STAGE 1 ARCHAEOLOGICAL ASSESSMENT
APPLEBY CREEK EROSION CONTROL
PART OF LOTS 4-5, CONCESSION 3 SDS
AND LOT 5 BROKEN FRONT CONCESSION
(FORMER TOWNSHIP OF NELSON, COUNTY OF HALTON)
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON, ONTARIO

ORIGINAL REPORT

Prepared for:

Aquafor Beech Ltd.
55 Regal Road, Unit 3
Guelph, ON N1K 1B6

Archaeological Licence #P094 (Merritt)
Ministry of Tourism, Culture and Sport PIF#P094-0289-2019
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ASI
Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
416-966-1069 F 416-966-9723 asiheritage.ca

Stage 1 Archaeological Assessment
Appleby Creek Erosion Control
Part of Lots 4-5, Concession 3 SDS
and Lot 5 Broken Front Concession
(Former Township of Nelson, County of Halton)
City of Burlington
Regional Municipality of Halton, Ontario

EXECUTIVE SUMMARY

ASI was contracted by Aquafor Beech Ltd. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Appleby Creek Erosion Control Municipal Class Environmental Assessment in the City of Burlington. The project involves the erosion control of Appleby Creek between South Service Road and Lake Ontario.

The Stage 1 background study determined that 10 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.

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 survey at five metre intervals, if impacted, prior to any proposed construction activities;

2. The Study Area is adjacent to the Mount Vernon Pioneer Cemetery. All cemetery lands should be avoided by the project designs and a Stage 3 Cemetery Investigation will be required, where feasible, on any lands impacted by the project designs within 10 metres of the cemetery property to confirm the presence or absence of unmarked graves.

    - A Stage 3 cemetery investigation entails the mechanical removal of topsoil around the cemetery, under the supervision of a licensed archaeologist. The exposed subsoil will then be shovel-shined and thoroughly examined for the presence of burial shafts.
    - Any impacted lands at the top of the slope will require Stage 2 test pit survey prior to the Cemetery Investigation to identify any near surface finds.

3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, slopes in excess of 20 degrees, having been previously assessed. These lands do not require further archaeological assessment; and,

4. 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

Senior Project Manager:	Lisa Merritt, MSc. (P094) *Partner / Director* *Environmental Assessment Division*
Project Coordinator:	Sarah Jagelewski, Hon. BA (R405) *Lead Archaeologist / Manager* *Environmental Assessment Division*
Project Director (Licensee):	Jessica Lytle, MSc (P1066) *Associate Archaeologist / Project Manager* *Environmental Assessment Division*
Project Manager:	Eliza Brandy, MA (R1109) *Associate Archaeologist / Project Manager* *Environmental Assessment Division*
Field Director:	Eliza Brandy
Report Preparation:	Eliza Brandy
Graphics:	Jonas Fernandez, MSc (R281) *Lead Archaeologist / Assistant Manager - Fleet & Geomatics Specialist* *Operations Division*
Report Reviewer:	Lisa Merritt

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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Aquafor Beech Ltd. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Appleby Creek Erosion Control Municipal Class Environmental Assessment in the City of Burlington. The project involves the erosion control of Appleby Creek between South Service Road and Lake Ontario (Figure 1).

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).

The *Archaeological Master Plan for the Regional Municipality of Halton* (ASI 1998) and the 2008 Update (ASI 2008) were consulted during background research.

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by Aquafor Beech Ltd. on January 18, 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 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 Haudenosaunee[1] and the Huron-Wendat (and their Algonquian allies such as the Nippissing 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 a "homeland" 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,

[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.

some who 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" [Missisauga; 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.

The Michi Saagiig (Mississauga) Nishnaabeg left a minimal footprint archaeologically, as they were historically a highly mobile sustainably living society, but it is known through oral histories and traditional knowledge that the north shore of Lake Ontario has been their homeland for millennia (Kapyrka and Migizi 2016; Migizi and Kapyrka 2015). The Michi Saagiig are known as "the people of the big river mouths" and the "Salmon People", as their traditional territory span the north shore of Lake Ontario between Gananoque in the east to the north shore of Lake Erie, along the waterways from their headwaters to their outlets in Lake Ontario (Migizi 2018). Individual bands were politically autonomous and numbered several hundred people. Nevertheless, they shared common cultural traditions and relations with one another and the land. These groups were highly mobile, with a subsistence economy based on hunting, fishing, gathering of wild plants, and garden farming.

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 to the north of Lake Ontario in the early nineteenth century, the Crown acknowledged the Mississaugas as the owners of the lands between Georgian Bay and Lake Simcoe and entered into negotiations 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 3. In 1792, under the terms of the "Between the Lakes Purchase" signed by Sir Frederick Haldimand and the Mississaugas, the Crown acquired over one million acres of land in-part spanning westward from near modern day Niagara-on-the-Lake along the north shore of Lake Ontario to modern day Burlington. The Study Area is also within Treaty 3 ¾, signed in 1795 and confirmed in 1797 between the Mississaugas and the Crown for the parcel of 3450 acres on the present site of the City of Burlington, as chosen by Mohawk Chief Joseph Brant in recognition of his military service in the American Revolutionary War (Mississauga of the New Credit First Nation 2017; Aboriginal Affairs and Northern Development Canada 2016).

1.2.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Lots 4-5, Concession 3 South of Dundas Street (SDS), and Lot 5 Broken Front Concession (BF), in the Former Nelson Township, County of Halton.

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).

Nelson Township

The land within the Township of Nelson was acquired by the British from the Mississaugas in 1795. The first township survey was undertaken in 1806, and the first legal settlers occupied their land holdings in the same year. The township was first named "Alexander Township" in honour of Alexander Grant, the administrator of Upper Canada. In 1806, it was renamed in honour of Horatio Viscount Nelson, after his

victory at Cabo Trafalgar in Spain the previous year. Nelson was initially settled by the children of Loyalists, soldiers who served during the War of 1812, and by immigrants from England, Scotland and Ireland. By the 1840s, the township was noted for its good land and excellent farms (Smith 1846:121; Armstrong 1985:143; Rayburn 1997:237). In 1817, it was estimated that the Township of Nelson contained sixty-eight inhabited houses, with a total population of 476. At that time it contained two grist mills and three saw mills (Smith 1851:257–258; Pope 1877:60). The oldest principal village in the township during the nineteenth century was Burlington, which had originally been named "Wellington Square." Other villages within the township during the nineteenth century included Nelson, Zimmerman, Lowville, Willbrook, Cumminsville and Kilbride (Smith 1846:121; Crossby 1873:92; Pope 1877:38–39). By the 1850s, Nelson had 3,792 inhabitants and was well settled with schools, churches, prosperous farms and an established system of municipal government (Smith 1851:258; Walker & Miles 1877:60). Additional prosperity came with the Toronto branch of the Great Western Railway, constructed across the township in 1854-55. In 1878, the Northern and North Western Railway constructed a rail line diagonally across the township between the towns of Burlington and Milton. This line is now owned and operated by the Canadian National Railway.

Village of Appleby

This post office village was located on part Lots 5 and 6 Concessions 2 and 3 SD, near what is now Upper Middle Road and Appleby Line. It was originally known as the Van Norman Settlement, after William Van Norman, a Loyalist from Pennsylvania, who in 1806 moved to Nelson. His sons Ephraim and Isaac each built a log cabin and cleared land. Appleby acquired its name from later settlers from England, including the Alton's and the Breckon's. In 1848, Isaac's son built a brick house and then sold in 1870 to John Breckon – the house still stands at 955 Century Drive. In 1837 Isaac sold an acre of land to the Wesleyan Methodist Church of Canada for a frame church and the Mount Vernon Cemetery, as he had already buried his daughter there in 1814. In 1847 David Alton sold part of his land for the construction of a church and the Appleby Cemetery. A brick church was built to replace the Wesleyan Methodists frame church next to Mount Vernon Cemetery. The Great Western Railway was built through Appleby in 1854, and by 1877, the village contained a school, church, grist mill, post office, cemetery and blacksmith shop. The population was about 100 in 1873. The Appleby Church was torn down in 1906. Most of the historical village of Appleby was demolished in the 1950s during construction of the QEW (Crossby 1873:21; Turcotte 1989:163–164; Turcotte 1992; Appleby United Church 2018).

The Mount Vernon Pioneer Cemetery originated in 1814 as the burial ground for the Van Norman family, and originally had a frame chapel on the west side of the cemetery, the Van Norman Chapel. In 1847 a new brick church was built on the southwest corner of Upper Middle Road (now the QEW) and Appleby Line and Appleby Cemetery was established there. The last burial recorded in this cemetery was in 1930 (Watt 2019). The Mount Vernon Pioneer Cemetery is currently located at the rear of a parking lot on a commercial property, surrounding by a chain-link fence. Mature trees surround the cemetery which contains approximately five visible headstones. Most markers within the cemetery are ground stones that have been grassed over.

Railways

The Great Western Railway (GWR) was originally incorporated in 1834 as the London and Gore Railroad Co. and changed its name to the GWR in 1853. It received considerable promotion by Allan Napier MacNab, Isaac and Peter Buchanan, R.W. Harris and John Young. Aided by government guarantees and supported by foreign American and British investment, the GWR opened its mainline (Windsor-London-Hamilton-Niagara Falls) in 1854. By 1882, it was operating throughout southwestern Ontario and even

into Michigan. In 1882 it merged with the Grand Trunk Railway (GTR) in an attempt to successfully compete with rival American railroads for American through-traffic between Michigan and New York states (Baskerville 2015).

The Hamilton Radial Electric Railway (HRER) was an electric street railway constructed between 1896 and 1906 from Hamilton to Oakville along New/Rebecca Street. It ceased operations by 1929 and the tracks were later torn up. (Hamilton Transit History 2019).

1.2.3 Historical Map Review

The 1858 *Map of the County of Halton* (Tremaine 1858), and the 1877 *Illustrated Historical Atlas of the County of Halton*, Township of Nelson page (Pope 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

		1858		*1877*	
Con #	**Lot #**	**Property Owner(s)**	**Historical Feature(s)**	**Property Owner(s)**	**Historical Feature(s)**
3	4	David Hopkins	Saw Mill	Danl. Hopkins	House (2), orchards, cemetery
	5	Thos. Atkinson Thos. Alton	railway	Alf Kitchen Chas. Gage	House, orchards, railway House, orchards, railway
BF	5	William Woods P.P. Triller Thomas Douglass	None	Benjamin Wood Philip P. Triller	House, orchards House (2), orchards

According to the 1858 map, the roads that are now Lakeshore Road, New Street, and the Queen Elizabeth Way, formerly Upper Middle Road, were historically surveyed, and the railway had been constructed as the "Hamilton & Toronto Railway", a branch of the GWR. Appleby Creek is shown in its historical alignment. A saw mill is located on the creek just south of Upper Middle Road near the historic village centre of Appleby. By 1877, there were seven houses and a cemetery adjacent to the Study Area.

1.2.4 Twentieth-Century Mapping Review

The National Topographic System (NTS) 1909 Hamilton Sheet and 1999 Hamilton-Burlington Sheets, as well as the 1954 aerial photograph of the City of Burlington (Department of Militia and Defence 1919; University of Toronto 1954; Natural Resources Canada 1999) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 5-7).

The 1909 map illustrates the historical alignment of Appleby Creek, where two branches flowed under Middle Road, and merged just north of the GTR corridor into one branch, through the hydro corridor, crossing the HRER on New Street, and draining into Lake Ontario at Lakeshore Road northeast of Appleby Line. Mount Vernon Cemetery is shown adjacent to the Study Area, as well as a brick house north of where the two branches of the creek merge, and a wood house adjacent to the creek near Lakeshore Road.

The 1954 photograph shows the Study Area follows the former alignment of the creek south of the hydro corridor, and that the historical alignment remained to the northwest.

The 1999 map indicates that significant development has occured throughout the Study Area, artificially routing the creek to merge at Harvester Road, through industrial/commercial development, under the railway, and around the residential subdivision near the hydro corridor. The southern half of the creek appears relatively similar to its historical alignment.

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 MTCS 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 the Study Area has remained relatively unchanged since 2004. In 2013, the Appleby GO station north parking lot was expanded with a bridge connecting to the new lot on the east side of the creek.

A Stage 1 property inspection noted the Study Area is located along Appleby Creek from the south side of the QEW, crossing Harvester Road, the GO Train railway corridor, the hydro corridor, Fairview Street, Pinedale Avenue, New Street, Spruce Street, and Lakeshore Road to Lake Ontario. The Study Area is surrounded by twentieth-century residential subdivisions, Appleby GO Station, and industrial parks.

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 on shale plains within the Iroquois Plain physiographic region of southern Ontario (Figure 9). This is a lowland region bordering Lake Ontario. This region is characteristically flat, and formed by lacustrine deposits laid down by the inundation of Lake Iroquois, a body of water that existed during the late Pleistocene. This region extends from the Trent River, around the western part of Lake Ontario, to the Niagara River, spanning a distance of 300 km (Chapman and Putnam 1984:190). The old shorelines of Lake Iroquois include cliffs, bars, beaches and boulder pavements. The old sandbars in this region are good aquifers that supply water to farms and villages. The gravel bars are quarried for road and building material, while the clays of the old lake bed have been used for the manufacture of bricks (Chapman and Putnam 1984:196). The Study Area is located between two glacial beach ridges between Highway 403 and Harvester Road, roughly between Guelph Line and Fraser Drive and between Burloak Drive and McPherson Road. A shorecliff runs roughly north-south through the Study Area parallel to the north side of Harvester Road.

Figure 10 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by Paleozoic bedrock (Ontario Geological Survey 2010). Figure 11 depicts the soil drainage in the Study Area. Soil types include Chinguacousy clay loam and Brady sandy loam, both imperfectly-drained gray brown luvisols; Font sandy loam, a well-drained outwash gravel; and Oneida clay loam, a well-drained gray brown luvisol (Presant and Wicklund 1955).

The Study Area includes Appleby Creek, one of eighteen smaller subwatersheds making up the Urban Creeks watershed, located along the north shore of Lake Ontario and cross through Hamilton, Burlington, Oakville, and portions of Mississauga (Conservation Halton 2017). Appleby Creek begins as two tributaries east of Walkers Line which spring from north of Dundas Street under Highway 403 east of Appleby Line where they merge and flow into Lake Ontario. The creek has been heavily modified through channelization.

1.3.3 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 *AiGw*.

According to the OASD, 10 previously registered archaeological sites are located within one kilometre of the Study Area (Ministry of Tourism, Culture and Sport 2018). 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
AiGw-22	Stelco Ltd.	Unknown	Unknown	BCPP 1974
AiGw-87	George Richardson	Archaic	Unknown	Roberts 1976
AiGw-88	Appleby Line	PaleoIndian; Archaic; Woodland	Unknown	Roberts 1976
AiGw-89	Tree Stump	Archaic	Findspot	Roberts 1976
AiGw-90	Baseball Diamond	Archaic	Scatter	Roberts 1976
AiGw-91	Misfit Creek Valley 1	Archaic	Camp	Roberts 1976
AiGw-92	**Misfit Creek Valley 2**	**Archaic**	**Unknown**	**Roberts 1976**
AiGw-93	West Misfit Bank	Archaic	Unknown	Roberts 1976
AiGw-107	Huey Telford's Flint Field	Unknown	Unknown	Unknown 1976
AiGw-116	Burloak	Unknown	Unknown	Unknown 1976

sites in **bold** are within 50m of the Study Area
BCPP – Bronte Creek Provincial Park Archaeology Project

AiGw-92 is within 50 metres of the Study Area and was identified by Arthur Roberts during his Ph.D. research along the north shore of Lake Ontario in the mid-1970s (Roberts 1985). According to the OASD, it was an Archaic period site, and was likely surface-collected on the undeveloped grounds of a commercial property near Fairview Street. Based on a review of twentieth- and twenty-first-century mapping, the site location appears not to have undergone extensive disturbance. The site is not considered to have further cultural heritage value or interest due to its present location within a twentieth-century commercial development at Oval Court and Fairview Street.

The majority of the previously registered sites within one kilometre of the Study Area were first documented by Roberts in the late 1970s (see Table 2), at a time of substantial development in Burlington. A series of surveys undertaken by Arthur Roberts of the Burlington-Oakville area in the 1970s were part of his larger study of the north shore of Lake Ontario (Roberts 1985). The study involved both interviews with landowners and field surveys. The field surveys in the Burlington-Oakville region

focused on four specific areas, two of which were located between the Lake Iroquois shoreline and Lake Ontario; these two areas were chosen due to their status as the only locations in both of the rapidly developing towns with remaining actively-cultivated agricultural lands. The main objectives of these surveys were "to locate as many sites as possible and to expand the site inventory of the lake-edge zone between the Lake Iroquois shoreline and Lake Ontario" (Roberts 1985:54). Roberts reported that, of 157 pre-contact Indigenous sites located within the Burlington-Oakville area, the majority were well drained and within 63 metres of the nearest water source. The exact limits of the studies conducted by Roberts in the Burlington area are unclear. The Bronte Creek Provincial Park Archaeology Project was also conducted in the region in the early 1970s.

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

ASI (2017) conducted a Stage 1 Archaeological Assessment during the Impact Assessment Phase of the GO Rail Network Electrification Transit Project Assessment Process (TPAP). The assessment includes portions of the Lakeshore West Corridor within the current Study Area. The background research and field inspection determined that the railway corridor within the current Study Area did not retain archaeological potential due to deep and extensive disturbance, and did not require further assessment.

ASI (2019) conducted a Stage 1 Archaeological Assessment as part of the Mobility Hub Planning Consulting Services MCEA in the City of Burlington, including parts of the current Study Area. The purpose of the project was to develop four Area Specific Plans to support the future redevelopment, and this report addressed the Appleby Hub, approximately 207 hectares, roughly bounded by Highway 403 to the north, Inverary Road to the west, Deerhurst Drive to the east, and the existing hydro corridor to the south. A property inspection was not conducted, however detailed potential modeling determined that parts of the current Study Area exhibit archaeological potential requiring Stage 2 assessment, including documentation of existing disturbances.

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 Eliza Brandy (R1109) of ASI, on April 2, 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 (Figures 10-13) and associated photographic plates are presented in Section 8.0 (Plates 1-28).

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 (Table 1);
- Water sources: primary, secondary, or past water source (Appleby Creek);
- Early historic transportation routes (Upper Middle Road, Appleby Line. GWR);
- Proximity to early settlements (village of Appleby); and
- Well-drained soils (Font sandy loam and Oneida clay loam)

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 one property within the Study Area is Listed or Designated under the Ontario Heritage Act: Mount Vernon Cemetery at 5098 South Service Rd.

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

Parts of the Study Area have been previously assessed (ASI 2017) and do not require further survey (Figure 10: areas highlighted in red).

Part of the Study Area is within 10 metres of the Mount Vernon Pioneer Cemetery. All cemetery lands should be avoided by the project designs and a Stage 3 Cemetery Investigation will be required, where feasible, on any lands impacted by the project designs within 10 metres of the cemetery property to confirm the presence or absence of unmarked graves (Figure 11: areas hatched in pink). A Stage 3 cemetery investigation entails the mechanical removal of topsoil around the cemetery, under the supervision of a licensed archaeologist. The exposed subsoil will then be shovel-shined and thoroughly examined for the presence of burial shafts. Areas at the top of the slope will require Stage 2 test pit survey prior to the Cemetery Investigation to identify any near surface finds.

The property inspection determined that parts of the Study Area exhibit archaeological potential (Plates 3, 24-28; Figures 11-13: areas highlighted in green). These areas will require Stage 2 archaeological assessment, if impacted, prior to any proposed construction activities. 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.

The property inspection determined that some of lands within the Study Area have been subjected to deep soil disturbance events, including channelization of the creek or construction of residential subdivisions, commercial and industrial properties, bridges, and roads, and according to the S & G Section 1.3.2 do not retain archaeological potential (Plates 1, 2, 5, 6, 7, 9-19, 23 ; Figures 11-13: areas highlighted in yellow). The remainder of the Study Area contains lands that are sloped in excess of 20 degrees (Plates 2, 4, 6-8, 20-22, 24-27; Figures 11-13: areas highlighted in pink), or located in low and wet conditions (Plates 2, 6, 8, 25, 26; Figures 11-13: areas highlighted in blue), and according to the S & G Section 2.1 do not retain potential. These areas do not require further survey.

3.3 Conclusions

The Stage 1 background study determined that 10 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.

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 survey at five metre intervals, if impacted, prior to any proposed construction activities;

2. The Study Area adjacent to the Mount Vernon Pioneer Cemetery. All cemetery lands should be avoided by the project designs and a Stage 3 Cemetery Investigation will be required, where feasible, on any lands impacted by the project designs within 10 metres of the cemetery property to confirm the presence or absence of unmarked graves.

    - A Stage 3 cemetery investigation entails the mechanical removal of topsoil around the cemetery, under the supervision of a licensed archaeologist. The exposed subsoil will then be shovel-shined and thoroughly examined for the presence of burial shafts.
    - Any impacted lands at the top of the slope will require Stage 2 test pit survey prior to the Cemetery Investigation to identify any near surface finds.

3. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, low and wet conditions, slopes in excess of 20 degrees, having been previously assessed. These lands do not require further archaeological assessment; and,

4. 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 MTCS 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 Minister of Tourism, Culture and Sport 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 Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed 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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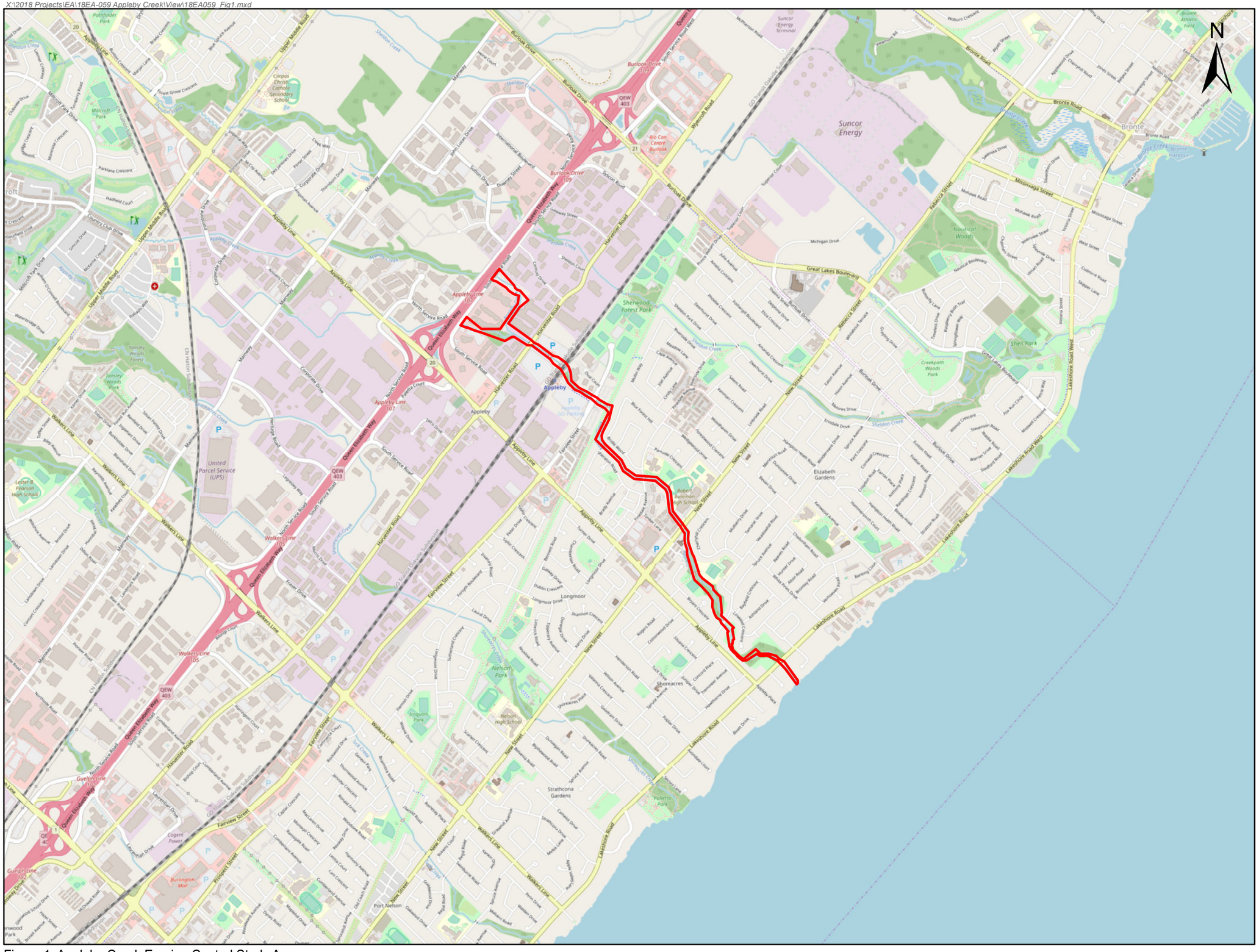
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7.0 MAPS

X:\2018 Projects\EA\18EA-059 Appleby Creek\View\18EA059_Fig1.mxd



STUDY AREA

Sources:
Ortho: ESRI

Projection: NAD 1983 UTM Zone 17N

Scale: 1:25,000

Page Size: 11 x 17

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Kilometres

ASI PROJECT NO.:18EA-059
DATE: 2019-03-06

DRAWN BY:AB
FILE: 18EA059_Fig1

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Figure 1: Appleby Creek Erosion Control Study Area

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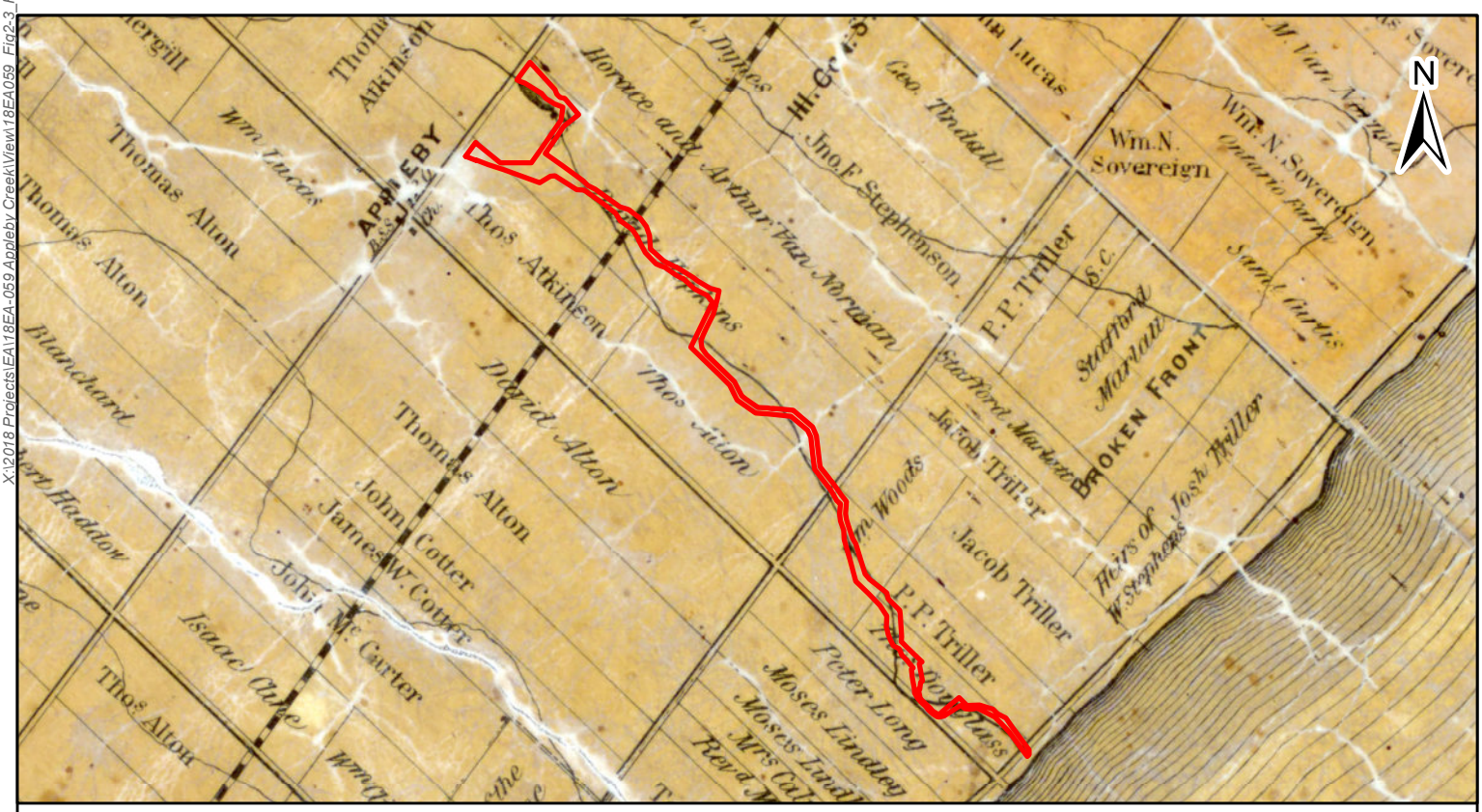


Figure 2: Study Area (Approximate Location) Overlaid on the 1858 Map of the County of Halton

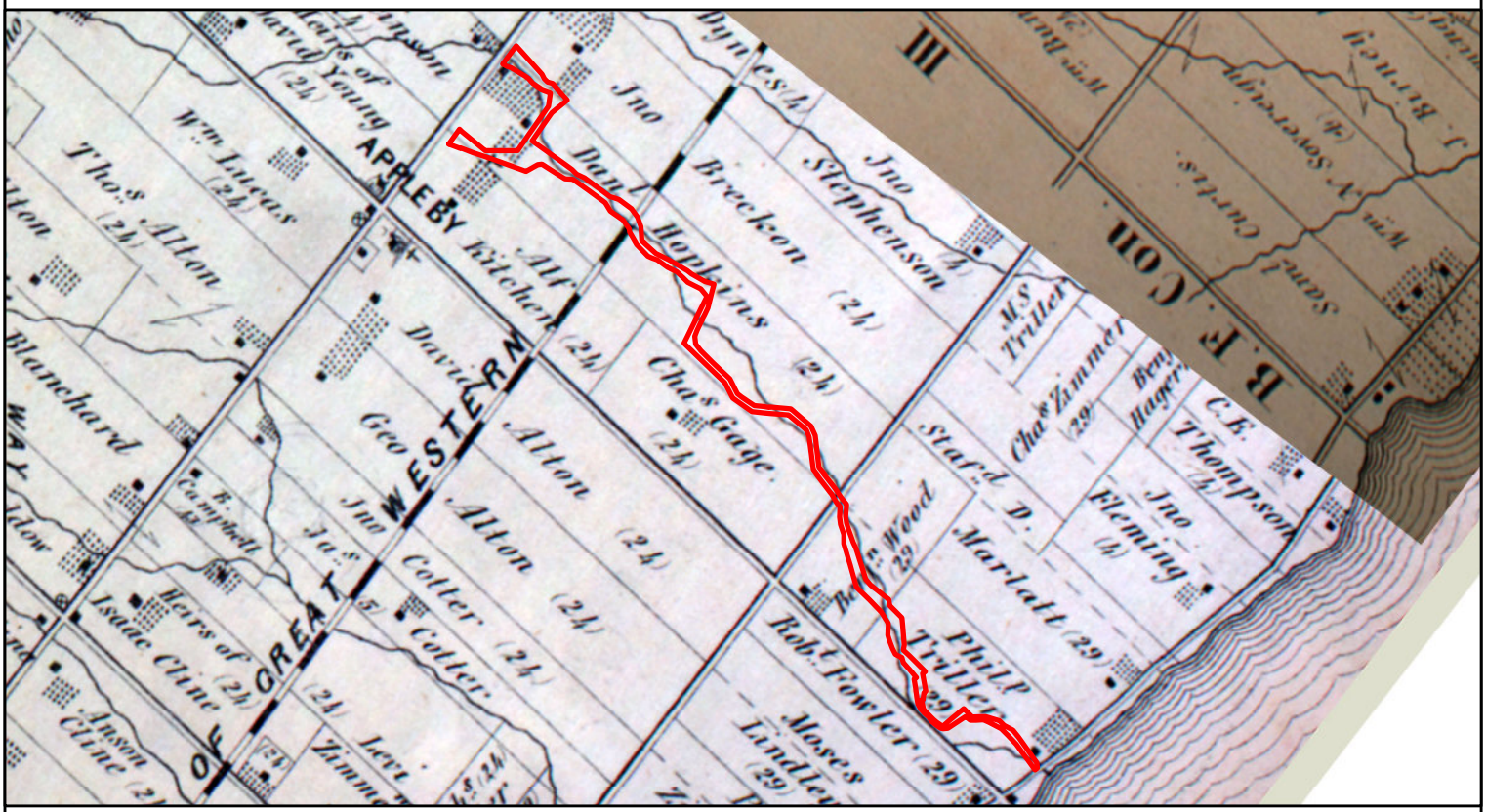


Figure 3: Study Area (Approximate Location) Overlaid on the 1877 Illustrated Historical Atlas of the County of Halton, Township of Nelson page

ASI

STUDY AREA LIMITS

Sources:

Projection: NAD 1983 UTM Zone 17N
Scale: 1:30,000
Page Size: 8.5 x 11

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Kilometres

ASI PROJECT NO.:18EA-059
DATE: 2019-03-06
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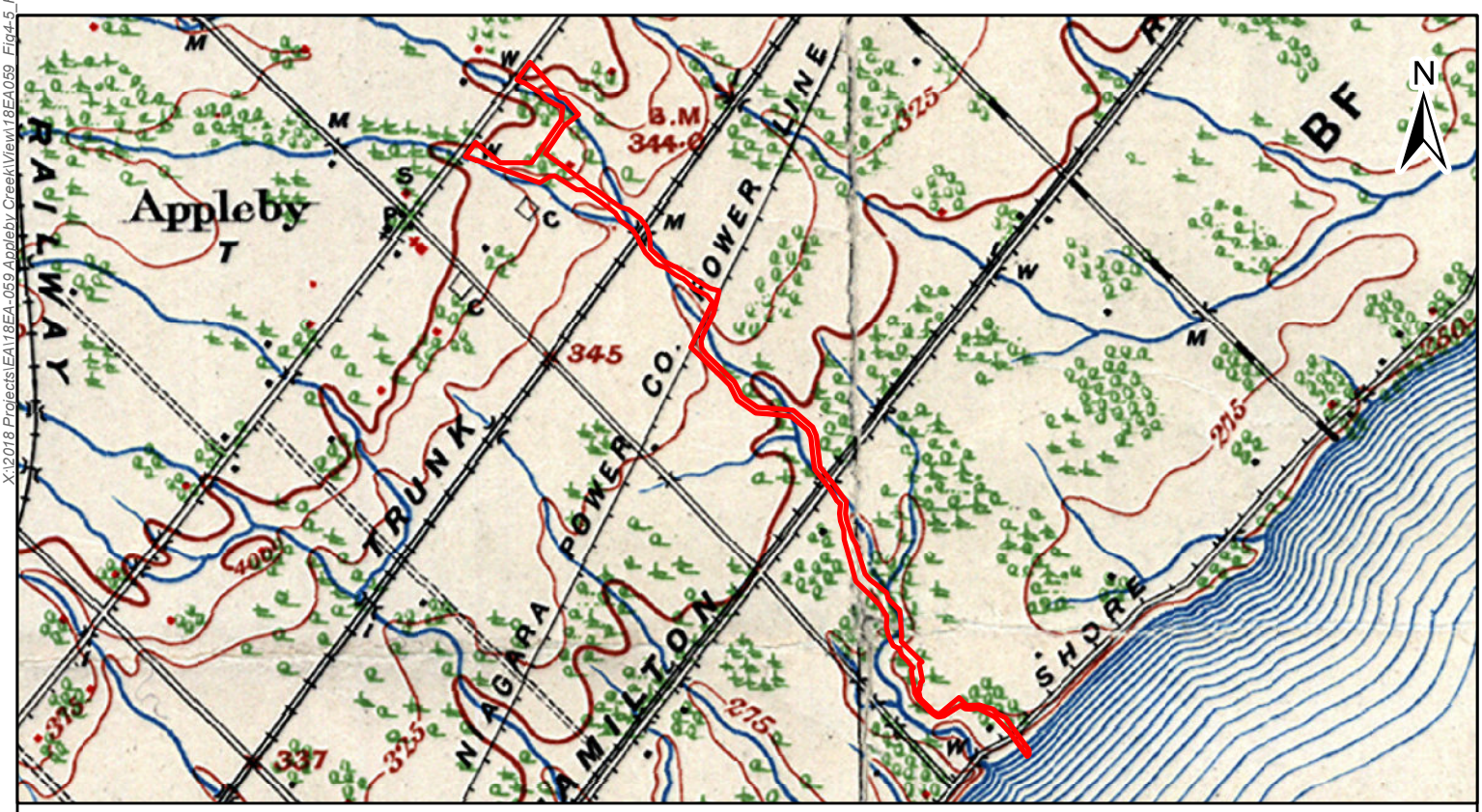


Figure 4: Study Area (Approximate Location) Overlaid on the 1909 NTS Hamilton Sheet

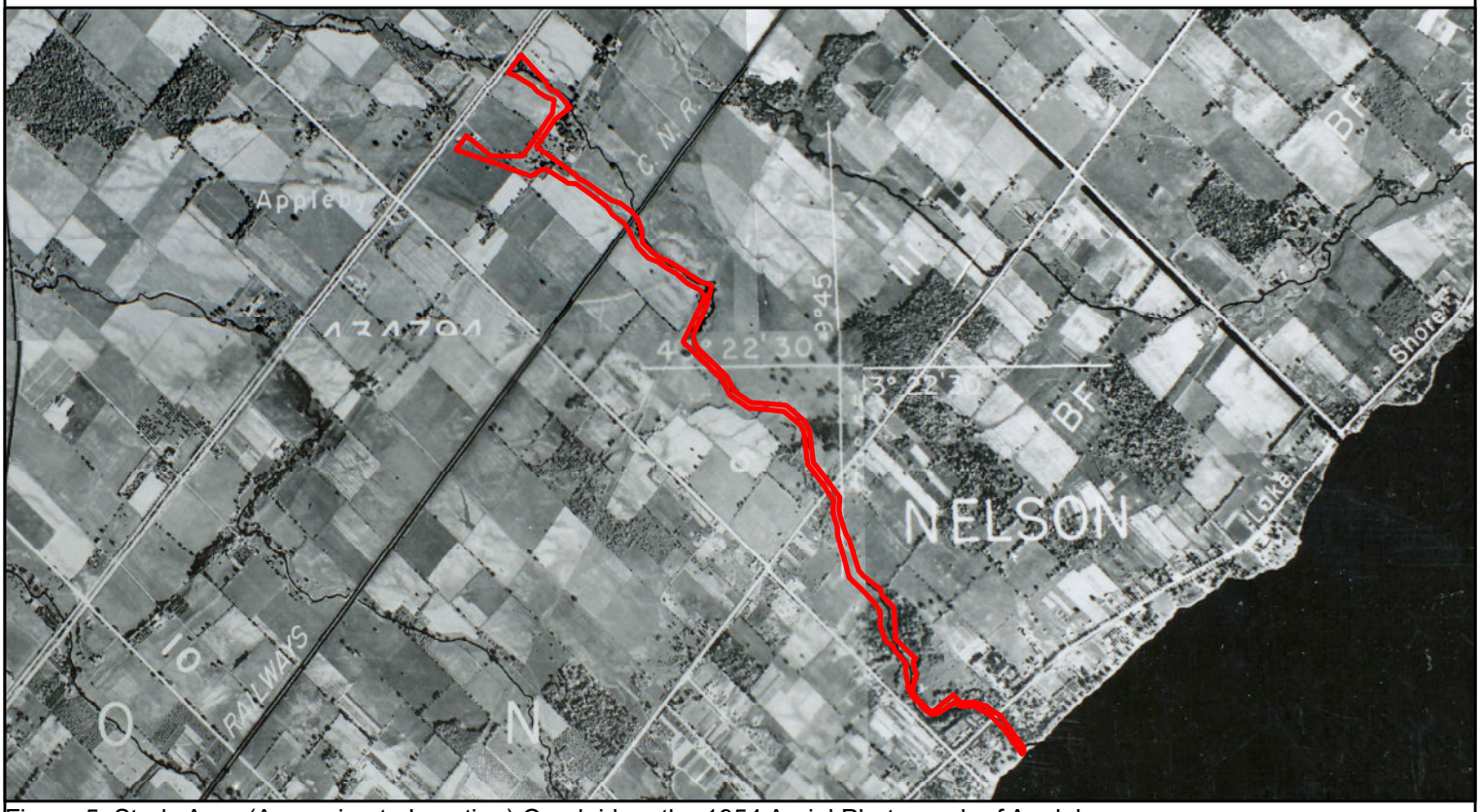


Figure 5: Study Area (Approximate Location) Overlaid on the 1954 Aerial Photograph of Appleby

STUDY AREA LIMITS

Sources:

Projection: NAD 1983 UTM Zone 17N
Scale: 1:30,000
Page Size: 8.5 x 11

0 1
Kilometres

ASI PROJECT NO.:18EA-059
DATE: 2019-03-06
DRAWN BY:AB FILE: 18EA059_Fig4-5_Hist1919-1954

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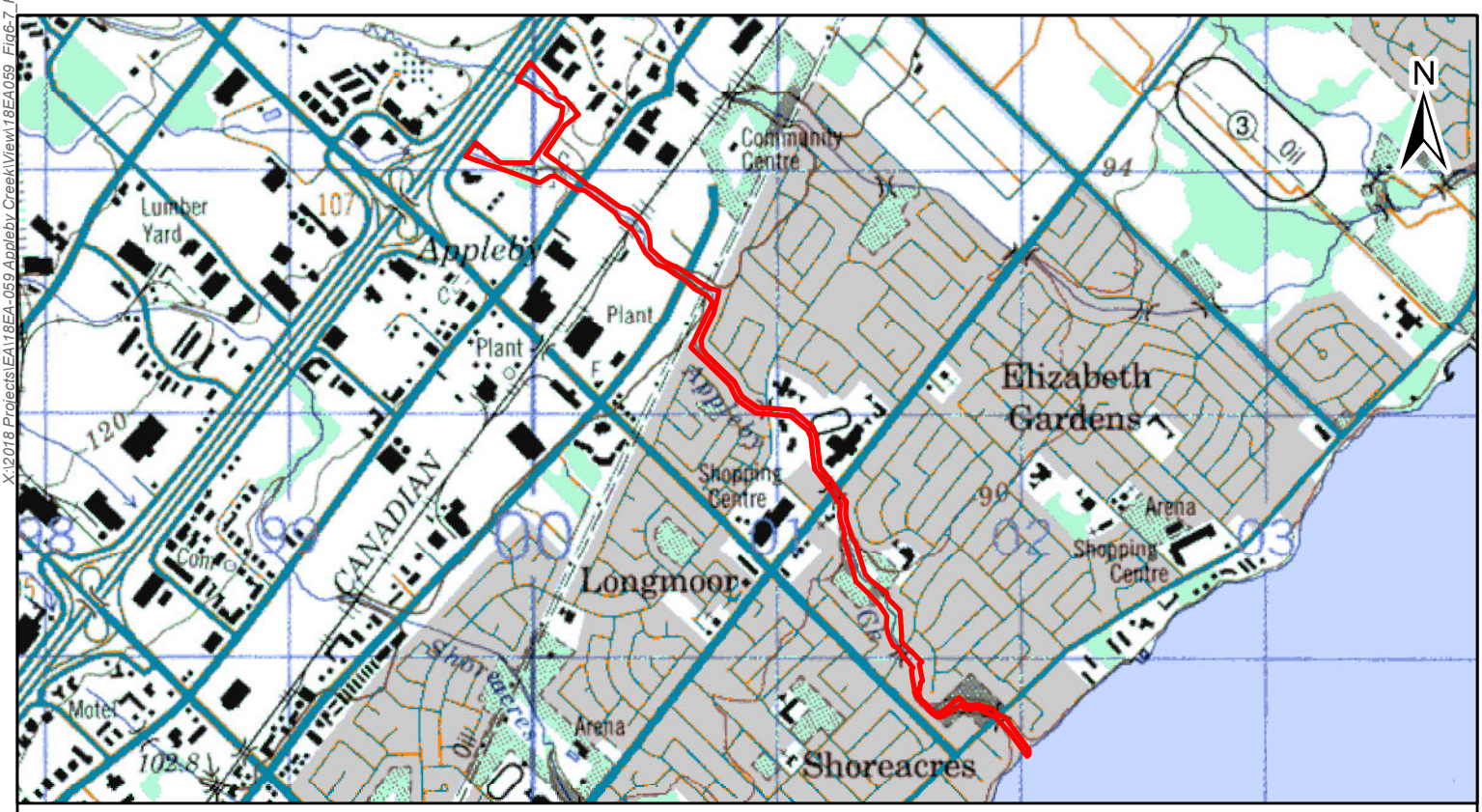


Figure 6: Study Area (Approximate Location) Overlaid on the 1999 NTS Hamilton-Burlington Sheet



Figure 7: Study Area - Physiographic Landforms

ASI

STUDY AREA LIMITS
CONTACT
14: BEACHES
11: SAND PLAINS
10: SHALE PLAINS
6: TILL PLAINS (DRUMLINIZED)

Sources:

Projection: NAD 1983 UTM Zone 17N
Scale: 1:30,000
Page Size: 8.5 x 11

0 1
Kilometres

ASI PROJECT NO.:18EA-059
DATE: 2019-03-06
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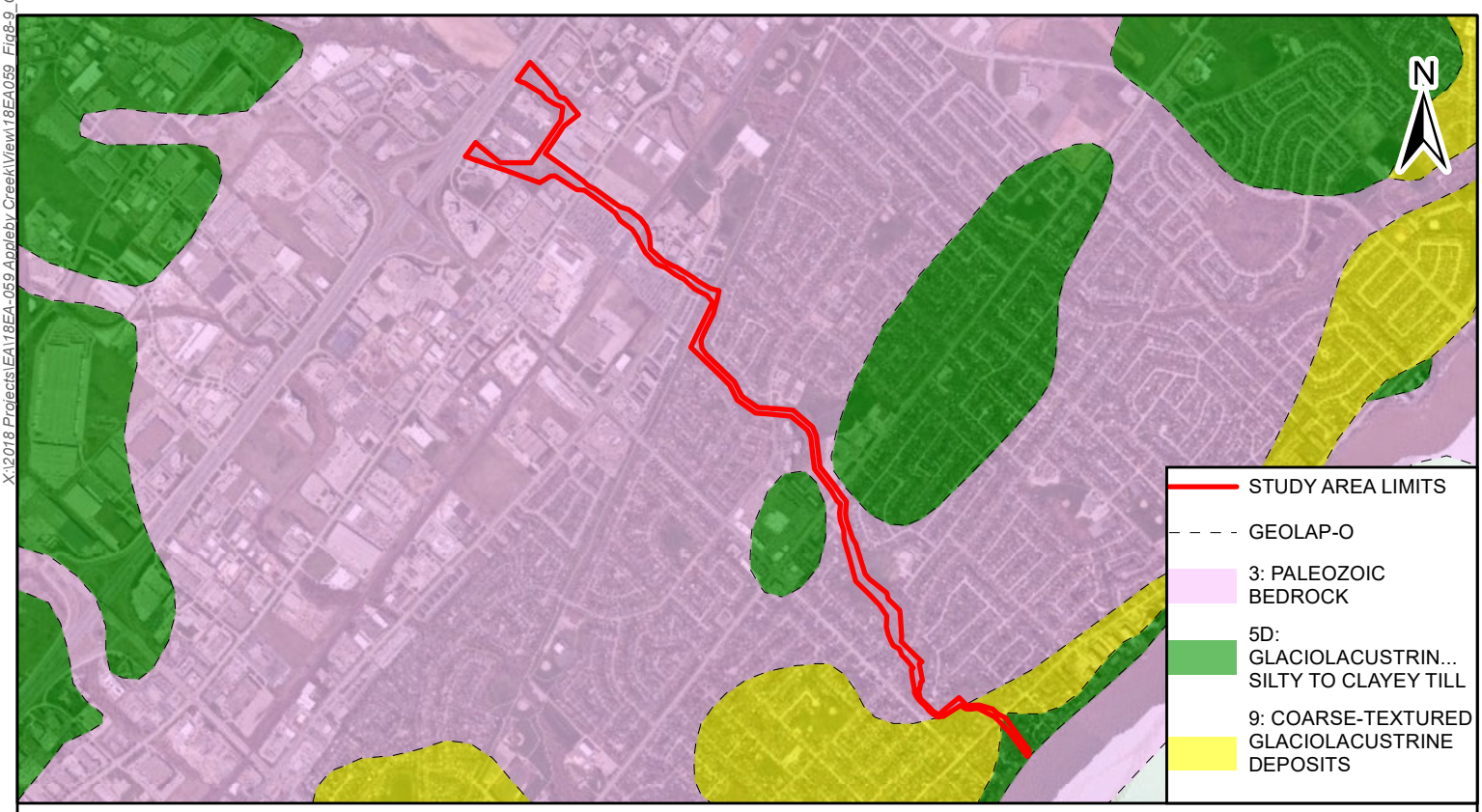


Figure 8: Study Area - Surficial Geology

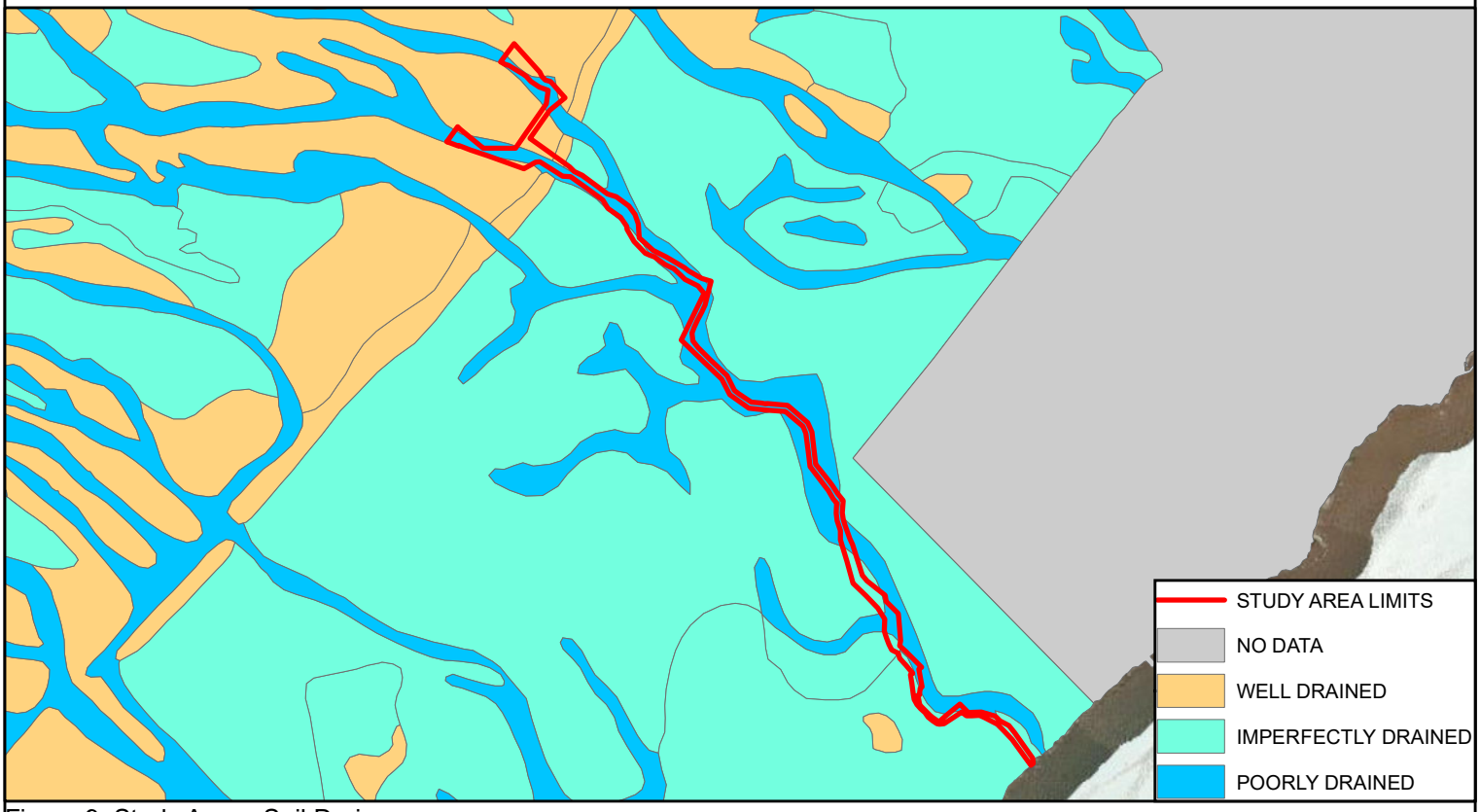


Figure 9: Study Area - Soil Drainage

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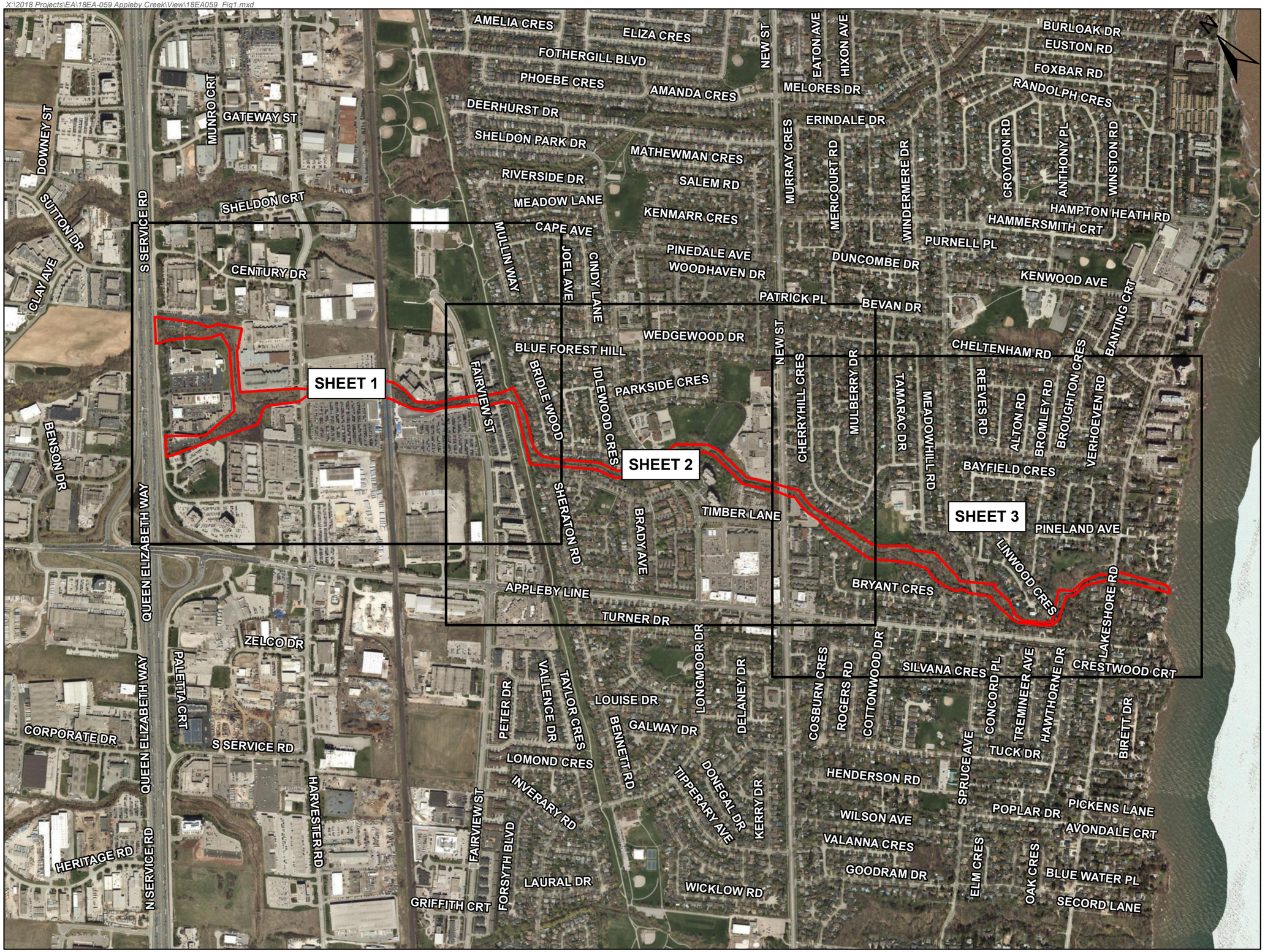
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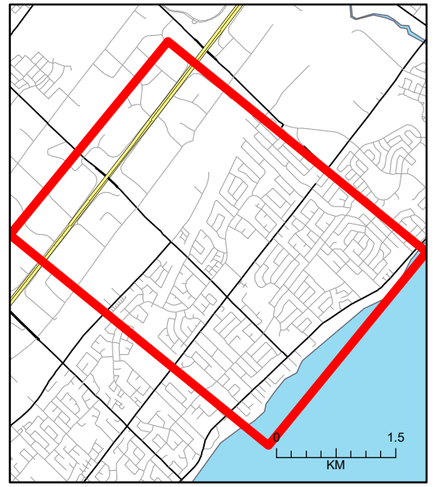
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ASI PROJECT NO.:18EA-059
DATE: 2019-03-06
DRAWN BY:AB FILE: 18EA059_Fig8-9_Geology

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STUDY AREA LIMITS

MAP SHEET

Sources:
Ortho: ESRI

Projection: NAD 1983 UTM Zone 17N

Scale: 1:12,203

Page Size: 11 x 17

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Metres

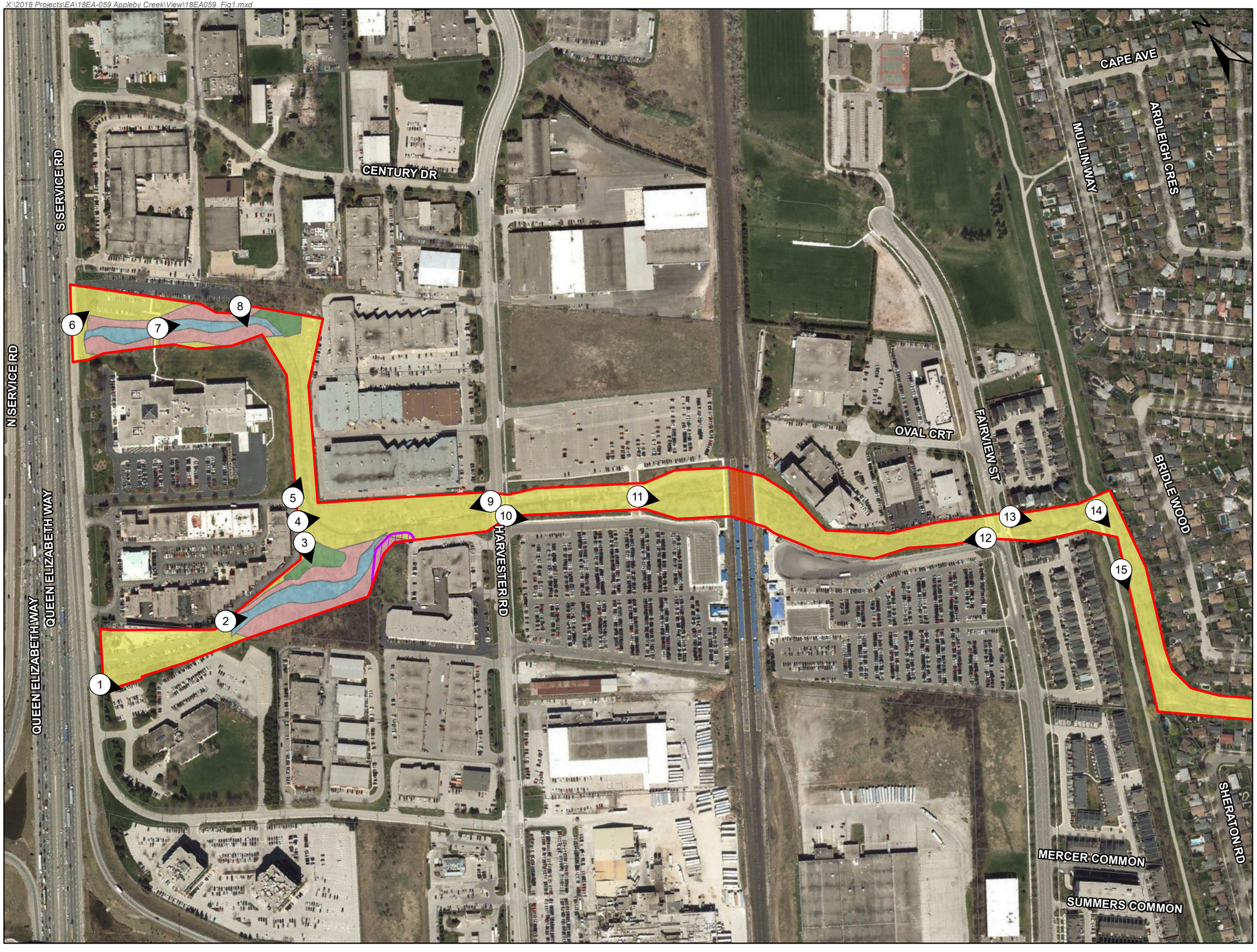
ASI PROJECT NO.:18EA-059
DATE: 4/29/2019

DRAWN BY:JF
FILE: 18EA059_Fig1

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Figure 10: Appleby Creek Erosion Control Study Area - Results of the Property Inspection (Key Map)

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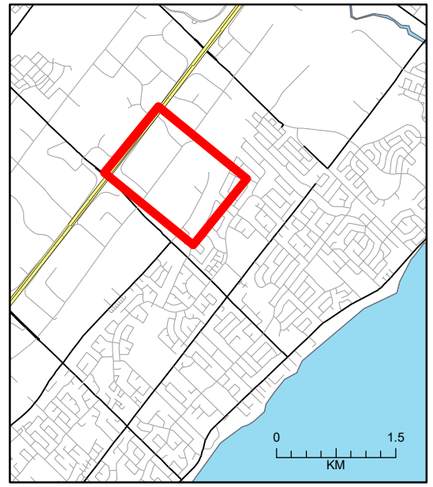


PHOTO LOCATION AND DIRECTION

STUDY AREA LIMITS

REQUIRES CEMETERY INVESTIGATION

POTENTIAL - TEST PIT SURVEY

PREVIOUSLY ASSESSED AREA ASI 2017

DISTURBED - NO POTENTIAL

SLOPE - NO POTENTIAL

LOW/WET - NO POTENTIAL

PROPERTY PARCEL

Sources:
Ortho: ESRI

Projection: NAD 1983 UTM Zone 17N
Scale: 1:4,180
Page Size: 11 x 17

0 150
Metres

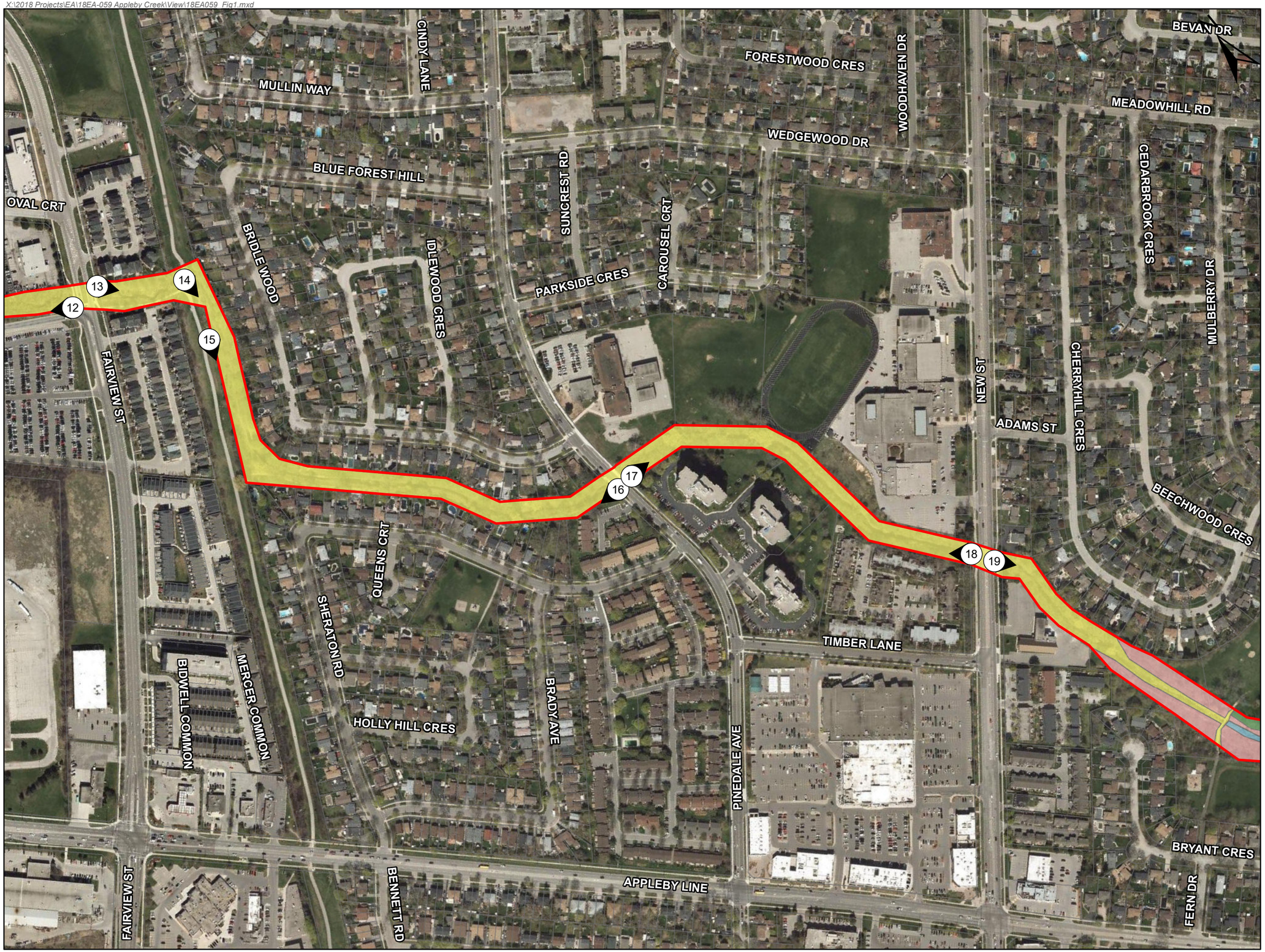
ASI PROJECT NO.:18EA-059
DATE: 4/29/2019

DRAWN BY:JF
FILE: 18EA059_Fig1

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Figure 11: Appleby Creek Erosion Control Study Area - Results of the Property Inspection (Sheet 1)

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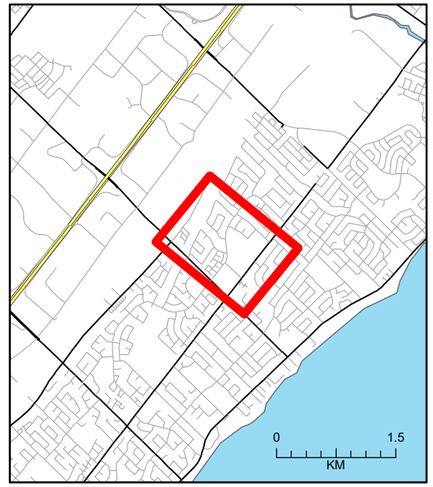


PHOTO LOCATION AND DIRECTION

STUDY AREA LIMITS

POTENTIAL - TEST PIT SURVEY

DISTURBED - NO POTENTIAL

SLOPE - NO POTENTIAL

LOW/WET - NO POTENTIAL

PROPERTY PARCEL

Sources:
Ortho: ESRI

Projection: NAD 1983 UTM Zone 17N

Scale: 1:4,180

Page Size: 11 x 17

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Metres

ASI PROJECT NO.:18EA-059
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FILE: 18EA059_Fig1

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Figure 12: Appleby Creek Erosion Control Study Area - Results of the Property Inspection (Sheet 2)

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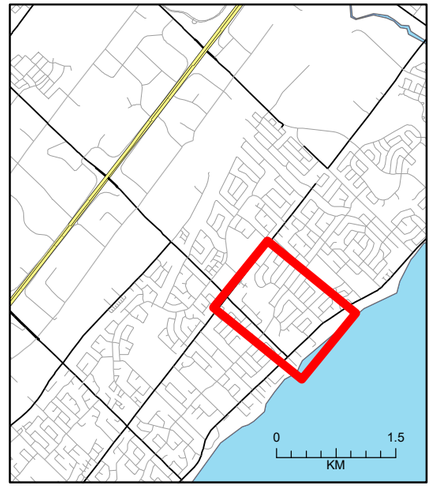


PHOTO LOCATION AND DIRECTION

STUDY AREA LIMITS

POTENTIAL - TEST PIT SURVEY

DISTURBED - NO POTENTIAL

SLOPE - NO POTENTIAL

LOW/WET - NO POTENTIAL

PROPERTY PARCEL

Sources:
Ortho: ESRI

Projection: NAD 1983 UTM Zone 17N

Scale: 1:4,180

Page Size: 11 x 17

0 150
Metres

ASI PROJECT NO.:18EA-059
DATE: 4/29/2019

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FILE: 18EA059_Fig1

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Figure 13: Appleby Creek Erosion Control Study Area - Results of the Property Inspection (Sheet 3)

8.0 IMAGES



Plate 1: Southeast view of the Study Area at S.Service Rd.; Area is disturbed, no potential



Plate 2: Southeast view of the creek at S.Service Rd.; Area is disturbed, sloped and low and wet, no potential



Plate 3: Southwest view of Study Area; Top of slope requires Stage 2 survey



Plate 4: Southeast view of Study Area; Area is sloped, no potential



Plate 5: Northeast view of the Study Area; Area is disturbed, no potential



Plate 6: East view of the Study Area at S.Service Rd.; Area is disturbed, sloped and low and wet, no potential



Plate 7: East view of the Study Area; Area is disturbed, sloped and low and wet, no potential



Plate 8: South view of the Study Area; Area is sloped to low and wet, no potential



Plate 9: Northwest view of the Study Area; Area is disturbed, no potential



Plate 10: Southeast view of Study Area; Area is disturbed, no potential



Plate 11: Southeast view of Study Area; Area is disturbed, no potential



Plate 12: Northwest view of Study Area; Area is disturbed, no potential



Plate 13: Southeast view of Study Area; Area is disturbed, no potential



Plate 14: South view of Study Area; Area is disturbed, no potential



Plate 15: South view of Study Area; Area is disturbed, no potential



Plate 16: West view of Study Area; Area is disturbed, no potential



Plate 17: East view of Study Area; Area is disturbed, no potential



Plate 18: Northwest view of Study Area; Area is disturbed, no potential



Plate 19: Southeast view of Study Area; Area is disturbed, no potential



Plate 20: North view of Study Area; Area is sloped, no potential



Plate 21: Southeast view of Study Area; Area is sloped, no potential



Plate 22: West view of Study Area; Area at top of slope requires Stage 2 survey



Plate 23: Southeast view of Study Area; Area at toe of slope requires Stage 2 survey



Plate 24: Northwest view of Study Area; Area at top of slope requires Stage 2 survey



Plate 25: Northwest view of Study Area; Area at top of slope requires Stage 2 survey



Plate 26: Southeast view of Study Area; Area at adjacent to the creek requires Stage 2 survey