APPENDIX F
Stage 1 Archaeological Assessment

STAGE 1 ARCHAEOLOGICAL ASSESSMENT
DIXIE-DUNDAS FLOOD MITIGATION
PART OF LOTS 4-7, CONCESSION 1 NDS AND PART OF LOT 4, CONCESSION 1 SDS
(FORMER TOWNSHIP OF TORONTO, COUNTY OF PEEL)
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL, ONTARIO

ORIGINAL REPORT

Prepared for:

Matrix Solutions Inc.
650 Woodlawn Road West, Unit 7B
Guelph, ON N1K 1B8

Archaeological Licence #P1066 (Lytle)
Ministry of Heritage, Sport, Tourism and Culture Industries PIF# P1066-0271-2022
ASI File: 18EA-223

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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
Dixie-Dundas Flood Mitigation
Part of Lots 4-7, Concession 1 NDS
(Former Township of Toronto, County of Peel)
City of Mississauga
Regional Municipality of Peel, Ontario

EXECUTIVE SUMMARY

ASI was contracted by Matrix Solutions Inc. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Dixie-Dundas Flood Mitigation in the City of Mississauga. This project involves preparation of a flood remediation plan for the Dixie-Dundas area of the Little Etobicoke Creek watershed. The Stage 1 Study Area is bordered by Golden Orchard Drive in the north, Constitution Boulevard/Stanfield Road in the west, GO Transit Milton Line/ Canadian Pacific Railway in the south, and Mattawa Avenue in the east.

The Stage 1 background study determined that no 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 exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any proposed construction activities;

2. 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, 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.

ASI

PROJECT PERSONNEL

Senior Project Manager:	Lisa Merritt, MSc. (P094) *Partner / Director* *Environmental Assessment Division*
Division Coordinator:	Katrina Thach, Hon. BA (R1225) *Archaeologist / Division Coordinator* *Environmental Assessment Division*
Project Administrator:	Catherine Kitchen, BA *Archaeologist, Project Administrator* *Environmental Assessment Division*
Project Director (Licensee):	Jessica Lytle, MSc (P1066) *Lead Archaeologist, Technical Writer and Fieldwork Coordinator,* *Environmental Assessment Division*
Project Manager:	Eliza Brandy, MA (R1109) *Associate Archaeologist / Project Manager* *Environmental Assessment Division*
Field Director:	Alexis Dunlop
Report Preparation:	Eliza Brandy Danielle Bella, Hon. BA *Archaeologist / Analyst – Laboratory and Fieldwork Services* *Operations Division*
Graphics:	Robin Latour, MPhil, PDip *Associate Archaeologist / Geomatics Specialist* *Operations Division* Peter Bikoulis, PhD *Archaeologist / GIS Technician* *Operations Division* Carolyn Nettleton, BA *Archaeologist / GIS Technician* *Operations Division*
Report Reviewer:	Lisa Merritt

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1.0 PROJECT CONTEXT

Archaeological Services Inc. (ASI) was contracted by Matrix Solutions Inc. to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Dixie0Dundas Flood Mitigation in the City of Mississauga (Figure 1). This project involves preparation of a flood remediation plan for the Dixie-Dundas area of the Little Etobicoke Creek watershed. The Stage 1 Study Area is bordered by Golden Orchard Drive in the north, Constitution Boulevard/Stanfield Road in the west, GO Transit Milton Line/ Canadian Pacific Railway in the south, and Mattawa Avenue in the east.

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 Heritage, Sport, Tourism and Culture Industries (MHSTCI 2011).

1.1 Development Context

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

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment was granted by Matrix Solutions Inc. on July 9, 2019.

1.2 Treaties and Traditional Territories

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

1.3 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.

1.3.1 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 small community 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). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers 1962). 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 and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to the dispersal of the Huron-Wendat. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence

in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

1.3.2 Euro-Canadian Land Use: Township Survey and Settlement

Historically, the Study Area is located in the Former Township of Toronto, County of Peel in part of Lots 4-7, Concession 1 North of Dundas Street (NDS) and Lot 4, Concession 1 South of Dundas Street (SDS).

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

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

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

Toronto Township

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

The Credit River runs through the western portion of the Township, and proved to be a great source of wealth to its inhabitants, as it was not only a good watering stream, but there were endless mill privileges along the entire length of the river.

In 1855, the Hamilton and Toronto Railway completed its lakeshore line. In 1871, the railway was amalgamated with the Great Western Railway, which in turn, was amalgamated in 1882, with the Grand Trunk Railway, and then in 1923, with Canadian National Railway (Andreae 1997:126-127). Several villages of varying sizes had developed by the end of the nineteenth century, including Streetsville, Meadowvale, Churchville, and Malton. A number of crossroad communities also began to grow by the

end of the nineteenth century. These included Britannia, Derry, Frasers Corners, Palestine, Mt Charles, and Grahamsville.

Village of Burnhamthorpe

The hamlet of Burnhamthorpe, originally "Sand Hill" or "Sandy Hill" and located at the intersection of Dixie Road and Burnhamthorpe Road, was named by John Abelson, an early settler from Burnham Thorpe, England. The Copeland family were other early settlers in 1818. The Burnhamthorpe Primitive Methodist Cemetery was established on a Crown Grant belonging to Abram Markle, who then sold the land to Levi Lewis in 1811, at the southwest corner of Burnhamthorpe and Dixie Roads. Many members of the early hamlet are buried there, including the Carr, Copeland, Curry, Jefferson, Markle, Moore, Savage, Siddall, Stanfield, and Tolman families. In 1825, part of the land was deeded to trustees for the Methodist Episcopal Church, public cemetery and schoolhouse. The cemetery was public until 1859, when it was deeded over to the trustees of the Primitive Methodist Church. In 1874, a new church was built on the northwest corner, known after 1925, as the Burnhamthorpe United Church, served the community until 1978. The first store and post office in Burnhamthorpe were originally located in a series of buildings, which from 1840 to 1876 included a Sons of Temperance Hall, where church services were held, and an Orange Lodge. In 1876, James Curry purchased the buildings and turned the hall into living quarters for his family, with a store in the front as well as a post office. Another of the larger buildings became a steam grist mill. The mill was destroyed by fire in 1927, and a local school bought the stones for a building and a well. By 1876, Burnhamthorpe's population had reached approximately 100 residents, and it had a blacksmith shop, carriage shop, shoemaker and general store. The hamlet began to decline in the 1880s after it was bypassed by the railway (Heritage Mississauga 2009a).

Village of Dixie

The settlement of Dixie, previously known as Sydenhham, located at the intersection of Tomken Road and Dundas Street East in the City of Mississauga and was first settled in 1806 by Phillip Cody who was a United Empire Loyalist from Massachusetts. Construction of the first chapel begun in 1808 but an accident put a hiatus on construction until 1812. The war of 1812, put another hiatus on its construction and it was not completed until 1816. In 1837, the original log chapel was replaced by a stone building which stands to the modern day. In 1844, a log schoolhouse was built in the community. Toronto Township School Section #1 was built in 1857, on the northeast corner of Dixie Road and Dundas Street, but as the community grew, a second school was built on the southwest corner (Moreau 2013). The Anglican parish constructed a red-brick church in 1870. This building stood until 1924, when it burned down; it was replaced in 1925, by a new structure built in the High Victorian Gothic Church style. The proximity of Dixie to Cooksville prevented it from developing a unique character of its own and by the early 20th century the two communities along with the nearby community of Burnhamthorpe were intertwined (Heritage Mississauga 2009b).

Village of Summerville

Summerville was a small settlement on Dundas Street where it crosses the Etobicoke Creek. Originally called Silverthorn's, Silverthorn's Mill or Mill Place, the first settlers arrived prior to 1810, including mostly loyalist families. In 1810, Abraham Markle built a sawmill on the creek south of Dundas Street. In 1818, Thomas Silverthorn opened an inn on the northeast corner of what is today Southcreek Road and Dundas Street, later named the Wayside Inn and the Summerville Hotel. A second inn was operated by William O'Brien east of Thomas' inn. By 1820, Thomas' son John Silverthorn opened a blacksmith shop, a grist mill and a saw mill north of Dundas Street, as well as cleared a road connecting his mills with

Dundas Street and Burnhamthorpe Road. By the mid-1850s, the village also had post office, carriage factory, cooper shop and chair factory, two blacksmith shops, two schools, a Methodist Church, a general store and a population of about 100. The Credit Valley Railway was built near Summerville in 1879, and the paving of Dundas Street in 1917, meant that travelers no longer had to stop in the village. Settlement began to disperse (Heritage Mississauga 2009c).

Credit Valley Railway

The Credit Valley Railway was constructed between 1877 and 1879 to improve trade opportunities in Southern Ontario (Town of Caledon 2009). The project was backed by George Laidlaw and was intended to connect Toronto with Orangeville via Streetsville. Construction began in 1874 and over several subsequent years several branches were added to the proposed line. The first section of track from Parkdale (Toronto) to Milton was opened in 1877. In 1873, survey work was completed and track was first laid in 1876. Construction on the railway reached the Forks of the Credit by 1879 with a station at the northern end of the longest curved timber trestle of the time, which spanned 1,146 feet through the river valley at a height of 85 feet (Town of Caledon 2009:7.30). The line was completed in 1881 but nearly bankrupted the company. It was established in direct competition with the Toronto, Grey and Bruce Railway in the hopes of stimulating trade and economic opportunities in the outlying areas. In 1883 the line was taken over by the Canadian Pacific Railway (Heritage Mississauga 2009; Town of Caledon 2009).

Dundas Street

Formerly known as Governor's Road, Dundas Street was surveyed by Augustus Jones and constructed by the Queens Rangers, commissioned by Lieutenant Governor Simcoe to be the first major roadway in Upper Canada. Dundas Street was opened through Toronto Township in 1798. It was originally a crooked winding road, following existing Indigenous trails, crossing Etobicoke Creek south of its present location, until 1806 when it was straightened between the surveyed concessions. It became a corduroy road in 1812 to accommodate the movement of troops, and in 1836 was macadamized from Toronto to Cooksville and two tolls booths put in place at Dixie and Streetsville Roads. In 1850, the road was purchased by the Toronto Road Company, bringing it under the authority of the Township, who improved the road many times over into the mid-twentieth century, when it was widened to four lanes. As of 1970, the road is owned and maintained by the City of Mississauga (City of Mississauga n.d.; Hicks 2006:xiii-xv).

1.3.3 Historical Map Review

The 1859 *Map of the County of Peel* (Tremaine 1859) and the south half of Toronto Township in 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)**
1 NDS	4	Josiah Robinete	Structure (2), creek	J. Clarkson James Falconer	Orchards (2), creek Farmstead
1 NDS	5	Josh Brown	Structure (3), toll bar, shoe shop, creek	Josh Brown (NR) JW	Farmsteads (3), school house, Toll Bar, orchard, creek
1 NDS	6	Abram Markle Wm Taylor	Creek	Wm Shaver W. Watson TR JW	Farmsteads (2), orchard, creek
1 NDS	7	Jas Price	Creek	Mathew Gummerson	Farmstead, orchard
1 SDS	4	Wm. T. Shaver	Creek	Wm. H. Pallett	Structure, orchard, creek

The 1859 map illustrates Dundas Street East as a plank and gravel road, and Dixie Road as a common road. The map shows two structures within the Study Area adjacent Dundas Street, as well as a Toll Bar, shoe shop, and two structures south of the Study Area at the intersection of Dixie Road and Dundas Street East. The Study Area is between the villages of Sydenham and Summerville, and south of Sandhill. The 1877 map illustrates one structure and orchard within the Study Area. The Canadian Valley Railway is shown within the southern portion of the Study Area by this time. Little Etobicoke creek is shown in its alignment in both maps.

1.3.4 Twentieth-Century Mapping Review

The 1909 Department of Militia and Defence topographic mapping Brampton Sheet (Department of Militia and Defence 1909) and the 1964 and 1992 aerial photography of Mississauga (City of Toronto 2018:1964, 40; 1992, 41H) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 4-6).

Section 7.0 (Images 1-8) shows a series of detailed historical aerial photography between 1966 and 2013 serving to highlight the channelization and realignment of Little Etobicoke Creek and construction activities within the Study Area (City of Mississauga).

The 1909 map illustrates Dundas Street as a metalled road[1]. Two wooden bridges extend over Little Etobicoke Creek, one where Dixie Road crosses and the other at Dundas Street East. A third bridge of steel or iron is at the crossing of the railway over Little Etobicoke Creek. By this time, the railway has become the Canadian Pacific Railway. Adjacent to the Study Area there are numerous structures including a stone or brick school close to the intersection of Dundas Street and Dixie Road.

The 1964 aerial photography indicates that the Study Area remains relatively undeveloped with widely spaced residences and adjacent orchards. A parking lot and small building are shown where the eastern portion of the Study Area meets Dundas Road East. Some development has occurred within the south end of the Study Area. What is now Jarrow Avenue is shown as a dirt road extending northwest from Dundas Street, crossing north over Little Etobicoke Creek, and extending at a ninety-degree angle to meet Dixie Road. Queen Frederica Drive has been constructed but at the western portion of the Study Area and does not yet extend south.

The 1992 aerial shows that south of the Study Area has become heavily developed and commercialized, and the north is largely residential. Queen Frederica Drive now extends south. Several commercial areas and parking lots have been constructed within the Study Area, at the southwest corner of Dixie Road and Golden Orchard Drive. The eastern portion of the Study Area now contains large industrial buildings.

Aerial photography between 1966 and 2013 demonstrates the original alignment of Little Etobicoke Creek within the Study Area and its extensive realignment and channelization (Images 1-8). The 1975 and 2005 aerial photographs show that Dixie Road and Dundas Street East were widened by 2005 (Images 1-2, 7-8). The 1966 aerial photograph shows Jarrow Avenue under construction (Image 3). Industrial buildings off Jarrow Avenue and Sedlescomb Drive, and a commercial building and parking lot south of the Study Area and east of Dixie Road have been constructed by 1985 (Image 4). The 1985 aerial photograph shows channelization of Little Etobicoke Creek first at Dixie Road and between Sedlescomb Drive and Nawbrook Road (Image 4). The remainder of Little Etobicoke Creek has been realigned and channelized by 2005 (Image 5). Sedlescomb Drive has expanded to the west and further industrial buildings have been constructed by 2005 (Image 5). South of Dundas Street East, industrial and commercial buildings and parking lots are shown to be constructed and demolished between 1966 and 2013 (Images 6-8).

1.4 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] Metalled roads were constructed from crushed stone bound by tar which was then compressed with a steam roller, also known as "tarmac" (Neill 2016)

1.4.1 Current Land Use and Field Conditions

A review of available Google satellite imagery shows that the Study Area has remained relatively the unchanged since 2003. Paths within Applewood Hills Park and Willowcreek park appear to have been paved by 2005. Construction activities relating to the creation of commercial buildings and parking lots south of Little Etobicoke Creek between Dundas Street East and the railway corridor are visible in 2009 and 2012-2013.

A Stage 1 property inspection was conducted on August 19, 2019 that noted the Study Area is located along Little Etobicoke Creek in the City of Mississauga. The creek runs from west of Dixie Road through Applewood Hills Park, a landscaped public park with playground and multi-use trails, under Dixie Road, through a wooded area between residential subdivisions to the north and commercial/industrial lands to the south. The creek flows northeast past Willowcreek Park, which contains a playground and multi-use trail, and turns southeast to flow under Dundas Street East. Southeast of Dundas Street East the Study Area borders commercial buildings and parking lots.

1.4.2 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 drumlinized till plains, beaches, and sand plains of the South Slope and Iroquois Plain physiographic regions of southern Ontario (Figure 7). The South Slope region comprises the southern slope of the Oak Ridges Moraine (Chapman and Putnam 1984). The South Slope

meets the moraine at heights of approximately 300 m above sea level and descends southward toward Lake Ontario, ending at elevations below 150 m above sea level at some areas. The South Slope extends from the Niagara Escarpment to the Trent River and covers approximately 2435 square kilometres (Chapman and Putnam 1984). Numerous streams descend the South Slope, which have cut deep valleys into the till. The Iroquois Plain physiographic region of Southern Ontario 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 approximately 300 km (Chapman and Putnam 1984). The old shorelines of Lake Iroquois include cliffs, bars, beaches and boulder pavements.

Glacial Lake Iroquois came into existence by about 12,000 before present (BP) as the Ontario lobe of the Wisconsin glacier retreated from the Lake Ontario basin. Isostatic uplift and the blockage of subsequent lower outlets by glacial ice produced a water plain substantially higher than modern Lake Ontario. Beginning around 12,000 BP, water levels started to drop during the next few centuries in response to sill elevations at the changing outlet. By about 11,500 BP, when the St. Lawrence River outlet became established, the initial phase of Lake Ontario began and this low water phase appears to have lasted until at least 10,500 BP. At this time the waters stood as much as 100 m below current levels. At this time isostatic uplift had started to raise the outlet around Kingston so that by 10,000 BP the water level had risen to about 80 m below present. Uplift has continued to tilt Lake Ontario upward to the northeast, propagating a gradual and transgressive expansion throughout the basin (Anderson and Lewis 1985; Karrow 1967; Karrow and Warner 1988; Karrow and Warner 1990).

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). This narrow strip is the most densely inhabited area because of its proximity to Lake Ontario and its climatic influences, as well as its favourable soil conditions.

The Study Area is adjacent to a glacial beach that runs roughly parallel to, and north of, Dundas Street East between The West Mall and High Springs Crescent west of Confederation Parkway.

Figure 8 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by coarse-textured glaciolacustrine deposits of sand, gravel, minor silt and clay, modern alluvial deposits and Paleozoic bedrock (Ontario Geological Survey 2010). Drainage is illustrated in Figure 9. Soils in the Study Area consist of:

- Fox sand and Caledon loam, both grey-brown podzolic, stonefree to few stones, well sorted outwash with good drainage;
- Bottom Land, an alluvial with variable drainage;
- Cooksville clay loam, a grey- brown podzolic with few stones, shallow soil over bedrock with imperfect drainage; and
- Gilford loam, a dark grey Gleisolic with few stones, well sorted outwash with poor drainage

The Study Area is within the Little Etobicoke Creek subwatershed. Etobicoke Creek is derived from the Anishinaabemowin word “Wah-do-be kaug” meaning “place where the alders grow”. The Etobicoke Creek watershed, including its major tributaries Spring Creek, Little Etobicoke Creek, and West Etobicoke Creek, drains an area of approximately 211 square kilometres within the cities of Brampton, Mississauga, Toronto, and the Town of Caledon. The creeks flow south from its headwaters in Caledon

into Lake Ontario through 68% urban, 27% rural and 5% urbanizing land (Toronto and Region Conservation Authority 2019).

1.4.3 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 *AjGv*.

According to the OASD, no previously registered archaeological sites are located within one kilometre of the Study Area (MHSTCI 2021).
According to the background research, four previous reports detail fieldwork within 50 m of the Study Area.

ASI (1990 Licence #90-021) conducted a Stage 1-2 AA for the Silverthorn Feedermain Route Selection Study, which follows the Little Etobicoke Creek northwest of the Dundas Street East and Dixie Road intersection, in the Regional Municipality of Peel, including part of the current Study Area. The majority of the proposed route was determined to be disturbed by grading, filling, residential or industrial development. All undisturbed areas and a selection of disturbed areas were investigated by test pit survey at five metre intervals. No archaeological resources were encountered, and the area was recommended to be free of further archaeological concern.

ASI (1992 Licence #92-010) conducted a Stage 1-2 AA as part of the Little Etobicoke Creek project, overlapping the northern portion of the current Study Area. A test pit survey was conducted at five metre intervals, resulting in no archaeological remains encountered. It was recommended that the area be considered free of further archaeological concern.

Archeoworks (2017: P029-0931-2017) conducted a Stage 1-2 Archaeological Assessment for the Proposed Residential Apartments project at 3150 and 3170 Golden Orchard Drive, within the current Study Area. Areas of deep and extensive disturbances were encountered and the balance of the area was subject to test pit survey at five and ten metre intervals. No archaeological resources were encountered, and the area was considered free from further archaeological concern.

ASI (2018: P1066-0075-2018) conducted a Stage 1 AA for the Southeast Mississauga Sanitary Sewer and Watermain Replacement project, overlapping the current Study Area along Dundas Street East and west of Loreland Avenue. The property inspection determined that the Study Area does not retain archaeological potential and will not require Stage 2 assessment prior to any proposed construction.

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 Alexis Dunlop (1146) of ASI, on August 19, 2019 and on April 16, 2021, 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 clear with good visibility (seasonal temperatures, sunny on August 19, 2019 and cloudy on April 16, 2021), 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 8.0 (Figures 10-13) and associated photographic plates are presented in Section 7.0 (Plates 1-22).

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:

- Water sources: primary, secondary, or past water source (Etobicoke Creek);
- Early historic transportation routes (Dundas Street E., Dixie Road);
- Proximity to early settlements (villages of Dixie, Summerville, Burnhamthorpe); and
- Well-drained soils (Fox sand, Caledon 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 no properties within the Study Area are Listed or Designated under the Ontario Heritage Act.

The property inspection determined that the Study Area exhibits archaeological. These areas will require Stage 2 archaeological assessment 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 potential (Plates 1, 3-4, 15-17; Figures 11-12: areas highlighted in green).

Parts of the Study Area have been previously assessed and do not require further work (Figures 11-13: areas highlighted in red).

A combination of property inspection observations with a review of topographic mapping (ESRI 2021) indicates that some of lands within the Study Area are sloped in excess of 20 degrees, and according to the S & G Section 2.1 do not retain potential (Plates 13-14, 18; Figures 11-13: areas highlighted in pink).

The remainder of the Study Area has been subjected to deep soil disturbance events due to channelization and extensive realignment of Little Etobicoke Creek; construction of the Dixie Road and Dundas Street East right-of-ways; utilities including storm sewer; and the construction of residential and commercial development adjacent to the creek, as observed during background research and property inspection. According to the S & G Section 1.3.2 these areas do not retain archaeological potential (Plates 1-22; Images 1-8; Figures 11-13: areas highlighted in yellow) and do not require further survey.

3.2 Conclusions

The Stage 1 background study determined that no 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 (Figures 11-12).

4.0 RECOMMENDATIONS

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

1. Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals (Figures 11-12: areas highlighted in green), prior to any proposed construction activities;

2. The Study Area does not retain archaeological potential on account of deep and extensive land disturbance, slopes in excess of 20 degrees, 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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7.0 IMAGES

Historical Aerial Photography

Image 1: Little Etobicoke Creek alignment in 1975 between Bloor St. and Dixie Rd. (City of Mississauga 1975)

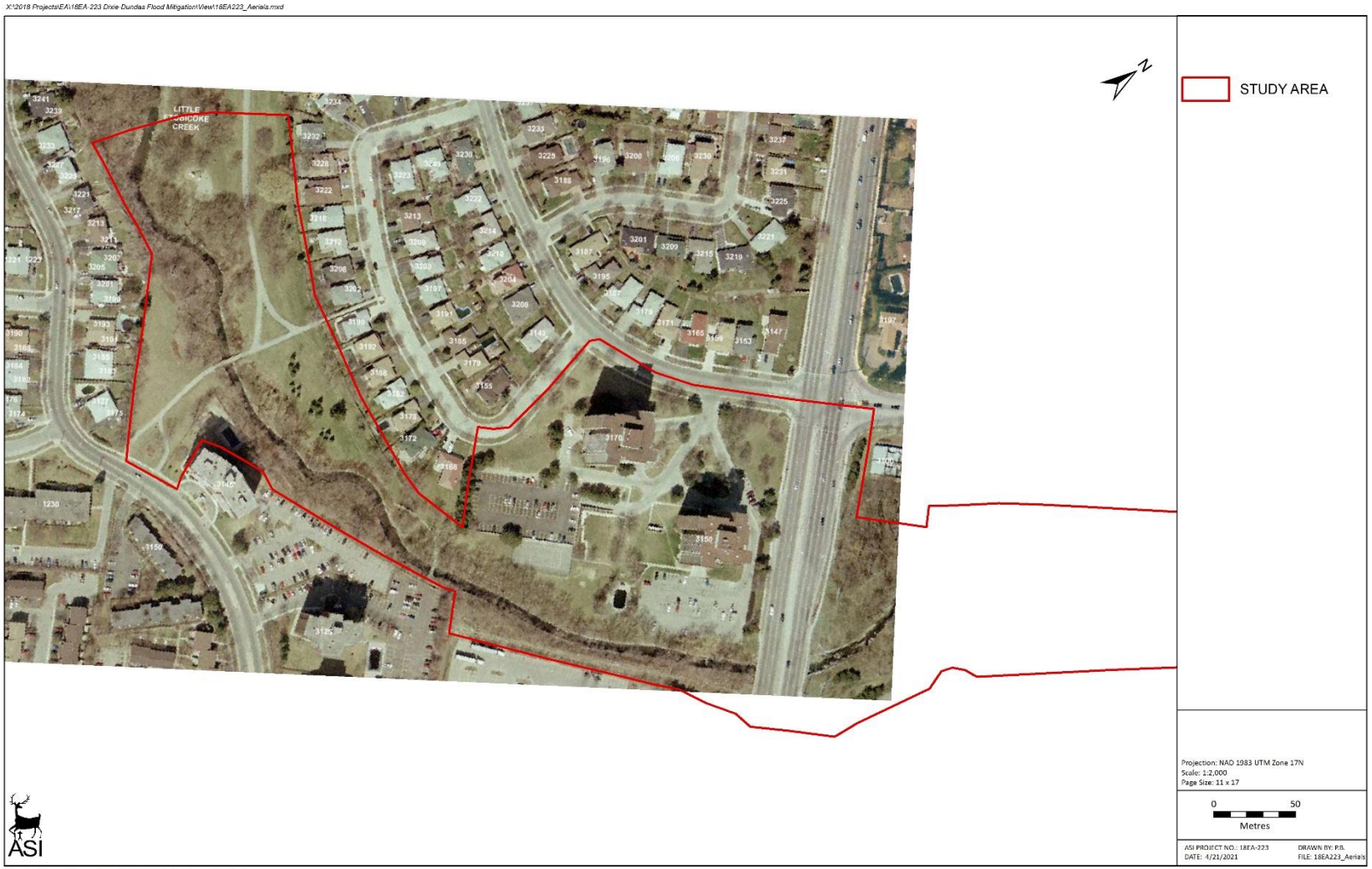

Image 2: Little Etobicoke Creek realignment in 2005 between Bloor St. and Dixie Rd. (City of Mississauga 2005)

Image 3: Little Etobicoke Creek alignment in 1966 between Dixie Rd. and Dundas St. E. (City of Mississauga 1966)

Image 4: Little Etobicoke Creek realignment in 1985 between Dixie Rd. and Dundas St. E. (City of Mississauga 1985)

Study Area Overlay - 2005 Mid Aerial

Image 5: Little Etobicoke Creek realignment in 2005 between Dixie Rd. and Dundas St. E. (City of Mississauga 2005)

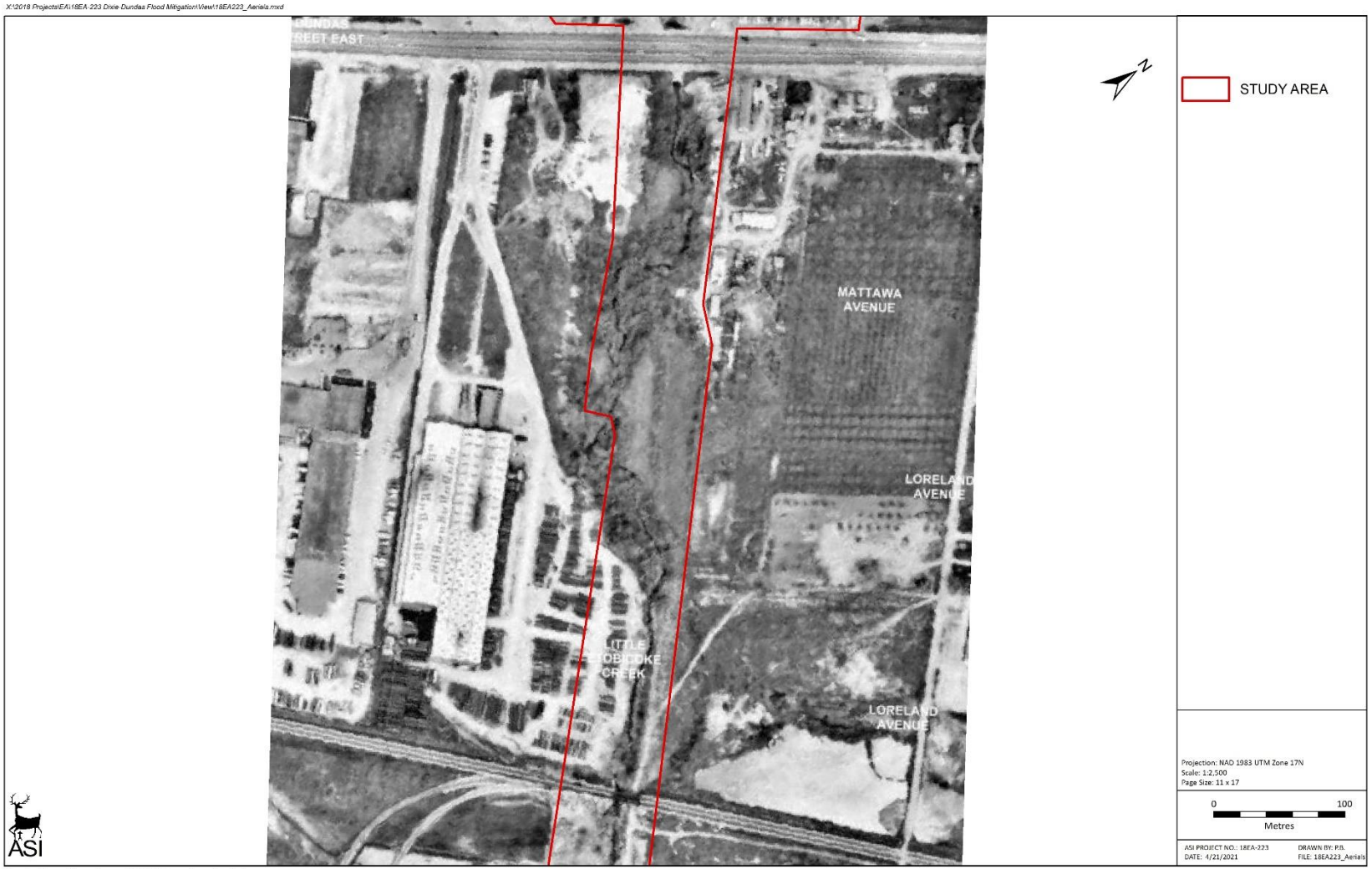

Image 6: Little Etobicoke Creek alignment in 1966 south of Dundas St. E. (City of Mississauga 1966)

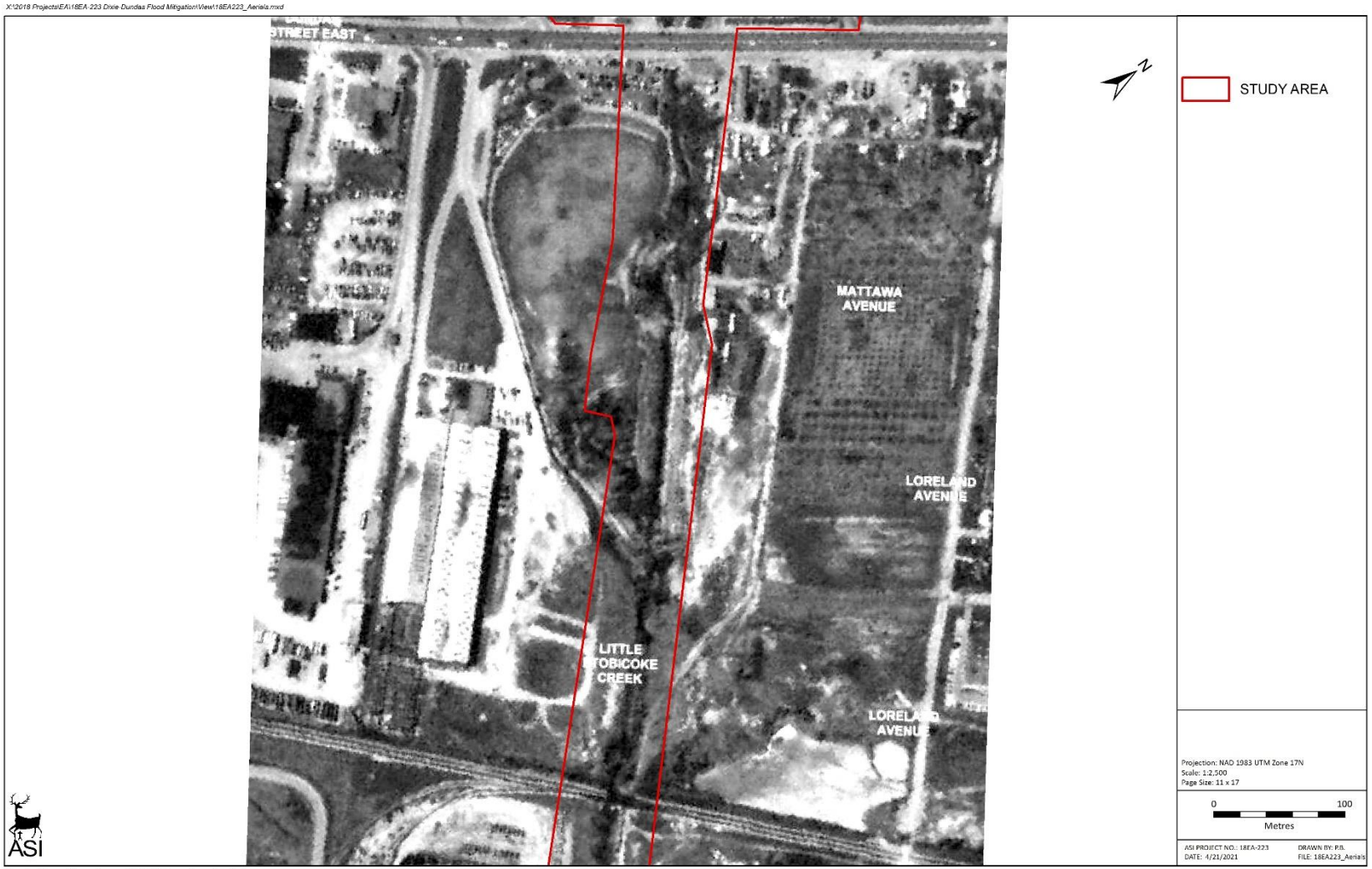

Image 7: Little Etobicoke Creek realignment in 1975 south of Dundas St. E. (City of Mississauga 1975)

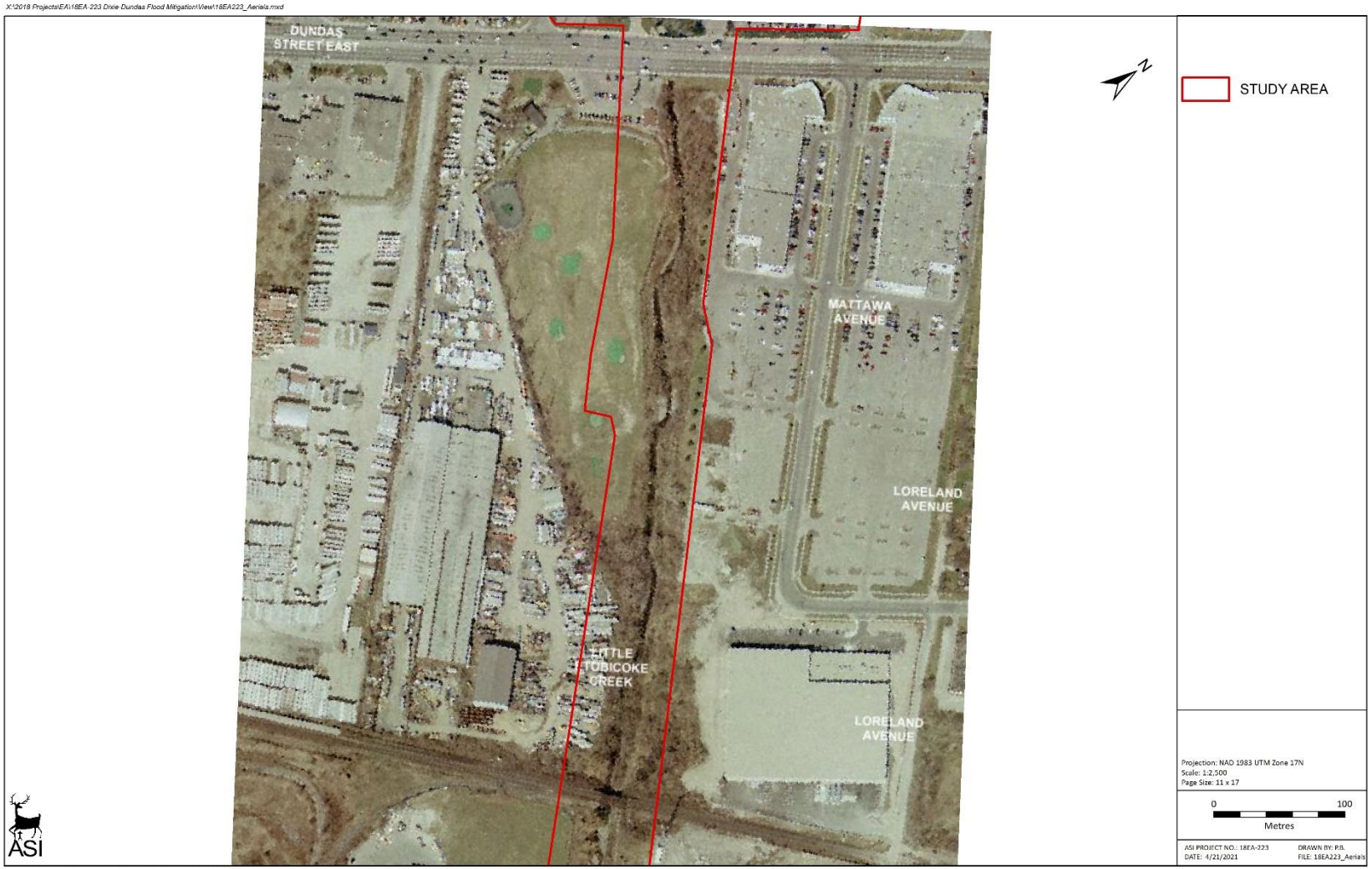

Image 8: Little Etobicoke Creek realignment in 2005 south of Dundas St. E. (City of Mississauga 2005)

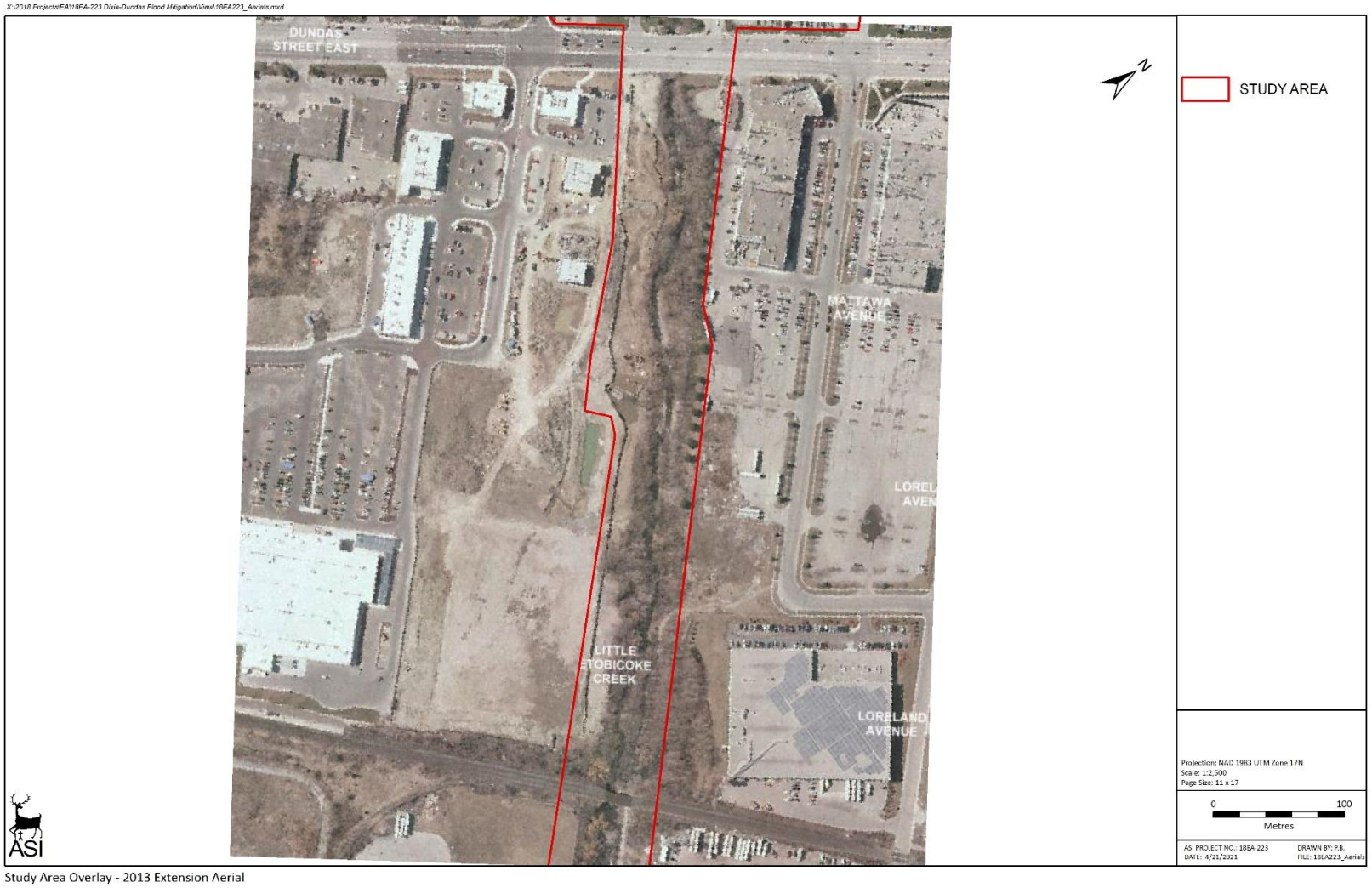

Image 9: Little Etobicoke Creek realignment and commercial development in 2013 south of Dundas St. E. (City of Mississauga 2013)

Field Photography

Plate 1: View from Applewood Trail; Area requires Stage 2 survey

Plate 2: View of Little Etobicoke Creek; Creek banks are disturbed from channelization, no potential

Plate 3: View of Applewood Trail; Area beyond disturbed trail requires Stage 2 survey

Plate 4: View of Applewood Trail; Area beyond disturbed trail requires Stage 2 survey

Plate 5: View of Little Etobicoke Creek; Creek banks are disturbed from channelization, no potential

Plate 6: View of armourstones lining Little Etobicoke Creek; Creek banks are disturbed from channelization, no potential

Plate 7: View of Applewood Trail; Area is disturbed, no potential

Plate 8: View of Little Etobicoke Creek from Dixie Rd; Area beyond creek is disturbed, no potential

Plate 9: View of Little Etobicoke Creek from Dixie Rd; Creek banks are disturbed from channelization, no potential

Plate 10: View of Little Etobicoke Creek from Dixie Rd; Creek banks are disturbed from channelization, no potential

Plate 11: View of Sedlescomb Dr.; Area is disturbed, no potential

Plate 12: View of Sedlescomb Dr.; Area is disturbed, no potential

Plate 13: View Little Etobicoke Creek; Area above sloped south creek bank requires Stage 2 survey

Plate 14: View Little Etobicoke Creek; Areas beyond sloped creek banks require Stage 2 survey

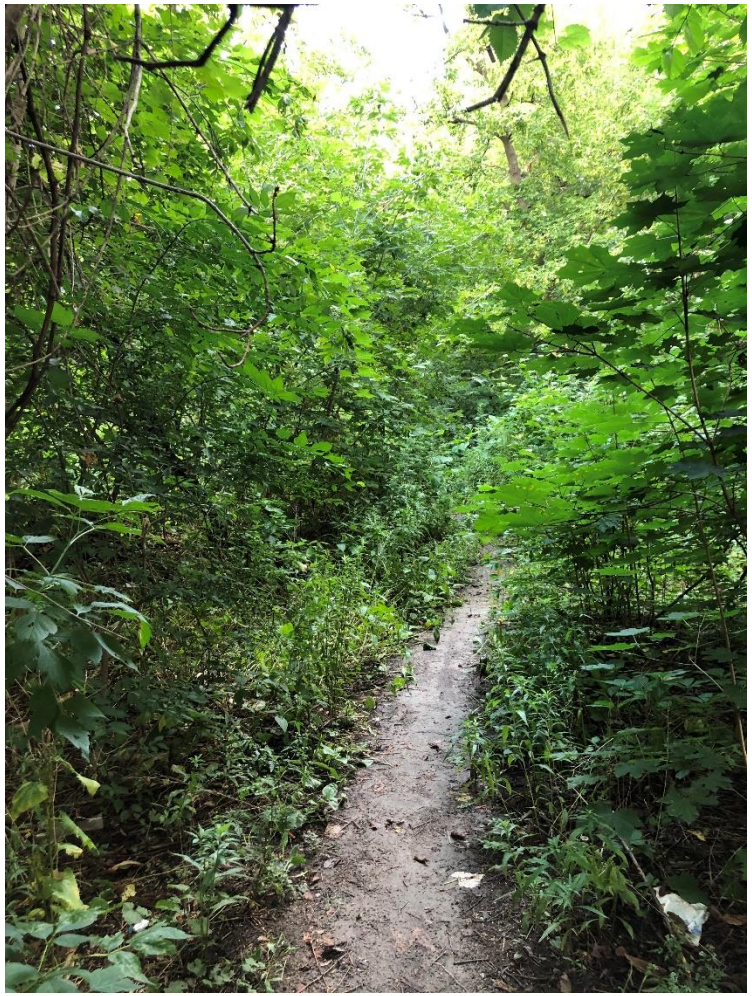

Plate 15: View from Willowcreek Park; Area beyond disturbed storm sewer main requires Stage 2 survey

Plate 16: Willowcreek Park; Area requires Stage 2 survey

Plate 17: Willowcreek Park; Area beyond disturbed trail and playground requires Stage 2 survey

Plate 18: Little Etobicoke Creek; Area north of disturbed creek bank is steeply sloped, no potential

Plate 19: Little Etobicoke Creek; Creek has been extensively channelized, area is disturbed and sloped, no potential

Plate 20: Little Etobicoke Creek; Area was historically extensively channelized and realigned, no potential

Plate 21: Little Etobicoke Creek; Area was historically extensively channelized and realigned, no potential

Plate 22: Little Etobicoke Creek; Area was historically extensively channelized and realigned, no potential

8.0 MAPS

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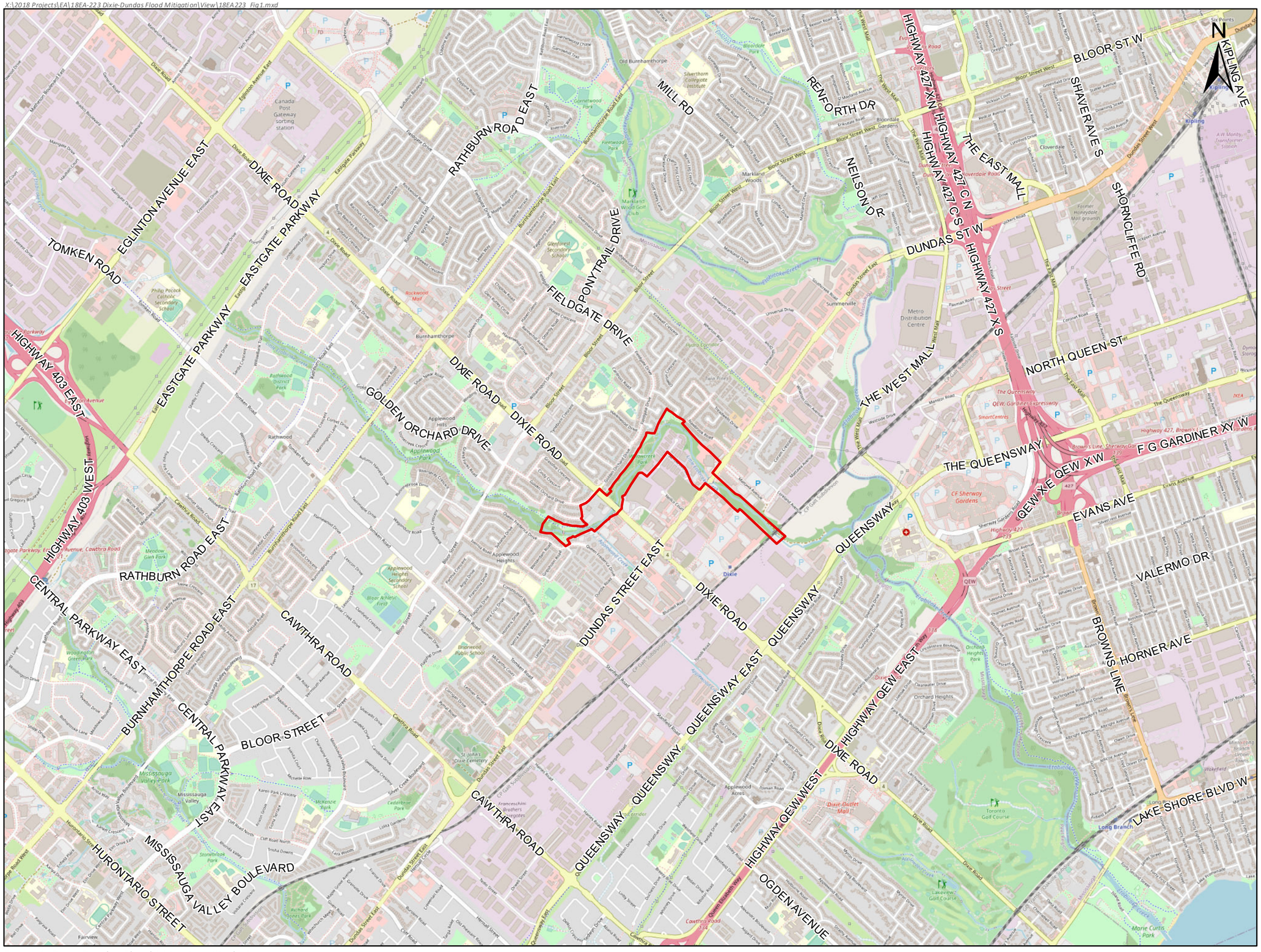

LEGEND

STUDY AREA

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

Figure 1: Dixie-Dundas Flood Mitigation Study Area

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

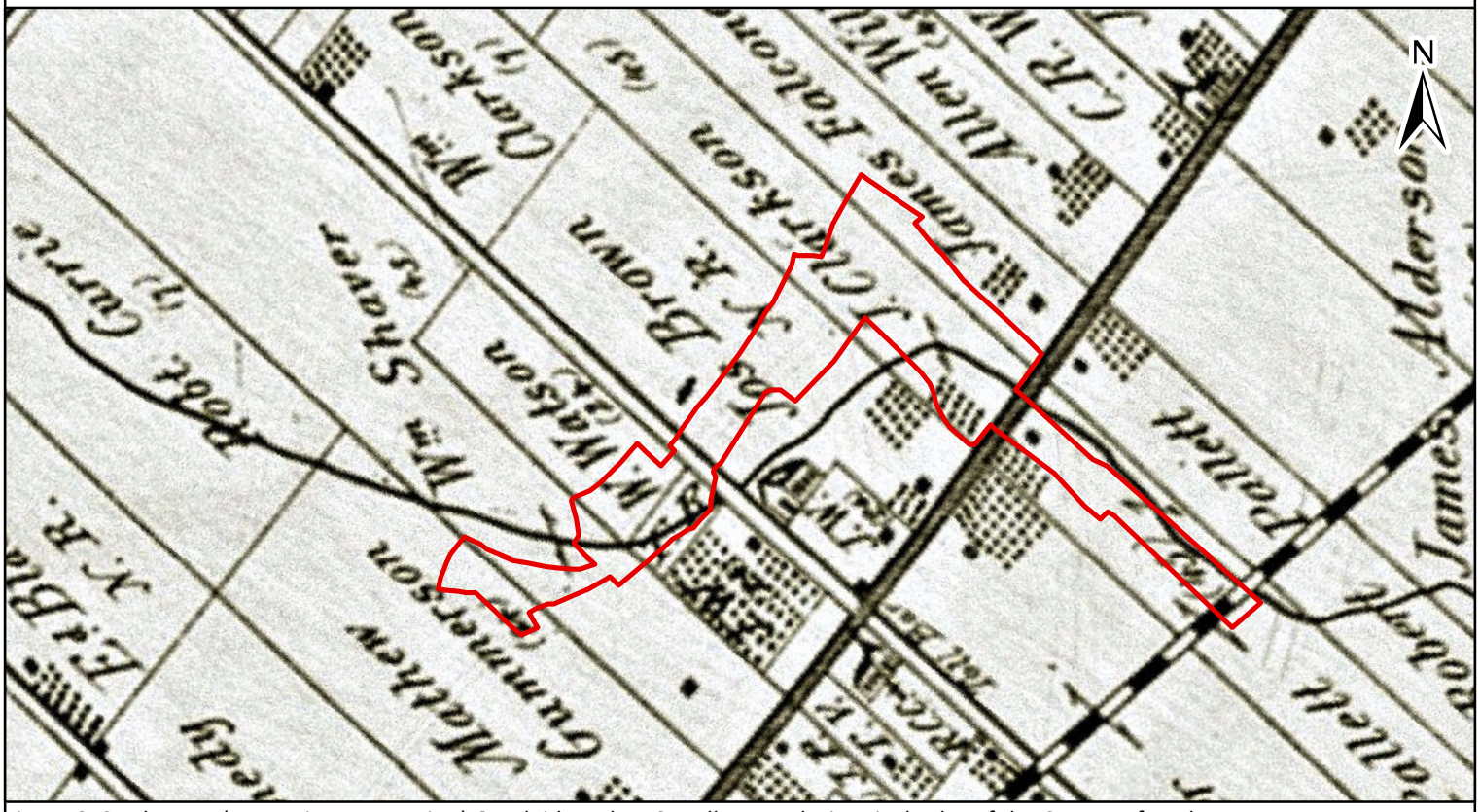

Figure 3: Study Area (Approximate Location) Overlaid on the 1877 Illustrated Historical Atlas of the County of Peel

ASI

STUDY AREA

Sources:
1859 Tremaine Map
1877 Illustrated Historical Atlas
County of Peel

Projection: NAD 1983 UTM Zone 17N
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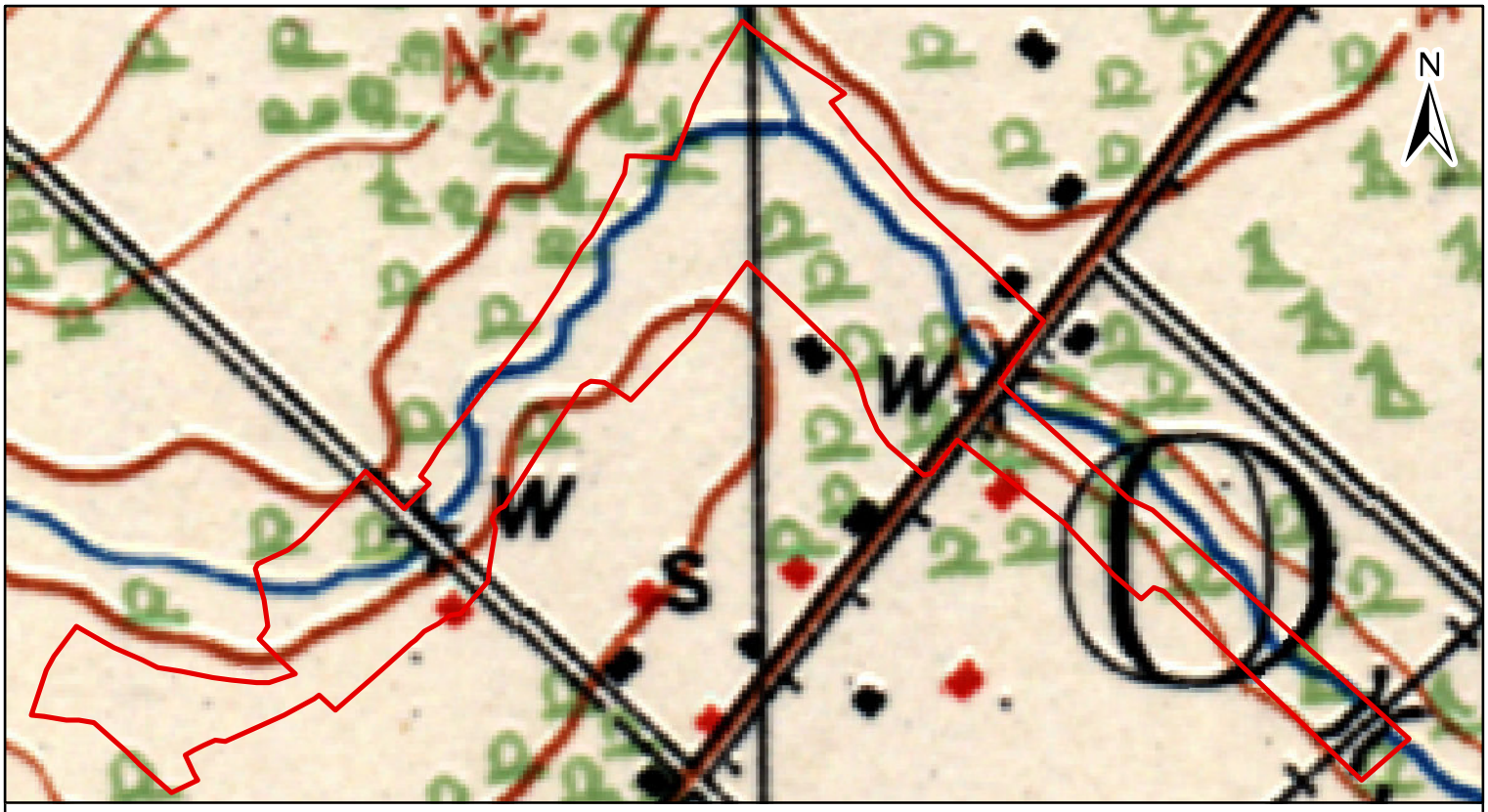

Figure 4: Study Area (Approximate Location) Overlaid on the 1909 DMD Brampton Sheet

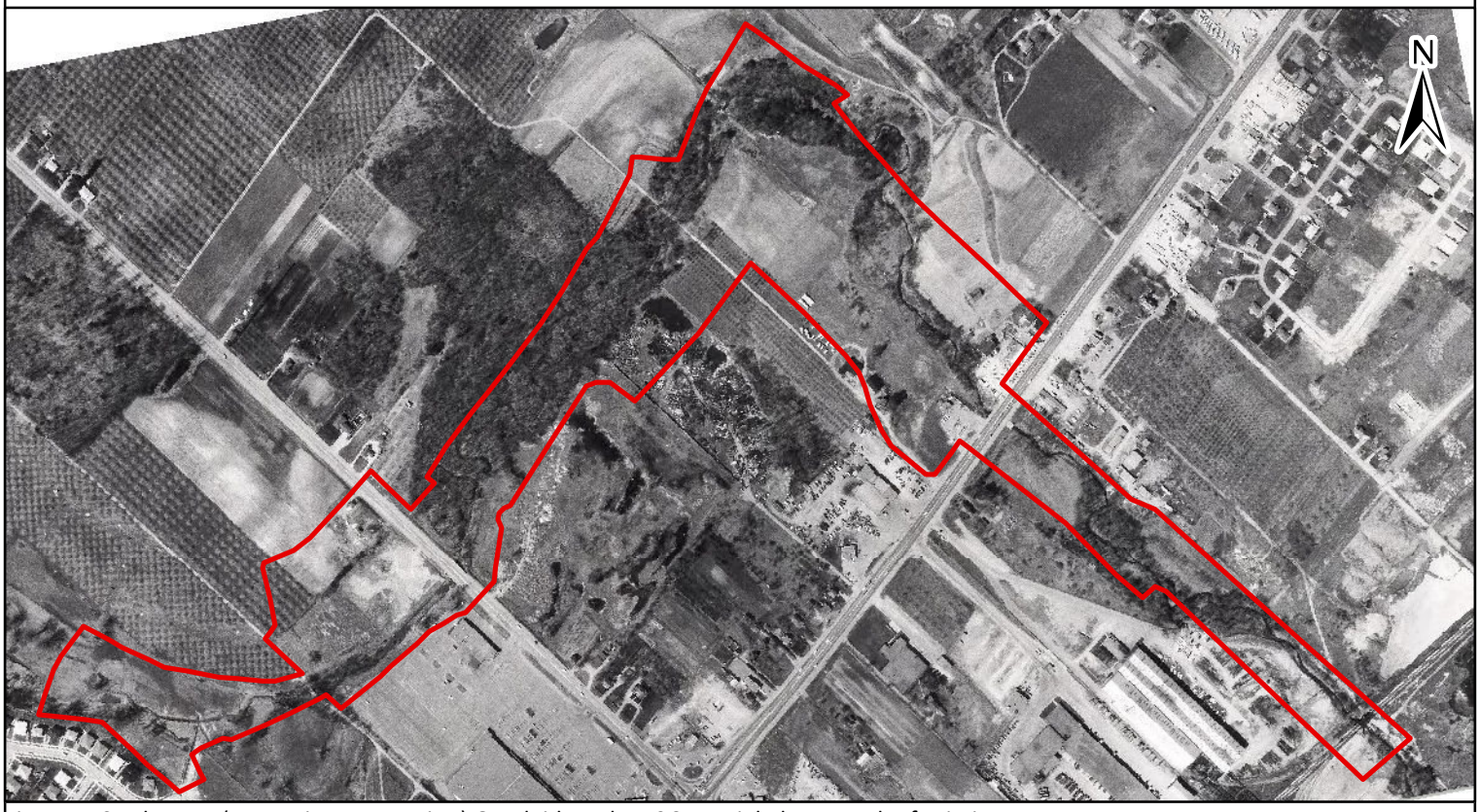

Figure 5: Study Area (Approximate Location) Overlaid on the 1964 Aerial Photograph of Mississauga

ASI

STUDY AREA

Sources:
1909 NTS Map
Brampton Sheet
1964 Aerial Photography

Projection: NAD 1983 UTM Zone 17N
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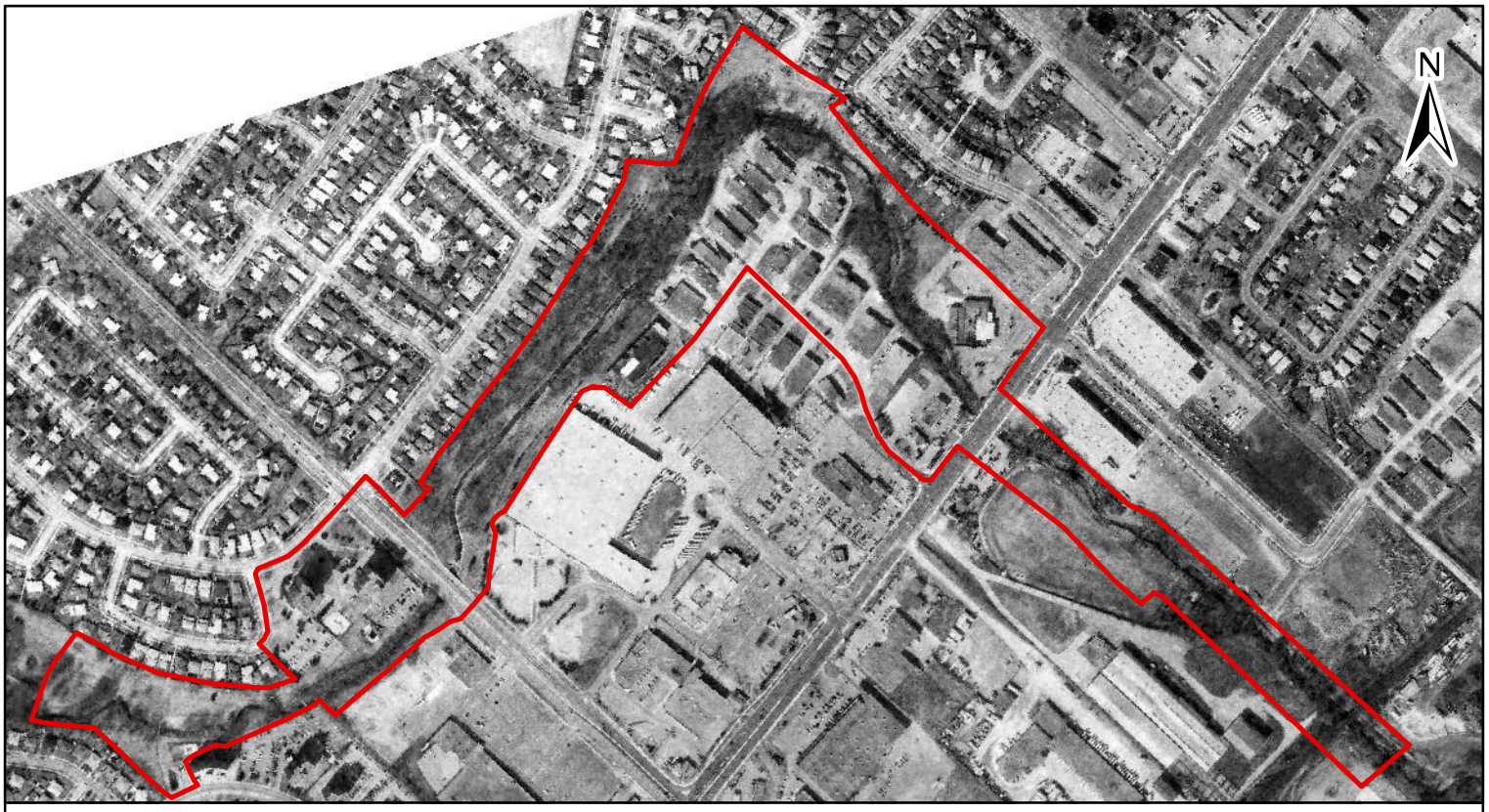


Figure 6: Study Area (Approximate Location) Overlaid on the 1992 Aerial Photographs of Mississauga

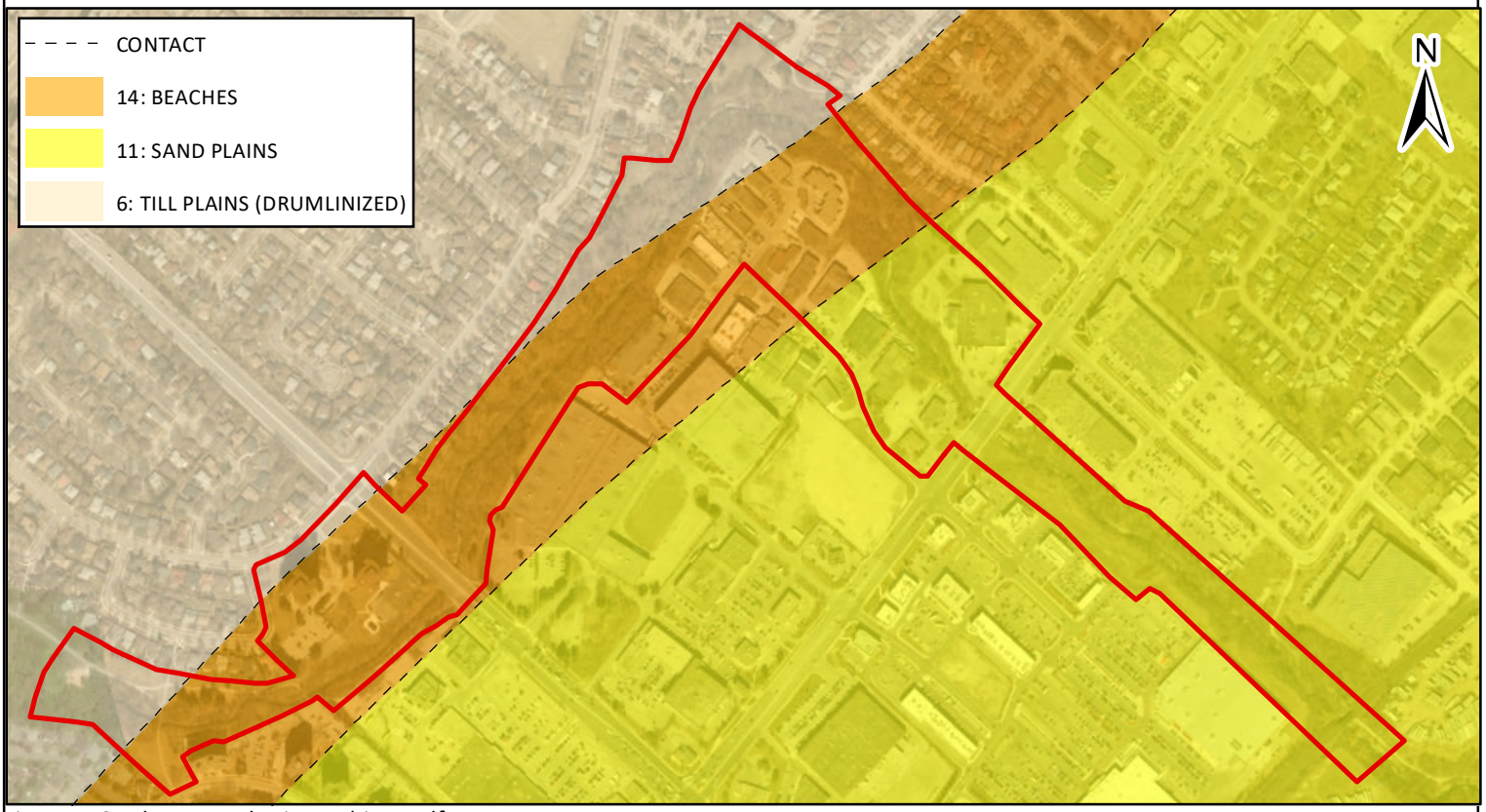


Figure 7: Study Area - Physiographic Landforms

STUDY AREA

Sources:
1992 Aerial Photography
Environment Canada

Projection: NAD 1983 UTM Zone 17N
Scale: 1:9,000
Page Size: 8.5 x 11

0 250
Metres

ASI PROJECT NO.:18EA-223 DRAWN BY:AB
DATE: 4/13/2021 FILE: 18EA223_Fig6-7_Hist

X:\2018 Projects\EA\18EA-223 Dixie-Dundas Flood Mitigation\View\18EA223_Fig8-9_Hist.mxd

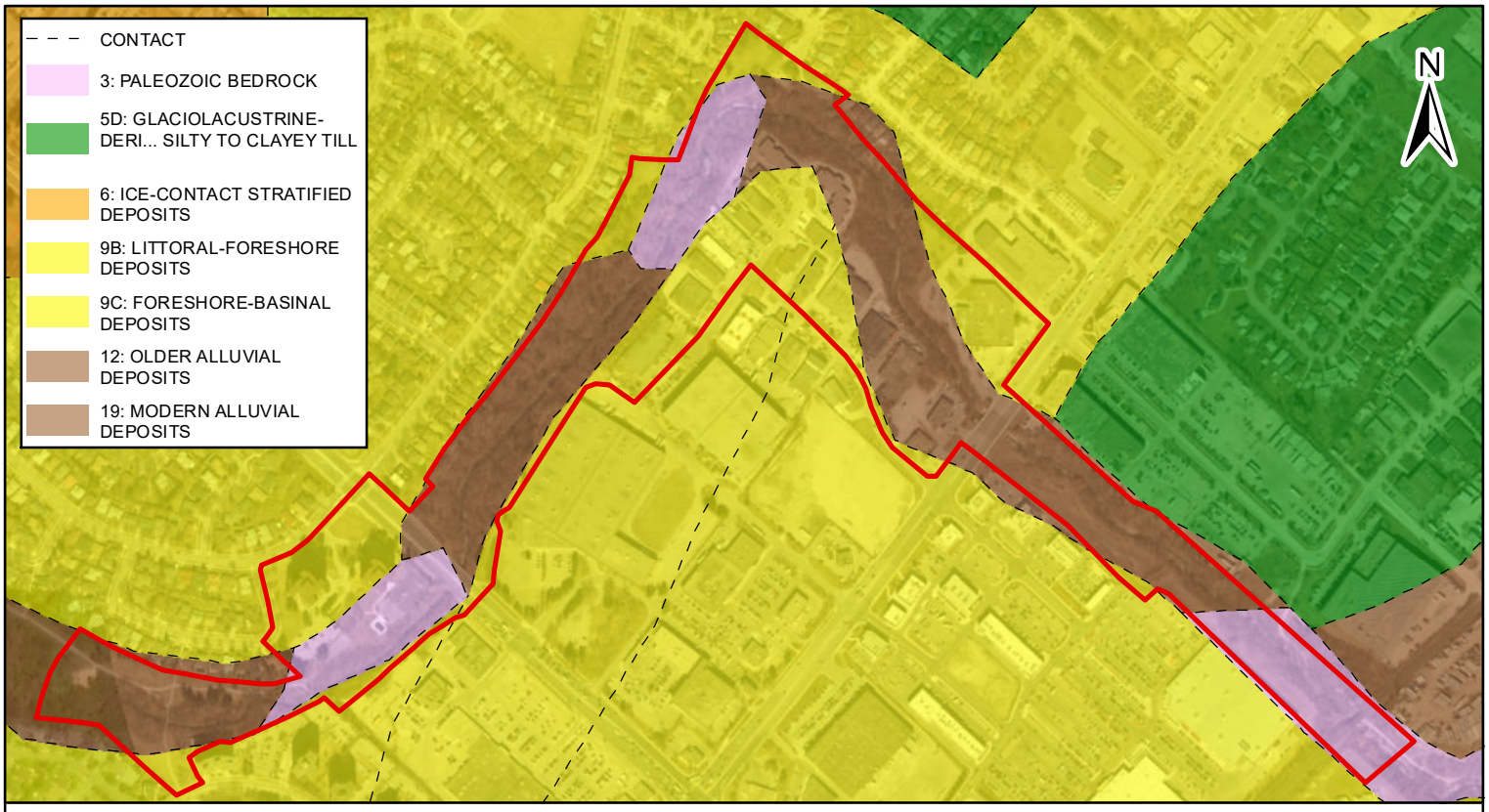


Figure 8: Study Area - Surficial Geology

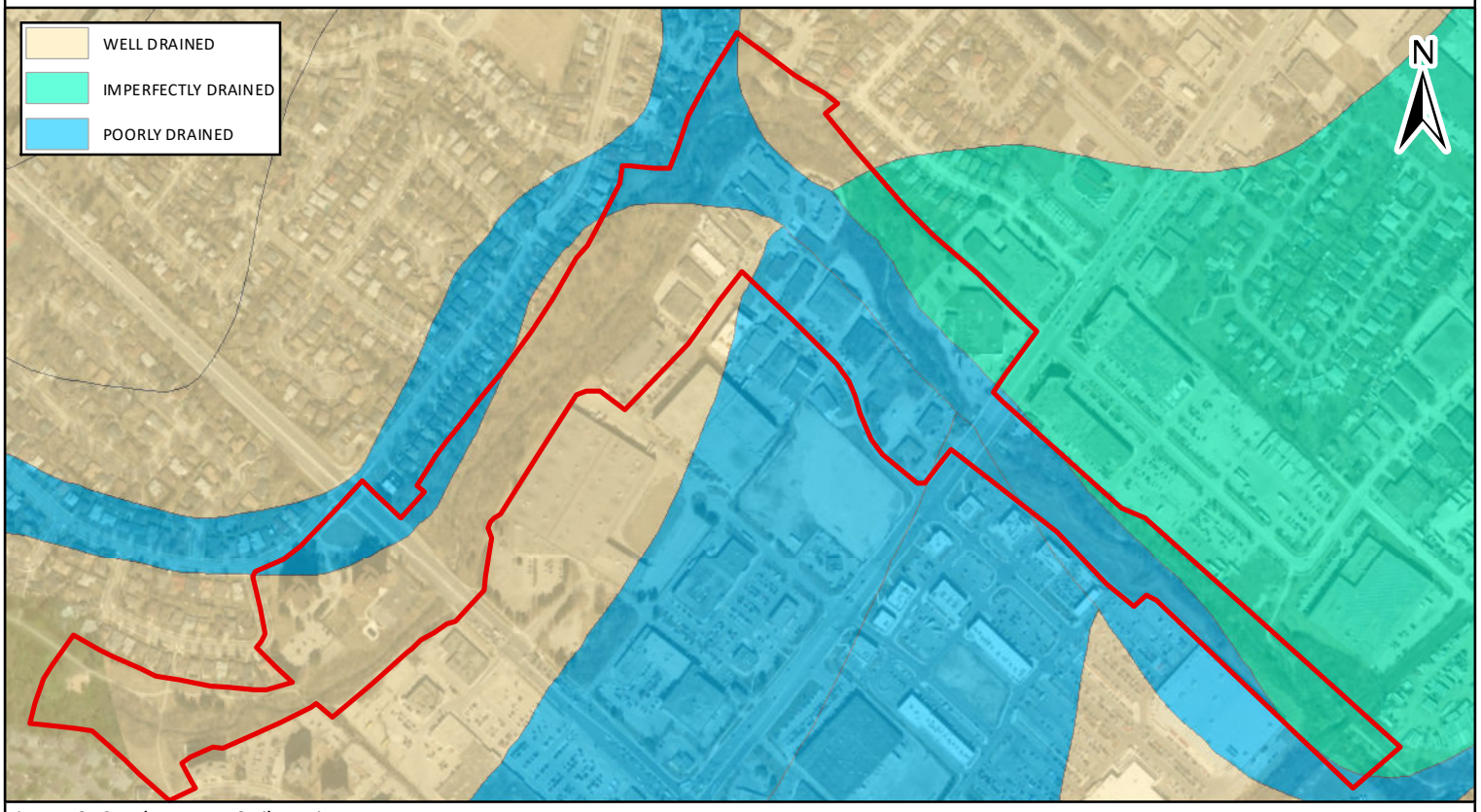


Figure 9: Study Area - Soil Drainage

STUDY AREA

Sources:
Environment Canada

Projection: NAD 1983 UTM Zone 17N
Scale: 1:9,000
Page Size: 8.5 x 11

0 250
Metres

ASI PROJECT NO.:18EA-223 DRAWN BY:AB
DATE: 4/13/2021 FILE: 18EA223_Fig8-9_Hist

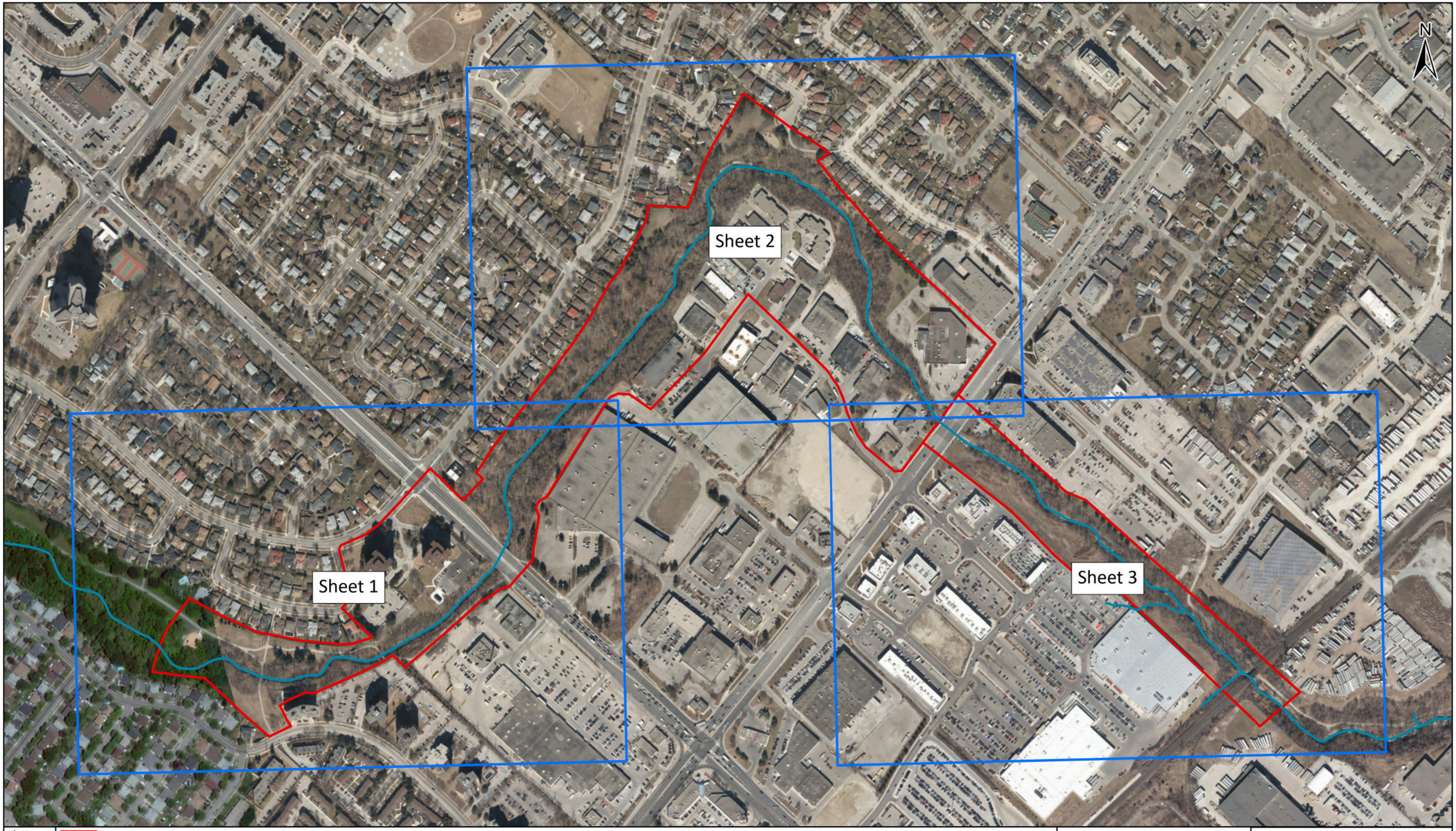
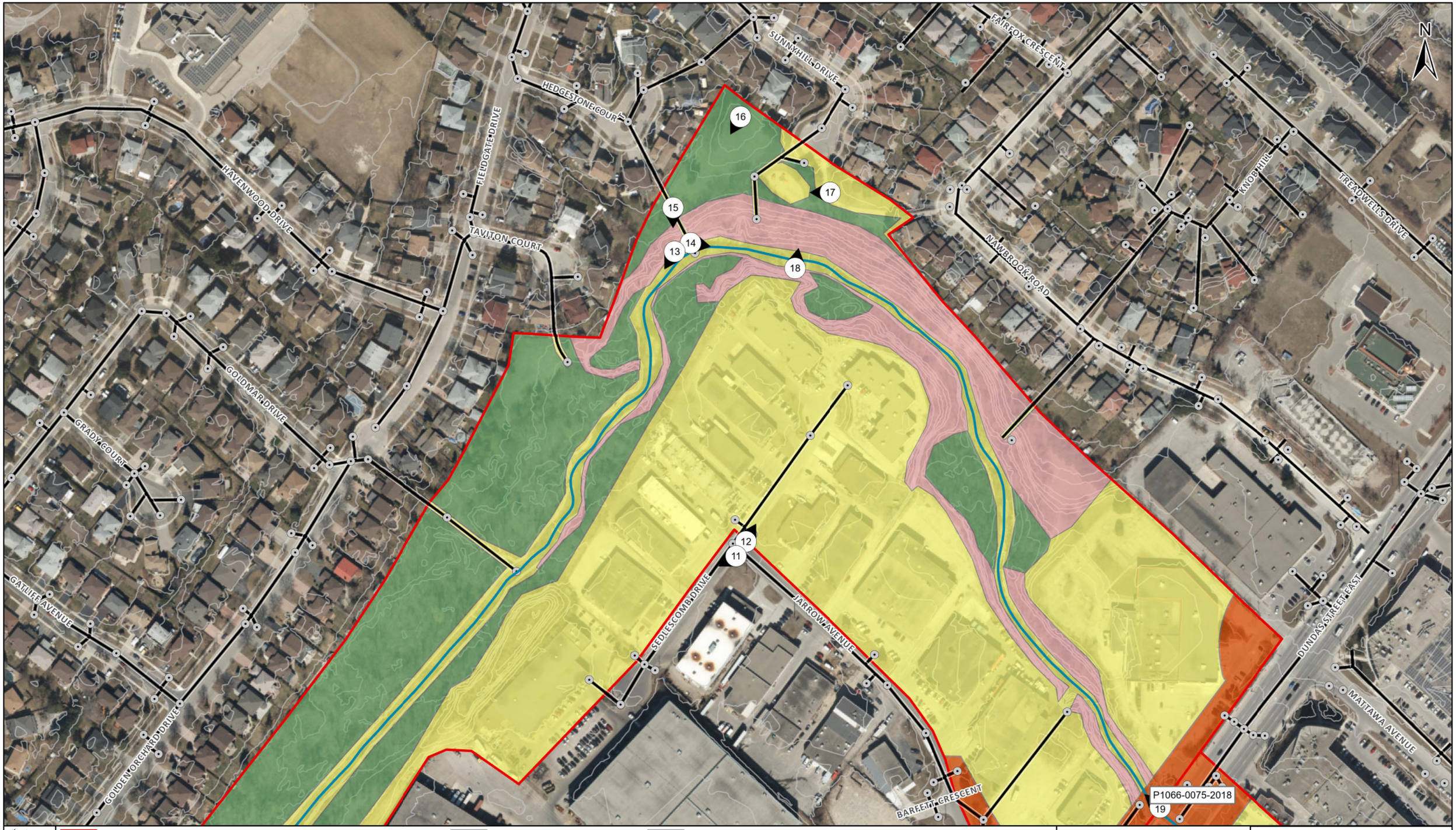


Figure 10: Dixie-Dundas Flood Mitigation Study Area – Results of the Stage 1 (Map Key)

Figure 11: Dixie-Dundas Flood Mitigation Study Area – Results of the Stage 1 (Sheet 1)

D:\Projects\2018\18EA-223 Dixie-Dundas Flood Mitigation\ArcPro_Workspace\ArcPro_Workspace.aprx



ASI

STUDY AREA

PHOTO LOCATION AND DIRECTION

WATERCOURSE

STORM SEWER

STORM SEWER NODE

DISTURBED - NO POTENTIAL

PREVIOUSLY ASSESSED

SLOPE - NO POTENTIAL

TEST PIT SURVEY REQUIRED

CONTOURS

Source: World Imagery: City of Toronto, Maxar, Microsoft

Projection: NAD 1983 UTM Zone 17N
Scale: 1:2,300
Page Size: 11 x 17

0 100
Metres

ASI PROJECT NO.:18EA-223
DATE: 2021-05-05

DRAWN BY: P.B., C.N.
FILE: 18EA223_ResultsStg1

Figure 12: Dixie-Dundas Flood Mitigation Study Area – Results of the Stage 1 (Sheet 2)

D:\Projects\2018\18EA-223 Dixie-Dundas Flood Mitigation\ArcPro_Workspace\ArcPro_Workspace.aprx

STUDY AREA
PHOTO LOCATION AND DIRECTION
WATERCOURSE
STORM SEWER
STORM SEWER NODE
DISTURBED - NO POTENTIAL
PREVIOUSLY ASSESSED
SLOPE - NO POTENTIAL
CONTOURS

Source: World Imagery: City of Toronto, Maxar, Microsoft

Projection: NAD 1983 UTM Zone 17N
Scale: 1:2,300
Page Size: 11 x 17

0 100
Metres

ASI PROJECT NO.:18EA-223
DATE: 2021-05-05
DRAWN BY: P.B., C.N.
FILE: 18EA223_ResultsStg1

Figure 13: Dixie-Dundas Flood Mitigation Study Area – Results of the Stage 1 (Sheet 3)