Appendix F Stage 1 Archaeological Assessment

Stantec

Stage 1 Archaeological Assessment: Municipal Class Environmental Assessment, Norval West Bypass Transportation Corridor Improvements from Highway 7 to 10 Side Road (Regional Road 10)

Part of Lots 10, 11, and 12, Concession 11,
Geographic Township of Esquesing,
former Halton County,
now Town of Halton Hills,
Regional Municipality of Halton, Ontario

May 29, 2022

Prepared for:

Regional Municipality of Halton
1151 Bronte Road
Oakville, Ontario L6M 3L1

Prepared by:

Stantec Consulting Ltd.
600-171 Queens Avenue
London, Ontario N6A 5J7
Tel: 519-645-2007

Licensee: Parker Dickson, MA
License Number: P256
Project Information Form Number:
P256-0605-2020
Project Number: 165010598

REVISED REPORT

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by the Regional Municipality of Halton (Halton Region; the Client) to complete a Stage 1 Archaeological Assessment for the Municipal Class Environment Assessment (MCEA) of the Norval West Bypass Transportation Corridor Improvements from Highway 7 to 10 Side Road (Regional Road 10) (the Project). The Project is being completed as a Schedule C Class Environmental Assessment in compliance with the Municipal Engineers Association MCEA (June 2000, as amended 2007, 2011, and 2015) (Government of Ontario 1990a, 2020a). The study area for the Stage 1 Archaeological Assessment of the Project comprises approximately 79.7 hectares and is located on part of Lots 10, 11, and 12, Concession 11, Geographic Township of Esquesing, former Halton County, now Town of Halton Hills, Regional Municipality of Halton, Ontario.

The Stage 1 Archaeological Assessment was conducted in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011) under archaeological consulting license P265 issued to Parker Dickson by the MHSTCI. A property inspection was completed on March 27, 2020, under Project Information Form (PIF) number P256-0605-2020.

The Stage 1 Archaeological Assessment of the study area for the Project, involving background research and a property inspection, determined that a portion of the study area, approximately 30.1%, retains potential for the identification and documentation of archaeological resources. In accordance with Section 1.3.1 and Section 7.7.4 of the MHSTCI' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **Stage 2 Archaeological Assessment is required for any portion of the Project's anticipated construction which impacts an area of archaeological potential.**

The Stage 1 Archaeological Assessment also determined that a portion of the study area, approximately 69.9%, retains low to no archaeological potential for the identification or recovery of archaeological resources due to intersecting and overlapping areas of previous archaeological assessment, disturbance, steep slope, and low and permanently wet areas. In accordance with Section 1.3.2 and Section 7.7.4 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **Stage 2 Archaeological Assessment is not required for any portion of the Project's anticipated construction which impacts an area of low to no archaeological potential.**

In addition to the above, registered archaeological sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 are located within a portion of the study area subject to previous Stage 1-2 (TLA 2016a) and Stage 3 assessment (TLA 2016b). Tile 1 in the Supplementary Documentation of this report provides mapping to illustrate the location of these sites. Stage 3 Archaeological Assessment of these sites determined that they each retain further cultural heritage value or interest and Stage 4 mitigation of development impacts is required (TLA 2016b). It was noted by TLA (2016b:25) that avoidance and protection of the sites was not a viable option. As such, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 will proceed by excavation. To the best of Stantec's knowledge, Stage 4

mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 has not been completed. Site-specific Stage 4 recommendations for each site are provided in TLA (2016b:25-28).

Full and detailed recommendations are provided in the body of the report.

The MHSTCI is asked to review the results presented and to accept this report into the *Ontario Public Register of Archaeological Reports*.

The Executive Summary highlights key points from the report only; for complete information and findings, the reader should examine the complete report.

Project Personnel

Licensed Archaeologist:	Parker Dickson, MA (P256)
Project Manager:	Isaac Bartlett, P.Eng., ENV SP
Licensed Field Director:	Darren Kipping, MA (R422)
Report Writer:	Ruth Dickau, Ph.D. (R1171)
Mapping:	Brian Cowper, GIS Specialist
Quality Review:	Parker Dickson, MA (P256)
Independent Review:	Colin Varley, MA, RPA (P002)

Acknowledgements

Proponent Contact:	Jeff Reid – Project Manager, Halton Region Patrick Monaghan – Project Manager, Halton Region
Ministry of Heritage, Sport, Tourism and Culture Industries:	Robert von Bitter, Melissa Wallace, Shari Prowse

1.0 PROJECT CONTEXT

1.1 DEVELOPMENT CONTEXT

Stantec Consulting Ltd. (Stantec) was retained by the Regional Municipality of Halton (Halton Region; the Client) to complete a Stage 1 Archaeological Assessment for the Municipal Class Environment Assessment (MCEA) of the Norval West Bypass Transportation Corridor Improvements from Highway 7 to 10 Side Road (Regional Road 10) (the Project). The need for transportation network improvements for the Project was identified in the Halton-Peel Boundary Area Transportation Study (HDR | iTrans 2010) and confirmed in the Regional Municipality of Halton's Transportation Master Plan – The Road to Change (Regional Municipality of Halton 2011). A new road at four (4) lanes with a proposed right-of-way (ROW) of 35 metres is envisioned for the Project with on-road and off-road active transportation.

The Project is being completed as a Schedule C Class Environmental Assessment in compliance with the Municipal Engineers Association MCEA (June 2000, as amended 2007, 2011, and 2015) (Government of Ontario 1990a, 2020a). The study area for the Stage 1 Archaeological Assessment of the Project comprises approximately 79.7 hectares and is located on part of Lots 10, 11, and 12, Concession 11, Geographic Township of Esquesing, former Halton County, now Town of Halton Hills, Regional Municipality of Halton, Ontario (Figure 1).

Initially, the study area included a portion of the Hillcrest Cemetery (see Section 1.2.3.), however following discussion with the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI), the cemetery lands were removed from the Stage 1 archaeological assessment study area. Further, as the limits of the cemetery have not been confirmed at this time, the MHSTCI requested that an additional 20 metre buffer around the cemetery be removed from the study area. The correspondence with the MHSTCI regarding the updates to the study area is provided in the Supplementary Documentation to this report. Generally, the study area is bounded to the northeast by Highway 7, to the east by Winston Churchill Boulevard/Adamson Street (Regional Road 19), and to the west by Tenth Line (Figure 2). The southern boundary of the study area is located approximately 200 metres southeast of 10 Side Road, transecting Lot 10, Concession 11.

1.1.1 Objectives

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

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

- To recommend appropriate strategies for Stage 2 survey.

To meet these objectives, Stantec archaeologists employed the following research strategies:

- A review of relevant archaeological, historical, and environmental literature pertaining to the study area.
- A review of the land use history, including pertinent historical maps.
- A review of the Region of Halton's *Master Plan of Archaeological Resources of the Regional Municipality of Halton* (Archaeological Services Inc. 2008), or other applicable archaeological potential mapping.
- An examination of the MHSTCI's *Ontario Archaeological Sites Database* to determine the presence of registered archaeological sites in and around the study area.
- A query of the MHSTCI's *Ontario Public Register of Archaeological Reports* to identify previous archaeological assessments complete within the study area.
- A property inspection of the study area for the Project.

Permission for Stantec staff to enter private lands within the study area was not obtained by the Client for the purposes of the Stage 1 property inspection. As a result, the property inspection was limited to municipal ROWs and public property.

1.2 HISTORICAL CONTEXT

1.2.1 Post-contact Indigenous Resources

"Contact" is typically used as a chronological benchmark in discussing Indigenous archaeology in Canada and describes the contact between Indigenous and European cultures. The precise moment of contact is a constant matter of discussion. Contact in what is now the province of Ontario is broadly assigned to the 16th century (Loewen and Chapdelaine 2016).

The post-contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking communities by the New York State Iroquois and the subsequent arrival of Algonkian speaking groups from northern Ontario at the end of the 17th century and the beginning of the 18th century (Konrad 1981; Schmalz 1991). Broadly, numerous Indigenous groups and communities are associated with the post-contact occupation of southern Ontario and the general area of the Project.

At the turn of the 17th century, the region of the study area was occupied by Iroquoian populations who are historically described as the *Neutre* (by the French), *Neutral* (by the English), or the *Atawandaron* (by the Huron-Wendat); their autonym is not conclusively known (Birch 2015). To the north was territory occupied by the Wendat-Tionontati (Huron-Wendat) (Heidenreich 1978). The Five Nations Iroquois, located in present-day upstate New York, failed to convince the Wendat-Tionontati to join them in an alliance (Warrick 2013). In 1649, the Seneca and the Mohawk led a campaign into southern Ontario and dispersed the Atawandaron and the Wendat-Tionontati, and established dominance over the region (Heidenreich 1978; Konrad 1981).

Project Context

In 1667, surviving Huron Wendat warriors joined alliance with the French-allied Ojibwa and Mississaugas to counterattack the Iroquois who had settled along the north shore of Lake Ontario. By 1690, Ojibwa (Anishinaabe) speaking people had begun moving south into the lower Great Lakes basin (Konrad 1981; Rogers 1978). Mississauga oral traditions, as told by Chief Robert Paudash and recorded in 1905, indicate that after the Mississauga defeat of the Mohawk Nation the Mohawk retreated to their homeland south of Lake Ontario and a peace treaty was negotiated between those groups around 1695 (Paudash 1905). Upon the Mississaugas' return they decided to settle permanently in southern Ontario. In southwestern Ontario, however, members of the Three Fires Confederacy (Chippewa, Ottawa, and Potawatomi) were immigrating from Ohio and Michigan in the late 1700s (Feest and Feest 1978). Thus, numerous Indigenous groups are associated with the post-contact occupation of southern Ontario.

The Mississaugas settled and inhabited a large area at the western end of Lake Ontario throughout the 1700s and into the 1800s. Between 1695 and the mid-1820s the Mississaugas continued to follow a yearly cycle of resource harvest and movement throughout their southern Ontario territory (Praxis Research Associates n.d.). With the end of the American Revolutionary War in 1783, the Six Nations Iroquois returned to southern Ontario, when approximately 2,000 Iroquois were given land by the British for their loyalty during the war and to compensate for the land they had lost in their traditional homeland. The largest group settled in the Grand River valley near Brantford, Ontario, to become the Six Nations of the Grand River. The Indigenous economy from the turn of the 18th century focused on fishing and the fur trade, supplemented by agriculture and hunting.

The expansion of the fur trade led to increased interaction between European and Indigenous people, and ultimately intermarriage between European men and Indigenous women. During the 18th century the progeny of these marriages began to identify as Métis, and no longer identified directly with either their paternal or maternal cultures. The ethnogenesis of the Métis progressed with the establishment of distinct Métis communities along the major waterways in the Great Lakes of Ontario. Métis communities were primarily focused around the upper Great Lakes and along Georgian Bay; however, Métis people have historically lived throughout Ontario (Métis Nation of Ontario 2016; Stone and Chaput 1978:607-608).

The study area falls within the historic and traditional territory of several Indigenous communities, including but not limited to the Mississaugas of the Credit First Nation (Wybenga and Dalton 2018), the Six Nations of the Grand River, the Haudenosaunee Confederacy, and the Huron-Wendat Nation. Since contact with European explorers and immigrants, and, later, with the establishment of provincial and federal governments (the Crown), the lands within Ontario and the Geographic Township of Esquesing have been included in various treaties, land claims, and land cessions. Though not an exhaustive list, Morris (1943) provides a general outline of some of the treaties within the Province of Ontario from 1783 to 1923. While it is difficult to exactly delineate treaty boundaries today, an approximate outline of the treaty lands described by Morris (1943) is provided in Figure 3. The study area is situated within the described limits of Treaty 19, also known as the Ajetance Purchase. Treaty 19 encompasses approximately 6,500 square kilometres of land, delimited as:

> *A tract of land in the Home District called the Mississa[uga] Tract, bounded southerly by the purchase made in 1806; on the east by the Townships of Etobicoke, Vaughan and King; on the south west by the Indian Purchase, extending from the outlet of Burlington Bay, north forty-five degrees west, fifty miles; and from thence north seventy-four degrees east or thereabouts, to the north west angle of the Township of King.*
>
> (Morris 1943:24)

Treaty 19 was signed on October 29, 1818, between the Principal Chiefs of the Mississauga and William Claus, Deputy Superintendent General and Deputy Inspector General of Indians and their Affairs representing the Crown (Morris 1943). It was named after Chief Ajetance of the Mississaugas, one of the signatories. According to the Mississaugas of the Credit First Nation history:

> *The continuous inflow of settlers into their lands and fisheries had weakened the Mississaugas' traditional economy and had left them in a state of impoverishment and a rapidly declining population. In their enfeebled state, Chief Ajetance, on behalf of the assembled people, readily agreed to the sale of their lands for £522.10 of goods paid annually.*
>
> (Mississaugas of the Credit First Nation 2020)

As demonstrated above, the nature of Indigenous settlement size, population distribution, and material culture shifted as European settlers encroached upon Indigenous territory. Despite this shift, "written accounts of material life and livelihood, the correlation of historically recorded villages to their archaeological manifestations, and the similarities of those sites to more ancient sites have revealed an antiquity to documented cultural expressions that confirms a deep historical continuity to…systems of ideology and thought" (Ferris 2009:114). As a result, Indigenous peoples have left behind archaeological resources throughout the region which show continuity with past peoples, even if they have not been explicitly recorded in Euro-Canadian documentation.

Original Euro-Canadian survey maps of the area were examined for any mention of Indigenous trails, settlements, or other features; however, no such features were illustrated on the mapping (Bristol 1819; Kennedy and Bristol 1822).

1.2.2 Euro-Canadian Resources

In 1791, the Provinces of Upper Canada and Lower Canada were created from the former Province of Quebec by an act of British Parliament (Craig 1963:17). At this time, Colonel John Graves Simcoe was appointed as the Lieutenant Governor of Upper Canada and was tasked with governing the new province, directing its settlement, and establishing a constitutional government modelled after that of Britain (Coyne 1895). In 1792, Simcoe divided Upper Canada into 19 counties consisting of previously settled lands, new lands opened for settlement, and lands not yet acquired by Crown. These new counties stretched from Essex in the west to Glengarry in the east.

1.2.2.1 Halton County

The County of Halton was established in 1816 as part of the Gore District in Upper Canada (Archives Ontario 2015). The county was named after William Halton, the private secretary to the Lieutenant Governor. Halton County contained four townships: Trafalgar, Nelson, Esquesing, and Nassagaweya (Warnock 1862:3). The original area of Halton County included what is contemporarily known as Wellington, Brant, and Waterloo counties. Halton County was reduced to its current size in 1853, bounded by the County of Wellington to the north, the County of Peel to the east, Lake Ontario to the south and the County of Wentworth and the Township of Puslinch, part of the County of Waterloo to the west (Warnock 1862:3).

1.2.2.2 Township of Esquesing

The Township of Esquesing was surveyed in 1818 by Charles Kennedy and Richard Bristol. The name Esquesing is derived from the Anishnabeg language of the Mississauga Nation (Walker & Miles 1877). European settlers began arriving in 1819, with the majority from the British Isles. A block of land was set aside in the southwest corner of the township, within the study area, for a group of new immigrants from Perthshire, Scotland. The block, known as the Scottish Block, was granted by the government of Upper Canada following a petition in 1819 from John and James Stewart (McDonald 2011:222). Settlement in the township developed first along waterways that provided the waterpower for mills and accessible transportation prior to the construction of roads, such as Acton, Georgetown, Glen Williams, Limehouse and Norval (Walker & Miles 1877).

Accessibility was increased through the township with the construction of York Road (now Highway 7) in 1832, between York and Guelph. In 1846, the Trafalgar, Esquesing and Erin Road Company was formed to construct a plank road from Oakville north to Fergus (Oakville Historical Society 2020). Villages developed at the intersections along the Trafalgar Road, including Hornby, Ashgrove, Stewarttown, and Ballinafad. By 1846, almost 20,000 acres of the township were under cultivation (Smith 1846:56). The largest village was Stewarttown, which served as the capital and location of township council meetings from 1850 until 1963 (McDonald 1996:4).

The arrival of the railway provided stimulus for the villages of Acton, Limehouse, and Georgetown. In 1856, the Toronto and Guelph Railway, a branch of the Grand Trunk Railway (GTR), opened through the township with stations in Acton, Limehouse, and Georgetown (McDonald 2011:87). In 1877, the Hamilton and Northwestern Railway, which crosses the study area (although not illustrated on the 1877 mapping), was built and Georgetown became a railway centre in the township. The railway led to the development of numerous industries including the Georgetown Carriage Factory, Boot and Shoe Manufactory, Franz and Pope Knitting Machine Manufacturing Company, and Georgetown Envelope Company.

1.2.2.3 Community of Norval

The community of Norval developed around the mill site established by the McNab family and was originally known as McNabsville (Quaile 2006:23). John McNab and his sons James and Alexander McNab settled in the Township of Esquesing in the late 1820s. The family was initially of Scottish descent, and they lived in Vermont, United States prior to coming to Upper Canada in the early 19th century. James McNab served in War of 1812 and was involved in the Battle of Queenston Heights. Following the war, James McNab promoted emigration of Scottish families residing in the United States to settle in the Scottish Block in the township (Cannon *et al.* 1995). He dammed the Credit River in 1827 and built a frame grist mill the following year (McDonald 1975). He encouraged tradesmen to settle in the community, including blacksmiths, carpenters, and coopers (Quaile 2006:24).

In 1836, with the establishment of a post office, the community became known as Norval. The name Norval has two possible origins: it was possibly taken from Norval Creek in Vermont, where many of the area's early settlers came from, or it relates to Alexander McNab's sheep run, which he called Grampian Hill from the play *Douglas*, which includes a character named Norval (Ruggle 1973:17). By 1846, the village of Norval had a population of about 200 (Smith 1846:131).

In 1851, the Guelph Plank Road was completed through the community, encouraging the development of businesses including hotels for lodgers along the roadway (Quaile 2006:85). *Tremaine's Map of the County of Halton* shows the development of the community of Norval in 1858 within Lots 10, 11 and 12, Concession 11 of the Township of Esquesing (Figure 4). When the GTR was constructed Norval lost out on a station as landowners were asking too much for the rail right-of-way (Quaile 2006:24).

The mill site changed hands multiple times between 1830 and the mid-1860s, from John Barnhart to Honourable Peter Adamson, and to Gooderham and Worts. In 1868, the mill was purchased by Robert Noble from the Bank of Ontario, which controlled the property at the time (McDonald 1975). Noble restored the mill's prominence as the main industry in the community. The GTR served as a shipping point for Noble Flour which was mainly sold throughout Quebec, the eastern provinces of Canada, England, and Scotland (McDonald 1975). By 1870, Norval had a population of about 160. The community included three churches, an Orange Hall, two hotels, known as the Norval House Hotel and the British American, a carriage and wagon works, two blacksmiths, and a boot and shoe manufacturer (Sutherland 1868:28). The 1877 map of the Township of Esquesing in the *Illustrated Historical Atlas of Halton* depicts the growth of Norval Village into Lots 10, 13, and 14, of Concession 11 (Figure 5), although much of that remained agricultural.

On the 1877 map of the Township of Esquesing, the area around Norval Village is shown as well-developed agricultural landscape with numerous farmsteads, homesteads, orchards, a local road and railway system, and several villages and hamlets. Historic mapping does not indicate landowners within the village of Norval. However, on the 1858 Tremaine map, the landowner of the southwestern portion of Lot 10, Concession 11 is illustrated as Thomas Forstar, and the landowner of the northeast portion of the lot is illustrated as Thomas Denny (Figure 4). On the 1877 map of the Township of Esquesing in the *Illustrated Historical Atlas of Halton*, the landowner of Lot 10, Concession 11 is illustrated as F. Hunter and a structure and orchard are depicted on the northeast portion of the parcel (Figure 5).

In discussing 19th century mapping it must be remembered that historical county atlases were produced primarily to identify factories, offices, residences, and landholdings of subscribers and were funded by subscription fees. Landowners who did not subscribe were not always listed on the maps (Caston 1997:100). As such, structures were not necessarily depicted or placed accurately (Gentilcore and Head 1984). Review of historical mapping also has inherent accuracy difficulties due to potential error in geo-referencing. Geo-referencing is conducted by assigning spatial coordinates to fixed locations and using these points to spatially reference the remainder of the map. Due to changes in fixed locations over time (e.g., road intersections, road alignments, watercourses, etc.), errors / difficulties of scale and the relative idealism of the historical cartography, historical maps may not translate accurately into real space points. This may provide inconsistencies during historical map review.

1.2.3 Hillcrest Cemetery

Hillcrest Cemetery, also known as Norval Cemetery, is located next to the study area at the intersection of 10 Side Road and Winston Churchill Boulevard/Adamson Street (Road 19). As noted earlier, the cemetery lands plus a 20-metre buffer was removed from the study area in discussion with the MHSTCI (see Supplementary Documentation). The cemetery was originally a Presbyterian burial ground and is associated with the first Presbyterian meeting house in Norval, located at the north end of the current cemetery (Ontario Genealogical Society 2020). The meeting house was initially a frame building. The meeting house became too small and in 1879 the congregation relocated to a new church at the corner of Guelph and Draper Streets. The cemetery may date as early as 1839, when James Mitchell sold a quarter acre parcel to Alexander McNab, James McNab, Duncan McGregor and John Miller, the Trustees of the Presbyterian Church (Ontario Genealogical Society 2020). The cemetery was expanded over the 19th and 20th centuries to include sections for other churches in the area. Today, Hillcrest Cemetery is non-denominational and remains open for interments and is operated and maintained by the Town of Halton Hills.

1.3 ARCHAEOLOGICAL CONTEXT

1.3.1 The Natural Environment

The study area for the Project is situated within the South Slope and Peel Plain physiographic regions, as identified by Chapman and Putnam (1984). The South Slope physiographic region consists of the southern slope of the Oak Ridges Moraine and also includes the strip south of the Peel Plain. This region varies between nine and eleven kilometres wide, over which elevation rises 90 to 120 metres. The South Slope extends:

> *…from the Niagara Escarpment to the Trent River [covering] approximately 940 square miles [2435 square kilometres]. The central portion is drumlinized…The streams flow directly down the slope; being rapid they have cut sharp valleys in the till…Bare grey slopes, where soil is actively eroding are common in this area.*
>
> (Chapman and Putnam 1984:172-174)

The Peel Plain is described as a level-to-rolling area of clay soils covering approximately 780 square kilometres, extending across the central portions of the Regional Municipalities of York, Peel, and Halton.

> *The general elevation is from 500 to 750 feet a.s.l. [150 to 230 metres a.s.l.] and there is a gradual and fairly uniform slope toward Lake Ontario. Across this plain the Credit, Humber, Don, and Rouge Rivers have cut deep valleys, as have other streams such as the Bronte, Oakville, and Etobicoke Creeks.*
>
> (Chapman and Putnam 1984:174)

The soils within the study area are classified as mostly imperfectly drained Chinguacousy clay loam till. Closer to the Credit River, the soils are better drained, consisting of outwash medium sands of Fox sandy loam. Around the Credit River West Branch, soils are classified as well drained Oneida clay loam till. These soil types would have been suitable for Indigenous and Euro-Canadian agriculture. Today the soils support a variety of crops including grains, hay, vegetables, and fruit (Gillespie *et al.* 1971).

Silver Creek, also known as the Credit River West Branch, crosses the northwest corner of the study area and joins with the main branch of the Credit River approximately 250 metres to the northeast. In addition, a tributary of Levi Creek crosses the southern portion of the study area. Levi Creek eventually drains into the Credit River.

1.3.2 Pre-contact Indigenous Resources

It has been demonstrated that Indigenous people began occupying southern Ontario as the Laurentide glacier receded, as early as 11,000 years ago (Ellis and Ferris 1990:13). Much of what is understood about the lifeways of these Indigenous peoples is derived from archaeological evidence and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into cultural periods based on observed changes in material culture. These cultural periods are largely based on observed changes to formal lithic tools, and separated into the Early Paleo-Indian, Late Paleo-Indian, Early Archaic, Middle Archaic, Late Archaic and Terminal Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, cultural periods are separated into the Early Woodland, Middle Woodland, and Late Woodland periods, based primarily on observed changes in formal ceramic decoration. It should be noted that these cultural periods do not necessarily represent specific cultural identities but are a useful paradigm for understanding changes in Indigenous culture through time. The current understanding of Indigenous archaeological culture is summarized in Table 1, based on Ellis and Ferris (1990). The provided time periods are based on the "Common Era" calendar notation system, i.e., Before Common Era (BCE) and Common Era (CE).

Table 1: Generalized Cultural Chronology of the Study Area

Period	Characteristics	Time Period	Comments
Early Paleo-Indian	Fluted Projectiles	9000 – 8400 BCE	Spruce parkland/caribou hunters
Late Paleo-Indian	Hi-Lo Projectiles	8400 – 8000 BCE	Smaller but more numerous sites

Project Context

Period	Characteristics	Time Period	Comments
Early Archaic	Kirk and Bifurcate Base Points	8000 – 6000 BCE	Slow population growth
Middle Archaic	Brewerton-like points	6000 – 2500 BCE	Environment similar to present
Late Archaic	Narrow Points	2500 – 1800 BCE	Increasing site size
	Broad Points	1800 – 1500 BCE	Large chipped lithic tools
	Small Points	1500 – 1100 BCE	Introduction of bow hunting
Terminal Archaic	Hind Points	1100 - 950 BCE	Emergence of true cemeteries
Early Woodland	Meadowood Points	950 - 400 BCE	Introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 BCE – 500 CE	Increased sedentism
	Princess Point	550 – 900 CE	Introduction of corn
Late Woodland	Early Ontario Iroquoian	900 – 1300 CE	Emergence of agricultural villages
	Middle Ontario Iroquoian	1300 – 1400 CE	Long longhouses (100+ metres)
	Late Ontario Iroquoian	1400 – 1650 CE	Tribal warfare and displacement
Contact Indigenous	Various Algonkian Groups	1650 – 1875 CE	Early written records and treaties
Late Historic	Euro-Canadian	1796 CE – present	European settlement

Between 9000 and 8000 BCE, Indigenous populations were sustained by hunting, fishing, and foraging and lived a relatively mobile existence across an extensive geographic territory. Despite these wide territories, social ties were maintained between groups. One method of maintaining social ties was through gift exchange, evident through exotic lithic material documented on many sites (Ellis 2013:35-40).

By approximately 8000 BCE, evidence exists and becomes more common for the production of ground-stone tools such as axes, chisels, and adzes. These tools themselves are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increase in craft production and arguably craft specialization. This latter statement is also supported by evidence, dating to approximately 7000 BCE of ornately carved stone objects which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013:41). This is indirectly indicative of changes in social organization which permitted individuals to devote time and effort to craft specialization. Since 8000 BCE, the Great Lakes basin experienced a low-water phase, with shorelines significantly below modern lake levels (Stewart 2013: Figure1.1.C). It is presumed that the majority of human settlements would have been focused along these former shorelines. At approximately 6500 BCE the climate had warmed considerably since the recession of the glaciers and the environment had grown more similar to the present day. By approximately 4500 BCE, evidence exists from southern Ontario for the utilization of native copper (naturally occurring pure copper metal) (Ellis 2013:42). The known origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

At approximately 3500 BCE, the isostatic rebound of the North American plate following the melt of the Laurentide glacier had reached a point which significantly affected the watershed of the Great Lakes basin. Prior to this, the Upper Great Lakes had drained down the Ottawa Valley via the French-Mattawa river valleys. Following this shift in the watershed, the drainage course of the Great Lakes basin had changed to its present course. This also prompted a significant increase in water-level to approximately modern levels (with a brief high-water period); this change in water levels is believed to have occurred catastrophically (Stewart 2013:28-30). This change in geography coincides with the earliest evidence for cemeteries (Ellis 2013:46). By 2500 BCE, the earliest evidence exists for the construction of fishing weirs (Ellis *et al.* 1990: Figure 4.1). Construction of these weirs would have required a large amount of communal labour and are indicative of the continued development of social organization and communal identity. The large-scale procurement of food at a single location also has significant implications for permanence of settlement within the landscape. This period is also marked by further population increase and by 1500 BCE evidence exists for substantial permanent structures (Ellis 2013:45-46).

By approximately 950 BCE, the earliest evidence exists for populations using ceramics. Populations are understood to have continued to seasonally exploit natural resources. This advent of ceramic technology correlated, however, with the intensive exploitation of seed foods such as goosefoot and knotweed as well as mast such as nuts (Williamson 2013:48). The use of ceramics implies changes in the social organization of food storage as well as in the cooking of food and changes in diet. Fish also continued to be an important facet of the economy at this time. Evidence continues to exist for the expansion of social organization (including hierarchy), group identity, ceremonialism (particularly in burial), interregional exchange throughout the Great Lakes basin and beyond, and craft production (Williamson 2013:48-54).

By approximately 550 CE, evidence emergences for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous people's diet and economy (Birch and Williamson 2013:13-14). Maize-based agriculture gradually became more important to societies and by approximately 900 CE permanent communities emerge which are primarily focused on agriculture and the storage of crops, with satellite locations oriented toward the procurement of other resources such as hunting, fishing, and foraging. By approximately 1250 CE, evidence exists for the common cultivation of historic Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. The extant archaeological record demonstrates many cultural traits similar to historic Indigenous nations (Williamson 2013:55).

1.3.3 Registered Archaeological Sites and Surveys

In Canada, archaeological sites are registered within the Borden system, a national grid system designed by Charles Borden in 1952 (Borden 1952). The grid covers the entire surface area of Canada and is divided into major units containing an area that is two degrees in latitude by four degrees in longitude. Major units are designated by upper case letters. Each major unit is subdivided into 288 basic unit areas, each containing an area of 10 minutes in latitude by 10 minutes in longitude. The width of basic units reduces as one moves north due to the curvature of the earth. In southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario,

adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. These sequential numbers are issued by the MHSTCI who maintain the *Ontario Archaeological Sites Database*. The study area is located within Borden block AjGx.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act* (Government of Ontario 1990c). The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The MHSTCI will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the *Ontario Archaeological Sites Database* has shown that there are 25 registered archaeological sites within the study area or within one kilometre of the study area (Government of Ontario 2020b). Nine of these sites are within the study area, and one is within 50 metres. Eleven of these sites are Indigenous, nine are Euro-Canadian sites, and five are of unknown association based on information from the *Ontario Archaeological Sites Database*. Table 2 provides a summary of the registered archaeological sites within one kilometre of the study area. Sites within 50 metres are shaded grey and sites within the study area are highlighted in **bold**.

Table 2: Registered Archaeological Sites

Borden Number	Site Name	Time Period	Affinity	Site Type
AjGx-7	Laird	Early Woodland	Indigenous	Campsite
AjGx-9	not available (n/a)	n/a	n/a	n/a
AjGx-11	n/a	n/a	n/a	n/a
AjGx-14	**n/a**	**n/a**	**n/a**	**n/a**
AjGx-20	Norval 1	Post-contact	Iroquoian	Campsite
AjGx-21	Norval 2	Archaic	Indigenous	Campsite
AjGx-22	Lloyd Laidlaw	n/a	n/a	n/a
AjGx-60	Norval	Pre-contact	Indigenous	Campsite
AjGx-61	Silver Creek	Pre-contact	Indigenous	Campsite
AjGx-77	Norval 1	Middle Woodland	Indigenous	Campsite
AjGx-78	Norval 2	Middle Archaic	Indigenous	Findspot
AjGx-79	Norval 3	Pre-contact	Indigenous	Findspot
AjGx-80	**Norval 4**	**Pre-contact**	**Indigenous**	**Findspot**
AjGx-81	**Norval 5**	**Pre-contact**	**Indigenous**	**Findspot**

Borden Number	Site Name	Time Period	Affinity	Site Type
AjGx-182	Curry	1800-1850 CE	Euro-Canadian	Homestead
AjGx-183	Curry Dump	1800-1900 CE	Euro-Canadian	Dump
AjGx-239	McNichol	1800-1900 CE	Euro-Canadian	Homestead
AjGx-241	Samuel Currie Site	Post-contact	n/a	n/a
AjGx-253	Location 14	Early Archaic	Indigenous	Findspot
AjGx-261	**Norval 1**	**1850-1900 CE**	**Euro-Canadian**	**Unknown**
AjGx-262	**Norval 2**	**1850-1900 CE**	**Euro-Canadian**	**Unknown**
AjGx-263	**Norval Site 3**	**1850-1900 CE**	**Euro-Canadian**	**Homestead**
AjGx-264	**Norval 6**	**1850-1900 CE**	**Euro-Canadian**	**Homestead**
AjGx-265	**Norval Site 4**	**1850-1900 CE**	**Euro-Canadian**	**Agricultural, farmstead**
AjGx-266	**Norval Site 5**	**1850-1900 CE**	**Euro-Canadian**	**Scatter**

The registered sites identified within the study area and within 50 metres of the study area are discussed below under their associated reports except AjGx-14. No previous archaeological reports are listed within the *Ontario Public Register of Archaeological Reports* for this site and information within the *Ontario Archaeological Sites Database* is limited. The original site record form for AjGx-14 was obtained and reviewed and provides only military coordinates for the site. In their report on the archaeological assessment of a planned subdivision in Norval, the London Museum of Archaeology (1997a:2) noted that AjGx-14 was recorded by Mr. William Fox based on verbal information from a collector, Ms. Elsa Kraemer. No information for AjGx-14 is provided for AjGx-14 site type, age, or artifacts recovered; however, it is likely that the site is Indigenous in origin. Maps illustrating the archaeological sites are not included as part of the public report; they may be found in the Supplementary Documentation.

Of the sites within the study area, AjGx-14, AjGx-1, AjGx-262, AjGx-263, and AjGx-264 are designated as still retaining cultural heritage value or interest, and therefore require additional archaeological assessment or mitigation prior to any land alteration or development impacts.

A query of the *Ontario Public Register of Archaeological Reports* noted six archaeological assessments previously completed within the study area or within 50 metres of the study area (Government of Ontario 2020c). Table 3 lists the previous archaeological assessments relevant to this report. The study areas associated with previous assessments within and immediately adjacent to the study area are illustrated on Figure 7.

Table 3: Archaeological Assessments within 50 Metres

Company	Report Title	Year	Project Information Form (PIF) Number
London Museum of Archaeology (LMA)	*Archaeological Assessment of Draft Plan of Subdivision 24T-89005H, Norval, Halton Region*	1997a	PIF-97-007-10-LIC-1997-007
LMA	*Stage 3 Archaeological Investigation of the Norval 1 Site (AjGx-77), Draft Plan of Subdivision 24T-89005H, Norval, Halton Region*	1997b	PIF-97-007-22-LIC-1997-007
Archaeological Services Inc. (ASI)	*Stage 1 & 2 Archaeological Resource Assessment of the Georgetown South Lands, Lot 11, Concession 9 & 10, Town of Halton Hills, Regional Municipality of Halton, Ontario*	2000	2000-016-118
Archeoworks Inc.	*Stage 1 Archaeological Assessment for the Reconstruction of Winston Churchill Boulevard: From Embleton Road to Mayfield Road, Class EA, Regional Municipalities of Peel and Halton, Ontario*	2004	P0209-042
This Land Archaeology Inc. (TLA)	*Report on the Stage 1 and 2 Archaeological Assessment of Fieldgate Developments Land, Part of Lots 11 and 12, Concession 11, Town of Halton Hills, Regional Municipality of Halton, Historic Halton Region, Geographic Township of Esquesing North, Ontario*	2016a	P379-0015-2015
TLA	*Report on the Stage 3 Archaeological Assessment of Norval Site 1 (AjGx-261), Norval Site 2 (AjGx-262), Norval Site 3 (AjGx-263), and Norval Site 6 (AjGx-264), Located on Russell Pines Property Corp.'s Property, Part of Lots 11 And 12, Concession 11, Town Of Halton Hills, Regional Municipality of Halton, Historic Halton Region, Geographic Township of Esquesing North, Ontario*	2016b	P379-0028-2015; P379-0029-2015; P379-0035-2015; P379-0036-2015
TLA	*Report on the Stage 1-2 Archaeological Assessment on Part of Lots 11 and 12, Concession 11, Village of Norval, Town of Halton Hills, Regional Municipality of Halton, Historic County of Halton, Ontario*	2018	P059-0790-2018

In advance of a housing development, the LMA (1997a) undertook a Stage 1-2 Archaeological Assessment of part of Lots 12 and 13, Concessions 10 and 11, on the southwest side of Highway 7. A portion of their assessment area overlaps with the northwest portion of the Project study area. LMA (1997a) identified five archaeological sites during their assessment. Four of the identified archaeological sites were isolated finds of single lithic artifacts: AjGx-78 was a Middle Archaic Brewerton Side-Notch type point, AjGx-80 was a core of Onondaga chert, and AjGx-79 and AjGx-81 were Onondaga flakes. The cultural heritage value or interest (CHVI) of these sites was determined to be sufficiently documented and no further work was recommended by LMA (1997a). AjGx-80 and AjGx-81 are located within the current study area.

The fifth site identified by LMA (1997a), AjGx-77, was a lithic scatter or campsite dating to the Middle Woodland period and was determined to have further CHVI. A Stage 3 assessment was undertaken by the LMA (1997b). Fourteen additional artifacts were recovered during Stage 3 assessment, including a tip

fragment from a projectile point made of Flint Ridge chalcedony. The CHVI of this site was determined to be sufficiently documented and no further work was recommended by LMA (1997b). This site is located within 50 metres of the Project study area.

In 2000, ASI undertook a Stage 1-2 Archaeological Assessment in parts of Lot 11, Concessions 9 and 10 in advance of a housing development. The study area of ASI's assessment overlaps the study area along the southwest edge of the Project study area, on the southwestern side of Line 10. ASI identified three sites during their assessment: an Indigenous site, a Euro-Canadian site, and a multi-component site. None of these sites identified by ASI (2000) are within one kilometre of the current study area.

In 2004, Archeoworks Inc. (2004) undertook a Stage 1 Archaeological Assessment along the Winston Churchill Boulevard (Road 19) corridor from Embleton Road to Mayfield Road in advance of proposed road reconstruction of Winston Churchill Boulevard. The Archaeoworks Inc. (2004) Stage 1 study overlaps the eastern portion of the current study area. Archeoworks Inc. (2004) determined that the area retained potential for the recovery of Indigenous and Euro-Canadian archaeological resources.

In 2016, TLA (2016a) undertook a Stage 1-2 Archaeological Assessment in parts of Lots 11 and 12, Concession 11, in advance of a proposed development. The TLA (2016a) study area overlaps a large portion of the central part of the current study area for the Project area. TLA (2016a) identified six Euro-Canadian sites (AjGx-261, AjGx-262, AjGx-263, AjGx-264, AjGx-265, and AjGx-266) and four Indigenous isolated findspots which were not registered with a Borden number. TLA (2016a) recommended Stage 3 Archaeological Assessment for AjGx-261, AjGx-262, AjGx-263, and AjGx-264, while CHVI of the remaining sites was determined to be sufficiently documented.

The Stage 3 Archaeological Assessment of the four Euro-Canadian sites (AjGx-261, AjGx-262, AjGx-263, and AjGx-264) was undertaken by TLA (2016b). Each of the sites were determined to date to the mid- to late-19th century (TLA 2016b) and were determined to retain cultural heritage value and interest and a Stage 4 mitigation of the sites was recommended. To the best of Stantec's knowledge, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 has not been completed.

TLA (2018) undertook a Stage 1-2 Archaeological Assessment in 2018 of an area of land located in parts of Lots 11 and 12, Concession 11. This assessed area lies entirely within the current study area for Project. No archaeological resources were discovered during the TLA (2018) assessment.

1.3.4 Archaeological Master Plan

In addition to previous archaeological assessment reports, the 2008 update to the *Master Plan of Archaeological Resources of the Regional Municipality of Halton* (ASI 2008) was reviewed. Archaeological master plans are often used to aid in archaeological potential determination. Typically, archaeological master plans are designed to: compile an inventory of registered and unregistered archaeological sites within a prescribed area, and to develop an archaeological site potential model based on known site locations, past and present land use, and environmental and cultural-historical data. The archaeological master plan identifies the community of Norval and most of the study area as a

Historic Settlement (ASI 2008:11, Figure 2). Furthermore, the *Ontario Archaeological Sites Database* provided additional archaeological resources registered since 2008 which would not have been documented by the archaeological management plan. The master plan does note that approximately 68% of the total landmass of the Region of Halton retains potential for the identification and recovery of archaeological resources (ASI 2008).

1.3.5 Related Reports

A cultural heritage report is being prepared by Stantec (n.d.) to present results of an evaluation of the properties contained within the study area for cultural heritage value or interest (CHVI). The Town of Halton Hills municipal heritage register indicates that seven protected heritage properties are located within the study area, and an assessment of the study area identified three additional heritage resources within the study area (Stantec n.d.).

1.4 EXISTING CONDITIONS

The study area for the Project is located in part of Lots 10, 11, and 12, Concession 11, Geographic Township of Esquesing, former Halton County, now Town of Halton Hills, Regional Municipality of Halton, Ontario. Overall, the study area comprises approximately 79.7 hectares and includes residential and commercial structures, gravel and paved driveways or parking lots, manicured residential lawn, municipal road ROWs, buried and above ground utilities, woodlot and scrubland, active agricultural field, and a wooded river valley. While not illustrated on historical mapping, the railbed from the former Hamilton and Northwestern Railway runs diagonally through the study area from west to east.

2.0 FIELD METHODS

Initial background research compiled information concerning registered and/or potential archaeological resources within the study area. A property inspection was conducted under archaeological consulting license P256 issued to Parker Dickson, MA, of Stantec by the MHSTCI. The property inspection was completed on March 27, 2020, under PIF number P256-0605-2020 in accordance with Section 1.2 of the MHSTCI' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The property inspection involved spot-checking the study area to identify the presence or absence of any features of archaeological potential. Permission to enter the study area and identify features of archaeological potential was provided by the Client. However, access to private property within the study area was not arranged. Thus, photo documentation obtained as part of the Stage 1 property inspection was restricted to municipal and public properties, as well as municipal road ROWs. During the property inspection the weather was cloudy and cool, and visibility of land features was adequate. Overall, the lighting, weather, and field conditions were not detrimental to the identification of features of archaeological potential.

The study area comprises approximately 79.7 hectares and includes residential and commercial properties, existing roadways and associated infrastructure, agricultural fields, woodlot, and steeply sloped areas along Silver Creek. The photography from the property inspection is presented in Section 7.1 and confirms that the requirements for a Stage 1 property inspection were met, as per Section 1.2 and Section 7.7.2 Standard 1 of the MHSTCI' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

As noted in Section 1.3.3, portions of the study area were previously surveyed (i.e., LMA 1997a, ASI 2000, TLA 2016a, and TLA 2018). Approximately 55.8% of the study area has been previously assessed.

The property inspection demonstrated that approximately 30.1% of the study area is located in manicured lawn, agricultural field, scrubland or woodlot (Photos 1 to 8). Further, the Hillcrest Cemetery (post-1839 to present) is located beyond the study area limits, near the intersection of Winston Churchill Boulevard and 10 Side Road (Photo 9).

The property inspection also demonstrated that approximately 6.8% of the study area is previously and extensively disturbed due to existing buildings, gravel and paved driveways or parking lots, buried utilities, and municipal road ROWs (Photos 10 to 21).

Approximately 7.2% of the study area is determined to be steeply sloped (Photos 23 and 24). In addition to photographic documentation, steeply sloped areas were also determined by overlaying the study area with Ontario's Digital Terrain Model (Lidar-Derived) (Ministry of Natural Resources and Forestry 2020). Figure 6 illustrates the digital elevation model of slope. The Ontario Digital Terrain Model (Lidar-Derived) is a raster dataset representing the bare-earth terrain derived from a classified Lidar point cloud. It contains information licensed under the Open Government Licence – Ontario (Ministry of Natural

Resources and Forestry 2020). Based on this model, areas which had a 20-degree slope or greater were projected as steeply sloped in accordance with Section 2.1 Standard 2.a(iii) of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). Figure 6 illustrates the digital elevation model of steep slope.

Approximately 0.1% of the non-previously assessed study area comprises Silver Creek, which is determined to be permanently low and wet (Photo 25).

3.0 ANALYSIS AND CONCLUSIONS

3.1 ARCHAEOLOGICAL POTENTIAL

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Stantec applied archaeological potential criteria commonly used by the MHSTCI (Government of Ontario 2011) to determine areas of archaeological potential within the study area. These variables include proximity to registered archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography, and the general topographic variability of the area. However, it is worth noting that extensive land disturbance can eradicate archaeological potential (Government of Ontario 2011).

Potable water is the single most important resource for any extended human occupation or settlement and since water sources in Ontario have remained relatively stable over time, proximity to drinkable water is regarded as a useful index for the evaluation of archaeological site potential. In fact, distance to water is one of the most commonly used variables for predictive modeling of archaeological site locations. Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential.

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

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

The study area is crossed by Silver Creek, a tributary of the Credit River. Moreover, the study area is situated within 250 metres of the confluence of this watercourse and the main branch of the Credit River. The confluences of primary water sources are frequently the focus of human settlement and activity. The Credit River connects the Niagara Escarpment near Orangeville and Lake Ontario. It was a major focus of both Indigenous and Euro-Canadian transportation and settlement in the past. In addition, an intermittent tributary of Levi Creek, which drains into the Credit River, crosses the southern portion of the study area, and other ancient or relic watercourses may have been present in the past but are no longer visible today. Further examination of the study area's natural environment identified soil conditions suitable for Indigenous and Euro-Canadian agriculture, as well as areas of elevated topography. Storck (1982) notes

that archaeological sites, particularly Paleo-Indian sites, tend to be situated in areas of elevated topography as these areas would possess better drainage and would provide a broad view of the surrounding terrain for game watching.

An examination of the *Ontario Archaeological Sites Database* identified 25 registered archaeological sites within one kilometre of the study area: eleven Indigenous sites, nine Euro-Canadian sites, and five of unknown association. Nine of these sites are located within the study area, identified during previous assessments. Of the nine sites located within the study area, four are 19th century Euro-Canadian in origin and retain further cultural heritage value and interest. The cultural heritage value and interest of one additional site (AjGx-14) is unknown as the site registration was based on a verbal report with minimal information provided. As noted in Section 1.3.3, portions of the study area were previously surveyed (i.e., LMA 1997a, ASI 2000, TLA 2016a, and TLA 2018).

For Euro-Canadian sites, archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; and properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990b) or property that local histories or informants have identified with possible historical events, activities, or occupations.

Historical documentation shows that the community of Norval developed around the mill site established by the McNab family in the 1820s. Much of the established road and rail networks and agricultural settlement from the 19th century, based on historical mapping, is still visible today. The Town of Halton Hills municipal heritage register indicates that seven protected heritage properties are located within the study area. A cultural heritage resource assessment of the study area identified an additional three heritage resources within the study area (Stantec n.d.). The Hillcrest Cemetery, located near the study area, may date as early as 1839 and is still in use today.

When the above listed criteria are applied, a portion of the study area, approximately 30.1%, is considered to retain potential for Indigenous and Euro-Canadian archaeological resources. In accordance with Section 1.3.1 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), further Stage 2 Archaeological Assessment is required for any portion of the study area retaining archaeological potential. The Regional Municipality of Halton's archaeological management plan (Archaeological Services Inc. 2008) also supports this determination, although the current assessment has more up-to-date information on the archaeological resources of the study area. Figure 7 illustrates the areas of archaeological potential within the study area.

The remaining portion of the study area, approximately 69.9%, is considered to retain no to low potential for Indigenous and Euro-Canadian archaeological resources. The areas of no to low potential include previously assessed/surveyed areas (55.8%), previously disturbed areas (6.8%), areas of steep slope (7.2%), and low and permanently wet areas (0.1%). In accordance with Section 1.3.2 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), no further Stage 2 Archaeological Assessment is required for any portion of the study area retaining low to no archaeological potential; however, see Sections 3.2 and 4.0, as well as Tile 1 in the Supplementary

Documentation, for additional archaeological work recommendations related to registered archaeological sites. Figure 7 illustrates the areas of low to no archaeological potential within the study area.

3.2 REGISTERED ARCHAEOLOGICAL SITES

As discussed in Section 1.3.3, TLA (2016a) undertook a Stage 1-2 Archaeological Assessment in parts of Lots 11 and 12, Concession 11, in advance of a proposed development. The TLA (2016a) study area overlaps a large portion of the central part of the current study area for the Project area. During the Stage 1-2 assessment, TLA (2016a) identified several Euro-Canadian and Indigenous archaeological sites. Of the identified sites, TLA (2016a) recommended Stage 3 Archaeological Assessment for AjGx-261, AjGx-262, AjGx-263, and AjGx-264.

Stage 3 Archaeological Assessment of sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 was undertaken by TLA (2016b). Each of the sites were determined to date to the mid- to late-19th century (TLA 2016b) and were determined to retain further CHVI (TLA 2016b). It was noted by TLA (2016b:25) that avoidance and protection of the sites was not a viable option. As such, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 was recommended by excavation (TLA 2016b:25-28). To the best of Stantec's knowledge, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 has not been completed.

4.0 RECOMMENDATIONS

The Stage 1 Archaeological Assessment of the study area for the Project, involving background research and a property inspection, determined that a portion of the study area, approximately 30.1%, retains potential for the identification and documentation of archaeological resources. In accordance with Section 1.3.1 and Section 7.7.4 of the MHSTCI' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **Stage 2 Archaeological Assessment is required for any portion of the Project's anticipated construction which impacts an area of archaeological potential (Figure 7).**

The objective of a Stage 2 Archaeological Assessment will be to document archaeological resources within the portions of the study area still retaining archaeological potential and to determine whether these archaeological resources require further assessment. Stage 2 Archaeological Assessment will include the systematic walking of open ploughed fields at five metre intervals as outlined in Section 2.1.1 of the MHSTCI' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The MHSTCI standards further require that agricultural land, both active and inactive, be recently ploughed and sufficiently weathered to improve the visibility of archaeological resources. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing, and must provide at least 80% ground surface visibility.

Moreover, for areas inaccessible for ploughing, the Stage 2 Archaeological Assessment will include a test pit survey at five metre intervals as outlined in Section 2.1.2 of the MHSTCI' 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011). The MHSTCI standards require that each test pit be approximately 30 centimetres in diameter, excavated to at least five centimetres into subsoil, and have all soil screened through six-millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill.

If the archaeological field team determines any lands to be low and wet, steeply sloped, or disturbed during the course of the Stage 2 field work, those areas will not require survey, but will be photographically documented in accordance with Section 2.1 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011).

The Stage 1 Archaeological Assessment also determined that a portion of the study area, approximately 69.9%, retains low to no archaeological potential for the identification or recovery of archaeological resources due to intersecting and overlapping areas of previous archaeological assessment, disturbance, steep slope, and low and permanently wet areas. In accordance with Section 1.3.2 and Section 7.7.4 of the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), **Stage 2 Archaeological Assessment is not required for any portion of the Project's anticipated construction which impacts an area of low to no archaeological potential (Figure 7).**

In addition to the above, registered archaeological sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 are located within a portion of the study area subject to previous Stage 1-2 (TLA 2016a) and Stage 3 assessment (TLA 2016b). Tile 1 in the Supplementary Documentation of this report provides mapping to illustrate the location of these sites. Stage 3 Archaeological Assessment of these sites determined that they each retain further cultural heritage value or interest and Stage 4 mitigation of development impacts is required (TLA 2016b). It was noted by TLA (2016b:25) that avoidance and protection of the sites was not a viable option. As such, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 will proceed by excavation. To the best of Stantec's knowledge, Stage 4 mitigation of development impacts to sites AjGx-261, AjGx-262, AjGx-263, and AjGx-264 has not been completed. Site-specific Stage 4 recommendations for each site are provided in TLA (2016b:25-28).

Further to the above, Stantec encourages consultation and engagement with Indigenous communities with interests in the Project area. As it pertains to archaeological assessment, engagement may include notification of any upcoming Stage 2 Archaeological Assessment field work and an invitation to interested Indigenous communities to join the archaeological field crew during the Stage 2 survey work. Indigenous engagement practices must be completed in accordance with the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* and the draft technical bulletin on *Engaging Aboriginal Communities in Archaeology*.

The MHSTCI is asked to review the results presented and to accept this report into the *Ontario Public Register of Archaeological Reports*.

5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

In accordance with Section 7.5.9 of the MHSTCI's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011), the following standard statements are a required component of archaeological reporting and are provided verbatim from the MHSTCI's 2011 Standards and Guidelines for Consultant Archaeologists (Government of Ontario 2011).

This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c O.18 (Government of Ontario 1990b). The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the study 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* (Government of Ontario 1990b) for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act* (Government of Ontario 1990b).

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* (Government of Ontario 1990b). The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990b).

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (Government of Ontario 2002) requires that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Government and Consumer Services.

Archaeological sites recommended for further archaeological fieldwork or protection remain subject to Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a) and may not be altered, or have artifacts removed, except by a person holding an archaeological license.

6.0 BIBLIOGRAPHY AND SOURCES

Andreae, Christopher. 1997. *Lines of Country: An Atlas of Railway and Waterway History in Canada.* Erin: Boston Mills Press.

Archaeological Services Inc. 1990. *Third Stage Investigation of the Noval (AjGx-60), Part of Lot 12, Concession 10, (Esquesing Township) Town of Halton Hills (Georgetown), Regional Municipality of Halton.* Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF#: 1990-021.

Archaeological Services Inc. 2000. *Stage 1 & 2 Archaeological Resource Assessment of the Georgetown South Lands, Lot 11, Concession 9 & 10, Town of Halton Hills, Regional Municipality of Halton, Ontario.* Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF#: 2000-016-118.

Archaeological Services Inc. 2008. *Master Plan of Archaeological Resources of the Regional Municipality of Halton.* Prepared for Halton Region, Oakville, On.

Archeoworks Inc. 2004. *Stage 1 Archaeological Assessment for the Reconstruction of Winston Churchill Boulevard: From Embleton Road to Mayfield Road, Class EA, Regional Municipalities of Peel and Halton, Ontario.* Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries

Archives Ontario. 2015. *The Evolution of the District and County System 1788-1899.* Electronic document. http://www.archives.gov.on.ca/en/maps/textdocs/ontario-districts-maps.aspx#districts_1826. Last accessed March 26, 2020.

Birch, Jennifer. 2015. Current Research on the Historical Development of Northern Iroquoian Societies. *Journal of Archaeological Research* 22(4): 263-323.

Birch, Jennifer and Ronald F. Williamson. 2013. *The Mantle Site: An Archaeological History of an Ancestral Huron Wendat Community*. Lanham: Altamira Press.

Borden, Charles E. 1952. "A Uniform Site Designation Scheme for Canada." *Anthropology in British Columbia* 3:44-48.

Bristol, Richard. 1819. *Esquesing, front half*. Map No. A9. Map on file at Ministry of Natural Resources and Forestry, Crown Land Survey Records, Peterborough.

Cannon, Geoffrey, Eric Connolly, and Richard Ruggle. 1995. *Boston Presbyterian Church, Scotch Block, Halton Hills, Ontario, Designation Report*. Electronic Document: https://www.haltonhills.ca/heritage/reports/CL-1995-0028.pdf. Last accessed: December 6, 2019.

Bibliography and Sources

Caston, Wayne A. 1997. "Evolution in the Mapping of Southern Ontario and Wellington County." *Wellington County History* 10:91-106.

Chapman, Lyman John and Donald F. Putnam. 1984. *The Physiography of Southern Ontario*. 3rd ed. Ontario Geological Survey Special Volume 2. Ontario Ministry of Natural Resources, Toronto.

Coyne, J. H. 1895. *The Country of the Neutrals (As Far as Comprised in the County of Elgin): From Champlain to Talbot*. St. Thomas: Times Print.

Craig, Gerald. 1963. *Upper Canada: The Formative Years*. Don Mills: Oxford University Press.

Ellis, Christopher J. 2013. "Before Pottery: Paleoindian and Archaic Hunter-Gatherers." In Before Ontario: The Archaeology of a Province, edited by Marit K. Munson and Susan M. Jamieson, pp. 35-47. Montreal and Kingston: McGill-Queen's University Press.

Ellis, Chris J. and Neal Ferris (editors). 1990. The Archaeology of Southern Ontario to A.D. 1650. Occasional Publication of the London Chapter, Ontario Archaeological Society, Number 5.

Ellis, Chris J., Ian T. Kenyon, and Michael W. Spence. 1990. "The Archaic." In Ellis and Ferris 1990, pp. 65-124. Feest, J. E. and C. F. Feest. 1978. "The Ottawa." In *Handbook of North American Indians, Volume 15 Northeast*, edited by Bruce G. Trigger, pp. 772-786. Washington: Smithsonian Institution Press.

Ferris, Neal. 2009. *The Archaeology of Native-Lived Colonialism: Challenging History in the Great Lakes*. Tucson: University of Arizona Press.

Ontario Genealogical Society. Halton-Peel Branch. 2020. Hillcrest Cemetery. Electronic document: https://haltonpeel.ogs.on.ca/hillcrest-norval/. Last accessed March 26, 2020.

Gentilcore, R. Louis and C. Grant Head. 1984. *Ontario's History in Maps*. Toronto: University of Toronto Press.

Gillespie, John E., Wicklund, R. E., & Miller, Murray H. 1970. *The Soils of Halton County*. Report No. 43 of the Ontario Soil Survey. Research Branch, Canada Department of Agriculture and the Ontario Agricultural College.

Government of Ontario. 1990a. Environmental Assessment Act, R.S.O. 1990, CHAPTER E.18. Electronic document: https://www.ontario.ca/laws/statute/90e18. Last accessed February 7, 2020.

Government of Ontario. 1990b. Freedom of Information and Protection of Privacy Act, R.S.O. 1990, CHAPTER F.31. Electronic document: https://www.ontario.ca/laws/statute/90f31. Last accessed February 7, 2020.

Bibliography and Sources

Government of Ontario. 1990c. Ontario Heritage Act, R.S.O. 1990, CHAPTER O.18. Last amendment: 2017, c. 34, Sched. 46, s. 37. Electronic document: http://www.ontario.ca/laws/statute/90o18. Last accessed February 7, 2020.

Government of Ontario. 2002. Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, CHAPTER 33. Electronic document: https://www.ontario.ca/laws/statute/02f33. Last accessed February 7, 2020.

Government of Ontario. 2011. Standards and Guidelines for Consultant Archaeologists. Toronto: Ministry of Heritage, Sport, Tourism and Culture Industries.

Government of Ontario. 2020a. Class EA for Municipal Infrastructure Projects. Electronic document: https://www.ontario.ca/page/class-ea-municipal-infrastructure-projects#section-8. Last accessed March 27, 2020.

Government of Ontario. 2020b. Archaeological Sites Database Files. Electronic document: https://www.pastport.mtc.gov.on.ca/APSWeb/pif/projectSiteDataSearch.xhtml. Last accessed March 25, 2020.

Government of Ontario. 2020c. Past Portal Report Database Files. Electronic document: https://www.pastport.mtc.gov.on.ca/APSWeb/report/reportSearch.xhtml. Last accessed March 23, 2020.

HDR | iTrans. 2010. Halton-Peel Boundary Area Transportation Study Amended Final Report. Electronic Document: http://www.peelregion.ca/pw/transportation/_media/HPBATS-executive-summary.pdf. Last accessed: March 23, 2020.

Heidenreich, Conrad E. 1978. "Huron." In *Handbook of North American Indians, Volume 15, Northeast*, edited by Bruce G. Trigger, pp. 368-388. Washington: Smithsonian Institution Press.

Kennedy, Charles and Richard Bristol. 1822. *Esquesing. Map No. 9*. Map on file at Ministry of Natural Resources and Forestry, Crown Land Survey Records, Peterborough.

Konrad, Victor. 1981. "An Iroquois Frontier: The North Shore of Lake Ontario during the Late Seventeenth Century." *Journal of Historical Geography* 7(2): 129-144.

London Museum of Archaeology. 1997a. *Archaeological Assessment of Draft Plan of Subdivision 24T-89005H, Norval, Halton Region*. Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF #: PIF-97-007-10-LIC-1997-007.

London Museum of Archaeology. 1997b. *Stage 3 Archaeological Investigation of the Norval 1 Site (AjGx-77), Draft Plan of Subdivision 24T-89005H, Norval, Halton Region.* Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF #: PIF-97-007-22-LIC-1997-007.

Bibliography and Sources

Loewen, Brad and Claude Chapdelaine (editors). 2016. *Contact in the 16th Century: Networks among Fishers, Foragers and Farmers*. Mercury Series Archaeology Paper 176. Ottawa: University of Ottawa Press.

McDonald, John. January 8, 1975. "Robert Noble and Heirs Played Part in Norval History." In *The Canadian Champion.* Electronic Document: http://images.ourontario.ca/Partners/MPL/MPL002501077pf_0034.pdf. Last accessed: March 26, 2020.

McDonald, John. 1996. *Halton Sketches Revisited: Historical Tales of People and Events in North Halton.* Erin: Boston Mills Press.

McDonald, John. 2011. *Halton's Heritage: William Halton and Halton County.* Halton Sketches Publishing, Milton.

Métis Nation of Ontario. 2020. Métis Historic Timeline. Electronic document: http://www.metisnation.org/culture-heritage/m%C3%A9tis-timeline/. Last accessed March 26, 2020.

Ministry of Natural Resources and Forestry. 2020. Ontario's Digital Terrain Model (Lidar-Derived) (Peel 2016 Package A and Halton 2018 Package D). Ontario Ministry of Natural Resources and Forestry - Provincial Mapping Unit, Queen's Printer for Ontario.

Mississaugas of the New Credit First Nation. 2020. Ajetance Treaty, No. 19 (1818). Electronic document: http://mncfn.ca/treaty19/. Last accessed March 26, 2020.

Morris, J.L. 1943. *Indians of Ontario*. 1964 reprint. Toronto: Department of Lands and Forests, Government of Ontario.

Murphy, Carl and Neal Ferris. 1990. *The Late Woodland Western Basin Tradition of Southwestern Ontario*. In Ellis and Ferris 1990, pp. 189-278.

Oakville Historical Society. 2020. *Trafalgar-Allan Corridor.* Electronic document: https://www.oakvillehistory.org/trafalgar-allan-corridor.html. Last accessed March 26, 2020.

Paudash, Robert. 1905. *The Coming of the Mississagas.* An oral history prepared by J. Hampden Burnham. Ontario Historical Society Papers and Records, Vol. VI. Ontario Historical Society, Toronto.

Praxis Research Associates. n.d. *The History of the Mississaugas of the New Credit First Nation.* Hagersville: Lands, Research and Membership, Mississaugas of the New Credit First Nation.

Quaile, Deborah. 2006. *L.M. Montgomery: the Norval Years, 1926-1935*. Ayton: Wordbird Press.

Bibliography and Sources

Regional Municipality of Halton. 2011. *The Road to Change, Halton Region Transportation Master Plan*. Electronic Document: https://www.halton.ca/For-Residents/Roads-Construction/Infrastructure-Master-Plans/Transportation-Master-Plan-to-2031-The-Road-to-C/Final-Transportation-Master-Plan-Transportation. Last accessed: March 23, 2020.

Rogers, E.S. 1978. "Southeastern Ojibwa." In *Handbook of North American Indians, Volume 15, Northeast*, edited by Bruce G. Trigger, pp. 760-771. Washington: Smithsonian Institution Press.

Ruggle, Richard. 1973. *Norval on the Credit River*. Erin: Press Porepic.

Schmalz, Peter S. 1991. *The Ojibwa of Southern Ontario*. Toronto: University of Toronto Press.

Smith, William Henry. 1846. *Smith's Canadian Gazetteer*. Toronto: H. & W. Rowsell.

Stantec Consulting Ltd. (Stantec). n.d. *Cultural Heritage Resource Assessment, Norval Road West Bypass Transportation Corridor*. Report in preparation for the Ministry of Heritage, Sport, Tourism, and Culture Industries.

Stewart, A.M. 2013. "Water and Land." In *Before Ontario: The Archaeology of a Province*, edited by Marit K. Munson and Susan M. Jamieson, pp. 24-34. Montreal and Kingston: McGill-Queen's University Press.

Stone, L.M. and D. Chaput. 1978. "History of the Upper Great Lakes Area." In *Handbook of North American Indians, Volume 15, Northeast*, edited by Bruce G. Trigger, pp. 602-609. Washington: Smithsonian Institution Press.

Storck, P.L. 1982. Paleo-Indian Settlement Patterns Associated with the Strandline of Glacial Lake Algonquin in Southcentral Ontario. *Canadian Journal of Archaeology* 6:1-31.

Sutherland, James. 1868. *County of Halton Gazetteer and Directory for 1869-70*. Hamilton: A. Lawson.

This Land Archaeology Inc. 2016a. *Report on the Stage 1 and 2 Archaeological Assessment of Fieldgate Developments Land, Part of Lots 11 and 12, Concession 11, Town of Halton Hills, Regional Municipality of Halton, Historic Halton Region, Geographic Township of Esquesing North, Ontario*. Revised report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF #: P379-0015-2015.

This Land Archaeology Inc. 2016b. *Report on the Stage 3 Archaeological Assessment of Norval Site 1 (AjGx-261), Norval Site 2 (AjGx-262), Norval Site 3 (AjGx-263), and Norval Site 6 (AjGx-264), Located on Russell Pines Property Corp.'s Property, Part of Lots 11 And 12, Concession 11, Town Of Halton Hills, Regional Municipality of Halton, Historic Halton Region, Geographic Township of Esquesing North, Ontario*. Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF #s: P379-0028-2015; P379-0029-2015; P379-0035-2015; P379-0036-2015.

Bibliography and Sources

This Land Archaeology Inc. 2018. *Report on the Stage 1-2 Archaeological Assessment on Part of Lots 11 and 12, Concession 11, Village of Norval, Town of Halton Hills, Regional Municipality of Halton, Historic County of Halton, Ontario.* Report on file, Ontario Ministry of Heritage, Sport, Tourism and Culture Industries, Toronto. PIF #: P059-0790-2018.

Tremaine, George C. 1858. *Tremaine's Map of the County of Halton, Canada West*. Oakville: George C. Tremaine.

Walker & Miles. 1877. *Illustrated Historical Atlas of the County of Halton, Ont.* Toronto.

Warnock, Robert. 1862. *A Sketch of the County of Halton, Canada West*. Toronto: Leader Steam-Press.

Warrick, Gary. 2013. The Aboriginal Population of Ontario in Late Prehistory. In *Before Ontario: The Archaeology of a Province*. Edited by Marit K. Munson and Susan M. Jamieson. pp. 62-76. McGill-Queen's University Press, Kingston.

Williamson, Ronald F. 2013. "The Woodland Period, 900 BCE to 1700 CE." In *Before Ontario: The Archaeology of a Province*, edited by Marit K. Munson and Susan M. Jamieson, pp. 48-61. Montreal and Kingston: McGill-Queen's University Press.

Wybenga, Darin P., and Kaytee Dalton. 2018. *Mississaugas of the New Credit First Nation: Past and Present*. Haggersville: Mississaugas of the New Credit First Nation Administration.

7.0 IMAGES

7.1 PHOTOGRAPHS

Photo 1: General view of manicured lawn, facing northwest

Photo 2: General view of manicured lawn, facing west

Photo 3: General view of agricultural field, facing southwest

Photo 4: General view of agricultural field, facing east

Images

Photo 5: General view of agricultural field, facing northeast

Photo 6: General view of agricultural field, facing northwest

Photo 7: General view of scrubland / woodlot, facing south

Photo 8: General view scrubland / woodlot adjacent to area of steep slope, facing west

Images

Photo 9: View of Hillcrest Cemetery located near the study area, facing northeast

Photo 10: General view of disturbed road ROW, facing east

Photo 11: General view of disturbed road ROW, driveways and buildings, facing southeast

Photo 12: General view of disturbed road ROW, buried utilities, and buildings, facing east

Images

Photo 13: General view of disturbed road ROW and buildings, facing east

Photo 14: General view of road ROW, and driveway and buildings associated with Hillcrest Cemetery located near the study area, facing northeast

Photo 15: General view of road ROW along eastern boundary of study area, facing north

Photo 16: General view of disturbed road ROW, facing south

Images

Photo 17: General view of road ROW and buried utilities near Hillcrest Cemetery located near the study area, facing east

Photo 18: General view of disturbed road ROW, facing southwest

Photo 19: General view of disturbed road ROW, facing northwest

Photo 20: General view of disturbed road ROW, facing northwest

Images

Photo 21: General view of disturbed road ROW, buried utilities, and buildings, facing southeast

Photo 22: General view of disturbed road ROW and foreslope, facing southeast

Photo 23: Steeply sloped area, facing southwest

Photo 24: Steeply sloped area, facing northwest

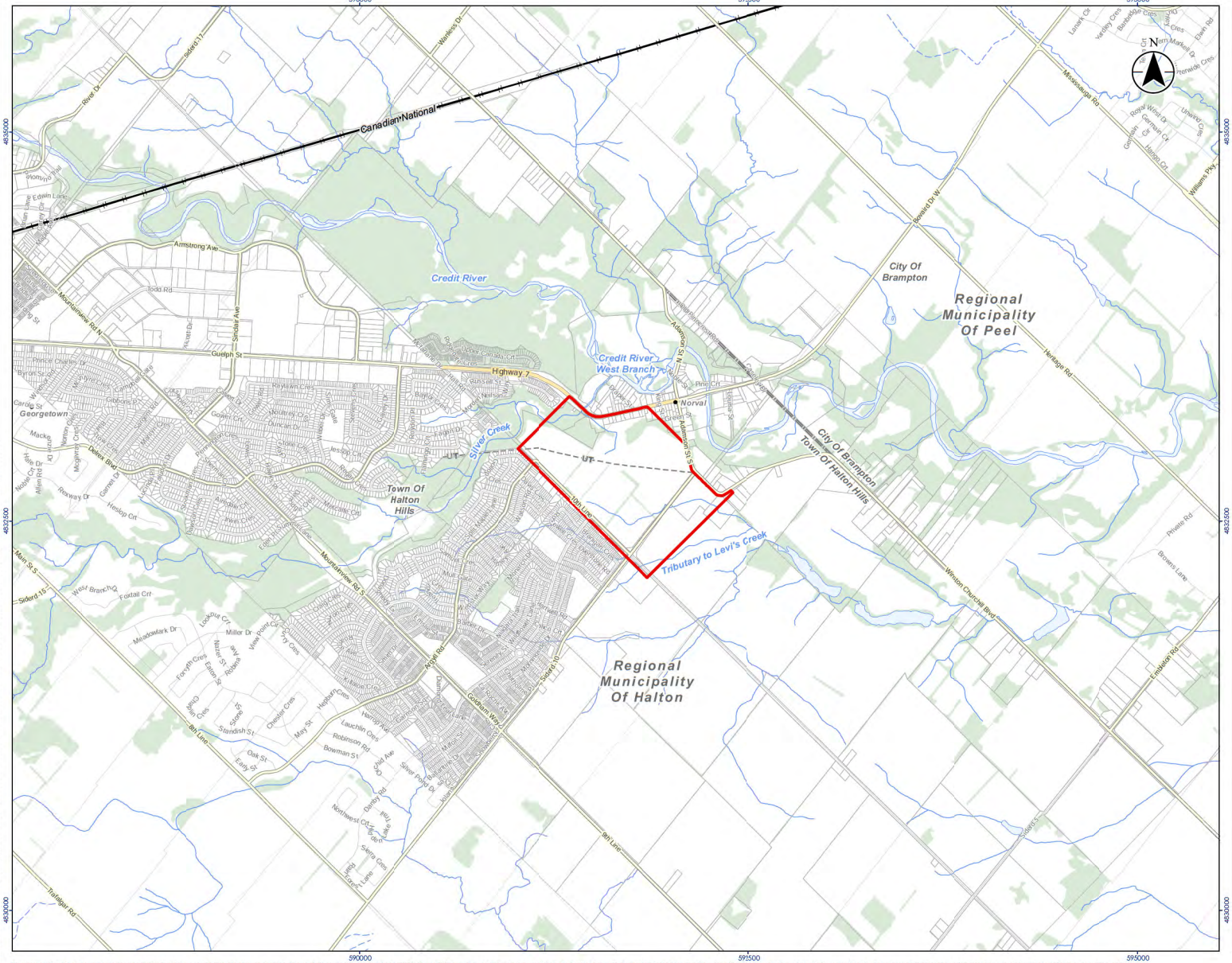
Images

Photo 25: Silver Creek, permanently low and wet, facing southwest

Photo 26: Tributary of Levi Creek, intermittently/seasonally low and wet, facing southeast

8.0 MAPS

General maps of the study area for the Project follow on succeeding pages.



Stantec

Legend

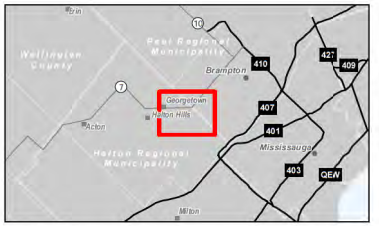
- Study Area
- Property Boundary
- Railway
- UT Unknown Transmission Line
- Watercourse (Intermittent)
- Watercourse (Permanent)
- Waterbody
- Wooded Area
- Lot
- Muncipal Boundary, Upper
- Muncipal Boundary, Lower

0 1 km

1:25,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.



Project Locaton
Municipality of Halton, ON

16501059B REV4
Prepared by BCC on 2022-04-19

Client/Projec:
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
1

Title
Location of the Project

Stantec

Legend

- Study Area
- Property Boundary
- Watercourse (Permanent)

0 150 300 Metres

1:5,500 (At original document size of 11x17)

Notes

1. CoordinateSystem: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
3. Orthoimagery © First Base Solutions, 2020. Imagery date 2019.

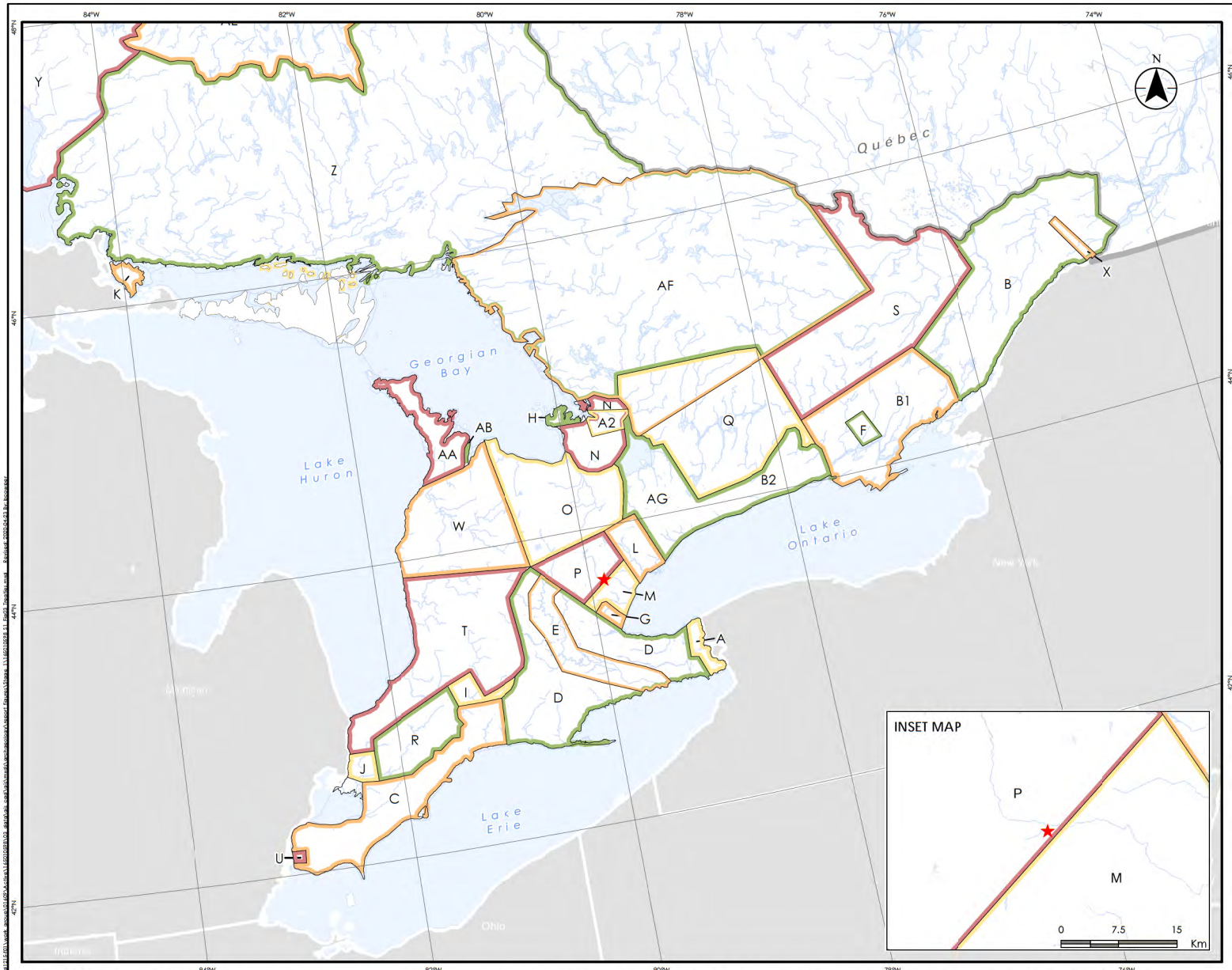
Project Location
Municipality of Halton, ON

165010598 REV4
Prepared by BCC on 2022-04-08

Client/Projec:
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
2

Title
Location of Study Area



Stantec

Legend

★ Location of Study Area

Waterbody

A Treaty No. 381, May 9th, 1781 (Mississauga and Chippewa)
AA Treaty No. 72, October 30th, 1854 (Chippewa)
AB Treaty No. 82, February 9th, 1857 (Chippewa)
AE Treaty No. 5, James Bay 1905, 1906 (Ojibway and Cree)
AF Williams Treaty, October 31st and November 15th, 1923 (Chippewa and Mississauga)
AG Williams Treaty, October 31st, 1923 (Chippewa)
A2 John Collins' Purchase, 1785 (Chippewa)
B Crawford's Purchase, October 9th, 1783 (Algonquin and Iroquois)
B1 Crawford's Purchase, October 9th, 1783 (Mississauga)
B2 Crawford's Purchase, 1783, 1787, 1788 (Mississauga)
C Treaty No. 2, May 19th, 1790 (Odawa, Chippewa, Pottawatomi, and Huron)
D Treaty No. 3, December 2nd, 1792 (Mississauga)
E Haldimand Tract: from the Crown to the Mohawk, 1793
F Tyendinaga: from the Crown to the Mohawk, 1793
G Treaty No. 3 3/4: from the Crown to Joseph Brant, October 24th, 1795
H Treaty No. 5, May 22nd, 1798 (Chippewa)
I Treaty No. 6, September 7th, 1796 (Chippewa)
J Treaty No. 7, September 7th, 1796 (Chippewa)
K Treaty No. 11, June 30th, 1798 (Chippewa)
L Treaty No. 13, August 1st, 1805
M Treaty No. 13A, August 2nd, 1805
N Treaty No. 16, November 18th, 1815 (Chippewa)
O Treaty No. 18, October 17th, 1818 (Chippewa)
P Treaty No. 19, October 28th 1818 (Chippewa)
Q Treaty No. 20, November 5th, 1818 (Chippewa)
R Treaty No. 21, March 9th, 1819 (Chippewa)
S Treaty No. 27, May 31st, 1819 (Mississauga)
T Treaty No. 27½, April 25th, 1825 (Ojibwa and
U Treaty No. 35, August 13th, 1833 (Wyandot or
V Treaty No. 45, August 9th, 1836 (Chippewa and Odawa, "For All Indians Te Reside Theeon")
W Treaty No. 45½, August 9th, 1836
X Treaty No. 57, June 1st, 1847 (Iroquois of St. Regis)
Y Treaty No. 60, Robinson, Superior, September 7th, 1850 (Ojibwa)
Z Treaty No. 61, Robinson, Huron, September 9th, 1850 (Ojibwa)

0 50 100 Km
1:3,000,000 (At original document size of 11x17)

Notes
1. Coordinate System: NAD 1983 Statistics Canada Lambert
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2018.
3. Treaty boundaries adapted from Morris 1943 (1964 reprint). For cartographic representation only.

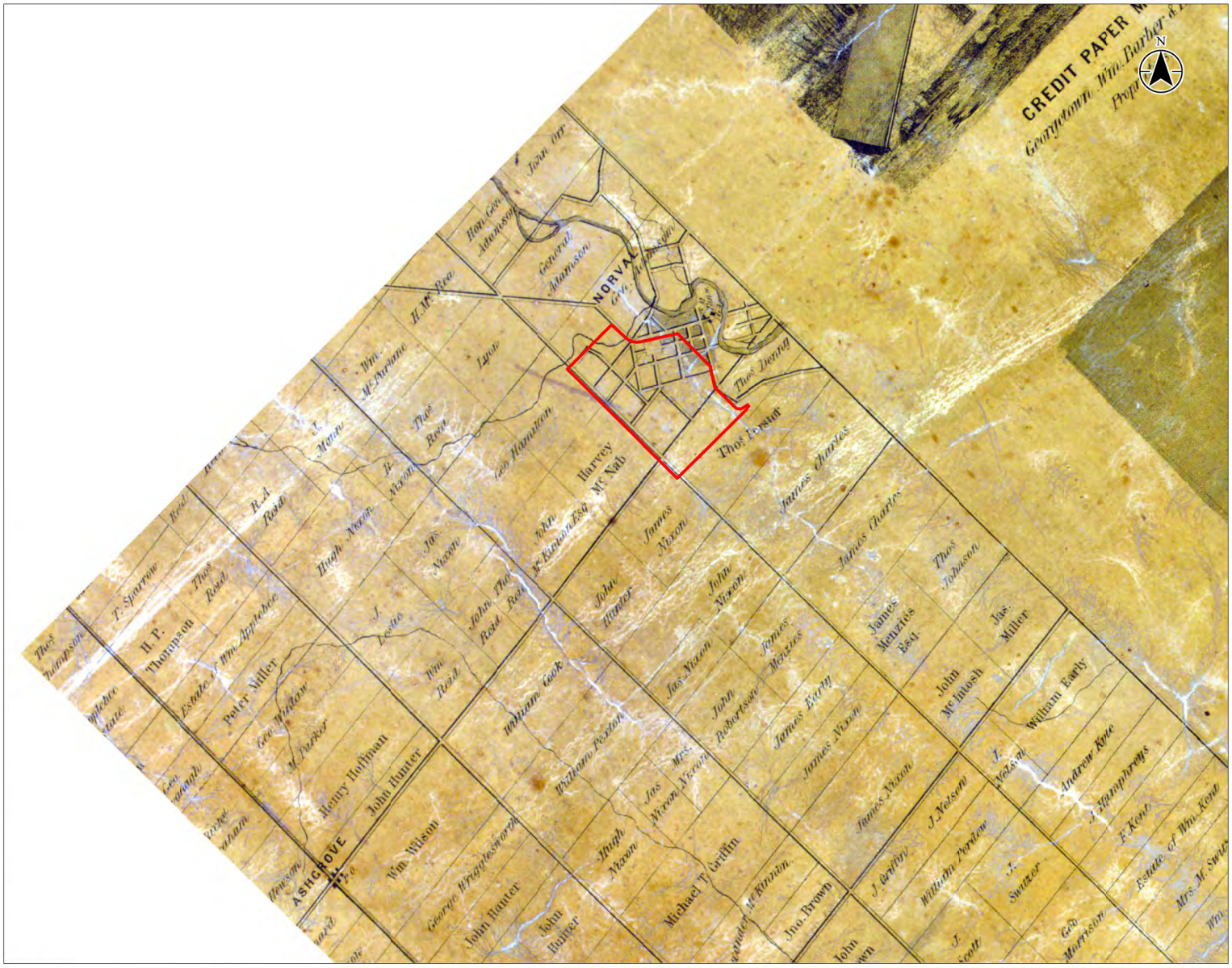
Project Location
Ontario

165010598 REVA
Prepared by BCC on 2020-04-23

Client/Project:
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
3

Title
Treaties and Purchases (Adapted from Morris 1943)



Stantec

Legend

Study Area

NOT TO SCALE

Notes

1. Tremaine, George C. 1858. Tremaine's Map of the County of Halton, Canada West. Oakville George C. Tremaine.

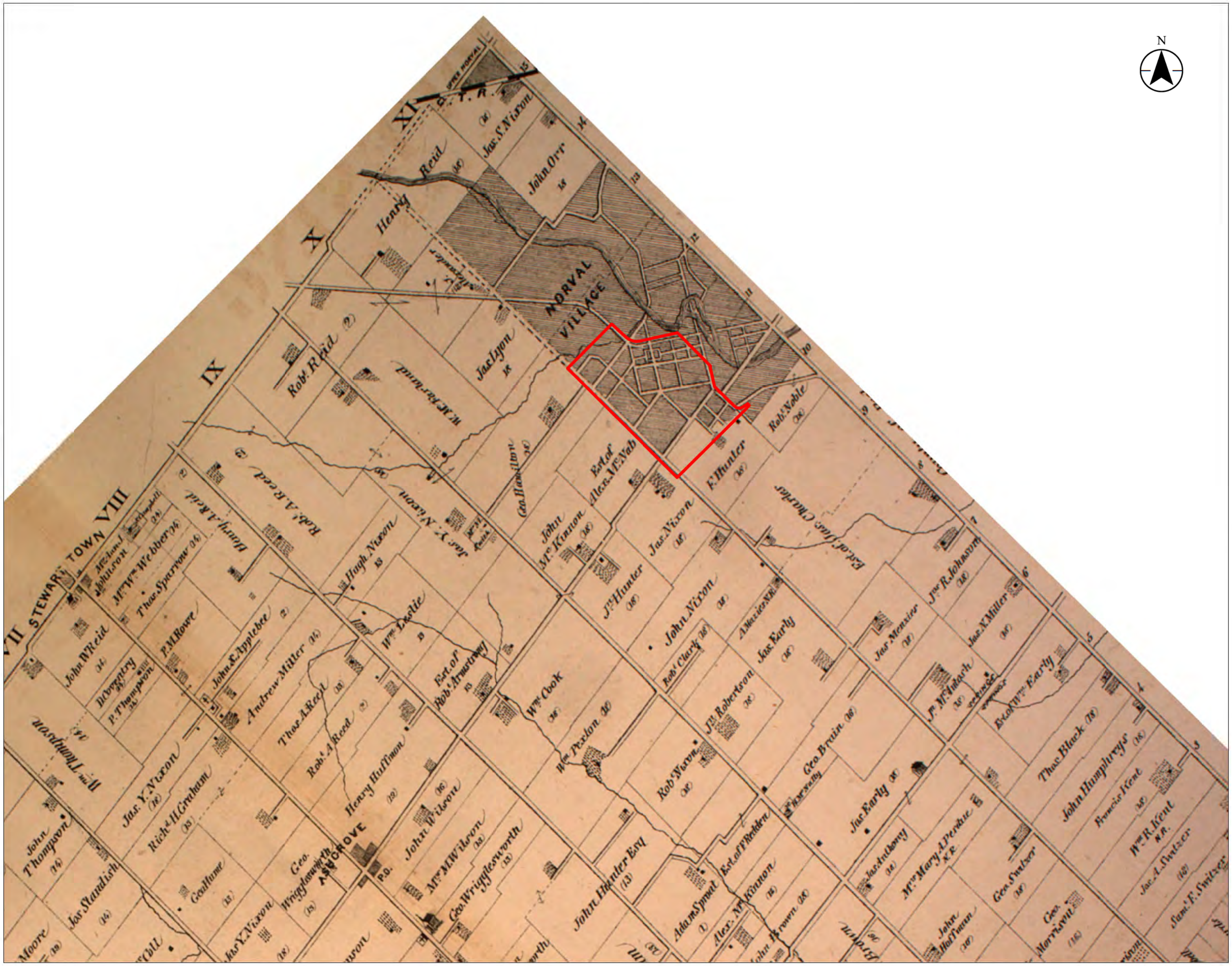
Project Location
Municipality of
Halton, ON

165010593 REVA
Prepared by BCC on 2022-04-08

Client/Projec:
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
4

Title
Portion of the 1858 Map of Halton County



Stantec

Legend

Study Area

NOT TO SCALE

Notes
1. Walker & Miles. 1877. Illustrated Historical Atlas of the County of Halton, Ont. Toronto.

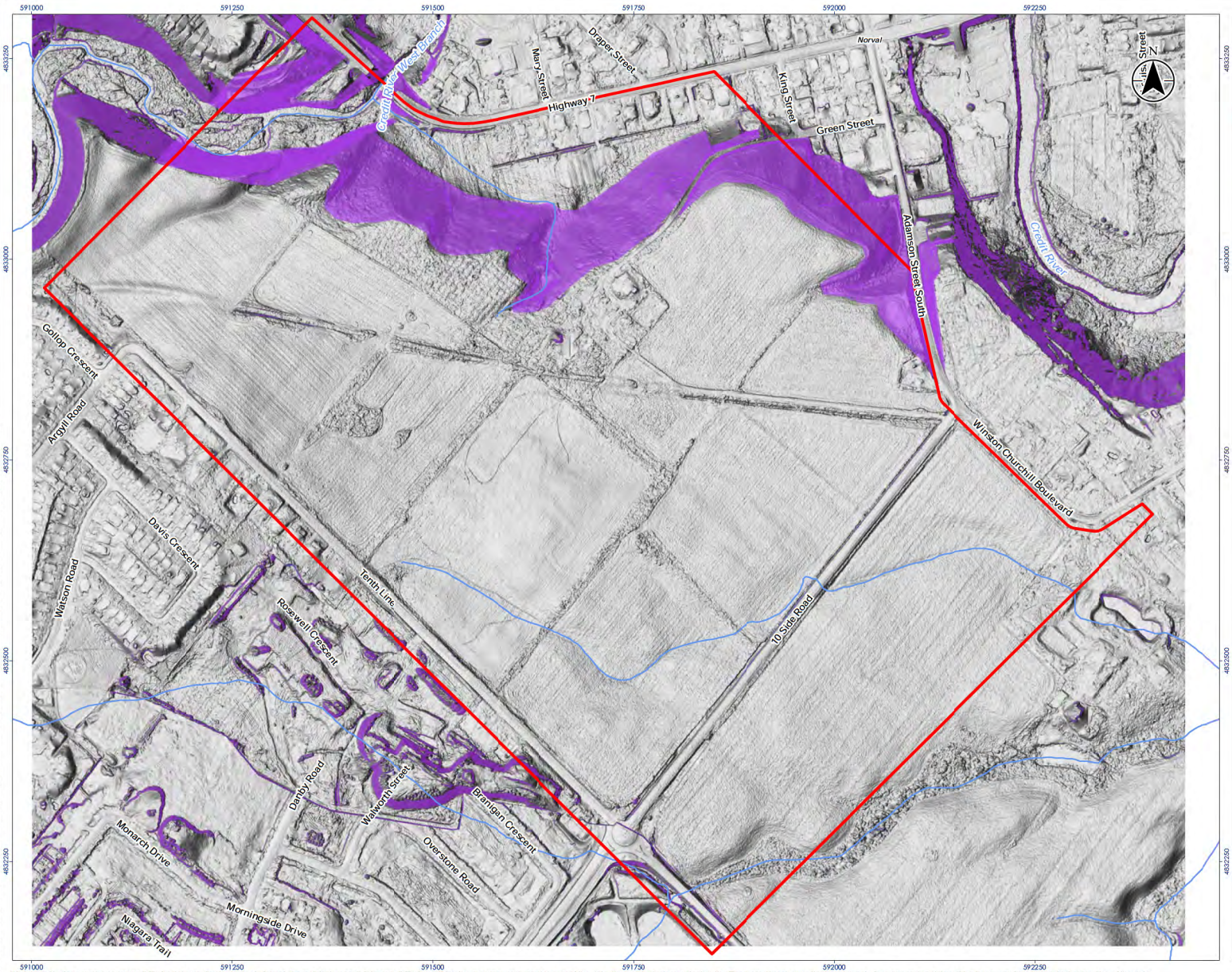
Project Location
Municipality of Halton, ON

165010598 REVA
Prepared by BCC on 2022-04-08

Client/Project
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
5

Title
Portion of the 1877 Map of Halton County



Stantec

Legend

- Study Area
- Watercourse

Slope (Degrees)

- < 20
- > 20

0 150 300 Metres

1:4,850 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
3. Orthoimagery © First Base Solutions, 2020, Imagery date 2019.

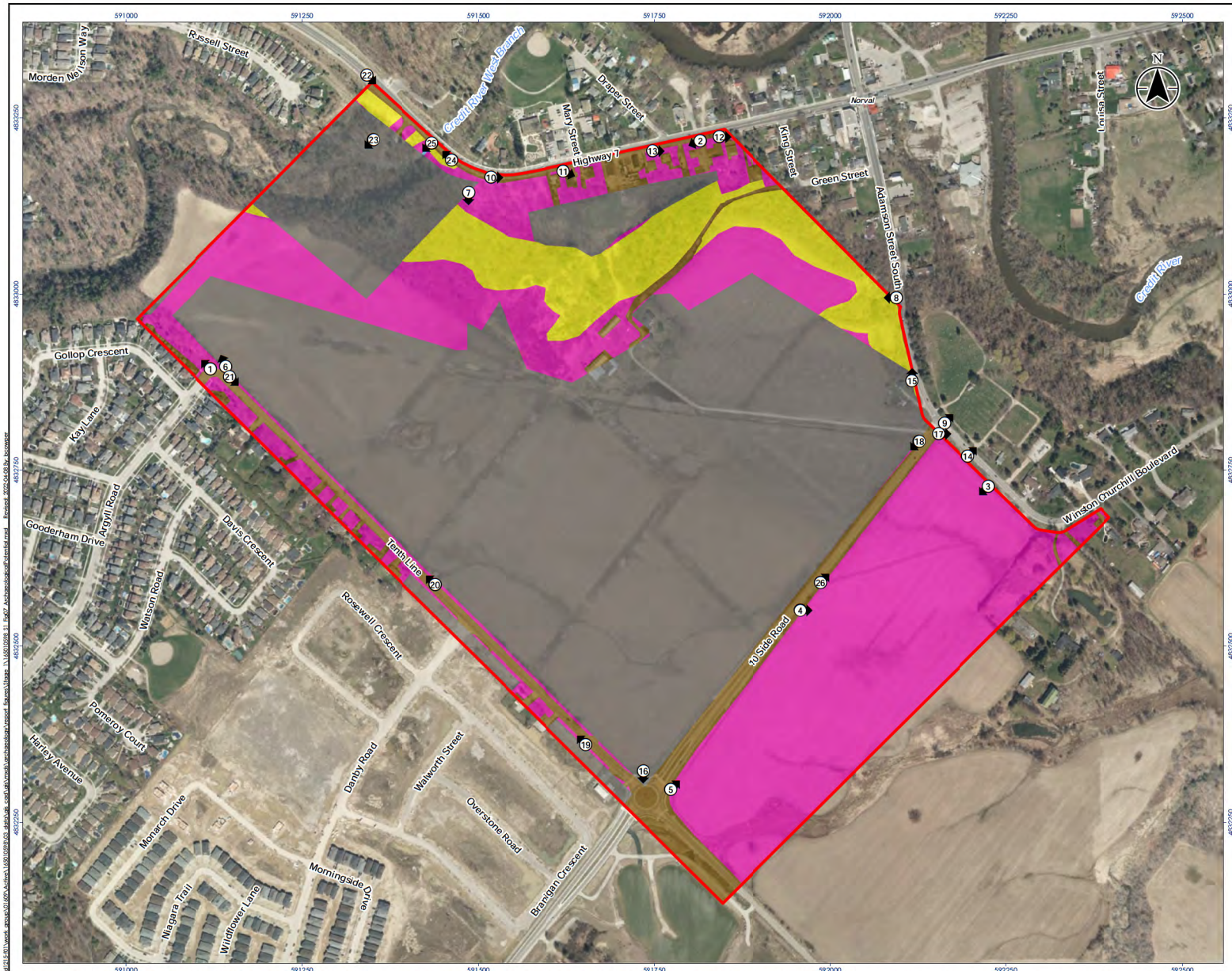
Project Location
Municipality of Halton, ON

165010593 REVA
Prepared by BCC on 2022-04-08

Client/Projec:
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
6

Title
Digital Elevation Model of Slope



Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

Stantec

Legend

- Study Area
- Archaeology Photo Log

Assessment Method

- Area of Archaeological Potential – Stage 2 Assessment Required
- Area of Steep Slope, Low to No Archaeological Potential – No Stage 2 Assessment Required
- Low and Permanently Wet Area, Low to No Archaeological Potential – No Stage 2 Assessment Required
- Previously Disturbed, Low to No Archaeological Potential – No Stage 2 Assessment Required
- Previously Assessed (Approx.) – No Stage 2 Assessment Required [Refer to Tile 1 in Supplementary Documentation for Registered Archaeological Site Information]

0 150 300 Metres

1:5,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2020.
3. Orthoimagery © First Base Solutions, 2020, Imagery date 2019.

Project Location
Municipality of Halton, ON

165010593 REVA
Prepared by BCC on 2022-04-08

Client/Projec:
REGIONAL MUNICIPALITY OF HALTON
NORVAL WEST BYPASS - CLASS EA
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

Figure No.
7

Title
Archaeological Potential of Study Area

9.0 CLOSURE

This report documents work that was performed in accordance with generally accepted professional standards at the time and location in which the services were provided. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this report, including no assurance that this work has uncovered all potential archaeological resources associated with the identified property.

All information received from the client or third parties in the preparation of this report has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

Conclusions made within this report consist of Stantec's professional opinion as of the time of the writing of this report and are based solely on the scope of work described in the report, the limited data available and the results of the work. The conclusions are based on the conditions encountered by Stantec at the time the work was performed. Due to the nature of archaeological assessment, which consists of systematic sampling, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire property.

This report has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities, or claims, howsoever arising, from third party use of this report. We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this report.

Quality Review _____ Dickson, Parker 2022.05.29 22:54:27 -04'00'

(signature)

Parker Dickson – Senior Associate, Senior Archaeologist

Independent Review _____ Colin Varley 2022.05.29 22:55:52 -04'00'

(signature)

Colin Varley – Senior Associate, Senior Archaeologist