mile Creek and Sixteen Mile Creek. In 1818, the majority of the Mississauga Tract was acquired by the Crown excluding the lands tracts flanking the Credit River, Twelve Mile Creek and Sixteen Mile Creek. In 1820, the remainder of Mississauga land was surrendered except approximately 81 hectares (ha) along the Credit River (Heritage Mississauga 2012:18). In 1825-26 the Credit Indian Village was established as an agricultural community and Methodist mission near present day Port Credit (Heritage Mississauga 2009; Mississaugas of the New Credit First Nation 2014). By 1840 the village was under significant pressure from Euro-Canadian settlement that plans begun to relocate the settlement. In 1847 the Credit Mississaugas were made a land offer by the Six Nations Council to relocate at the Grand River. In 1847, 266 Mississaugas settled at New Credit, approximately 23 km southwest of Brantford. In 1848 a mission of the Methodist Church was established there by Rev. William Ryerson (Woodland Indian Cultural Education Centre 1985). Although the majority of the former Mississague Tract had been surrendered from the Mississauga by 1856 (Gould 1981), this does not exclude the likelihood that the Mississauga continued to utilise the landscape at large during travel (Ambrose 1982) and for resource extraction.



The eighteenth century saw the ethnogenesis in Ontario of the Métis, when Métis people began to identify as a separate group, rather than as extensions of their typically maternal First Nations and paternal European ancestry (Métis National Council n.d.). Métis populations were predominantly located north and west of Lake Superior, however, communities were located throughout Ontario (MNC n.d.; Stone and Chaput 1978:607,608). During the early nineteenth century, many Métis families moved towards locales around southern Lake Huron and Georgian Bay, including Kincardine, Owen Sound, Penetanguishene, and Parry Sound (MNC n.d.). Recent decisions by the Supreme Court of Canada (Supreme Court of Canada 2003; Supreme Court of Canada 2016) have reaffirmed that Métis people have full rights as one of the Indigenous people of Canada under subsection 91(24) of the Constitution Act, 1867.

The Study Area is within Treaty 13a, or the Toronto Purchase, signed on August 2, 1805 by the Mississaugas and the British Crown in Port Credit at the Government Inn. A provisional agreement was reached with the Crown on August 2, 1805, in which the Mississaugas ceded 70,784 acres of land bounded by the Toronto Purchase of 1787 in the east, the Brant Tract in the west, and a northern boundary that ran six miles back from the shoreline of Lake Ontario. The Mississaugas also reserved the sole right of fishing at the Credit River and were to retain a 1 mile strip of land on each of its banks, which became the Credit Indian Reserve. On September 5, 1806, the signing of Treaty 14 confirmed the Head of the Lake Purchase between the Mississaugas of the Credit and the Crown (Mississauga of the New Credit First Nation 2017; Mississauga of the New Credit First Nation 2001).

2.1.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Toronto Township, County of Peel, in part of Lots 11-15, Concessions 2-3 ECR.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 m of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).



Toronto Township

The Township of Toronto was original surveyed in 1806 by Mr. Wilmot, Deputy Surveyor. The first settler in this Township, and also the County of Peel, was Colonel Thomas Ingersoll. The whole population of the Township in 1808 consisted of seven families, scattered along Dundas Street. The number of inhabitants gradually increased until the war broke out in 1812, which gave considerable check to its progress. When the war was over, the Townships growth revived and the rear part of the Township was surveyed and called the “New Survey”. The greater part of the New Survey was granted to a colony of Irish settlers from New York City, who suffered persecution during the war.

The Hamilton and Toronto Railway (H&TR) was formed in 1852, and in 1855, completed its lake shore route. In 1871, the railway was amalgamated with the Great Western Railway, which in turn, was amalgamated in 1882, with the Grand Trunk Railway. The Grand Trunk Railway was amalgamated in 1923, with Canadian National Railway (Andreae 1997:126–127).

2.1.3 Map Review

The 1859 *Tremaine’s Map of the County of Peel* and the 1877 *Illustrated Historical Atlas of the County of Peel*, Toronto Township page, were examined to determine the presence of historic features within the Study Area during the nineteenth century (Table 1; Figures 2-3). The maps illustrate the historic transportation routes of Steeles Avenue, and Derry Kennedy, Tomken, Dixie Roads. The villages of Palestine/Mount Charles and Frasers Corners are also depicted, as well as farmsteads, churches, cemeteries, and a school house. These two maps suggest that the area had an agricultural character throughout the nineteenth century.

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

In addition, the use of historical map sources to reconstruct/predict the location of former features within the modern landscape generally proceeds by using common reference points between the various sources. These sources are then geo-referenced in order to provide the most accurate determination of the location of any property on historic mapping sources. The results of such exercises are often imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including the vagaries of map production (both past and present), the need to resolve differences of scale and resolution, and distortions introduced by reproduction of the sources. To a large degree, the significance of such margins of error is dependent on the size of the feature one is attempting to plot, the constancy of reference points, the distances between them, and the consistency with which both they and the target feature are depicted on the period mapping.

The 1909 National Topographic System (NTS) Brampton Sheet, the 1939 Fire Insurance Plan of Streetsville, the 1974 NTS Streetsville Sheet, 1954 aerial photography of Mississauga, and the 1994 NTS Brampton Sheet, were also examined to determine the extent and nature of development and land uses within the Study Area since the twentieth century (Figures 4-7). The 1909 map illustrates approximately 30 buildings, including farmsteads, two schoolhouses and a blacksmith’s shop, as well as the numerous tributaries in their historical alignments through the Study Area. The maps indicate that the Study Area remained relatively unchanged into the late twentieth



century, when by 1974 the only major development was the sewage facility near to Etobicoke Creek along Second Line (Tomken Road).

2.2 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MTCS through “Ontario’s Past Portal”; published and unpublished documentary sources; and the files of ASI.

2.2.1 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow and Warner 1990:Figure 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is within the bevelled till plains of the Peel Plain physiographic region of southern Ontario. The Peel Plain is a level-to-undulating area of clay soil which covers an area of approximately 77,700 hectares across the central portions of the Regional Municipalities of York, Peel, and Halton. The Peel Plain has a general elevation of between 150 and 230 metres above sea level with a gradual uniform slope towards Lake Ontario. The Peel Plain is sectioned by the Credit, Humber, Don, and Rouge Rivers with deep valleys as well as a number of other streams such as the Bronte, Oakville, and Etobicoke Creeks. These valleys are in places bordered by trains of sandy alluvium. The region is devoid of large undrained depressions, swamps, and bogs, nevertheless the dominant soil possesses imperfect drainage.



The Peel Plain overlies shale and limestone till which in many places is veneered by occasionally varved clay. This clay is heavy in texture and more calcareous than the underlying till and was presumably deposited by meltwater from limestone regions and deposited in a temporary lake impounded by higher ground and the ice lobe of the Lake Ontario basin. The Peel Plain straddles across the contact of the grey and red shales of the Georgian Bay and Queenston Formations, respectively, which consequently gives the clay southwest of the Credit River a more reddish hue and lower lime content than the clay in the eastern part of the plain. Additionally, the region exhibits exceptional isolated tracts of sandy soil specifically in Trafalgar Township, near Unionville, and north of Brampton where in the latter location there is a partly buried esker. The region does not possess any good aquifers and the high level of evaporation from the clay's now deforested surface is a disabling factor in ground-water recharge. Further, deep groundwater accessed by boring is often found to be saline (Chapman and Putnam 1984:174–175).

The surficial geology mapping (Figure 8) demonstrates that the Study Area is underlain by clay to silt-textured till derived from glaciolacustrine deposits; fine- and coarse-textured glaciolacustrine deposits; and modern alluvial deposits; Paleozoic bedrock (Ontario Geological Survey 2010). Soils in the Study Area are: Cashel clay, a grey-brown podzolic with good drainage; Peel clay, a grey-brown podzolic with imperfect drainage; Bottom Land, an alluvial soil with little profile differentiation and variable drainage; and Jeddo clay, a dark grey gleisolic with poor drainage (Figure 9).

The Study Area contains tributaries of Upper Etobicoke Creek. Etobicoke is derived from the Algonkian word “Wah-do-be kaug” meaning “place where the alders grow”. The Etobicoke Creek watershed, including its major tributaries Spring Creek, Little Etobicoke Creek, and West Etobicoke Creek, drains an area of approximately 211 square kilometres within the cities of Brampton, Mississauga, Toronto, and the Town of Caledon. The creeks flow south from its headwaters in Caledon into Lake Ontario through 68% urban, 27% rural and 5% urbanizing land (Toronto and Region Conservation Authority 2018).

2.2.2 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MTCS. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 km east to west, and approximately 18.5 km 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 located in Borden block *AkGw* and *AjGw*.

According to the OASD, thirty-seven previously registered archaeological sites are located within one kilometre of the Study Area, seven of which are within the Study Area (Ministry of Tourism, Culture and Sport 2018). A summary of the sites is provided below in Table 2.

Table 1: List of previously registered sites within one kilometre of the Study Area

Borden	Site Name	Cultural Affiliation	Site Type	Researcher
AjGw-84	Fletcher's Creek	Euro-Canadian	Homestead	ASI 1987
AjGw-85	n/a	Pre-Contact Indigenous	Findspot	ASI 1987
AjGw-250	Tilt	Euro-Canadian	Homestead	Stewart 1996; Mayer 1996
AjGw-251	George Graham	Euro-Canadian	Homestead, Outbuilding	Stewart 1996
AjGw-255	McKillip	Euro-Canadian	Homestead, Midden	Mayer 1996
AjGw-360	Marcove	Middle Archaic	Unknown	ASI 2003, 2004



Borden	Site Name	Cultural Affiliation	Site Type	Researcher
AjGw-367	Derry West Anglican Church	Euro-Canadian	Church/chapel Cemetery	ASI 2004
AjGw-379	Wiggins	Euro-Canadian	Homestead	ASI 2005; FAC 2005
AjGw-394	Fletcher's Creek Site	Pre-Contact Indigenous	Scatter	ASI 2005
AjGw-414	P1	Pre-Contact Indigenous	Findspot	Amick 2006
AjGw-489	De Zen	Pre-Contact Indigenous	Scatter	Amick 2008
AjGw-490	James Cracker	Unknown	Unknown	Amick 2008
AkGv-99	J.A. McBride	Euro-Canadian	Homestead	MPP 1990
AkGv-100	n/a	Pre-Contact Indigenous	Findspot	Mayer 1990
AkGv-125	William Watson	Euro-Canadian	Homestead	ASI 1992
AkGv-270	n/a	Early Woodland	Camp/campsite	Amick 2006
AkGv-271	n/a	Early Woodland	Camp/campsite	Amick 2006
AkGv-282	Bramalea PIFFC III	Pre-Contact Indigenous	Camp/campsite	Unknown 2007
AkGv-357	Location 1	Euro-Canadian	Homestead	Golder 2018
AkGw-6	Davis	Euro-Canadian	Homestead	Ambrose 1981; ASI 1993
AkGw-7	Leonard Thompson	Euro-Canadian	Homestead	MPP 1986
AkGw-8	n/a	Late Archaic	Findspot	MPP 1986
AkGw-78	Beanfield	Early-Middle Archaic	Camp/campsite	Stewart 1994, 1995
AkGw-79	Sniper	Middle-Late Woodland	Camp/campsite	Stewart 1994
AkGw-80	n/a	Early Woodland	Findspot	Stewart 1994
AkGw-81	Wild Pear	Pre-Contact Indigenous	Findspot	Stewart 1994
AkGw-82	Spitfire	Late Archaic	Findspot	Stewart 1994
AkGw-83	Zydeco	Early Woodland	Camp/campsite	Stewart 1995
AkGw-84	n/a	Late Archaic	Findspot	Stewart 1994
AkGw-85	Dixie 1	Euro-Canadian	Homestead Midden	Stewart 1994
AkGw-86	Dixie 2	Euro-Canadian	Homestead	Stewart 1994
AkGw-251	Brampton Sports Park I	Pre-Contact Indigenous	Unknown	ASI 2005
AkGw-255	n/a	Middle Woodland	Findspot	ASI 2004
AkGw-263	n/a	Middle Woodland	Findspot	ASI 2004
AkGw-302	Mount Charles	Euro-Canadian	Blacksmith shop, Residential, Store	ASI 2006
AkGw-476	Soper Site	Euro-Canadian	Homestead	Poulton 2014; MHC 2014; Stantec 2015
AkGw-477	Moore site	Euro-Canadian	Homestead	Poulton 2013; TMHC 2014; Stantec 2015

FAC – Fisher Archaeological Consulting
 MPP – Mayer, Pihl, Poulton & Assoc. Inc.
 TMHC – Timmins Martelle Heritage Consultants
 Sites in **bold** are within the Study Area



Previous reports documenting archaeological fieldwork within 50 m of the preferred alternatives will be summarized in the comprehensive Stage 1 archaeological assessment (see Figure 10).

3.0 EXISTING CONDITIONS: CRITERIA INDICATIVE OF ARCHAEOLOGICAL POTENTIAL

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (see Table 2);
- Water sources: primary, secondary, or past water source (Upper Etobicoke Creek);
- Early historic transportation routes (Steeles Ave. Derry Rd., Kennedy Rd., Tomken Rd., Dixie Rd.);
- Proximity to early settlements (Fraser's Corners, Palestine/Mt. Charles, farmsteads, churches, cemeteries, school house); and
- Well-drained soils (Cashel clay)

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The Municipal Heritage Registers were consulted, and two properties were listed on the *City of Brampton's Municipal Register of Cultural Heritage Resources* and one property is listed on the City of Mississauga *Heritage Register*.

An archaeological potential model takes into consideration the following factors for each of the Study Areas: proximity to water, previously registered archaeological sites, up to 100 metres from any historic roadway, and deep and extensive land disturbances. In consideration of these factors, parts of the Study Area are considered to exhibit archaeological potential (Figure 10). Please note that the archaeological potential model is presented here for planning purposes only and does not replace a property inspection or Stage 2 assessment. In consideration of these factors, parts of the Study Area are considered to exhibit archaeological potential.

These criteria are indicative of potential for the identification of Indigenous and Euro-Canadian archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

4.0 EXISTING CONDITIONS: SUMMARY

The Project will require a complete Stage 1 archaeological assessment, including a property inspection, once preferred alternatives have been determined to further assess archaeological potential, as per the Standards and Guidelines for Consultant Archaeologists.

The Study area contains six previously registered archaeological sites (Figure 11). None of these sites are considered to have further Cultural Heritage Value or Interest (CHVI) and have been fully mitigated. According to Section 7.6 of the *Standards and Guidelines for Consultant Archaeologists* (S & G) administered by the Ministry of Tourism, Culture and Sport (MTCS 2011), any information that pinpoints the location of an archaeological site (e.g., detailed assessment results mapping, tables of Global Positioning System (GPS) coordinates for site locations) must not be included in the project report. Archaeological site location information is considered by the MTCS to be confidential and/or sensitive information that cannot be made public.



5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI advises compliance with the following legislation:

- The Stage 1 Archaeological Assessment Report must be 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. 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 MTCS, 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 archaeological 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 Archaeology 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 sec. 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; and,
- 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, nor may artifacts be removed from them, except by a person holding an archaeological license.



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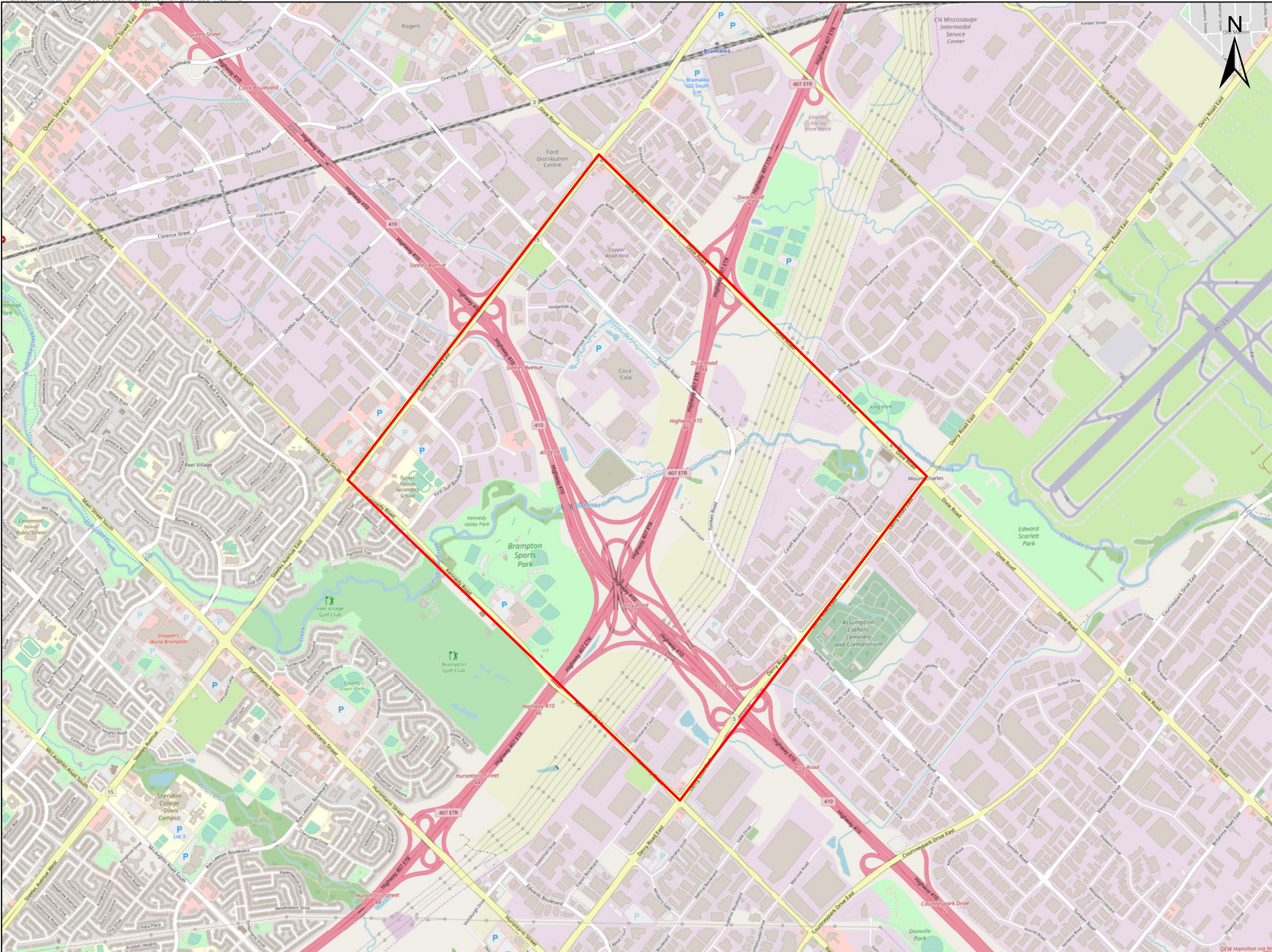
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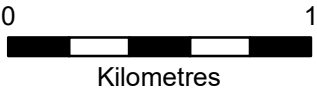
7.0 MAPS





 STUDY AREA

Sources: Ortho: ESRI
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Page Size: 11 x 17



ASI PROJECT NO.: 18EA-161
DATE: 2019-06-04
DRAWN BY: AB
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Figure 1: Etobicoke Creek Trunk Sewer Improvements & Upgrades Study Area

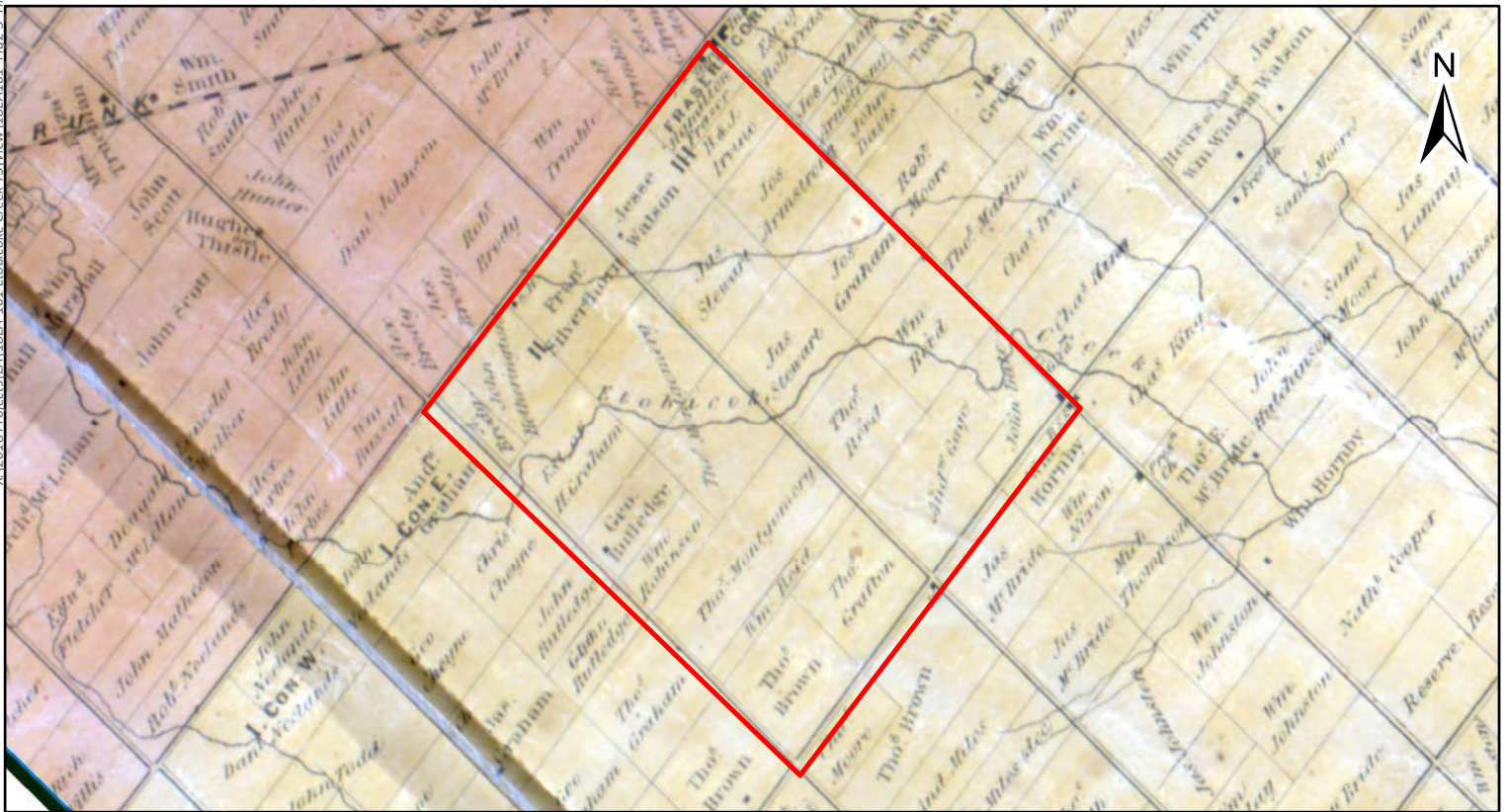


Figure 2: Study Area (Approximate Location) Overlaid on the 1859 Map of the County of Peel, Plan of Brampton

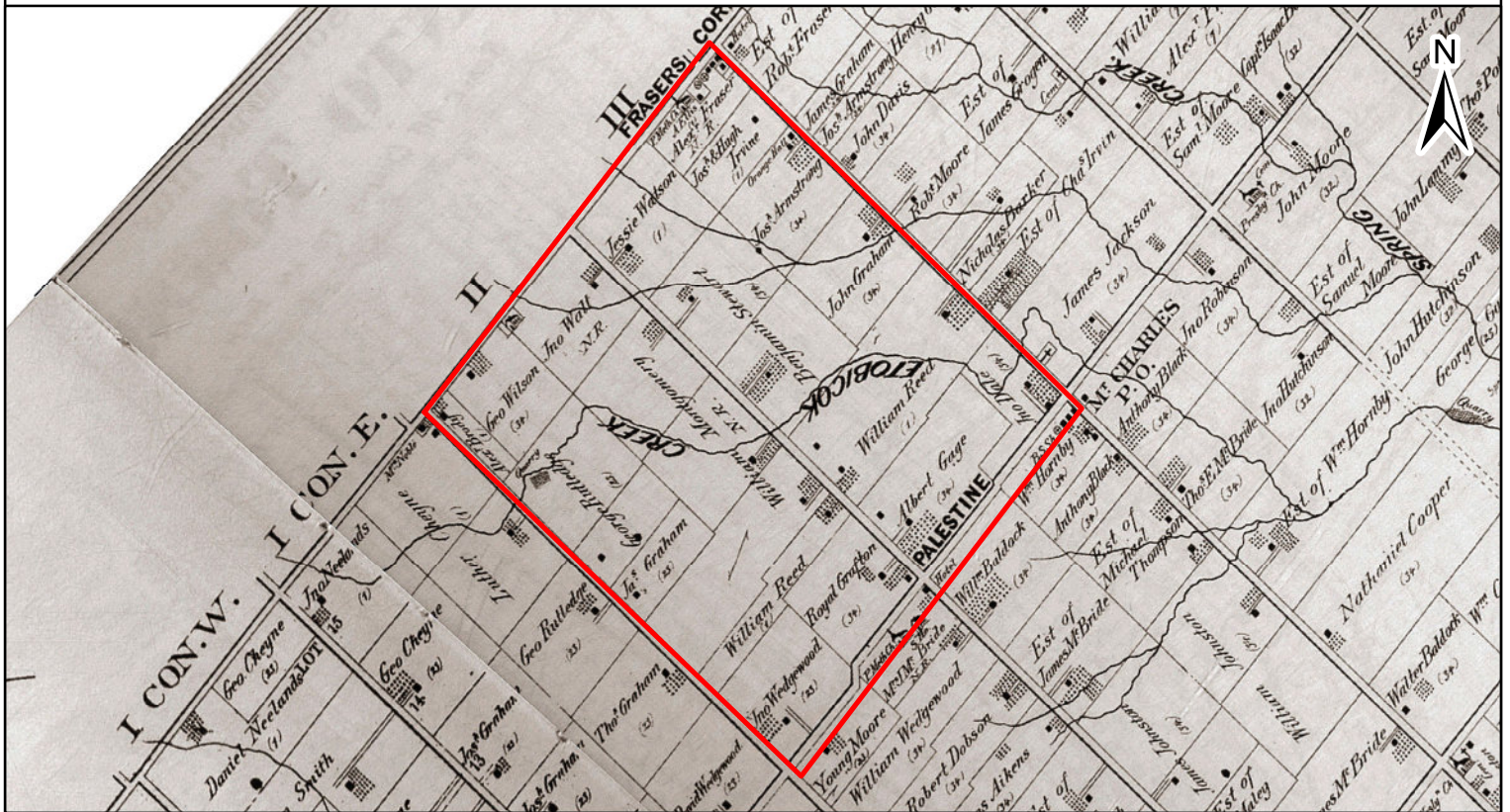


Figure 3: Study Area (Approximate Location) Overlaid on the 1877 Illustrated Historical Atlas of the County of Peel, Plan of Brampton



STUDY AREA

Sources:

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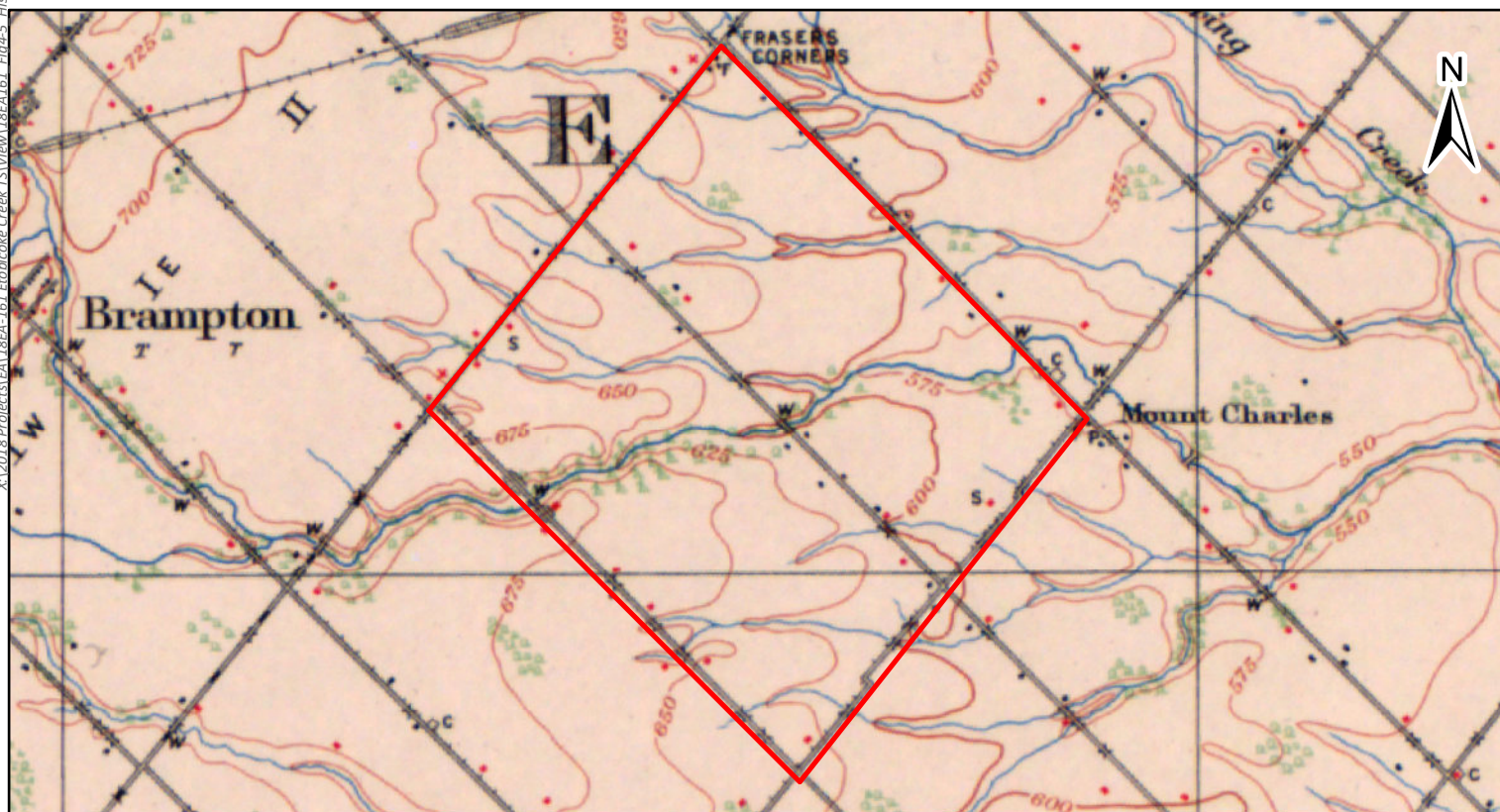


Figure 4: Study Area (Approximate Location) Overlaid on the 1909 NTS Brampton Sheet

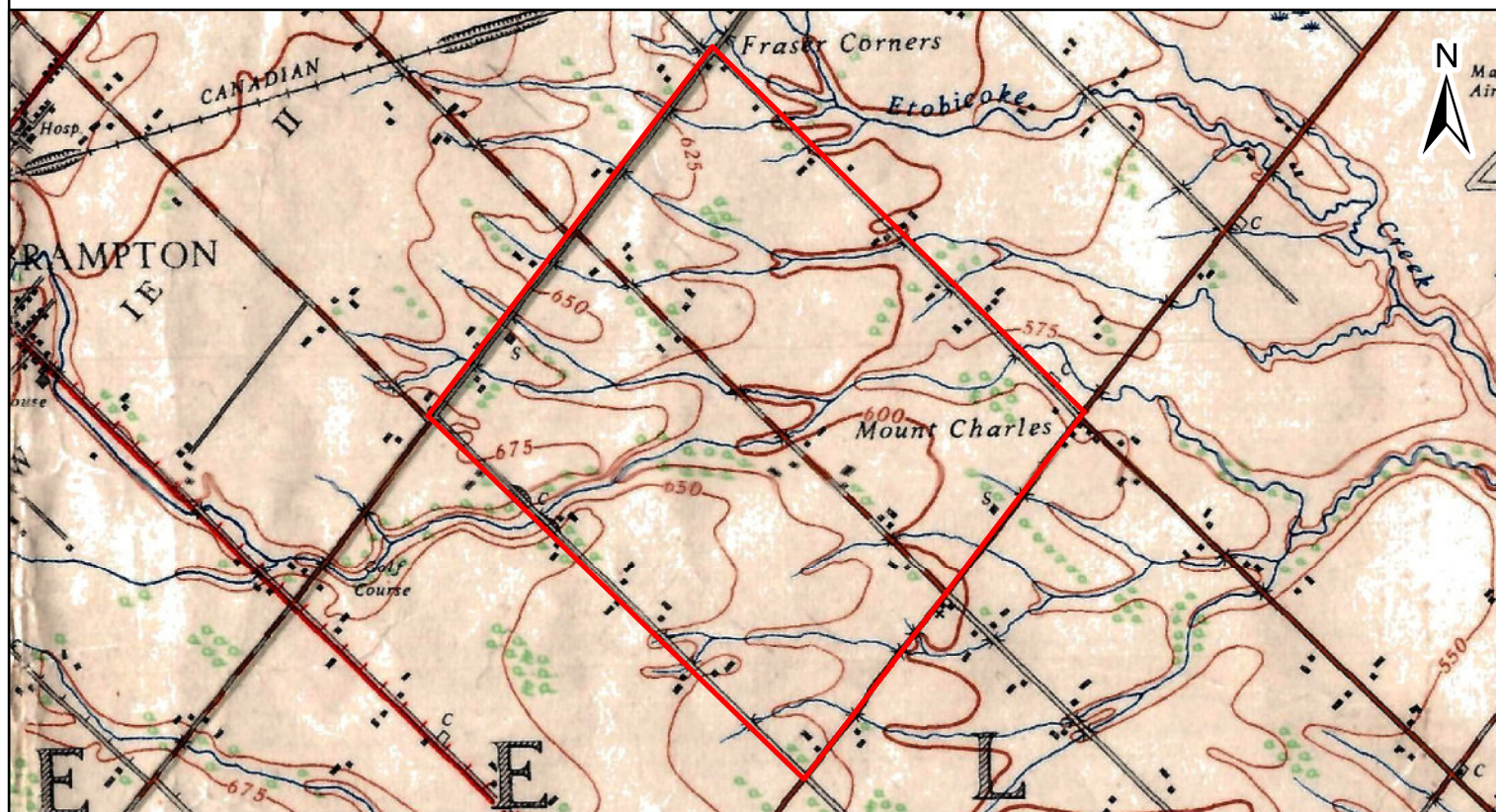


Figure 5: Study Area (Approximate Location) Overlaid on the 1942 NTS Brampton Sheet

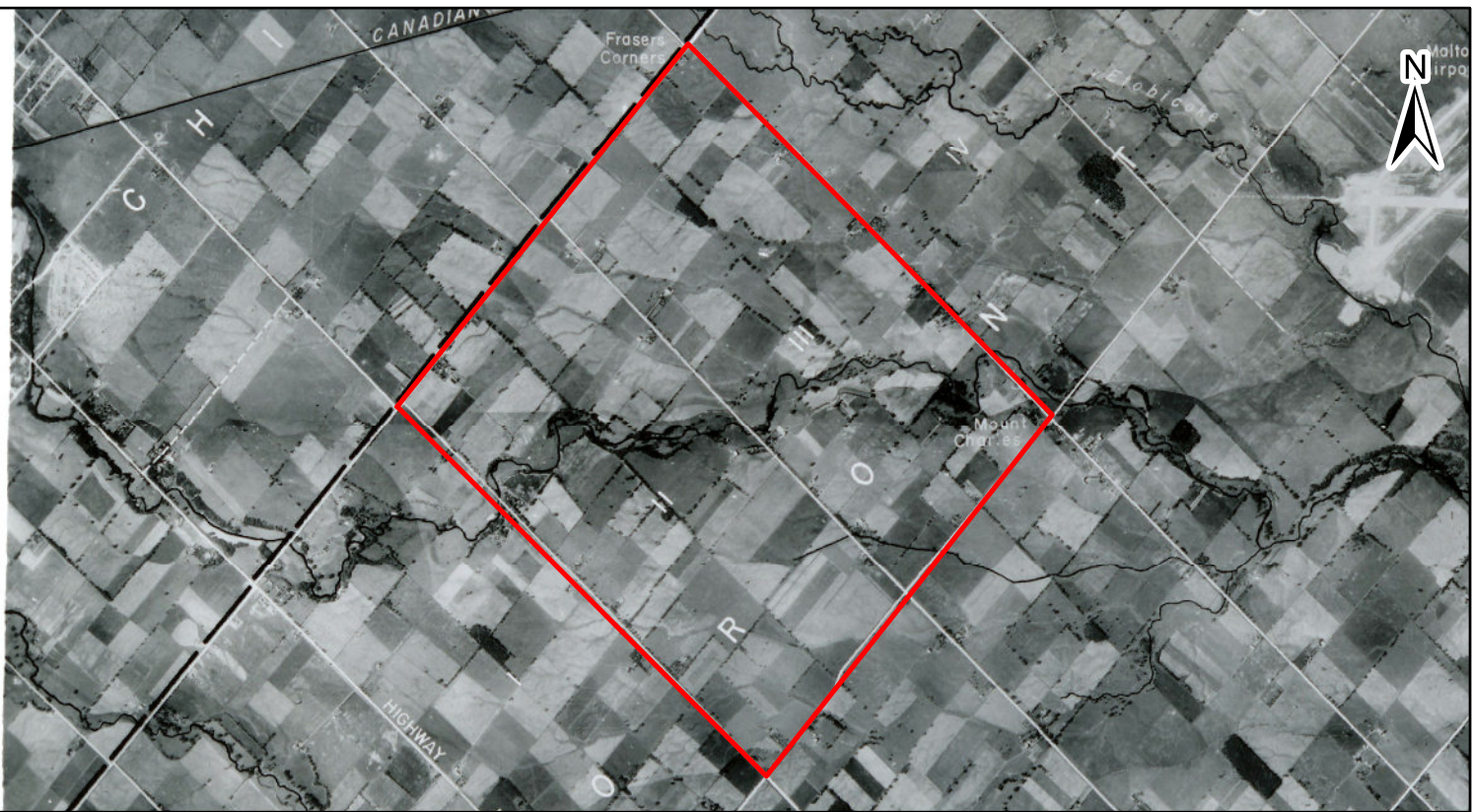


Figure 6: Study Area (Approximate Location) Overlaid on the 1954 Aerial Photography

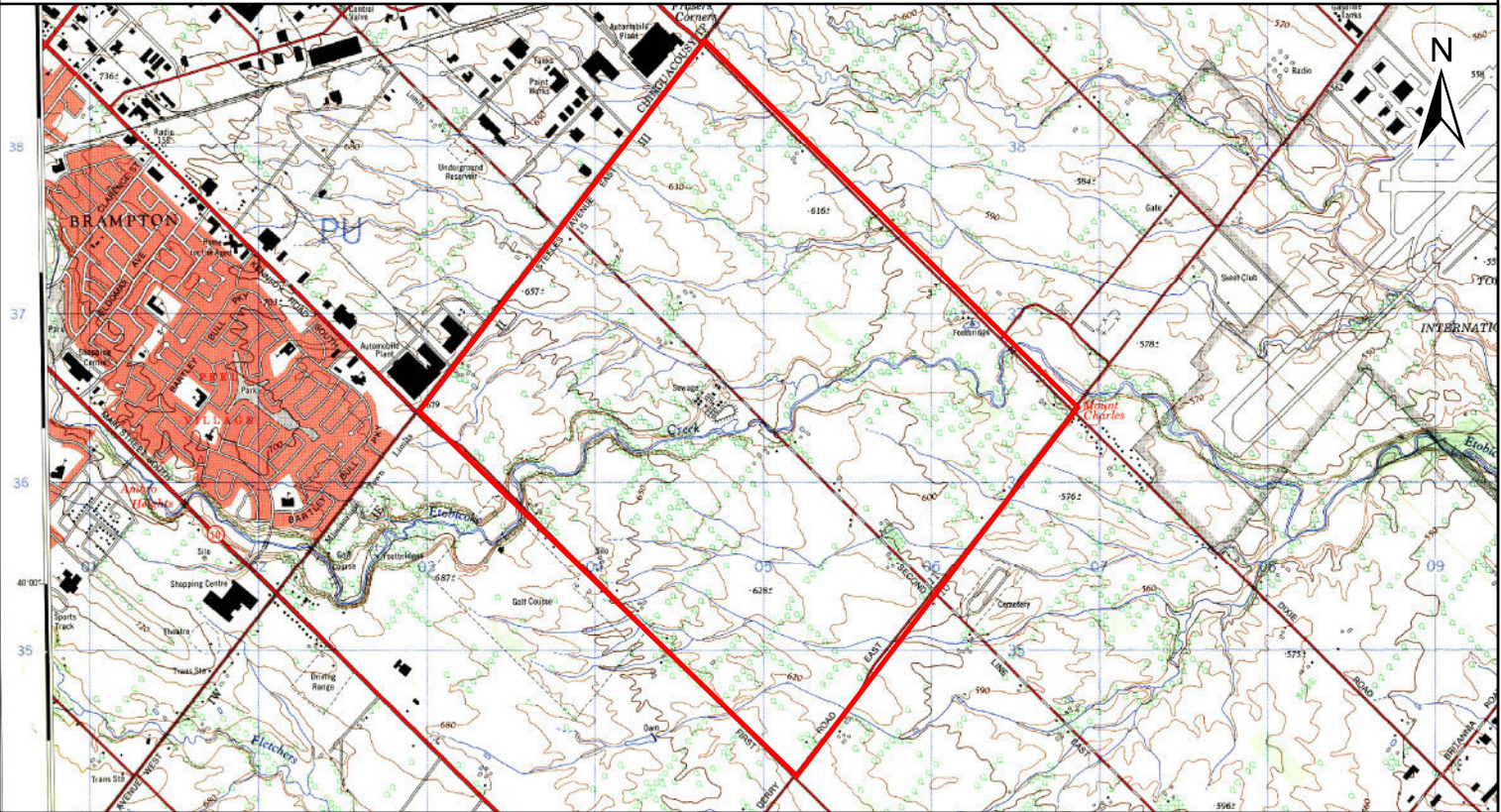


Figure 7: Study Area (Approximate Location) Overlaid on the 1974 NTS Brampton Sheet

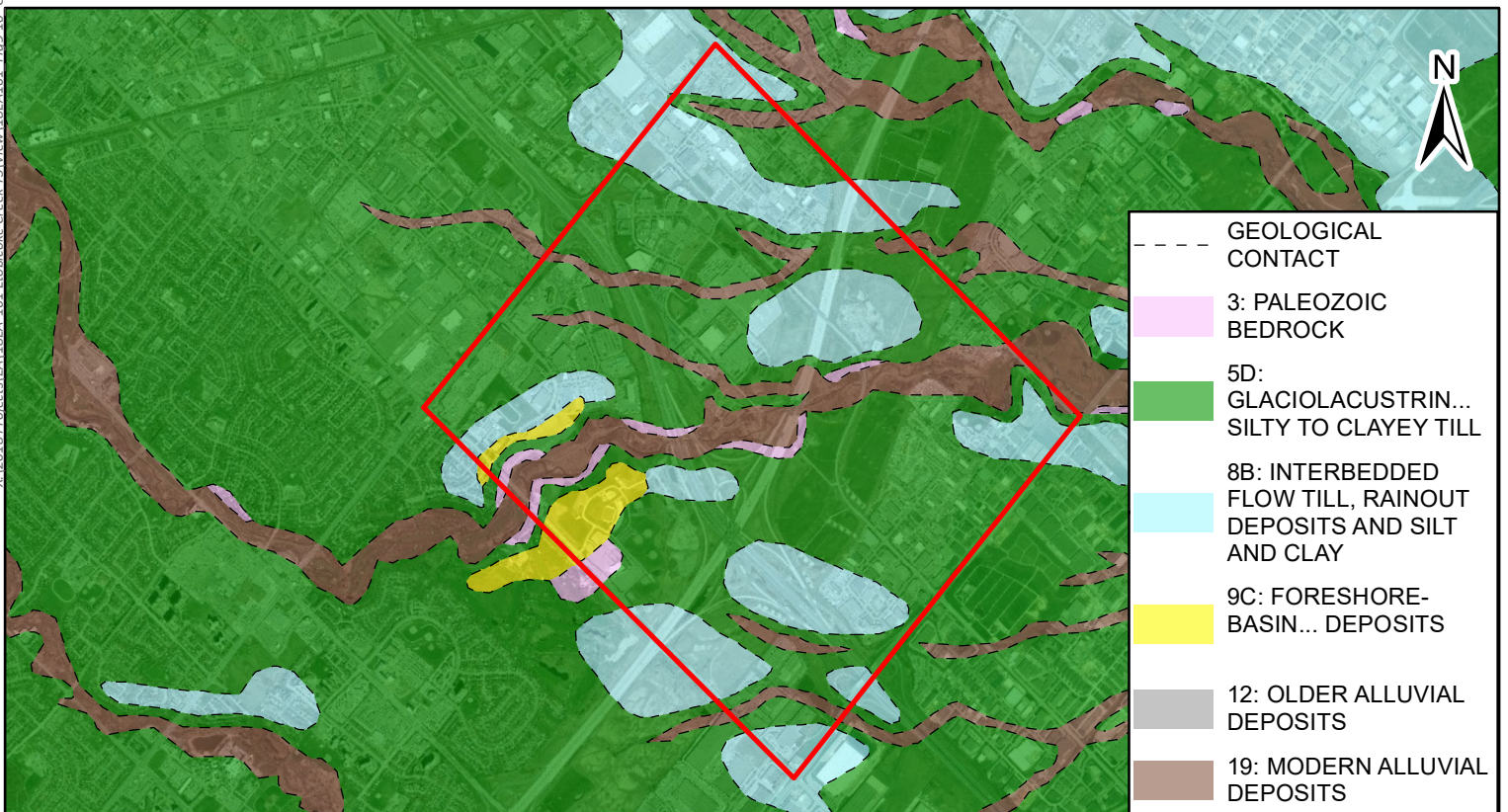


Figure 8: Study Area – Surficial Geology

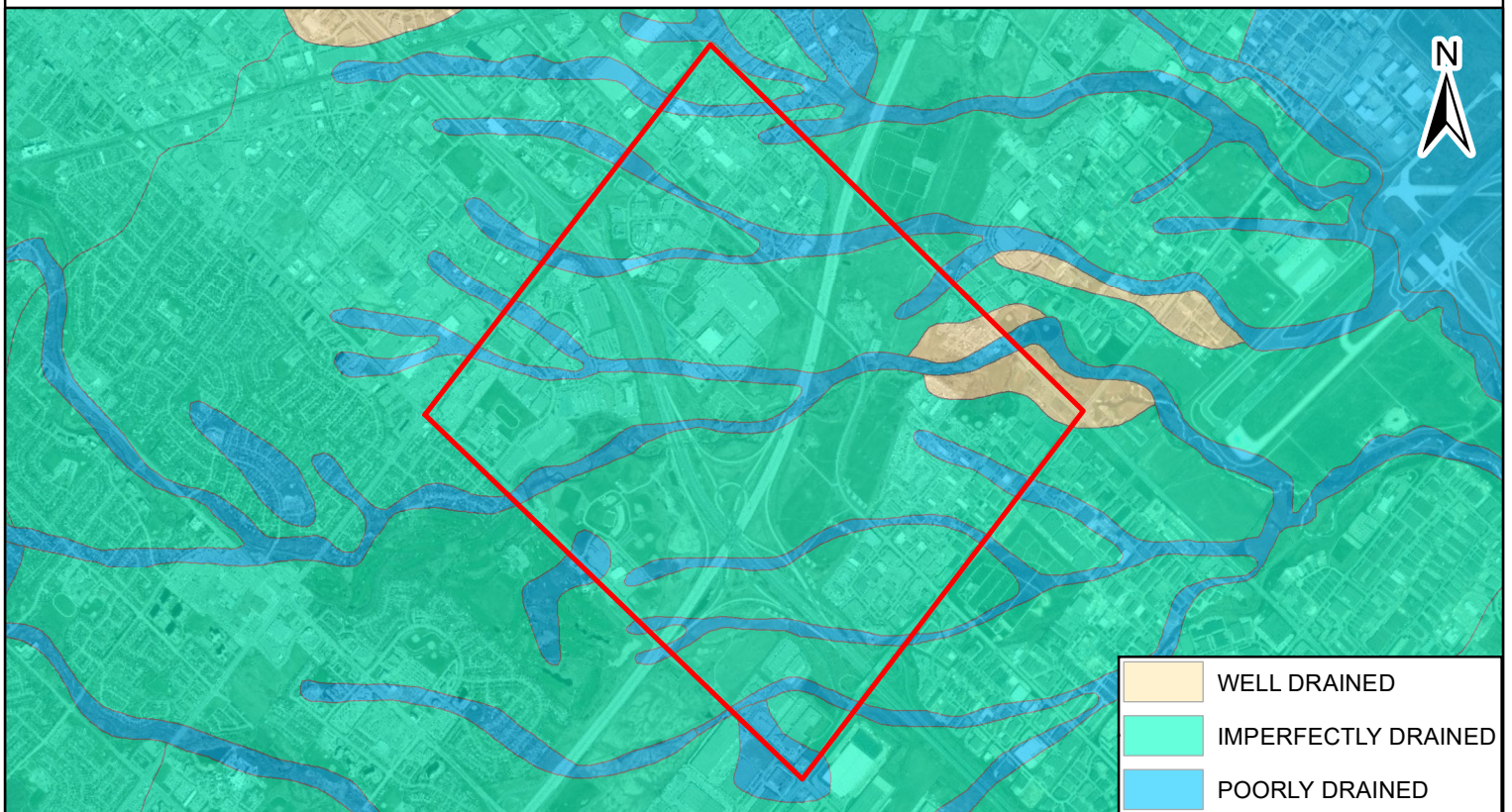



Figure 9: Study Area – Soil Drainage



 STUDY AREA

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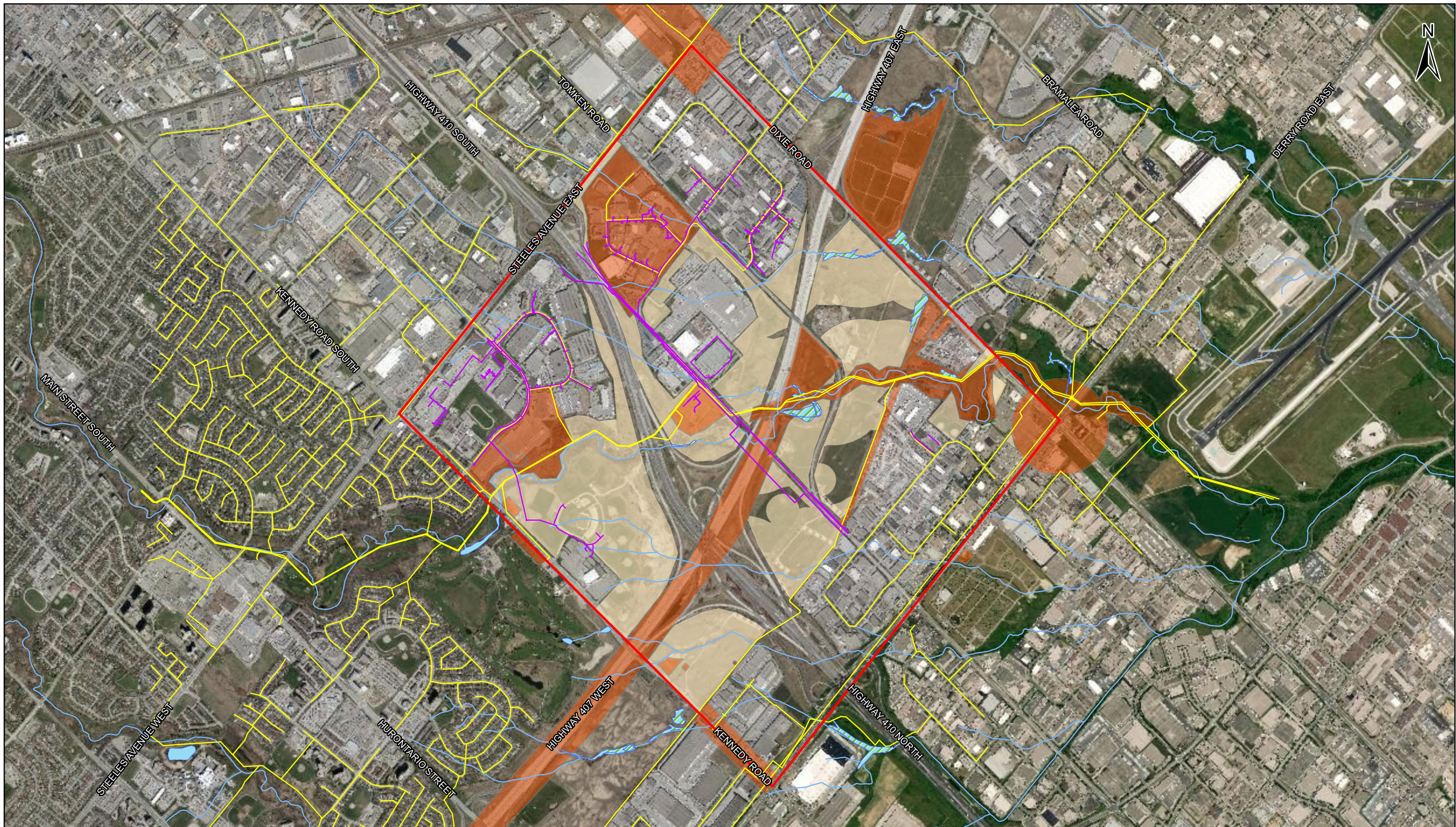


Figure 10: Etobicoke Creek Trunk Sewer - Archaeological Potential Model



	<div data-bbox="174 1782 522 1838"> STUDY AREA </div> <div data-bbox="205 1854 873 1899"> PREVIOUSLY REGISTERED SITES </div> <div data-bbox="1659 1830 2231 1911" style="font-size: 48px; font-weight: bold; text-align: center;"> CONFIDENTIAL </div>	<p>Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community</p> <p>Projection: NAD 1983 UTM Zone 17N Scale: 1:20,353 Page Size: 11 x 17</p>	<div data-bbox="2747 1757 2965 1858"> <div style="display: flex; justify-content: space-between;"> 0 500 </div> <p style="text-align: center;">Metres</p> </div> <div data-bbox="2635 1870 3055 1923"> <div style="display: flex; justify-content: space-between;"> ASI PROJECT NO.:18EA-161 DATE: 2019-06-13 DRAWN BY:AB FILE: 18EA161_SDFig1 </div> </div>
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Figure 11: Etobicoke Creek Trunk Sewer Improvements & Upgrades Study Area - Previously Registered Sites