

Appendix C

Archaeology

March 18, 2021

Prepared for



BRAMPTON
Flower City

Prepared by



IBI GROUP



**STAGE 1 ARCHAEOLOGICAL ASSESSMENT
HIGHWAY 50 NEW TRANSIT MAINTENANCE FACILITY
PART OF LOTS 11-12, CONCESSION 11 NERN DIV
(FORMER TOWNSHIP OF TORONTO GORE)
CITY OF BRAMPTON
COUNTY OF PEEL, ONTARIO**

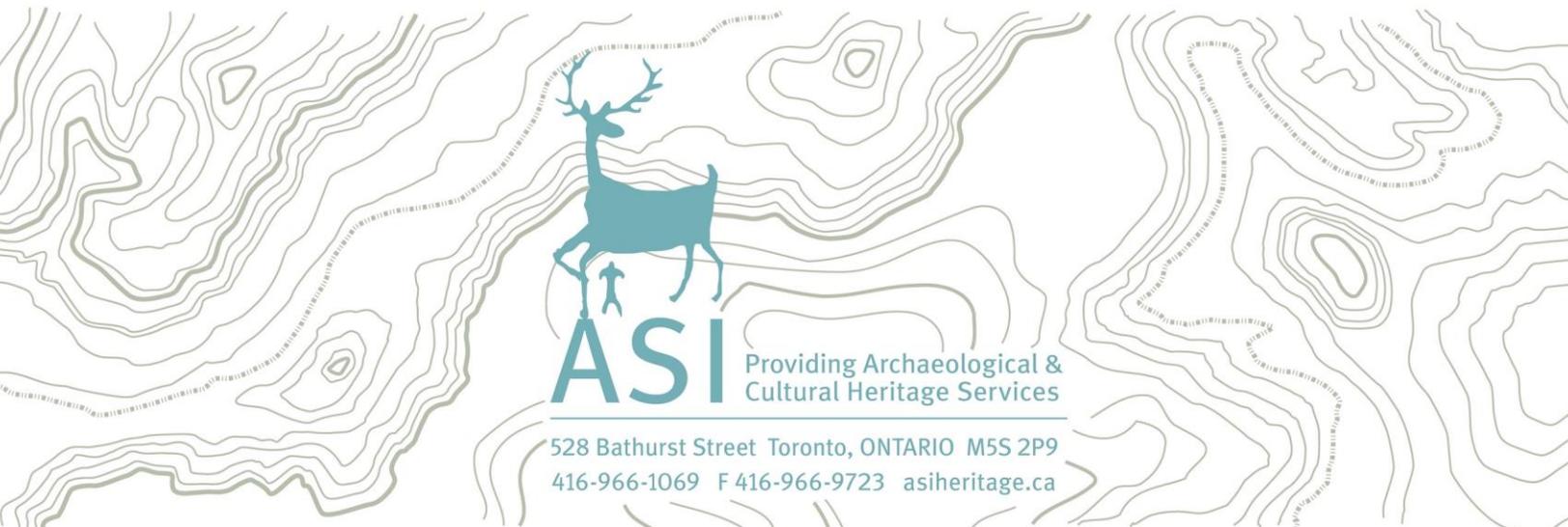
ORIGINAL REPORT

Prepared for:

IBI Group
175 Galaxy Blvd, Unit 100
Toronto, ON M9W 0C9

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**Stage 1 Archaeological Assessment
Highway 50 New Transit Maintenance Facility
Part of Lot 12, Concession 11 NERN DIV
(Former Township of Toronto Gore)
City of Brampton
County of Peel, Ontario**

EXECUTIVE SUMMARY

ASI was contracted by IBI Group to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Highway 50 New Transit Maintenance Facility in the City of Brampton. This project involves the construction of a new Brampton Transit Maintenance Facility to be constructed on the east side of Highway 50, immediately south of Cadetta Road.

The Stage 1 background study determined that seven previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibits archaeological potential and will require Stage 2 assessment.

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey at five metre intervals, where appropriate, prior to any proposed impacts to the property;
2. The remainder of the Study Area does not retain archaeological potential on account of low and wet conditions or having been previously assessed. These lands do not require further archaeological assessment; and,
3. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.



PROJECT PERSONNEL

<i>Senior Project Manager:</i>	Lisa Merritt, MSc. (P094) <i>Partner / Director</i> <i>Environmental Assessment Division</i>
<i>Project Coordinator:</i>	Katrina Thach, Hon. BA (R1225) <i>Archaeologist / Project Coordinator</i> <i>Environmental Assessment Division</i>
<i>Project Director (Licensee):</i>	Blake Williams, MLitt (P383) <i>Associate Archaeologist / Technical Writer</i> <i>Mitigation Division</i>
<i>Project Manager:</i>	Eliza Brandy, MA (R1109) <i>Associate Archaeologist / Project Manager</i> <i>Environmental Assessment Division</i>
<i>Field Director:</i>	John Sleath, MA (P382) <i>Associate Archaeologist / Project Manager</i> <i>Cultural Heritage Division</i>
<i>Report Preparation:</i>	Eliza Brandy Danielle Bella <i>Archaeologist / Analyst – Laboratory and Fieldwork Services</i> <i>Operations Division</i>
<i>Graphics:</i>	Eric Bongelli, MA <i>Archaeologist / Geomatics Specialist</i> <i>Operations Division</i> Adam Burwell, MSc <i>Archaeologist / Geomatics Specialist</i> <i>Operations Division</i>
<i>Report Reviewer:</i>	Lisa Merritt



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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by IBI Group to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Highway 50 New Transit Maintenance Facility in the City of Brampton (Figure 1). This project involves the construction of a new Brampton Transit Maintenance Facility to be constructed on the east side of Highway 50, immediately south of Cadetta Road.

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (2017, as amended in 2018) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), administered by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI 2011), formerly the Ministry of Tourism, Culture and Sport.

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. The work is being done in accordance with Ontario's Transit Project Assessment Process (TPAP) (Ministry of the Environment 2014, amended 2015).

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by IBI Group on August 13, 2019.

1.2 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.

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

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.



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 (Pudash 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.

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 19, the Ajetance Purchase, signed in 1818 between the Crown and the Mississaugas (Aboriginal Affairs and Northern Development Canada 2013). This treaty, however, excluded lands within one mile on either side of the Credit River, Twelve Mile Creek, and Sixteen Mile Creeks. In 1820, Treaties 22 and 23 were signed which acquired these remaining lands, except a 200 acre parcel along the Credit River (Heritage Mississauga 2012:18).



1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Township of Toronto Gore, County of Peel in Lots 11-12, Concession 11 Northeastern Division (NERN DIV).

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 Gore Township

The Township of Toronto Gore was established in 1831, and its name is derived from its particular boundary shape, as it resembles a wedge introduced between the adjacent townships of Chinguacousy, Toronto, Vaughan, and Etobicoke. The area that would eventually comprise the Township of Toronto Gore was formally surveyed in 1818, and the first “legal” settlers took up their lands later in that same year. The first landowners in the township were composed of settlers from New Brunswick, the United States, and also some United Empire Loyalists and their children. The Township of Toronto Gore remained a part of the County of Peel until 1973, and in 1974, the Township became a part of the City of Brampton (Mika and Mika 1977:417; Armstrong 1985:142).

Coleraine

The community of Coleraine is situated on the boundary of Peel and York Regional Municipalities, with Highway 50 passing through the village. Coleraine, previously known as Frogsville, was first settled before 1834 by the Raines family and a man named Cole. The name of Coleraine was created through joining of these names. The first school and post office opened in the year 1853, and the Wesleyan Methodist congregation formed in 1861. The village had a population of approximately 100 people by the late 1870s. Regional government was established in the area in 1971, previously Coleraine had been part of the Township of Vaughan (Mika and Mika 1977:465–466).



1.2.3 Historical Map Review

The 1859 *Tremaine's Map of the County of Peel* (Tremaine 1859) and the 1877 *Illustrated Historical Atlas of the County of Peel* (Walker and Miles 1877) were examined to determine the presence of historic features within the Study Area during the nineteenth century (Table 1; Figures 2-3).

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.

Table 1: Nineteenth-century property owner(s) and historical features(s) within or adjacent to the Study Area

		1859		1877	
Con #	Lot #	Property Owner(s)	Historical Feature(s)	Property Owner(s)	Historical Feature(s)
11 NERN DIV	12	J. Parr	Structure	J St. John	Structure
		Geo. Leighton	Structure Tributary	Geo. Leighton	Structure
		Jas St. John	Tributary	Est of Wm Kersey	Structure
		Jos. Parr	None	Montgomery	Structure
11 NERN DIV	11	Jas & Jno. Johnson	Tributary	Jas Johnson	Tributary

The 1859 map shows the community of Coleraine at the northeast corner, and a tributary of the Humber River is shown in the west side of the Study Area. No structures are shown within the Study Area. The 1877 map shows a house within the Study Area fronting Highway 50.

1.2.4 Twentieth-Century Mapping Review

The 1919, 1940, and 1990 National Topographic System Map Bolton Sheets (Department of Militia and Defence 1919; Department of National Defence 1940; Department of Energy, Mines and Resources



1994), and 1954 aerial photography (Hunting Survey Corporation Limited 1954) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 4-7).

The 1919 map indicates a structure and a portion of deciduous woods within the Study Area. An unmetalled road to the east acts as the county boundary and as a telegraph or telephone line. Coleraine is situated to the north, at the intersection of Highway 50, Coleraine Drive, and Major Mackenzie Drive. The tributary of the Humber River is shown to the west. The 1940 map shows Highway 50 now as an improved road. The area remains relatively unchanged. The 1954 aerial photo shows the Study Area as an undeveloped agricultural field with a structure adjacent to the south, and Cadetta Road to the north. Highway 50 is labelled. Cadetta Road is also depicted in the 1990 map, with some surrounding structures. The tributary of Humber river is the only feature shown within the Study Area.

1.3 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 MHSTCI through “Ontario’s Past Portal”; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

A review of available Google satellite imagery shows that a portion of the Study Area nearest Highway 50 and Cadetta Road was disturbed due to construction activities in 2015. The rest of the Study Area has remained relatively unchanged since 2004.

A Stage 1 property inspection was conducted on October 17, 2019 that noted the Study Area is located within an agricultural field and a City Works yard to the west of Highway 50, adjacent to Cadetta Road to the south, and north of Old Castlemore Road in Brampton. The Study Area also contains a small grassed section with an outbuilding and farm buildings to the south.

1.3.2 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 located within the bevelled till plains of the Peel Plain of southern Ontario (Chapman and Putnam 1984). 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 500 and 750 feet 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 though 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).

Figure 8 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by fine-textured glaciolacustrine deposits of silt and clay, minor sand and gravel, interbedded silt and clay and gritty, pebbly flow till and rainout deposits (Ontario Geological Survey 2010). Soil in the Study Area consists of Peel clay, a stonefree grey-brown podzolic with imperfect drainage (Figure 9).

A tributary of the Humber River flows to the west of the Study Area. The Humber River Watershed encompasses 911 square kilometres originating on the Niagara Escarpment and the Oak Ridges Moraine, draining into Lake Ontario through the Humber River. The area includes 1,800 kilometres of waterway and 600 bodies of water. The land use in the Humber River watershed is 54% rural, 33% urban, and 13% urbanizing, with 32% overall being natural cover (Toronto and Region Conservation Authority 2019).



1.3.3 Previous Archaeological Research

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD) maintained by the MHSTCI. 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.

According to the OASD, seven previously registered archaeological sites are located within one kilometre of the Study Area, one of which is within the Study Area but does not have further Cultural Heritage Value or Interest (MHSTCI 2019). A summary of the sites is provided below.

Table 2: List of previously registered sites within one kilometre of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Researcher
AkGv-159	n/a	Archaic, Late	Findspot	Poulton 1999
AkGw-17	South Coleraine	Euro-Canadian	Homestead	Poulton 1999
AkGw-466	Block 66H2	Euro-Canadian	Homestead	Archeoworks 2011
AkGw-471	Montgomery 1	Euro-Canadian	Homestead, farmstead	TLA 2013, 2014, 2015
AkGw-472	Montgomery 2	Euro-Canadian	Homestead	TLA 2013, 2014
AkGw-488	St. John	Euro-Canadian	Homestead	ASI 2015; ARA 2016
AkGw-493	Clarkway H1 Site	Euro-Canadian	Homestead	Archeoworks 2015, 2017

Sites in **bold** are within the Study Area

ARA – Archaeological Research Associates

Poulton – D. R. Poulton & Associates Inc.

TLA – This Land Archaeology

According to the background research, 13 previous reports detail fieldwork within 50 m of the Study Area.

ASI (2008a) conducted a Stage 1 Archaeological Assessment as part of the Highway 50 and Highway 427 Extension Area project, in the Peel-York boundary area, including the current Study Area. Background research and property inspection determined that the area has archaeological potential and requires a Stage 2 Archaeological Assessment of the preferred alternative.

ASI (2008b) conducted a Stage 1 Archaeological Assessment as part of the Works and Transportation Satellite Yards Class Environmental Assessment in the Regional Municipality of Peel, within the current Study Area. Field review determined the area to possess archaeological potential and determined a Stage 2 Archaeological Assessment is required.

ASI (2010a) conducted a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Highway 50 and Mayfield Road Class Environmental Assessment in the City of Brampton, including parts of the current Study Area. Property inspection determined the area beyond the disturbed Right of Way (ROW) of Highway 50 has archaeological potential, and a Stage 2 Archaeological



Assessment is necessary prior to construction. ASI (2012) conducted a Stage 2 Archaeological Assessment including a systematic pedestrian survey, resulting in no cultural resources.

ASI (2010b) conducted a Stage 1 Archaeological Resource Assessment as part of the Highway 427 Industrial Secondary Plan project in the City of Brampton, including parts of the current Study Area. Field review determined the area exhibits archaeological potential and requires a Stage 2 Archaeological Assessment prior to any land disturbing activities.

ASI (2014) conducted a Stage 1 Archaeological Assessment for the Western Vaughan Transportation Improvements Individual Environmental Assessment in the City of Vaughan, including part of the current Study Area. The Highway 50 ROW from Major Mackenzie Drive West to Rutherford Road was deemed deeply disturbed by field review, and no further work was recommended.

This Land Archaeology Inc. (2014) conducted a Stage 1 and 2 Archaeological Assessment in 2013 of the 10307 Clarkway Developments Ltd. property in the City of Brampton, including parts of the current Study Area. Pedestrian and test pit surveys were conducted, resulting in the identification of two archaeological sites. The Montgomery 1 Site (AkGw-471) consisted of a scatter of 543 Euro-Canadian artifacts, with a suggested date from the mid-nineteenth century to the early twentieth century. The Montgomery 2 Site (AkGw-472) consisted of 23 Euro-Canadian artifacts dating from the mid-nineteenth century to the early twentieth century, found from eleven positive test pits.

This Land Archaeology Inc. (2016a) conducted the Stage 3 Archaeological Assessments of the Montgomery 1 Site (AkGw-471) and the Montgomery 2 Site (AkGw-472) in 2014. A controlled surface pick-up was conducted on the Montgomery 1 Site (AkGw-471), resulting in an assemblage of 447 Euro-Canadian artifacts. A Stage 3 assessment resulted in 2,160 artifacts from 34 test units, and the identification of four potential features. The Montgomery 1 Site (AkGw-471) was determined to represent an early to late 19th century farmstead which holds Cultural Heritage Value or Interest. The Stage 3 excavations of the Montgomery 2 Site (AkGw-472) resulted in 138 artifacts from 17 artifact producing units, of late 19th century and inclusions of 20th century artifacts. As the Montgomery 2 Site (AkGw-472) lacks archaeological integrity, no further work was recommended.

In 2015, This Land Archaeology Inc. (2016b) conducted the Stage 4 excavation of the Montgomery 1 Site (AkGw-471) resulting in the recovery of 7,255 artifacts and the identification of two cellar features, a cistern, a small refuse pit, and a dog burial. The site is interpreted to represent the occupation of Joseph Parr circa 1845 to 1876, and of Thomas Montgomery who was sold the land in 1863. The Stage 4 Mitigation was completed and no further work is required.

ASI (2015) conducted a Stage 2 Archaeological Assessment for the future satellite yard at 0 Highway 50 in the City of Brampton, including parts of the current Study Area. A pedestrian survey was conducted at 5 m intervals, and a lithic findspot and historic Euro-Canadian site were identified. The pre-contact indigenous findspot consisted of an isolated non-diagnostic chert flake, requiring no further assessment. The historic Euro-Canadian site was registered as the St. John Site (AkGw-488), consisting of an 1840-1880 domestic assemblage of 300 artifacts.

ASI (2016) conducted a Stage 3 Site Specific Archaeological Assessment for the St. John Site (AkGw-488) consisting of a controlled surface pickup and forty-five one-metre test pits. The assemblage of 2,735 artifacts represents a mid-nineteenth century Euro-Canadian archaeological resource.



ARA (2016) conducted the Stage 4 Mitigation of the St. John Site (AkGw-488), consisting of block excavation, mechanical topsoil removal, and feature excavation. The assemblage was of 4,729 Euro-Canadian artifacts dating to mid- to late 19th century. Nine cultural features and six post moulds were identified. It was concluded the site represents the demolished St. John homestead and land used by successive occupants. The site was fully mitigated and no further archaeological assessment was recommended.

AMICK Consultants Limited (2016) conducted a Stage 1-2 Archaeological Assessment of Lot 12, Concession 11 in the City of Brampton, adjacent the current Study Area. Pedestrian and test pit surveys were conducted at five metre intervals, resulting in five pre-contact indigenous findspots. The finds were too far apart and non-diagnostic to recommend Stage 3 work. The area is clear of further archaeological concern.

2.0 FIELD METHODS: PROPERTY INSPECTION

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.

The Stage 1 archaeological assessment property inspection was conducted under the field direction of John Sleath (P382) of ASI, on October 17, 2019, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. It was a visual inspection only and did not include excavation or collection of archaeological resources.

Fieldwork was only conducted when weather conditions were deemed suitable and seasonally appropriate, per S & G Section 1.2., Standard 2. Previously identified features of archaeological potential were examined; additional features of archaeological potential not visible on mapping were identified and documented as well as any features that will affect assessment strategies. Field observations are compiled onto the existing conditions of the Study Area in Section 7.0 (Figure 10) and associated photographic plates are presented in Section 8.0 (Plates 1-10).

3.0 ANALYSIS AND CONCLUSIONS

The historical and archaeological contexts have been analyzed to help determine the archaeological potential of the Study Area. These data are presented below in Section 3.1. Results of the analysis of the Study Area property inspection are presented in Section 3.2.



3.1 Analysis 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 (Humber River Tributary);
- Early historic transportation routes (Provincial Highway 50); and
- Proximity to early settlements (Coleraine)

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 Register was consulted and no properties within the Study Area are Listed or Designated under the Ontario Heritage Act.

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.

3.2 Analysis of Property Inspection Results

The property inspection determined that the Study Area exhibits archaeological potential (Plates 1-5; Figure 10: areas highlighted in green). These areas will require Stage 2 archaeological assessment prior to any development. According to the S & G Section 2.1.1, pedestrian survey is required in actively or recently cultivated fields (eg. Plates 1-5). According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide (eg. Plate 2).

A part of the study area is located in low and wet conditions, and according to the S & G Section 2.1 does not retain potential (Figure 10: areas highlighted in blue). Parts of the Study Area have been previously assessed (ASI 2008b; ASI 2010a; ASI 2012; ASI 2014; This Land Archaeology Inc. 2014; ASI 2015; ASI 2016; ARA 2016) and do not require further work (Figure 10: areas highlighted in red). These areas do not require further assessment.

3.3 Conclusions

The Stage 1 background study determined that seven previously registered archaeological sites are located within one kilometre of the Study Area. The property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 assessment.



4.0 RECOMMENDATIONS

In light of these results, the following recommendations are made:

1. The Study Area exhibits archaeological potential. These lands require Stage 2 archaeological assessment by test pit/pedestrian survey at five metre intervals, where appropriate, prior to any proposed impacts to the property;
2. The remainder of the Study Area does not retain archaeological potential on account of low and wet conditions or having been previously assessed. These lands do not require further archaeological assessment; and,
3. Should the proposed work extend beyond the current Study Area, further Stage 1 archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the MHSTCI should be immediately notified.



5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

ASI also advises compliance with the following legislation:

- This report is submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 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 field work and report recommendations ensure the conservation, preservation and protection 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 Heritage, Sport, Tourism and Culture Industries, 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 field work 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.



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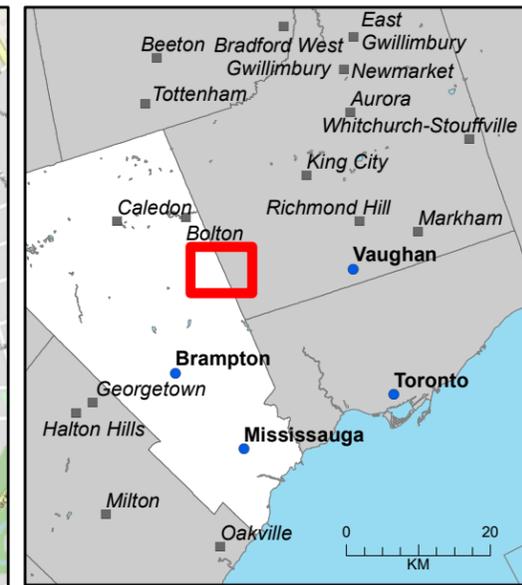
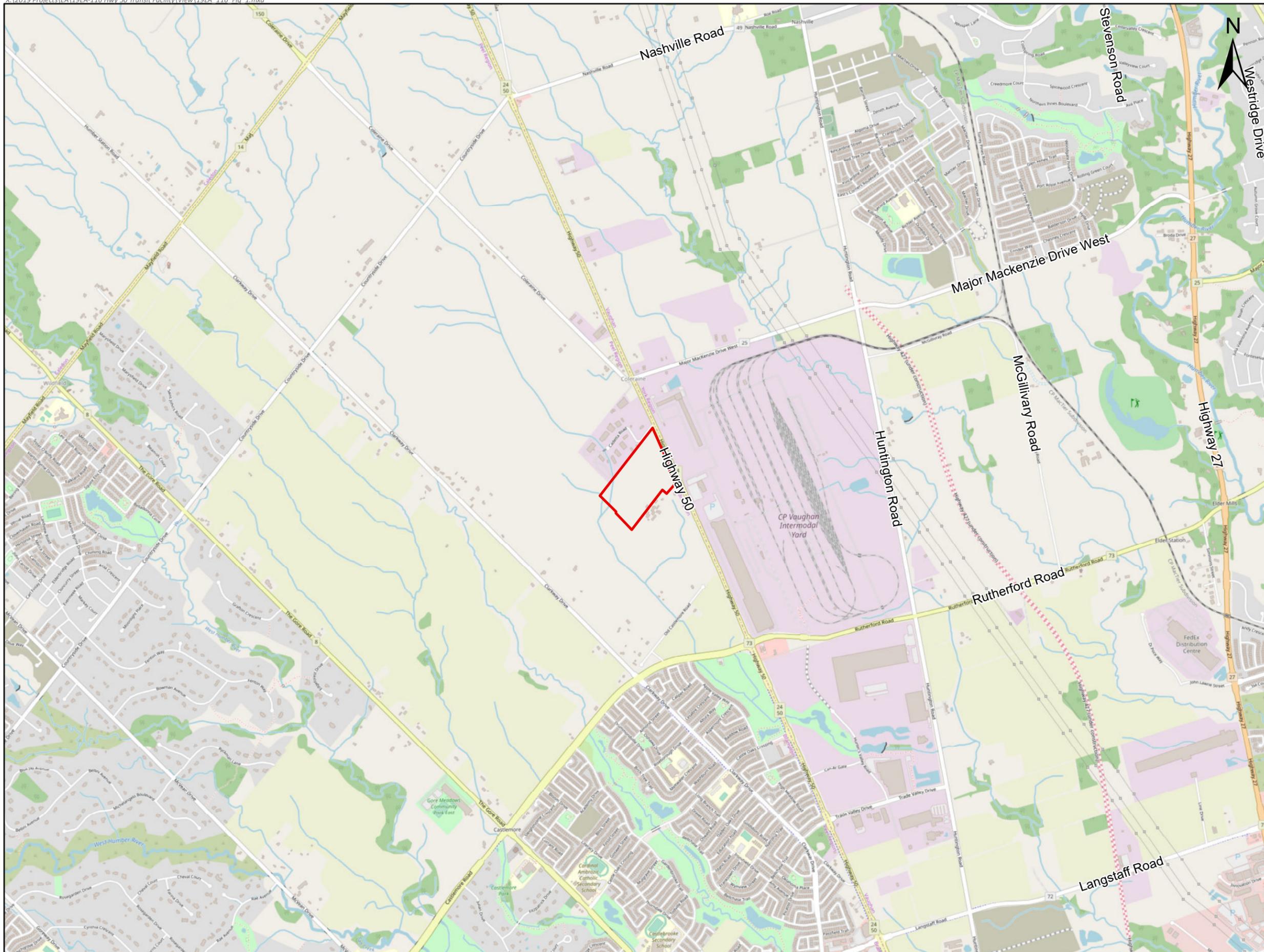
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7.0 MAPS





Sources: Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA
 Projection: NAD 1983 UTM Zone 17N
 Scale: 1:25,000
 Page Size: 11 x 17

ASI PROJECT NO.: 19EA_116
 DATE: 2019-10-31
 DRAWN BY: ESB
 FILE: 19EA_116_Fig_1

Providing Archaeological & Cultural Heritage Services
 528 Bathurst Street Toronto, ONTARIO M5S 2P9
 T 416-966-1069 F 416-966-9723 asiheritage.ca

Figure 1: New Highway 50 Transit Maintenance Facility Study Area

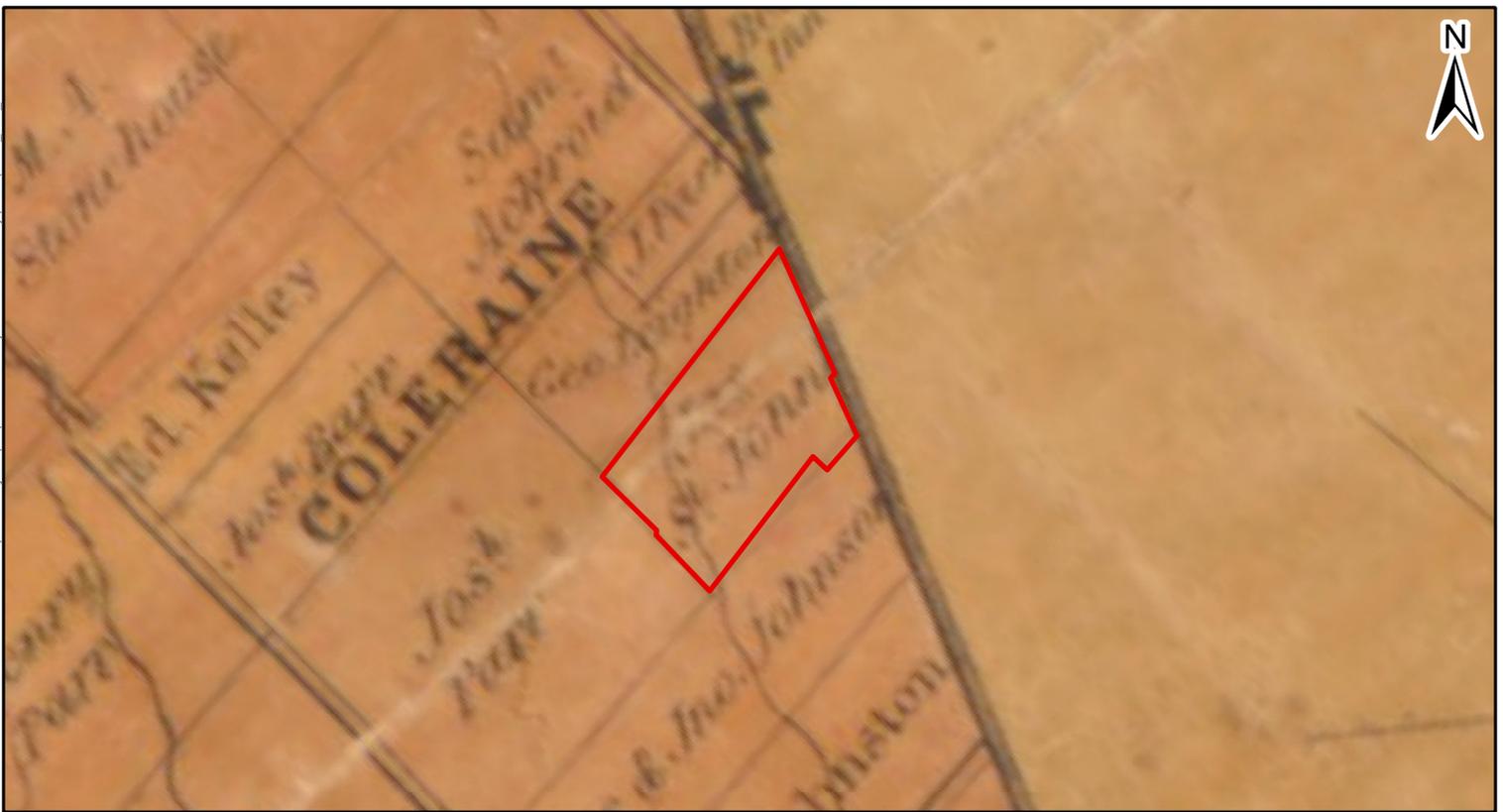


Figure 2: Study Area (Approximate Location) Overlaid on the 1859 Tremain's Map of the County of Peel

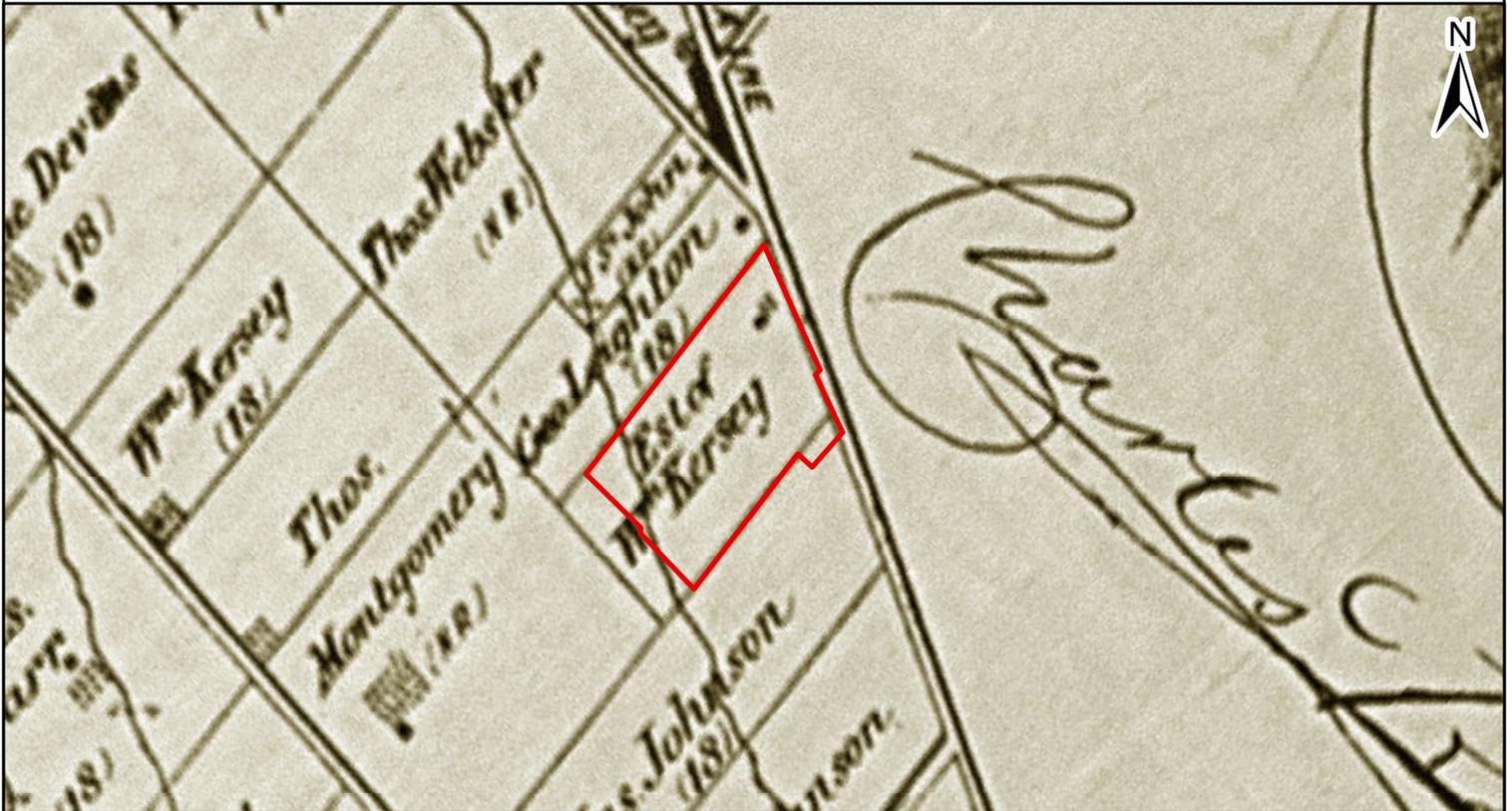


Figure 3: Study Area (Approximate Location) Overlaid on the 1877 Illustrated Historical Atlas of the County of Peel

		<p>Sources: Fig. 2: Tremain's Map, County of Peel. 1859; Fig. 3: Illustrated Historical Map, County of Peel. 1877</p> <p>Projection: NAD 1983 UTM Zone 17N Scale: 15,000 Page Size: 8.5 x 11</p>	<p>0 500 Metres</p> <p>ASI PROJECT NO.: 19EA_116 DRAWN BY: ESB DATE: 2019-10-18 FILE: 19EA_116_Historic</p>
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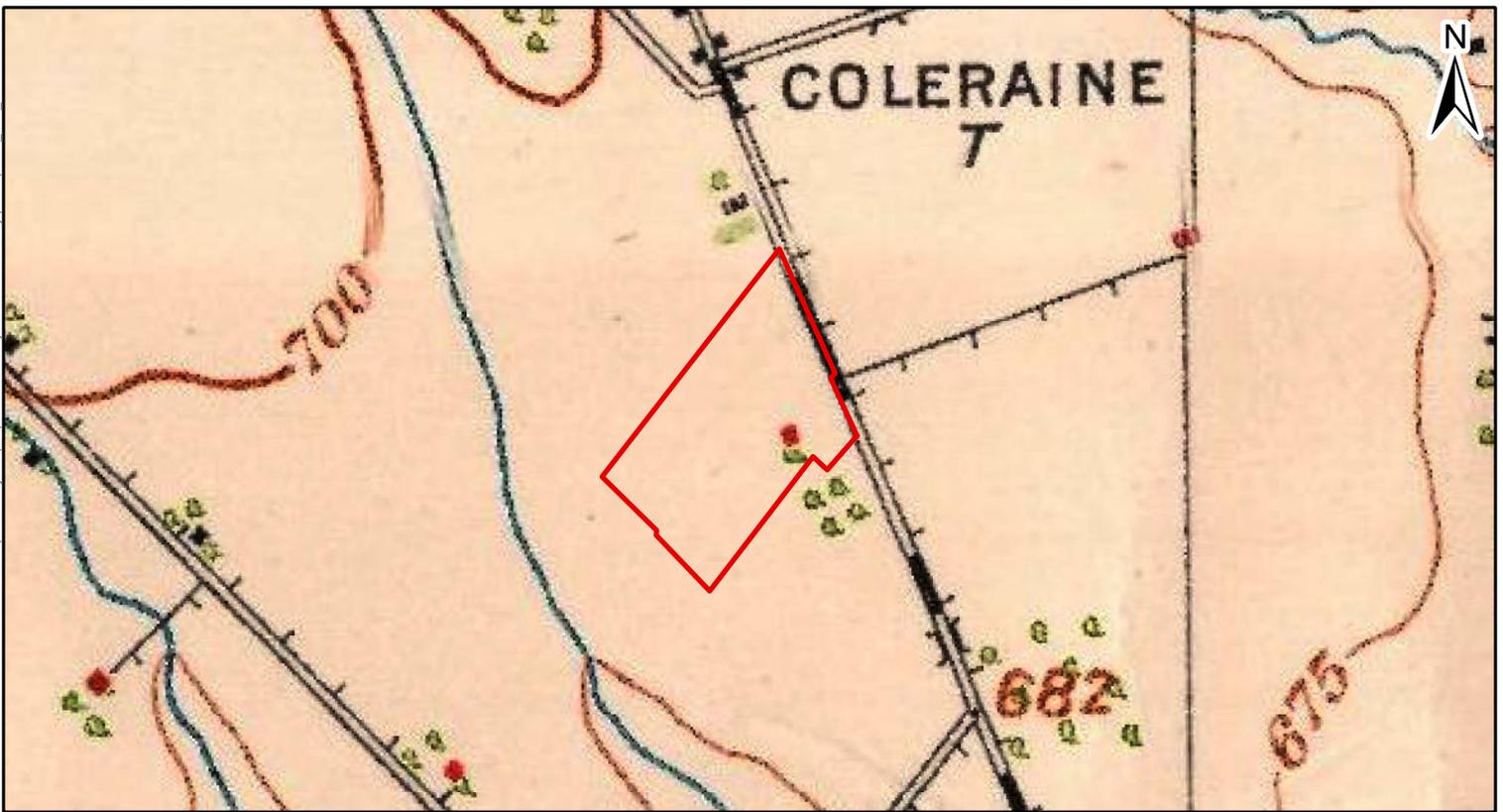


Figure 4: Study Area (Approximate Location) Overlaid on the 1919 National Topographic System Map Bolton Sheet

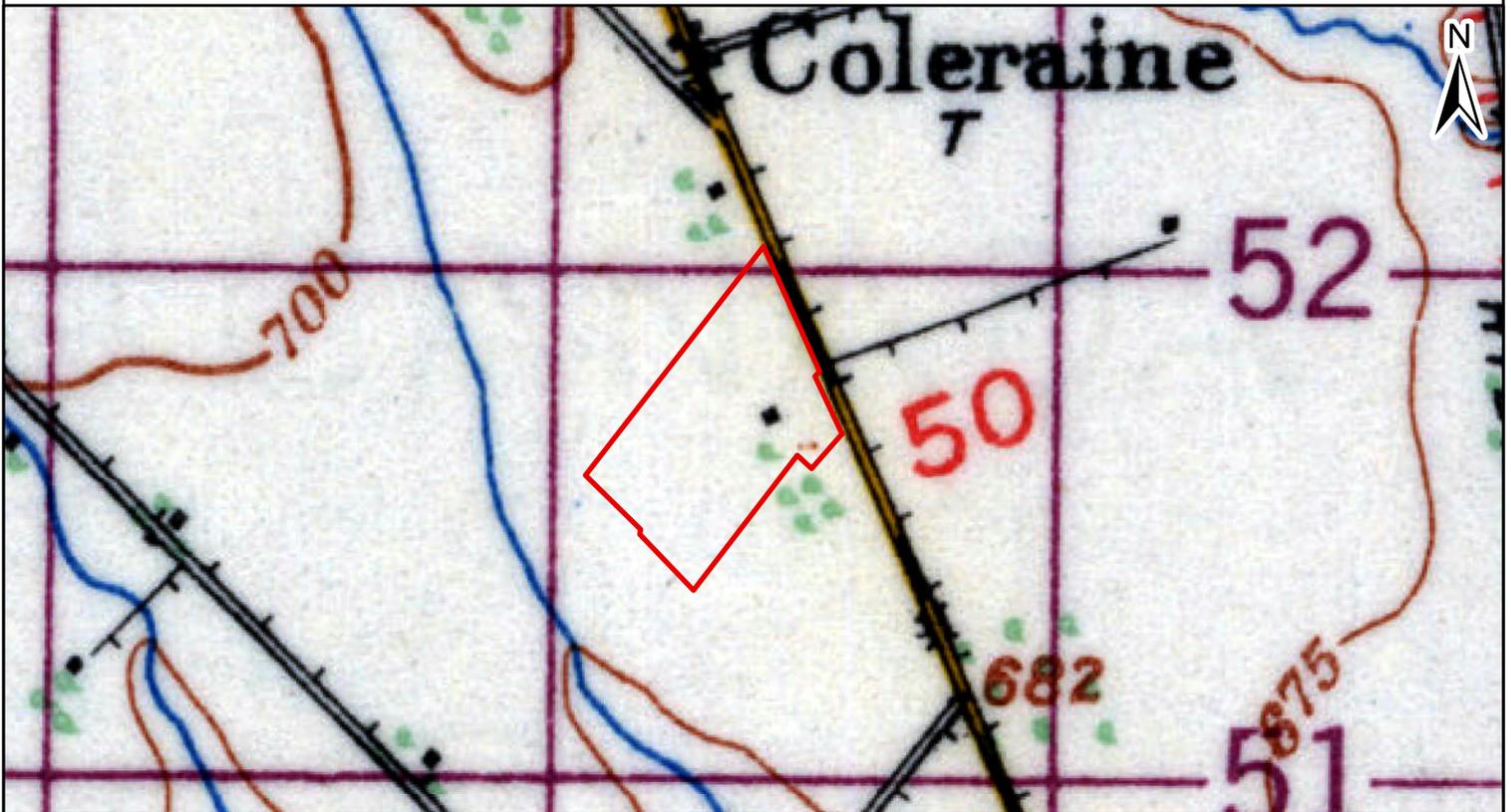


Figure 5: Study Area (Approximate Location) Overlaid on the 1940 National Topographic System Map Bolton Sheet

	 STUDY AREA	Sources: Fig. 4: NTS Bolton Sheet, 1919; Fig. 5: NTS Bolton Sheet, 1940 Projection: NAD 1983 UTM Zone 17N Scale: 1:15,000 Page Size: 8.5 x 11	<div style="text-align: right;">  <p>0 500 Metres</p> </div> <div style="font-size: small;"> ASI PROJECT NO.: 19EA_116 DRAWN BY: ESB DATE: 2019-10-18 FILE: 19EA_116_Historic </div>
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Figure 6: Study Area (Approximate Location) Overlaid on the 1954 Aerial Photograph of Brampton

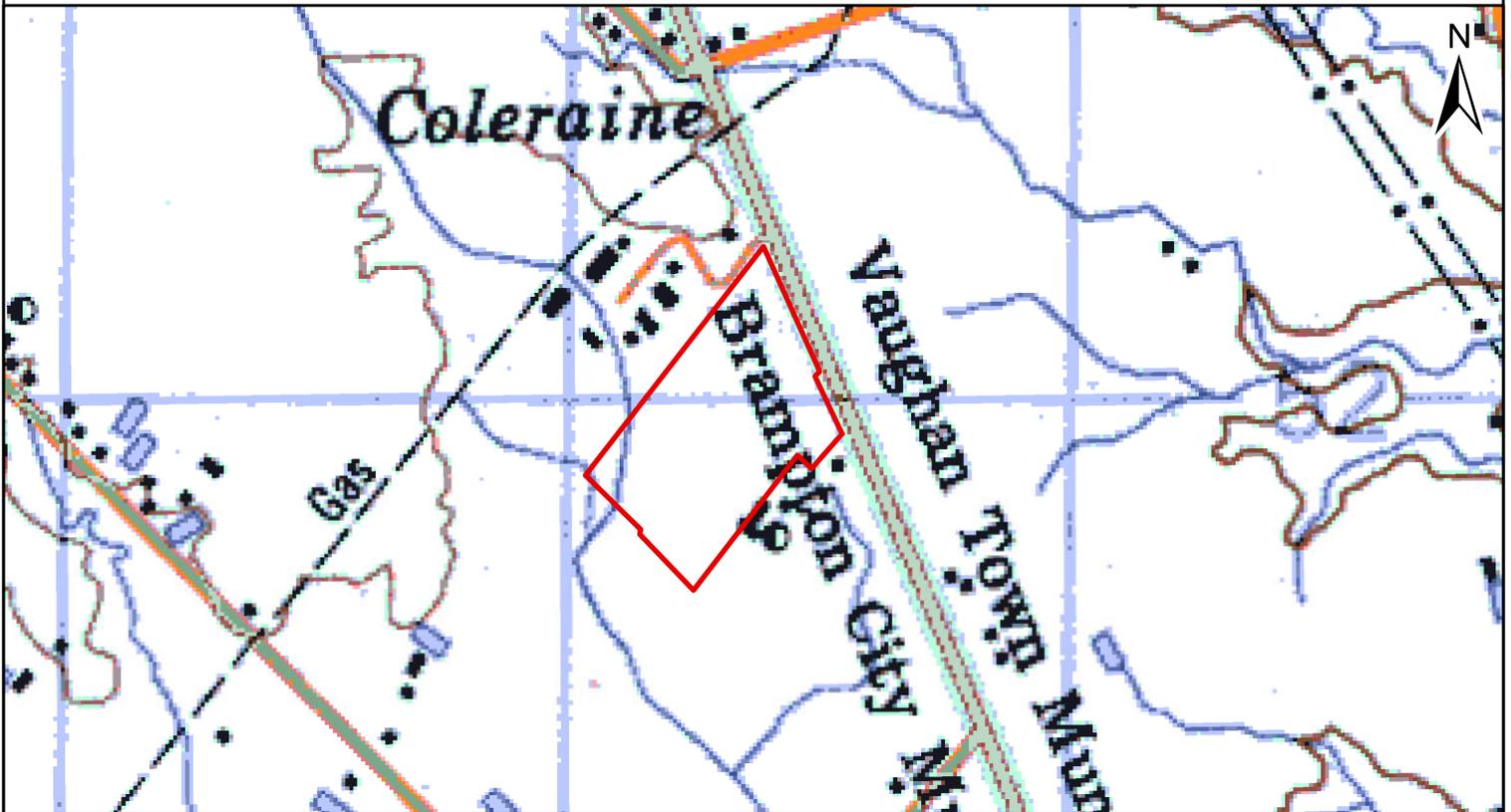


Figure 7: Study Area (Approximate Location) Overlaid on the 1990 National Topographic System Map Bolton Sheet

	 STUDY AREA	Sources: Fig. 5: https://mdl.library.utoronto.ca . Fig. 7: NTS Bolton Sheet. 1990. Projection: NAD 1983 UTM Zone 17N Scale: 1:15,000 Page Size: 8.5 x 11	 <p>0 500 Metres</p> <p>ASI PROJECT NO.: 19EA_116 DRAWN BY: ESB DATE: 2019-10-18 FILE: 19EA_116_Historic</p>
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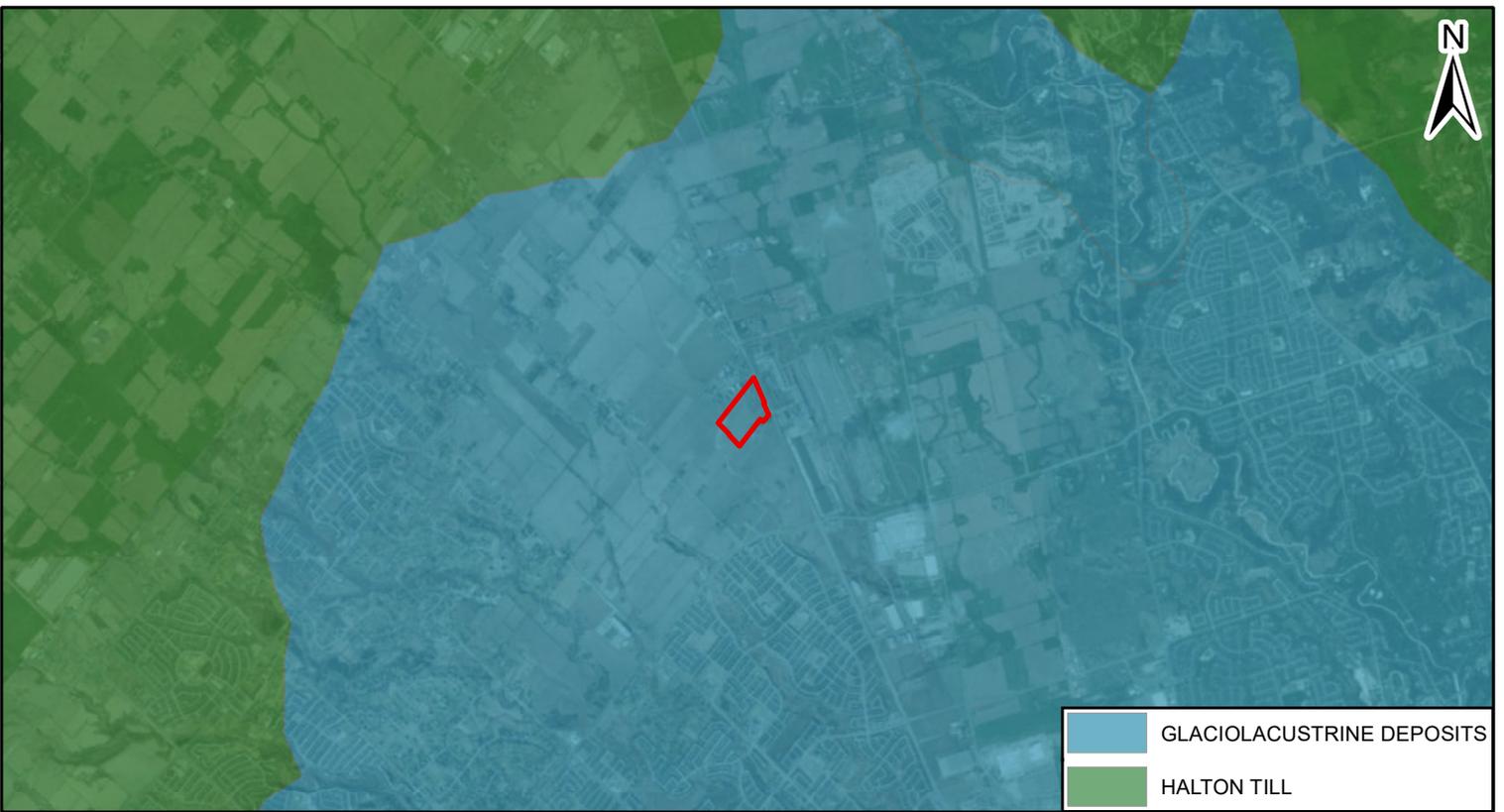


Figure 8: Study Area - Surficial Geology

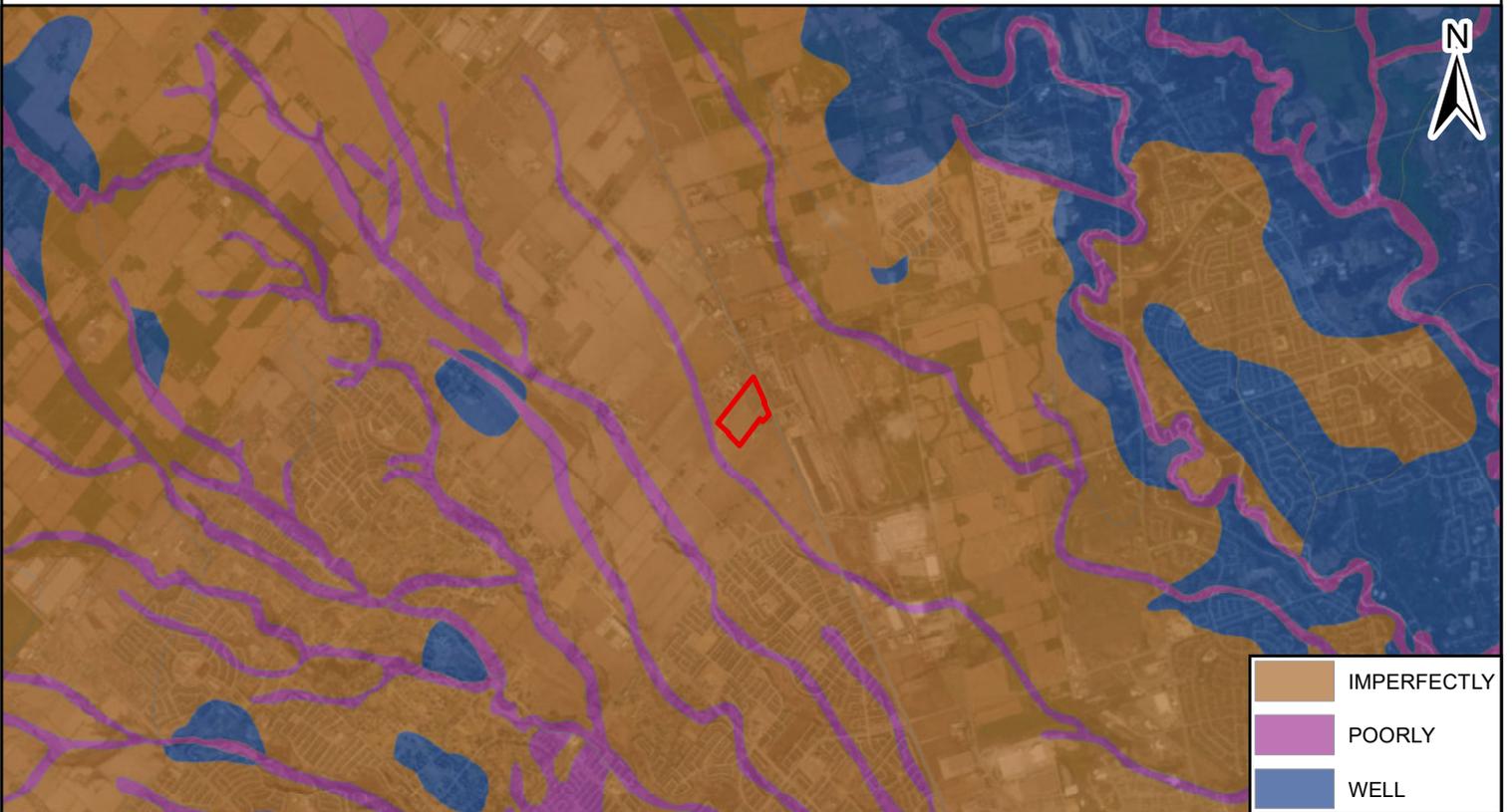


Figure 9: Study Area - Soil Drainage



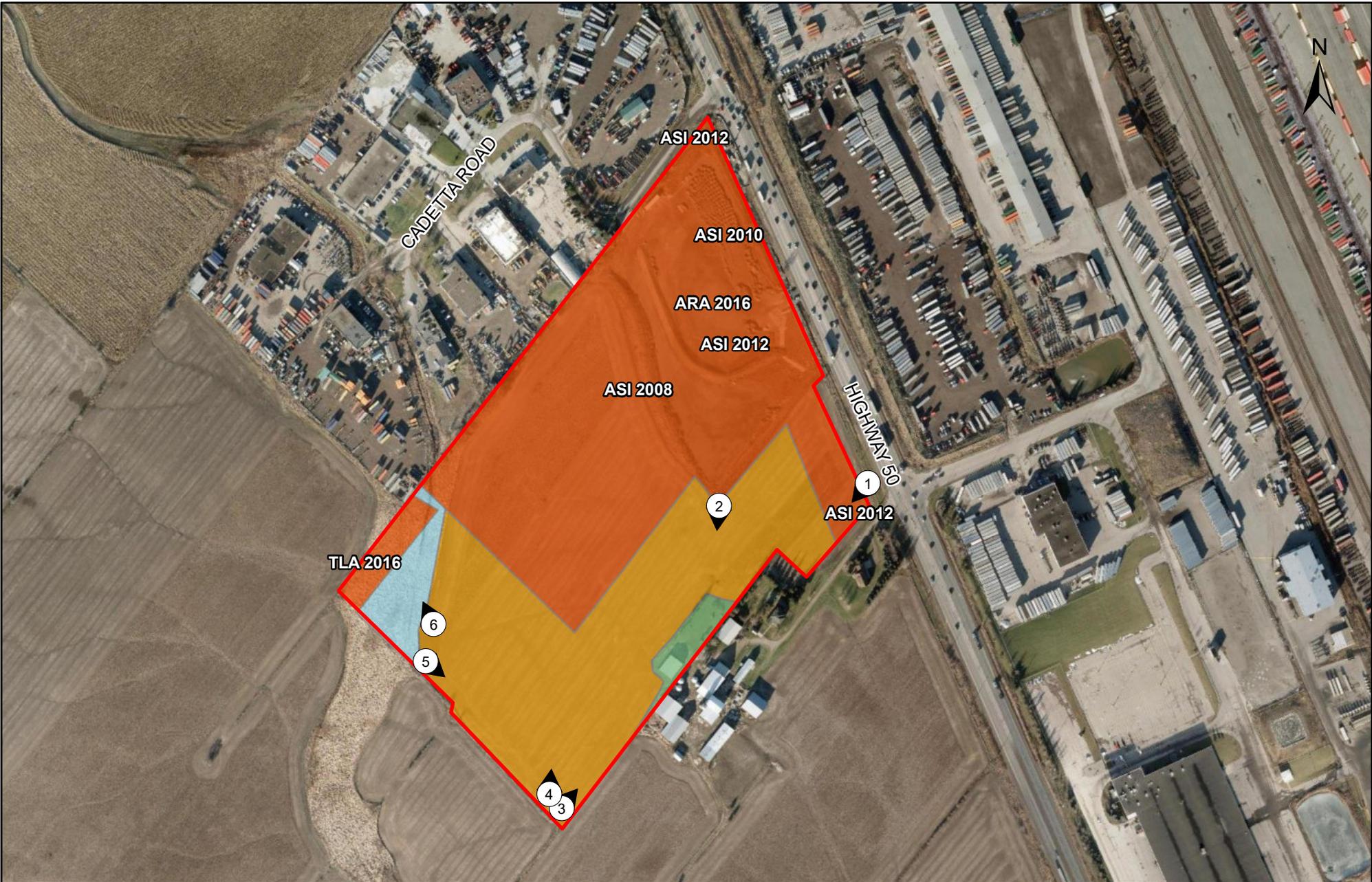
 STUDY AREA

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Projection: NAD 1983 UTM Zone 17N
Scale: 1:75,000
Page Size: 8.5 x 11



ASI PROJECT NO.: 19EA_116 DRAWN BY: ESB
DATE: 2019-10-18 FILE: 19EA_116_Geology



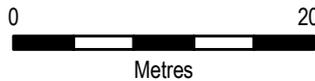
	 STUDY AREA	 PREVIOUSLY ASSESSED	 WET
	 PHOTO LOCATIONS	 PEDESTRIAN SURVEY	 TEST PIT SURVEY
			 <p>0 200 Metres</p>
			Projection: NAD 1983 UTM Zone 17N Scale: 1:5,000 Page Size: 8.5 x 11
		ASI PROJECT NO.: 19EA_116 DATE: 2019-11-15	DRAWN BY: ESB FILE: 19EA_116_Results

Figure 10: New Highway 50 Transit Maintenance Facility Study Area - Results of Stage 1

8.0 IMAGES



Plate 1: View southwest towards Johnston farm; Area requires pedestrian survey



Plate 2: View south of field and grassed area; Area requires test pit/pedestrian survey



Plate 3: View northeast of field; Area requires pedestrian survey



Plate 4: View north of field; Requires pedestrian survey



Plate 5: View southeast of field; Requires pedestrian survey



Plate 6: View northwest of field; Area is low and wet, no potential