



**ORIGINAL REPORT**

## Stage 1 Archaeological Assessment

*Highland Line Pit, Part of Lots 4 and 5, Concession 10, Dalhousie Township,  
Lanark County, Ontario*

**Licensee:** Randy Hahn, Ph.D. (P1107)

**PIF Number:** P1107-0035-2020

Submitted to:

**Phil White, Quality Control**

Thomas Cavanagh Construction Limited  
9094 Cavanagh Road  
Ashton, Ontario  
K0A 1B0

Submitted by:

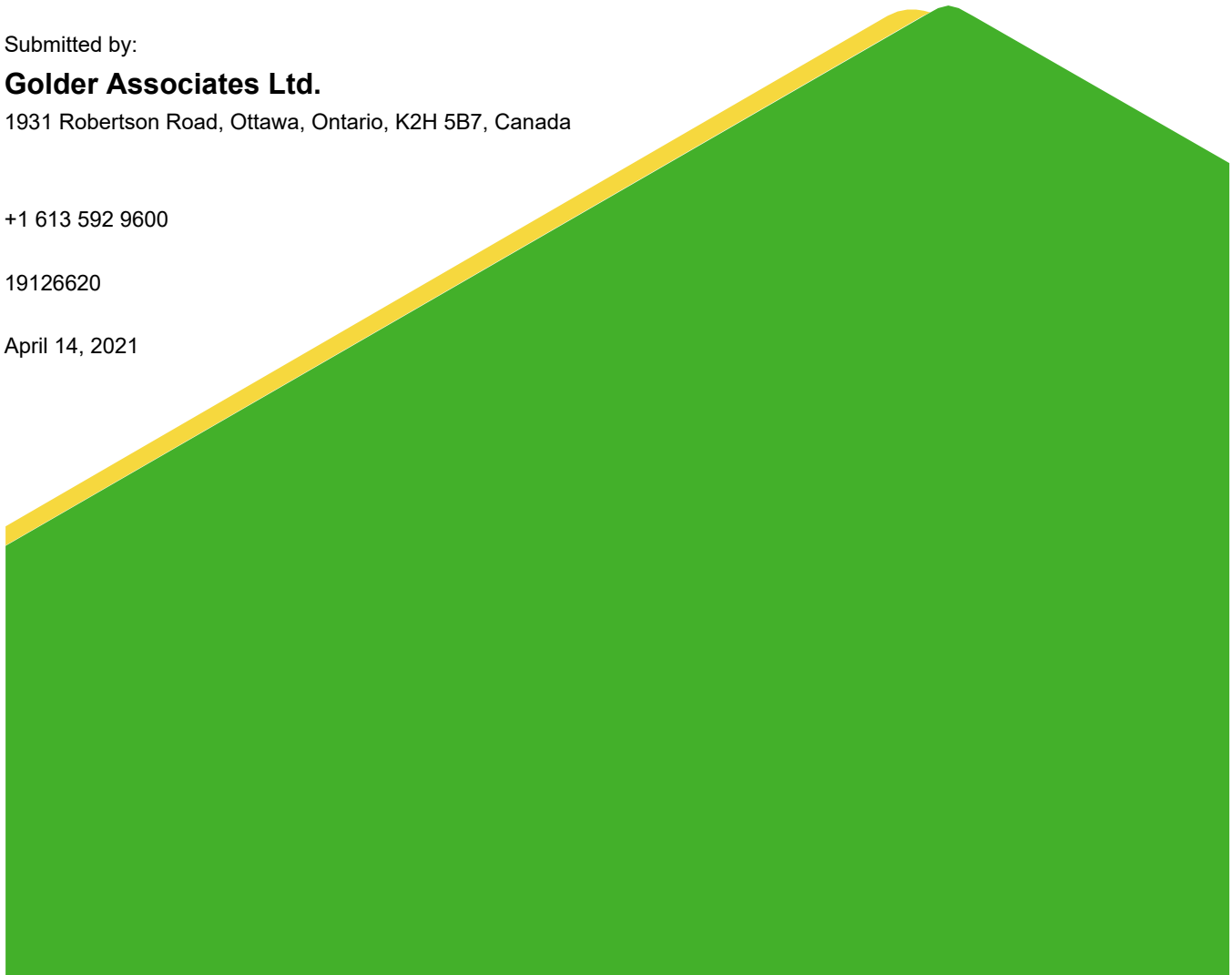
**Golder Associates Ltd.**

1931 Robertson Road, Ottawa, Ontario, K2H 5B7, Canada

+1 613 592 9600

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## Executive Summary

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

Golder Associates Ltd. (Golder) was retained by Thomas Cavanagh Construction Limited to complete a Stage 1 archaeological assessment in support of an *Aggregate Resources Act* (ARA) license application for the proposed Highland Line Pit located within part of Lots 4 and 5, Concession 10, Dalhousie Township, Lanark County, Ontario (Maps 1 and 2). Golder previously conducted a Stage 1 and 2 archaeological assessment for the project (Golder 2020) and the present Stage 1 archaeological assessment is for additional lands added to the project.

The objectives of the Stage 1 archaeological assessment are defined in the Ontario Ministry of Heritage, Sport, Tourism, and Culture Industries' (MHSTCI) *Standards and Guidelines for Consultant Archaeologists* (2011). A Stage 1 archaeological assessment background study provides information about the project area, evaluates archaeological potential and provides recommendations as to whether further work is required.

Evidence for human occupation of Eastern Ontario dates to at least 11,000 BP following the retreat of the Champlain Sea. During the succeeding Archaic Period (9,000 to 2,500 BP), the environment of Ontario approached modern conditions with the Ottawa River and its many tributaries serving as a major transportation route that facilitated trade in copper mined from surface deposits near Lake Superior. The Woodland Period (2,500 BP to 400 BP) saw the introduction of pottery and agriculture which led to the development of semi-permanent and permanent villages in southern Ontario. Within eastern Ontario, Woodland subsistence strategies were still based on hunting and gathering and their migratory routes followed seasonal patterns to proven hunting locations. European contact began in 1610 following the expedition of French explorer Étienne Brûlé who passed through the area that would become Ottawa. Settlement of Dalhousie Township began in 1820. Land registry records indicate that Lot 5, Concession 10 was first settled by the mid-19<sup>th</sup> century. By 1863 there were at least two farmsteads located on Lot 5, Concession 10 including the Duncan Farmstead which is located within the study area.

The Stage 1 archaeological assessment determined that portions of the study area have archaeological potential due to their proximity to water sources, historical transportation routes, areas of early Euro-Canadian occupation, and registered archaeological sites. A property inspection conducted by Randy Hahn (P1107) over three days on November 2, 6 and 20, 2020 identified portions of the study area as disturbed, permanently wet, or sloped greater than 20 degrees.

This Stage 1 archaeological assessment resulted in the following recommendations:

- 1) Portions of the study area with archaeological potential, as shown on Map 6, require Stage 2 archaeological assessment prior to development impacts.
- 2) Portions of the study area determined to not have archaeological potential, as show on Map 6, do not require further archaeological assessment.
- 3) Should landscape disturbance extend beyond the present Stage 1 study area, additional archaeological assessment may be required.

This report is submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological field work and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

## Project Personnel

Project Manager	Brian Henderson, M.A.Sc., P.Eng.
Project Director	Kris Marentette, M.A.Sc., P.Eng., Principal
Senior Review	Michael Teal, M.A. (P364), Associate, Senior Archaeologist
Licensee/Site Inspection	Randy Hahn, Ph.D. (P1107), Staff Archaeologist
Report Preparation	Randy Hahn, Ph.D. (P1107), Staff Archaeologist
GIS/Mapping	Bojan Radojevic, B.A.
Administration	Courtney Adey

## Abbreviations

ASDB	Archaeological Site Database
BP	Before Present, taken to mean before 1950 and used as an alternative to BC/AD
CHVI	Cultural Heritage Value or Interest
Golder	Golder Associates Ltd.
m	Metre(s)
MHSTCI	Ministry of Heritage, Sport, Tourism and Culture Industries
PIF	Project Identification Form

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## 1.0 PROJECT CONTEXT

### 1.1 Development Context

Golder Associates Ltd. (Golder) was retained by Thomas Cavanagh Construction Limited to complete a Stage 1 archaeological assessment in support of an *Aggregate Resources Act* (ARA) license application for the proposed Highland Line Pit located within part of Lots 4 and 5, Concession 10, Dalhousie Township, Lanark County, Ontario (Maps 1 and 2). Golder previously conducted a Stage 1 and 2 archaeological assessment for the project (Golder 2020) and the present Stage 1 archaeological assessment is for additional lands added to the project.

Permission to access the properties was provided by the client.

### 1.2 Objectives

The objectives of this Stage 1 archaeological assessment follow the MHSTCI *Standards and Guidelines for Consultant Archaeologists* (2011: 13):

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

## 2.0 HISTORICAL CONTEXT

### 2.1 Regional Indigenous History

The Ottawa Valley and surrounding area was covered by the Laurentide ice sheet until approximately 11,000 years before present (BP). Following the period of deglaciation, the Ottawa Valley was inundated by the Champlain Sea which is interpreted to have extended from the Rideau Lakes in the south, along the Ottawa Valley and St. Lawrence areas and terminating in the vicinity of Petawawa in the west. The exact western boundary is unconfirmed as current elevation levels reflect the isostatic adjustment of the land following the melting of the glaciers which has obscured definitive traces of the Champlain Sea shoreline at the time of its existence. The eastern portion of the sea extended into the Atlantic Ocean.

During the much of the Paleo Period (11,000–ca. 9,000 BP) Ottawa would have remained inundated by the Champlain Sea, although as the Champlain Sea receded towards the end of this period it is possible that people migrated along the changing waterfront landscape eventually moving into the Ottawa Valley and surrounding area (Watson 1999a).

The ridges and old shorelines of the Champlain Sea and early Ottawa River channels generally represent areas most likely to contain evidence of Paleo occupation in this region, however identifying the location and dates of these ancient shorelines has proved challenging. The boundaries of the Champlain Sea are not marked by a continuous identifiable shoreline, especially in its western shore where rocky conditions were not favorable to the formation of beaches (Chapman and Putnam 1973). Attempts to use deposits of marine mollusk shells as a source for radiocarbon dates to delineate the transgression of the shorelines have proved unreliable as shells absorb carbon at different rates according to their depth below the surface and geological location (Robinson 2012). Additionally, earlier interpretations showing discrete stages of regression (see Chapman 1937) have proven not to be supported by the geological record. Unlike the catastrophic flood events during the Younger Dryas climatic event that led to the rapid formation of the Champlain Sea, its regression was a slow process occurring as sea waters drained during isostatic rebound (Robinson 2012). The interpretation of the presence of shorelines is further complicated by the fact that isostatic rebound may have raised the Ottawa region above its current elevation before it receded to its current level (Fulton and Richards 1987). Flooding resulting from the overflow of glacial Lake Agassiz also eroded and manipulated topographic landforms within the evolving landscape (Fulton et al. 1987). As a consequence, only the margins of the Champlain Sea at its maximum extent, a time when the Ottawa region would have been fully submerged, have been reliably mapped due to the rapid inundation creating pronounced shoreline features (Loring 1980). Although recent studies using various dating techniques that do not rely upon deposits of mollusk shells have provided some favourable results (Tremblay 2008), considerable work remains in developing the chronology of the Champlain Sea's regression.

The earliest possible settlement in the Ottawa Valley and its surrounding areas would have occurred during the recession of the Champlain Sea when the vegetation and wildlife began to develop within the area, which enabled the sustainability of humans (Watson 1999a). The ridges and old shorelines of the Champlain Sea and early Ottawa River channels reflect areas most likely to contain evidence of Paleo Period occupation in the region. Archaeological and geological investigations in the Ottawa Valley have suggested these early sites may be identified within the 550 foot (167.6 metres) or higher contour topography, although additional research may be required to confidently assess this correlation (Kennedy 1976). Evidence of human occupation within the Ottawa Valley and surround areas during this period has been documented by a variety of archaeological discoveries including fluted points (laurel leaf shaped points with a channel flake scar extending from the base of the point) recorded in the Rideau Lakes area (Watson 1982; 1999b). In Ottawa, sites interpreted to have produced Paleo Period material have been recorded near Greenbank Road (Swayze 2003), Albion Road and Rideau Road



(Swayze 2004), although the lack of diagnostic material represented at these sites and the inferred climatic environment suggests these sites may rather be reflective of Archaic Period occupation following the recession of the Champlain Sea.

During the succeeding Archaic Period (ca. 9,000 to 2,800 BP), the environment of eastern Ontario approached modern conditions (Ellis et al. 1990). Occupation within the Ottawa Valley and surrounding areas developed as the environment became habitable, with an Early Archaic Dovetail projectile point recovered in Ottawa South sometime around 1918-1920 (Pilon and Fox 2015) potentially representing the earliest diagnostic evidence of human interaction within the local landscape.

Archaic Period inhabitants generally continued to employ a hunter-gatherer subsistence strategy focused on localized faunal and floral resources including deer, fish, berries and nuts. The McIntyre Site, located on the north shore of Rice Lake and south of Peterborough, contained the remains of a large variety of floral and faunal species (Ellis et al. 1990). Plant remains recovered from the site included butternut, acorn, hickory, plum, cherry, blueberry and hawthorn. Faunal remains included deer, canine, beaver, muskrat, bear, and a large variety of fish including bass, bullheads, and suckers. The inhabitants of the site may also have been gathering wild rice (McAndrews 1984). In the Ottawa Valley, a stone fish weir likely dating to the Archaic Period found upstream from Morrison Island and Allumette Island demonstrates the increasingly sophisticated technology that was being employed during the period (Allen 2010).

The Ottawa Valley and its many tributaries were an important route for the movement of copper, either through direct trade between individual groups, or through trips to Lake Superior to exploit the native copper deposits located there. Copper artifacts similar to those documented on Allumette Island in the Ottawa River have been discovered in Wisconsin, Michigan, New York State and Manitoba (Kennedy 1970). This commodity, as well as other tradable goods, was presumably transported by canoes and other vessels along the navigable waterways including the Ottawa River and its tributaries.

The earliest evidence of human burials within the Ottawa Valley are interpreted to date to the Archaic Period (Pilon & Young 2009). Excavations at Allumette and Morrison Islands have found burial sites containing the remains of dozens of individuals within deposits that appear to have been used continuously for millennia (Kennedy 1966). The inclusion of grave offerings such as native copper pieces in burials found at the site of Coteau-du-Lac provides evidence for Archaic ritual practice (Pilon & Young 2009). Other sites with Archaic Period components within the Ottawa Valley region have been noted on Aylmer Island, Chaudière Falls, Wilber Lake, Leamy Lake, the Rideau Lakes (Watson 1982), Jessups Falls, and in Pendleton (Daechsel 1980). Archaic sites have been documented within the vicinity of the Rideau River (BhFw-19; BhFw-110, Golder 2017), and evidence from archaeological investigations around Honey Gables, Albion Road and Rideau Road may contain Early Archaic material (Swayze 2004). Evidence of Archaic Period occupation has also been recovered from isolated find spots within the City of Ottawa (Jamieson 1989), although the context of many of these have been poorly documented.

The Woodland Period (ca. 2,800 to 450 BP) is primarily distinguished from the Archaic Period by the introduction of ceramics (Wright 1972). Early Woodland Period inhabitants continued to live as hunters, gatherers and fishers in much the same way as earlier populations had done. They also shared an elaborate burial ceremonialism influenced by the inclusion of exotic artifacts within grave deposits (Spence et al. 1990: 129).

By the Middle Woodland Period (2,400 to 1,150 BP) regional cultural expressions or traditions have been distinguished by archaeologists. These traditions have been identified based on patterns of ceramic decorations, use of lithic materials, and are the primary basis to differentiate the Middle Period from the Early. A greater number of known sites from this period have allowed archaeologists to develop a better picture of the seasonal

round followed in order to exploit a variety of resources within a home territory. Through the late fall and winter, small groups would occupy an inland “family” hunting area. In the spring, these dispersed families would congregate at specific lakeshore sites to fish, hunt in the surrounding forest, and socialize. This gathering would last through to the late summer when large quantities of food would be stored for the approaching winter.

Along the Ottawa River and surrounding area, Middle Woodland sites have been identified in the northwest end of Ottawa at Marshall’s and Sawdust Bays (Daechsel 1980; Daechsel 1981), Rockcliffe Park (Pilon 2008; Pilon and Boswell 2015), as well as at Leamy Lake (Laliberte 1995), along the Rideau River (BhFw-6, BhFw-101, BhFw-110 and BhFw-118; Golder 2017; Patterson 2016) and within the City of Ottawa west of Bank Street (Golder 2014). Sawdust Bay 2 (BiGb-6), located approximately 750 m west of where the Mississippi River drains into the Ottawa, represents a camp site radiocarbon dated to 1560 BP ( $\pm$  290 BP) and interpreted to reflect the Point Peninsula Tradition. The corresponding artifact assemblage shows that subsistence was focused around hunting fauna living in the adjacent lakes and swamps. The Leamy Lake and Rockcliffe Park Sites (BiFw-16 and BiFw-91), all located in the area around the mouth of the Gatineau River and the east shore of the Ottawa River, show evidence of seasonal warm weather settlement spanning a period from 4000 BP up to at least the Middle Woodland period (Pilon and Boswell 2015).

Another significant development of the Woodland Period was the introduction of agriculture and appearance of domesticated plants ca. 1,450 BP. Initially, only a minor addition to the diet, the cultivation of corn, beans, squash, sunflowers and tobacco gained economic importance during the Late Woodland Period. Unlike in southern Ontario, where the shift in subsistence resulted in the development of semi-permanent and permanent villages, evidence suggests that the Ottawa Valley remained occupied by mobile hunter-gatherers. In part, this was because the terrain was less than suitable for early agriculture. It was also a reflection of the increased pressure on hunting territories and conflict over trade routes at the end of the Woodland Period.

By the end of the Late Woodland Period, distinct regional populations occupied specific areas of Southern Ontario separated by vast stretches of largely unoccupied land, including the Huron along the north shore of Lake Ontario, and the St. Lawrence Iroquois along the St. Lawrence River. Facing persistent hostilities with Iroquoian populations based in what is now New York State, the Huron moved from their traditional lands on the north shore of Lake Ontario to the Lake Simcoe and Georgian Bay region. The St. Lawrence Iroquois disappeared sometime in the late 16<sup>th</sup> century with refugees possibly dispersing among the Algonquin populations in the Ottawa Valley region (Pendergast 1999).

The Algonquins, who occupied the lands north of the Huron, had historical hunting territories that may have extended as far east as the St. Maurice River in Quebec. They also claimed the lowlands south of the St. Lawrence River after the disappearance of the St. Lawrence Iroquois in the late 16<sup>th</sup> century (Trigger & Day 1994). At the time of initial contact, the French documented several Algonquin groups residing in the vicinity of the present location of the City of Ottawa (Heidenreich and Wright 1987, Plate 18). These included the Kichesipirini of Morrison Island, the Matouweskariini along the Madawaska River to the west, the Onontchataronon in the Gananoque River basin to the southwest, and the Weskarini, the largest of the three, situated in the Petite Nation River basin to the northeast.

Late Woodland sites have been recorded throughout the Ottawa Valley and surrounding areas. Two small Late Woodland sites were identified on a property near the Village of Cumberland (Ferris 2002). A significant Woodland Period occupation has also been identified at the Leamy Lake site and several burials dating to the Archaic Period have also been documented on the north side of the Ottawa River, just east of the Chaudière Falls. Many of these burials were observed during the mid-19<sup>th</sup> century, with upwards of twenty individuals documented along the northern shore of the Ottawa River between the Chaudière Falls and the Gatineau River.

Many of these internments were associated with red ochre deposits, although there does not appear to be a consistent deposition positional pattern to those recorded (Pilon and Boswell 2015).

Though it is often difficult to link archaeological sites to specific historical Indigenous groups, the Highland Lake site (BiGh-1), located west of Ottawa, may be an Algonquin site associated with the Matouweskarini (von Gernet 1992). Ottawa Valley Algonquin sites typically consist of shallow deposits characteristic of seasonal occupation by small family groups within family or band territorial limits and are typically located on the headwaters of major tributaries (Pendergast 1999). Exceptions include a number of summer camps identified at Morrison Island and Leamy Lake where larger groups came together (Pilon and Boswell 2015).

The Algonquins' location along the same river networks used for transportation by early French traders positioned them to monopolize the early fur trade with the two communities becoming close allies following Champlain's expedition in 1603. Competition for furs increased existing tensions between the Algonquin communities and their neighbours including the Haudenosaunee Nations, such as the Mohawk, residing to the south in what is now Ontario and New York. The 17<sup>th</sup> century saw a long period of conflict known as the Beaver Wars between the Algonquin and the Haudenosaunee that resulted in the significant disruption of life. Mohawk raids against Algonquin Villages in the Upper Ottawa and St. Lawrence Valleys resulted in the abandonment or destruction of many Algonquin villages in these areas (Trigger and Day 1994). Some Algonquin's found refuge in French settlements such as Trois Rivières, Quebec City, Sillery, and Montreal while others may have retreated to interior locations along the Ottawa River's tributaries (Holmes 1993). At the end of the 17<sup>th</sup> century, the Haudenosaunee were driven out of much of southern Ontario by the Mississaugas though they continued to occupy parts of eastern Ontario on a seasonal basis.

The French brokered a peace treaty in 1701 at Montreal where the Algonquin, the French, and the Haudenosaunee agreed to peacefully share the lands around the Great Lakes (INAC 2011). In exchange for peace, the Algonquin gave the Haudenosaunee secure access to furs which the Haudenosaunee used to secure their alliance with the British. Between 1712-1716, Algonquins were noted as living along the Gatineau River with the Haudenosaunee occupation located south of the St. Lawrence (Holmes 1993). By 1740, Algonquin communities were present in the vicinity of Trois-Rivières, Rivière Lièvre and Lake of Two Mountains and Mohawk community members were residing near Lake of Two Mountains (Holmes 1993).

Following the Seven Years' War in the mid-18<sup>th</sup> century, the defeat of the French, Algonquin, and their allies by the British and the Haudenosaunee resulted in the further loss of Algonquin hunting territories in Southern Quebec and Eastern Ontario as the British seized France's colonies. The extension of Quebec's boundaries in 1774 through the Quebec Act and the use of the Ottawa River as the boundary of Upper and Lower Canada following the 1791 Constitution Act separated the Algonquins between two government administrations (AOP ND).

Britain's colonial policy differed from the French in that the Crown was much more interested in securing land surrenders from the Indigenous populations for settlement by Europeans. The Royal Proclamation of 1763 issued by King George III enabled the Crown to monopolize the purchase of Indigenous lands west of Quebec. Although the proclamation recognized Indigenous rights to their land and hunting grounds, it also provided a way through which these rights could be taken away (Surtees 1994). Land cession agreements between Indigenous groups and the Crown increased following the War of 1812 as a new wave of settlers arrived in Upper Canada primarily from Britain.

The Crown implemented annuity systems in the purchase of lands from Indigenous peoples where the interest payments of settlers on the land would cover the cost of the annuity rather than pay a one-time lump sum. By the 1850s, Indigenous groups had become cautious of these agreements and had begun to demand the retention of reserved land and preservation of hunting and fishing rights (Surtees 1994).

Between 1783 and 1784, Captain William Redford Crawford negotiated on behalf of the Crown with the Mississauga chiefs living in the Bay of Quinte region. In the so-called “Crawford Purchase,” Crawford negotiated for the lands located east of the Bay of Quinte to the Trent River. This agreement was intended to provide land to the United Empire Loyalists and Indigenous allies following the American Revolution (Ontario 2020). The lands covered by the Crawford Purchase now includes the communities of Kingston and Brockville.

Land cession agreements between Indigenous groups and the Crown increased following the War of 1812 as a new wave of settlers arrived in Upper Canada primarily from Britain. The Crown implemented annuity systems in the purchase of lands from Indigenous peoples where the interest payments of settlers on the land would cover the cost of the annuity rather than pay a one-time lump sum.

The Crown again negotiated with the Mississauga of the Bay of Quinte and Kingston areas during the Rideau Purchase (1819/1822) which included a portion of Algonquin territory in the Ottawa Valley (Surtees 1994). The Algonquin and Nipissing, who were left out of the talks, protested the purchase, but were largely ignored (Holmes 1993). The Rideau Canal was later built through the territory of the Rideau Purchase. In 1839, the Crown denied the Algonquins and Nipissings the right to lease portions of their land, including islands in the Ottawa River, to settlers with whom they had previously been collecting rent payments (Holmes 1993). Furthermore, the Crown did little to prevent further additional encroachments by settlers on Indigenous lands. By the 1850s, Indigenous groups had become cautious of these agreements and had began to demand the retention of reserved land and preservation of hunting and fishing rights (Surtees 1994).

In 1839, the Crown denied the Algonquins and Nipissings the right to lease portions of their land, including islands in the Ottawa River, to settlers with whom they had previously been collecting rent payments (Holmes 1993). Furthermore, the Crown did little to prevent further additional encroachments by settlers on Indigenous lands.

A reserve was purchased for use by the Algonquins in Golden Lake in 1873 (Holmes 1993). The Golden Lake reserve, now known as the Algonquins of Pikwakanagan First Nation, has a registered population of around 2,000 people with over 400 living on the reserve (INAC 2013). Additional reserves and settlements for the Algonquins were established in Quebec during the mid-20<sup>th</sup> century.

The Indian Act of 1876 framed the relationship between the Canadian government and Canada’s Indigenous peoples as a paternalistic one where the government served as their guardian until their cultures were able to integrate into Canadian society (INAC 2011). The Department of Indian Affairs was granted the authority to make policy decisions such as determine who was classified as Indigenous, manage their lands, resources and money, and promote “civilization”. The consequence was the further erosion of Indigenous rights to autonomy and self-governance. The implementation of residential schools and adoption of Algonquin children by non-Indigenous families in the mid-20<sup>th</sup> century reflected further discrimination and the disregard of rights (AOP ND).

The Algonquins of Ontario today consists of ten communities: Antoine, Algonquins of Pikwakanagan First Nation, Bonnechere, Greater Golden Lake, Kijicho Manito Madaouskarini, Mattawa/North Bay, Ottawa, Shabot Obaadjiwan, Snimikobi, and Whitney and Area (AOO ND).

The Ottawa Valley is unceded Algonquin land and land claim negotiations with Canada and Ontario are in progress. The Algonquin and the Government of Canada signed an agreement in principal to transfer 117,500 acres of Crown lands in eastern Ontario to the Algonquin (INAC 2016; Tasker 2016). While this represents an important step in the negotiations, the talks are ongoing.

## 2.2 Post-Contact Regional History

Samuel de Champlain was the first European to document his explorations of the Ottawa Valley, initially in 1613 and again in 1615. He was preceded by two of his emissaries, Etienne Brule around 1610 and Nicholas de Vigneau in 1611. It is likely that all three travelled at least the lower reaches of the Rideau River. In the wake of Champlain's voyages, the Ottawa River became the principal route for explorers, missionaries and fur traders travelling from the St. Lawrence to the interior, and throughout the seventeenth and eighteenth centuries this route remained an important link in the French fur trade.

The Rideau River, which continued to serve as a seasonal hunting, fishing, and gathering area for Indigenous peoples living in the area, was used as a travel corridor that connected the Ottawa Valley to the St. Lawrence River (Watson 2018). The construction of the Rideau Canal (1826–1832) brought increased European settlement along the shores of the Rideau River. Further development of the Rideau shorelines during the 19<sup>th</sup> and 20<sup>th</sup> centuries resulted in diminished opportunities for Indigenous hunting and gathering in the area as Euro-Canadian settlement increased.

### 2.2.1 Lanark County and Dalhousie Township

Settlement of Lanark County began in 1815 following the British proclamation which offered free passage and land to emigrants to Upper Canada (Mika and Mika 1981: 490). The establishment of the military town of Perth in 1816 enabled the expansion of settlement into surrounding lands. Dalhousie Township was opened for settlement in 1820 (Mika and Mika 1977: 517-518). Many of the first settlers of the township were families of impoverished Scottish weavers who immigrated to Canada following a decline in the weaving industry in Scotland. A second wave of immigration occurred during the 1830s and 1840s consisting primarily of immigrants from Ireland (Lanark Highlands ND).

Due to steep and rocky terrain, agriculture was restricted to floodplains beside rivers and lakes so many early settlers participated in lumbering. Beside lumbering, early industry included grist mills, flour mills, pork packing, tanning, and maple syrup operations (Lanark Highlands ND)

In 1857, flooding at Crotch Lake, located approximately 18 km west of Dalhousie Township caused the Mississippi River to overflow. All three of the township's bridges were destroyed in this disaster along with a grist mill located at Dalhousie Lake (Lanark Highlands ND).

In 1850, Dalhousie Township was united with North Sherbrooke and Lavant Townships. Subsequent amalgamation took place in 1975 with Dalhousie Township joining the Township of Lavant, Dalhousie and North Sherbrooke. Most recently, Lavant, Dalhousie and North Sherbrooke Township amalgamated with Lanark Township and Lanark Village to become the Lanark Highlands in 1997.

## 2.3 Study Area History

Land registry records for Dalhousie Township indicate that the east half of Lot 5, Concession 10 was first granted to John Camfield in 1857. Camfield sold all but 8 and a half acres to Alexander Turnbull in 1859. William Forgue purchased the property in 1876. The property appears to have changed hands a couple additional times during the late 19<sup>th</sup> century but this portion of the land registry was largely illegible. John Duncan purchased the east half of Lot 5, Concession 10 for \$2,000 in 1928 and it has remained within the Duncan family throughout the 20<sup>th</sup> century.

The west half of Lot 5, Concession 10 was granted by the Crown in 1859 to someone whose name is illegible in the land registry records. The property was purchased by James Duncan in 1870 who appears to have owned the property until 1895. Duncan must have resided on the property well before the purchase recorded in the land registry records as Duncan's name appears on the 1963 Walling Map of Lanark County (Map 3). John Duncan also purchased the west half of the lot in 1928 where it has stayed in the family throughout the 20<sup>th</sup> century.

The 1863 Walling Map of Lanark County (Map 3) shows the locations of the Turnbull and Duncan farmsteads. The Turnbull farmstead is located on the east side of the property along the road while Duncan's farmstead is located immediately northwest of the Stage 2 study area. A. Turnbull is likely the Alexander Turnbull who occupied the east half of the lot between 1859 and 1876. Likewise, the J. Duncan whose farmstead is shown on the west side of the study area is probably James Duncan. Canada Census Records for 1861 list Alexander Turnbull as a 51 year old farmer from Scotland. He is listed as living with his wife Margaret (33) and their children Ellen (8), Alex (7) and Elizabeth (5) in a one storey log house. James Duncan is a 49 year old farmer born in Scotland living with his wife Joan (48) and their children Anne (18), Euphemia (15), Jane (12), and John (8). The family is listed as living in a one storey log house.

No structures are shown on the property in the 1880-1881 Belden Map of Dalhousie Township (Map 3). While Turnbull had sold his property by this time, Duncan still owned his property so his farmstead may still have been occupied.

## 3.0 ARCHAEOLOGICAL CONTEXT

### 3.1 Study Area Environment

The study area is located within the Algonquin Highlands physiographic region, a region spanning over 40,000 square km and characterized by rough terrain underlain by Precambrian rocks (Chapman and Putnam 1984: 213). Low lying areas are commonly swamps and bogs. Common trees include sugar maple, yellow birch, white pine, hemlock and balsam fir (Chapman and Putnam 1984: 213). Black spruce and white cedar grow in the swamplands.

The Stage 1 study area contains heavily undulating topography with much of the lower lying areas wet and swampy. Barbers Lake is situated to the east. Soils consist of Tweed and White Lake series soils (Map 4). The surficial geology consists of bedrock-drift complex in Precambrian terrain, coarse textured glaciolacustrine deposits, organic deposits, and ice-contact stratified deposits (Map 5).

### 3.2 Previous Archaeology

The MHSTCI's Archaeological Report Database was searched on January 15, 2021 for previous archaeological assessments completed within 50 m of the study area. This search reveals that the only archaeological assessment completed within 50 m is the previous Stage 1 and 2 archaeological assessment completed by Golder (2020) for the project. This Stage 1 and 2 archaeological assessment resulted in the identification of two archaeological sites which are described in Section 3.3 below. Golder conducted Stage 3 and 4 archaeological assessments for both sites under PIFs P1107-0029-2020, P1107-0030-3030, P1107-0032-2020, and P1107-0033-2020 (reporting in progress).

Archaeological assessments within Dalhousie Township have been few. The only other known archaeological assessments were all conducted for the McKinnon-Crain Pit located approximately 170 m north of the present Stage 1 and 2 study area. In 2006, Adams Heritage conducted a Stage 1 archaeological assessment for the east half of Lot 6, Concession 11 and southwest half of Lot 6 Concession 10 under PIF# P003-111-2006. The report was not available on the MHSTCI's report database, so the boundaries of the study area and recommendations made in the report are unknown. Kinickinick Heritage Consultants conducted the Stage 2 portion of the assessment under PIF# P039-097-2006. Again, information available on Kinickinick's assessment is limited but it appears to have identified two pre-contact archaeological sites which are described in Section 3.3 of this report. Kinickinick Heritage Consultants conducted a Stage 3 assessment of one of the two sites under PIF# P039-125-2007. The findings and recommendations of this assessment were not available.

### 3.3 Known Archaeological Sites

The primary source of information regarding known archaeological sites in the MHSTCI archaeological sites database. The database was consulted on January 15, 2021 which revealed five registered archaeological sites within 1 km of the Stage 1 study area. Four of these sites are located within 300 m of the study area.

The Turnbull Site (BfGd-8) and the Duncan Site (BfGd-9) are two mid-19<sup>th</sup> century sites identified during Golder's previous Stage 1 and 2 archaeological assessment for the project. The Turnbull Site was subject to Stage 3 archaeological assessment and subsequent Stage 4 mitigation through excavation and determined to be the remains of the Turnbull family homestead (reporting in progress). The site is fully mitigated and has no further cultural heritage value or interest.

The Duncan Site (BfGd-9), which is located within 50 m of present study area, was also subject to Stage 3 archaeological and Stage 4 mitigation through excavation (reporting in progress). It was determined to likely be a domestic refuse scatter dating to the mid-19<sup>th</sup> century occupation of the Duncan farmstead. The site is fully mitigated and has no further cultural heritage value or interest.

BfGd-3, BfGd-4 and BgGd-5 are pre-contact lithic scatters identified by Kinickinick Heritage Consultants in 2006, and are located approximately 200 m to the northwest of the study area. A report was not available on Past Portal, but the archaeological site database provides some information on the three sites. BfGd-3 is located approximately 200 m northwest of the study area and consisted of 31 artifacts interpreted by Kinickinick Heritage Consultants to date to 9,000 BP. The site was assessed through Stage 3 archaeological assessment under PIF# P039-125-2007.

The second site, BfGd-4, consisted of 41 artifacts interpreted by the Kinickinick Heritage Consultants to date to approximately 6,000 BP. It is located approximately 200 m northwest of the study area. The site is listed as disturbed and was not recommended for further archaeological investigation.

BfGd-5, located approximately 750 m northwest of the study area, consisted of 14 artifacts inferred to date to 9,000 BP. Kinickinick Heritage Consultants identified the site as disturbed and recommended no additional archaeological assessments.

### 3.4 Assessing Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. In accordance with the MHSTCI's 2011 *Standards and Guidelines for Consultant Archaeologists* the following are features or characteristics that indicate archaeological potential:

- Previously identified archaeological sites;
- Water sources:
  - Primary water sources (lakes, rivers, streams, creeks);
  - Secondary water sources (intermittent streams and creeks; springs; marshes; swamps);
  - Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised gravel, sand, or beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; and cobble beaches);
  - Accessible or inaccessible shoreline (e.g. high bluffs, swamps or marsh fields by the edge of a lake; sandbars stretching into marsh);
- Elevated topography (eskers, drumlins, large knolls, plateaux);
- Pockets of well drained sandy soil, especially near areas of heavy soil or rocky ground; Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases (there may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings);
- Resource areas including:
  - Food or medicinal plants;
  - Scarce raw minerals (e.g. quartz, copper, ochre or outcrops of chert);
  - Early Euro-Canadian industry (fur trade, mining, logging);



- Areas of Euro-Canadian settlement; and,
- Early historical transportation routes.

In recommending a Stage 2 property survey based on determining archaeological potential for a study area, the MHSTCI stipulates the following:

- No areas within 300 metres of a previously identified site; water sources; areas of early Euro-Canadian Settlement; or locations identified through local knowledge or informants can be recommended for exemption from further assessment;
- No areas within 100 metres of early transportation routes can be recommended for exemption from further assessment; and,
- No areas within the property containing an elevated topography; pockets of well-drained sandy soil; distinctive land formations; or resource areas can be recommended for exemption from further assessment.

### 3.5 Features Indicating Archaeological Potential has been Removed

Archaeological potential can be determined not to be present when the area has been subject to extensive and deep land alterations that severely damaged the integrity of any archaeological resources, including:

- Quarrying;
- Major landscaping involving grading below topsoil;
- Building footprints; and,
- Sewage and infrastructure development.

### 3.6 Potential for Archaeological Resources

The study area contains several features indicating the potential for archaeological resources. Highland Line, which borders the northern boundary, follows a road dating to before 1863 (Map 3) and is an early Euro-Canadian transportation route within Lanark County. Following Standard 1d of Section 1.4 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI 2011), archaeological assessment is required within 100 m of historical transportation routes.

Additional Euro-Canadian archaeological potential is present due to the two historical structures, Duncan and Turnbull's farmsteads, shown on the 1863 map (Map 3). Two registered archaeological sites are also located within 300 m, one of which is the remains of the aforementioned Turnbull farmstead. As per Standard 1c of Section 1.4 (MHSTCI 2011), archaeological assessment is required within 300 m of early Euro-Canadian settlement.

The potential for Indigenous archaeological resources is present due to the proximity to water sources (most notably Barbers Lake, but also several streams and low-lying wet areas within the study area), areas of elevated topography, and pockets of well-drained sandy soil. Archaeological assessment is required for all areas within 300 m of the water sources (Standard 1c of Section 1.4) and for the areas with elevated topography or well-drained sandy soil (Standard 1d of Section 1.4).

## 4.0 PROPERTY INSPECTION

A visual inspection of the study area was conducted by Randy Hahn, PhD (P1107) of Golder over three days on November 2, 6, and 20, 2020 under PIF P1107-0035-2020. The weather conditions for each day are summarized in Table 1. Permission to access the study area was provided by the client. The results of the visual inspection and the locations of photographs taken are shown in Map 6.

**Table 1: Weather during Property Inspection**

Date	Weather	High Temperature (Celsius)
November 2, 2020	Cloudy	1
November 6, 2020	Mostly Sunny	18
November 20, 2020	Cloudy	13

The study area consists of undulating terrain around agricultural fields. Low-lying areas such as around Barbers Lake are typically wetland or water saturated and can be classified as permanently wet (Images 1 to 5: 23-25). Conditions in these areas typically consists of spongy water saturated soil covered with moss and plants which grow in wet conditions.

Steep slopes lead up from the low-lying areas to higher ground (Images 6 to 9: 25-27). While the slopes typically measured greater than 20 degrees and therefore do not have archaeological potential, the higher areas contain archaeological potential (Images 10 to 12: 27-28). The areas along the agricultural fields that were not previously assessed also retain archaeological potential (Image 13: 29)

In the southwest corner of the study area is a relatively flat area (Images 14 and 15: 29-30). This area was likely associated with the Duncan Farmstead shown on the 1863 map (Map 3) and retains archaeological potential.

Portions of the study area have been impacted by modern development or construction, including the gravel road along Anderson's Lane (Images 16: 30).

## 5.0 SUMMARY AND CONCLUSIONS

Portions of the study area require archaeological assessment prior to development impacts due to the presence of a number of features indicating archaeological potential including proximity to water sources, historical transportation routes and areas of early Euro-Canadian settlement. Four registered archaeological sites are also located within 300 m of the study area. The site inspection identified that portions of the study area do not have archaeological potential due to sloped, disturbed, or permanently wet areas, but archaeological potential remains for the portions of the study area shown on Map 6.

## 6.0 RECOMMENDATIONS

The Stage 1 archaeological assessment has provided the basis for the following recommendations:

- 1) Portions of the study area with archaeological potential, as shown on Map 6, require Stage 2 archaeological assessment prior to development impacts.
- 2) Portions of the study area determined to not have archaeological potential, as show on Map 6, do not require further archaeological assessment.
- 3) Should landscape disturbance extend beyond the present Stage 1 study area, additional archaeological assessment may be required.

This report is submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c. 0.18. The report is reviewed to ensure that the licensed consultant archaeologist has met the terms and conditions of their archaeological license, and that the archaeological field work and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

## 7.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism, Culture and Sport, as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the ministry stating that there are no further concerns with regard to alterations to archaeological sites by the proposed development.

It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ontario Ministry of Consumer Services is also immediately notified.

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

## 8.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by Thomas Cavanagh Construction Limited (the Client). The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges the electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Heritage, Sport, Tourism and Culture Industries' *Standards and Guidelines for Consultant Archaeologists* (2011).

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## 10.0 IMAGES



Image 1: Permanently wet area in the northeast corner of the study area, view southeast.



Image 2: View southeast of permanently wet area near Barber's Lake.



Image 3: Close up of water saturated soil near Barber's Lake, view southeast.



Image 4: Permanently wet area in the southwest portion of the study area, view south.



Image 5: Low-lying water saturated area on the west side of the study area, view northeast.



Image 6: Slope located on the east side of the study area, view east.



Image 7: Slope located east of Anderson Lane, view south.



Image 8: Slope measuring greater than 20 degrees, view southwest.





Image 9: Slope leading down to agricultural fields, view northeast.



Image 10: Relatively flat area with rocky terrain, view northeast. Soil appears relatively shallow, but the area retains archaeological potential.



Image 11: Area with archaeological potential, view southwest.



Image 12: Relatively flat area above sloping terrain, view northeast.



Image 13: Area located along the lot boundary, view southwest.



Image 14: View southeast showing relatively flat area in the vicinity of where the Duncan Farmstead is thought to have been located.

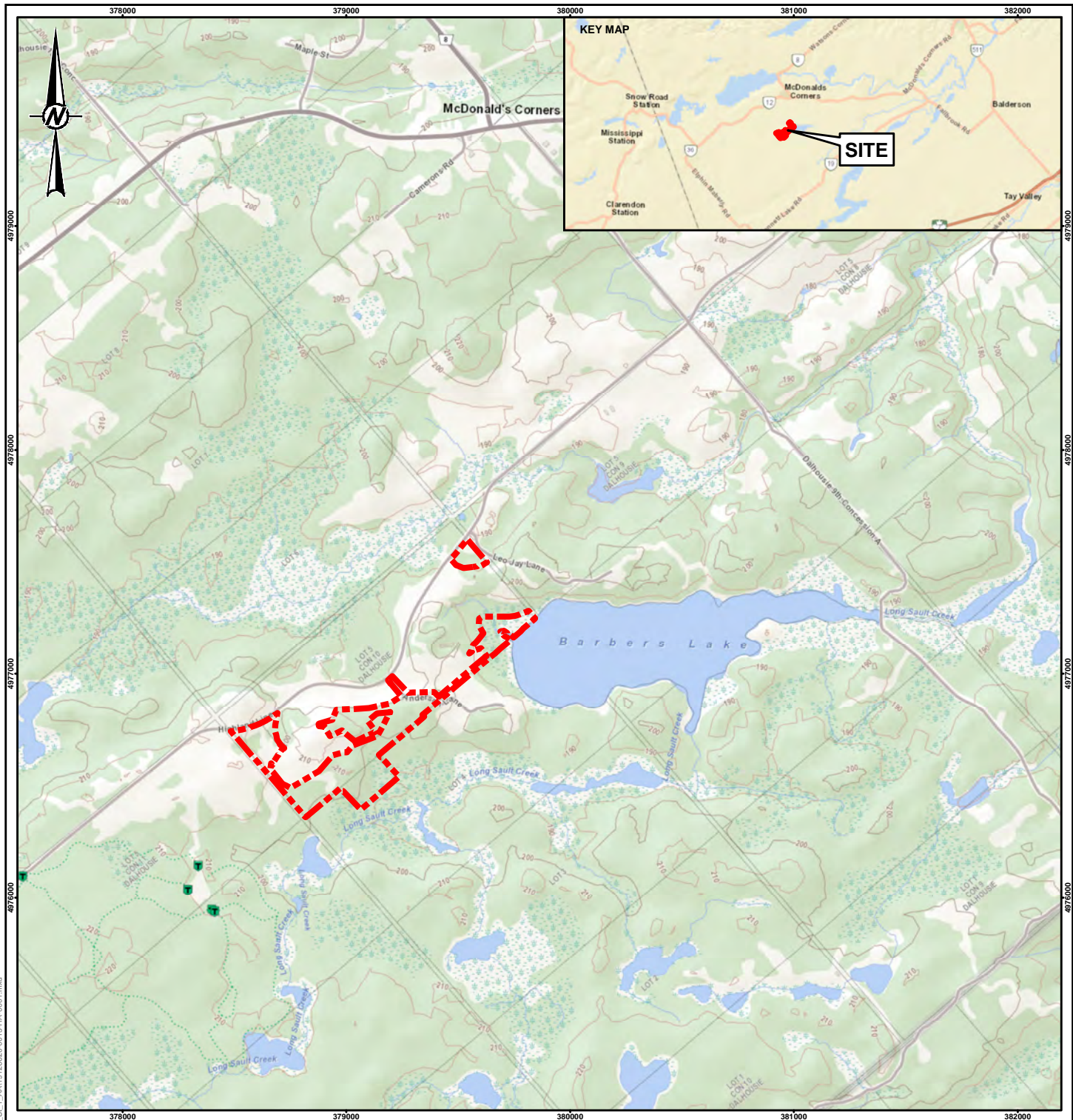


Image 15: Relatively flat area located near the western corner of the study area, view north.




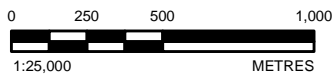
Image 16: Gravel road along Anderson Lane, view northeast.

## 11.0 MAPS



**LEGEND**

 STUDY AREA



**NOTE(S)**  
1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
1. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY  
2. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83  
COORDINATE SYSTEM: UTM ZONE 18 VERTICAL DATUM: CGVD28



CLIENT  
**THOMAS CAVANAGH CONSTRUCTION LIMITED**

PROJECT  
**STAGE 1 ARCHAEOLOGICAL ASSESSMENT HIGHLAND LINE PIT, PART OF LOT 5, CONCESSION 10, DALHOUSIE TOWNSHIP, LANARK COUNTY, ONTARIO**

TITLE  
**KEY PLAN**

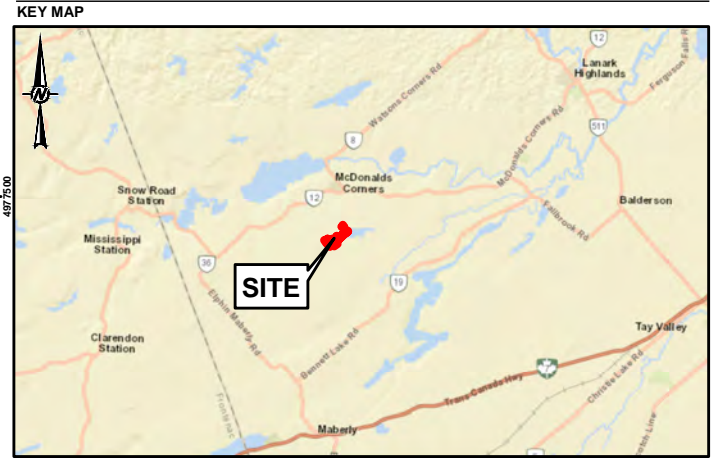
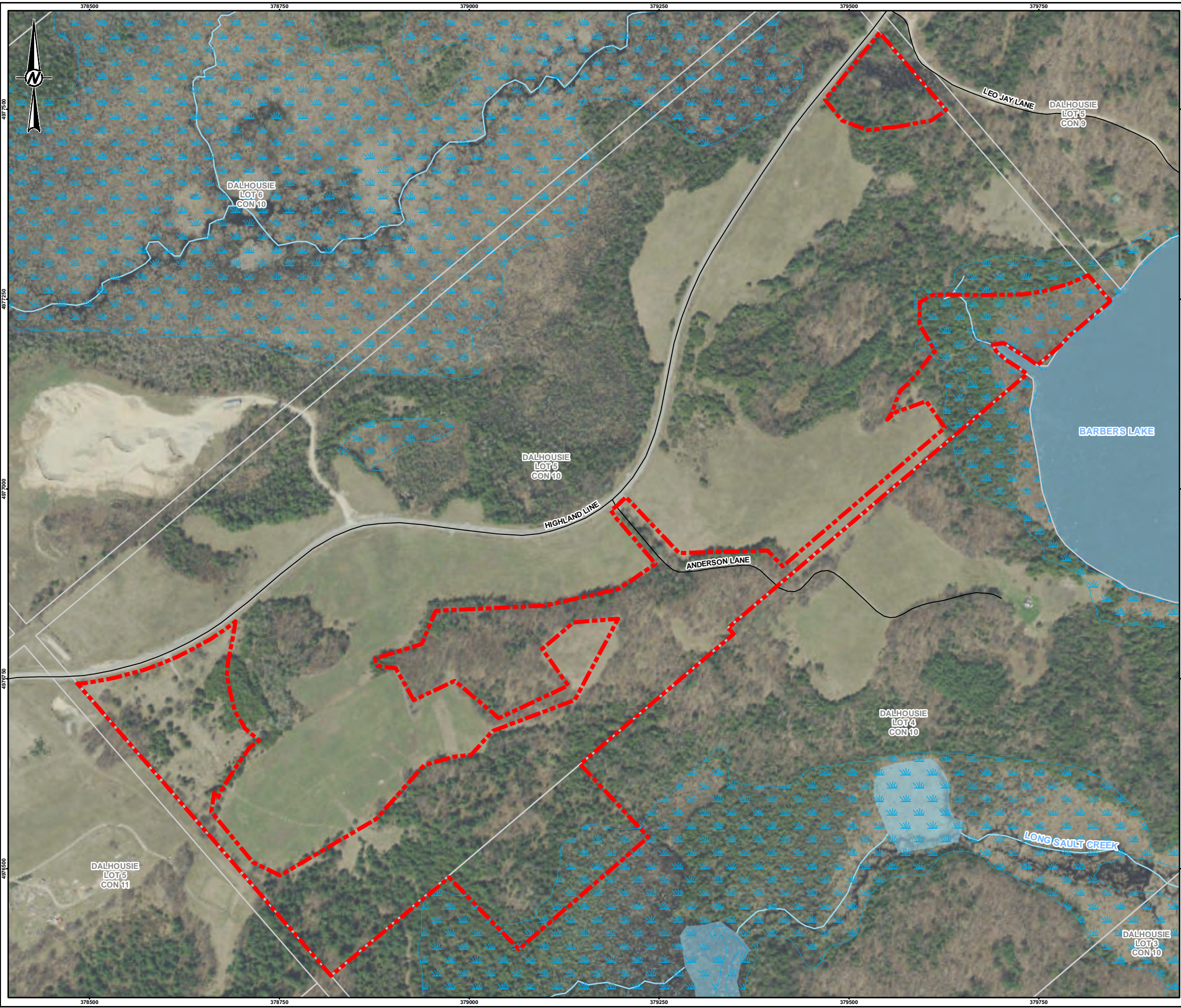
CONSULTANT	YYYY-MM-DD	2021-04-14
	DESIGNED	----
	PREPARED	BR
	REVIEWED	RH
	APPROVED	MT

PROJECT NO. 19126620	CONTROL 0013	REV. 0	MAP <b>1</b>
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: 25mm



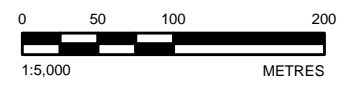
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**LEGEND**

- STUDY AREA
- ROADWAY
- WATERCOURSE
- WETLAND
- WATERBODY
- LOT / CONCESSION FABRIC

**NOTE(S)**  
1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
1. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2014  
2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



CLIENT  
**THOMAS CAVANAGH CONSTRUCTION LIMITED**

PROJECT  
**STAGE 1 ARCHAEOLOGICAL ASSESSMENT HIGHLAND LINE PIT, PART OF LOT 5, CONCESSION 10, DALHOUSIE TOWNSHIP, LANARK COUNTY, ONTARIO**

TITLE  
**SITE PLAN**

CONSULTANT	DATE	REVISION
	YYYY-MM-DD	2021-04-14
	DESIGNED	---
	PREPARED	BR
	REVIEWED	RH
	APPROVED	MT

PROJECT NO. 19126620 CONTROL 0013 REV. 0 MAP **2**

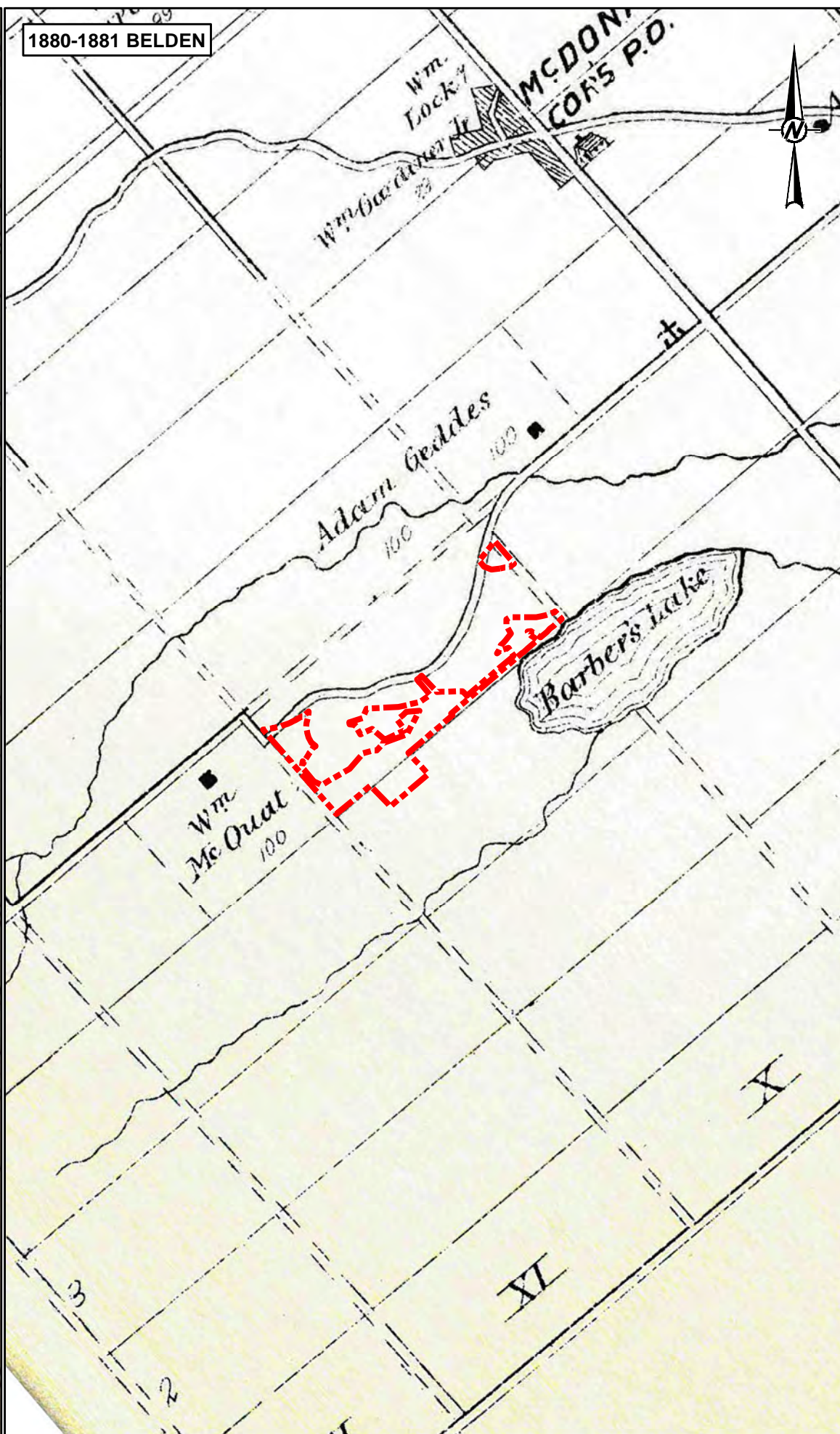
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1863 WALLING



1880-1881 BELDEN

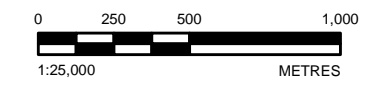


SCALE 1:425,000

**LEGEND**  
 STUDY AREA

**NOTE(S)**  
 1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
 1. H. F. WALLING 1863 MAP OF THE COUNTIES OF LANARK AND RENFREW CANADA WEST  
 2. H. BELDEN & CO. 1880-1881 ILLUSTRATED HISTORICAL ATLAS OF LANARK & RENFREW COUNTIES  
 3. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



**CLIENT**  
 THOMAS CAVANAGH CONSTRUCTION LIMITED

**PROJECT**  
 STAGE 1 ARCHAEOLOGICAL ASSESSMENT HIGHLAND LINE PIT, PART OF LOT 5, CONCESSION 10, DALHOUSIE TOWNSHIP, LANARK COUNTY, ONTARIO

**TITLE**  
 HISTORIC MAPS

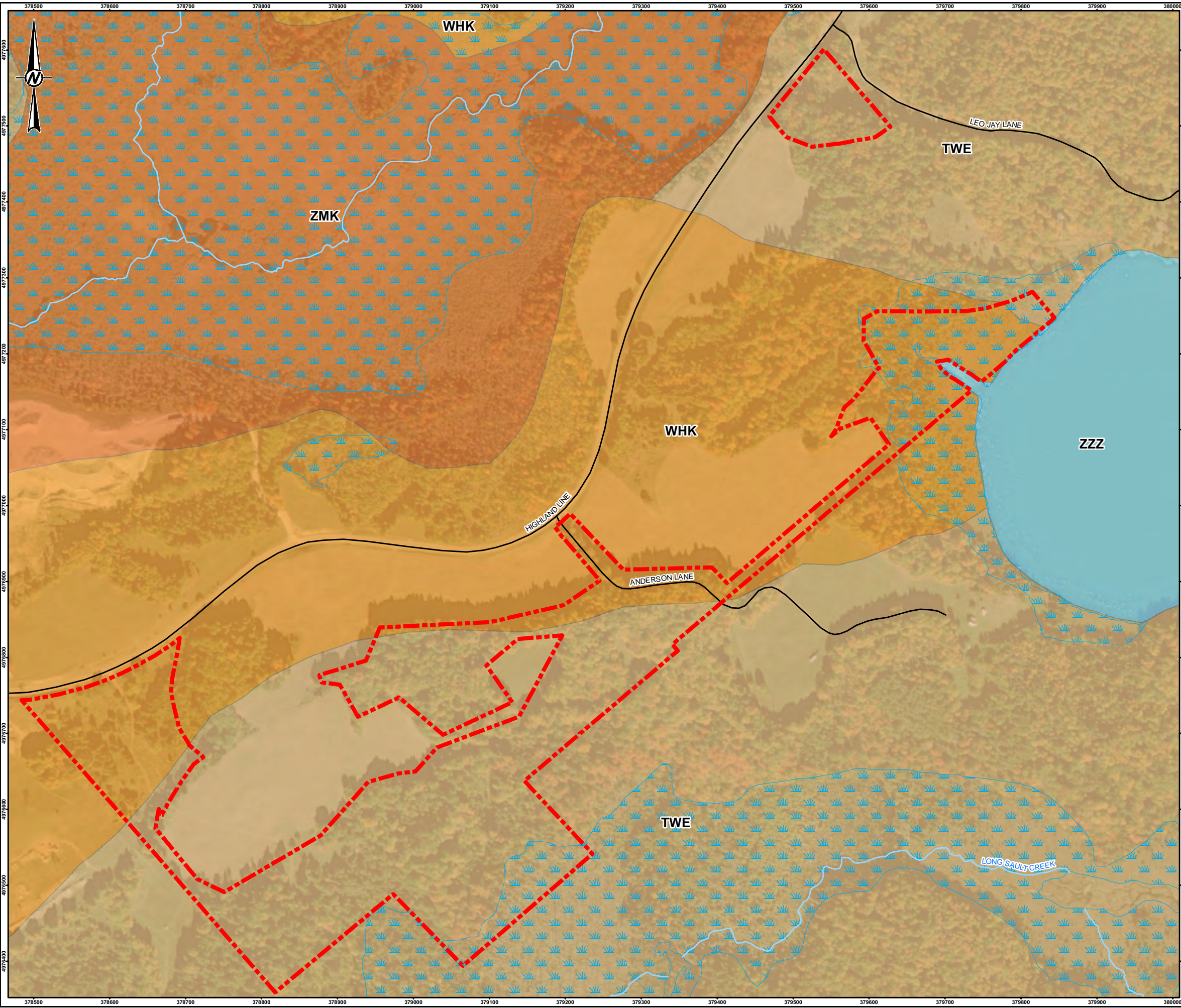
CONSULTANT	YYYY-MM-DD	2021-04-14
DESIGNED	---	
PREPARED	BR	
REVIEWED	RH	
APPROVED	MT	

PROJECT NO. 19126620 CONTROL 0013 REV. 0 MAP **3**

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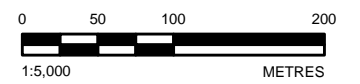


SCALE 1:425,000

- LEGEND**
- STUDY AREA
  - ROADWAY
  - WATERCOURSE
  - WETLAND
- SOIL SURVEY COMPLEX**
- TWE, TWEED
  - WHK, WHITE LAKE
  - ZMK, MUCK
  - ZZZ, WATER

**NOTE(S)**  
1. ALL LOCATIONS ARE APPROXIMATE

- REFERENCE(S)**
1. SOIL SURVEY COMPLEX, ONTARIO MINISTRY OF AGRICULTURE, FOOD AND RURAL AFFAIRS.
  2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEENS PRINTER 2020
  3. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGIRD, IGN, AND THE GIS USER COMMUNITY SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
  4. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



**CLIENT**  
THOMAS CAVANAGH CONSTRUCTION LIMITED

**PROJECT**  
STAGE 1 ARCHAEOLOGICAL ASSESSMENT HIGHLAND LINE PIT,  
PART OF LOT 5, CONCESSION 10, DALHOUSIE TOWNSHIP,  
LANARK COUNTY, ONTARIO

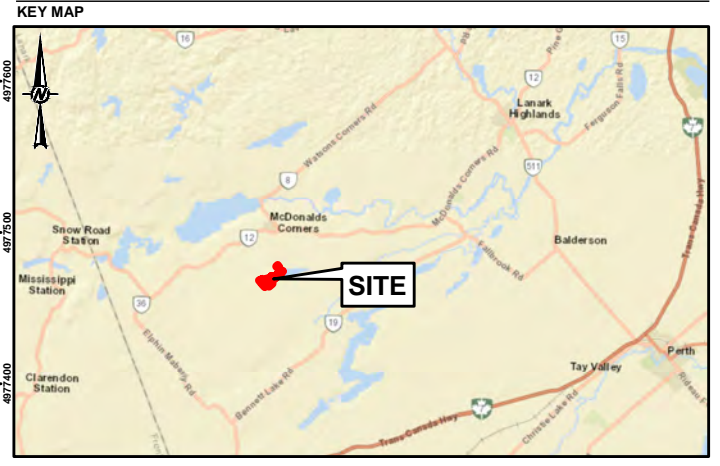
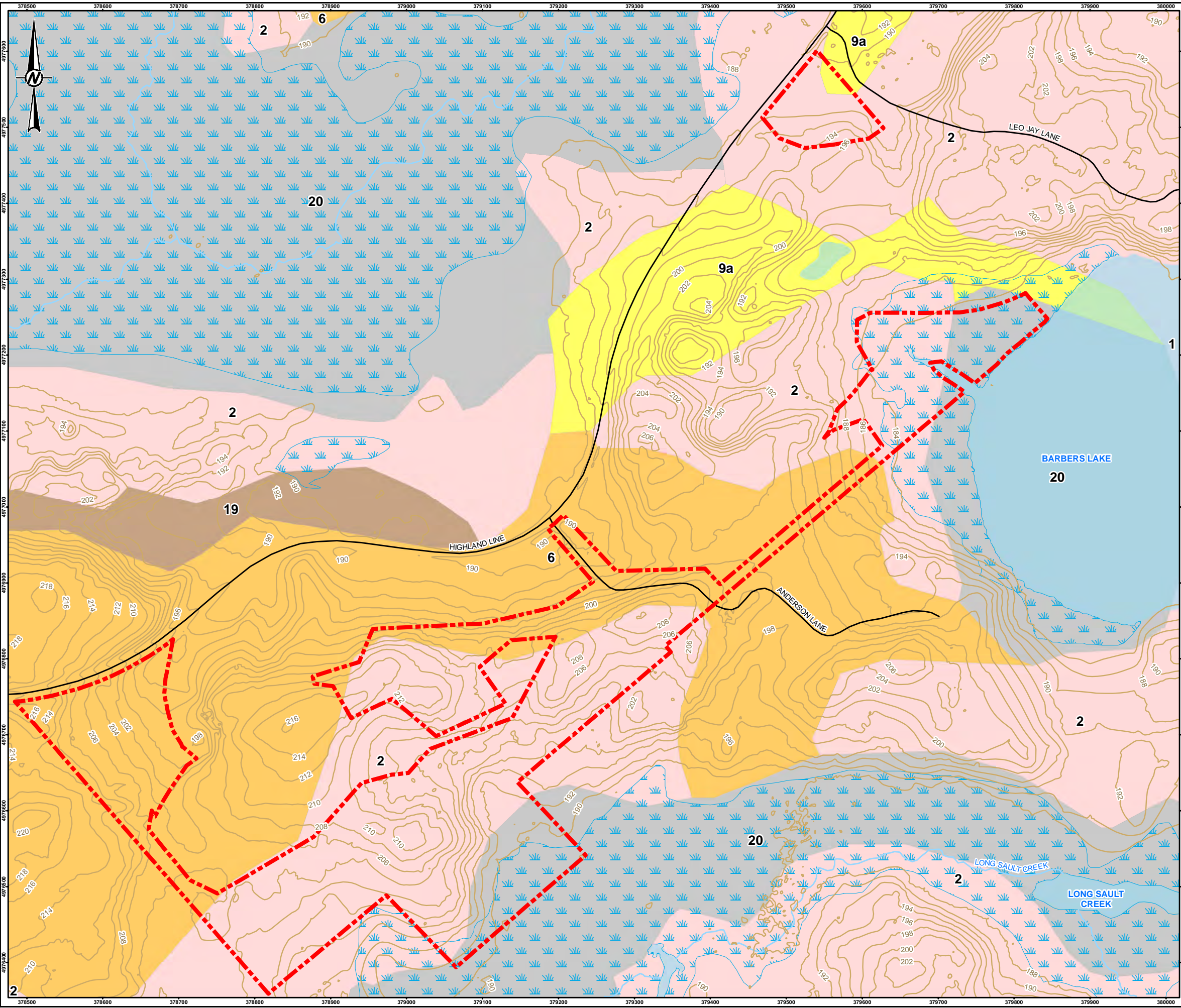
**TITLE**  
SOIL SURVEY COMPLEX

CONSULTANT	YYYY-MM-DD	2021-04-14
	DESIGNED	---
	PREPARED	BR
	REVIEWED	RH
	APPROVED	MT

PROJECT NO. 19126620 CONTROL 0013 REV. 0 MAP 4

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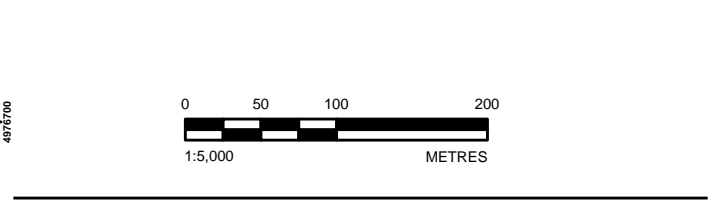
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- LEGEND**
- STUDY AREA
  - ROADWAY
  - TOPOGRAPHIC CONTOUR, METRES
  - WATERCOURSE
  - WATERBODY
  - WETLAND
- OGS SURFICIAL GEOLOGY**
- 1. PRECAMBRIAN BEDROCK
  - 2. BEDROCK-DRIFT COMPLEX IN PRECAMBRIAN TERRAIN:
  - 6. ICE-CONTACT STRATIFIED DEPOSITS: SAND AND GRAVEL MINOR, SILT, CLAY AND TILL
  - 9a. COARSE-TEXTURED GLACIOLACUSTRINE DEPOSITS: SAND, GRAVEL, MINOR SILT AND CLAY; DELTAIC DEPOSITS
  - 19. MODERN ALLUVIAL DEPOSITS: DAY, SILT, SAND, GRAVEL, MAY CONTAIN ORGANIC REMAINS
  - 20. ORGANIC DEPOSITS: PEAT, MUCK, MARL

**NOTE(S)**  
1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
1. ONTARIO GEOLOGICAL SURVEY 2010. SURFICIAL GEOLOGY OF SOUTHERN ONTARIO; ONTARIO GEOLOGICAL SURVEY, MISCELLANEOUS RELEASE-DATA 128-REV  
2. LAND INFORMATION ONTARIO (LIO) DATA PRODUCED BY GOLDER ASSOCIATES LTD. UNDER LICENCE FROM ONTARIO MINISTRY OF NATURAL RESOURCES, © QUEEN'S PRINTER 2020  
3. SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, USGS, INTERMAP, INCREMENT P, NRCAN, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), ESRI KOREA, ESRI (THAILAND), NGCC, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY  
4. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83,  
COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



**CLIENT**  
THOMAS CAVANAGH CONSTRUCTION LIMITED

**PROJECT**  
STAGE 1 ARCHAEOLOGICAL ASSESSMENT HIGHLAND LINE PIT,  
PART OF LOT 5, CONCESSION 10, DALHOUSIE TOWNSHIP,  
LANARK COUNTY, ONTARIO

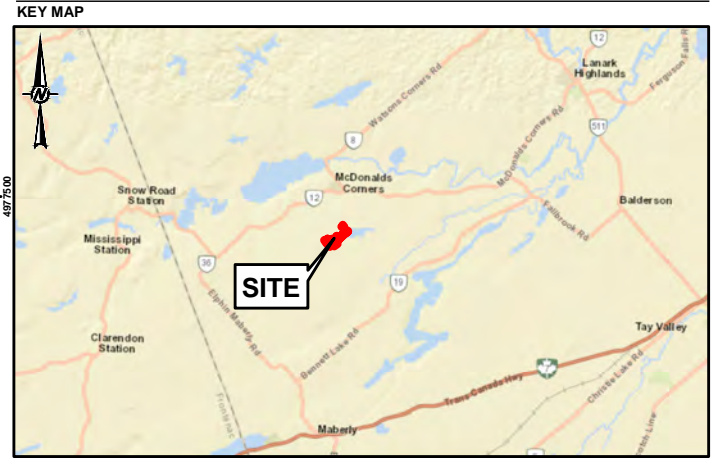
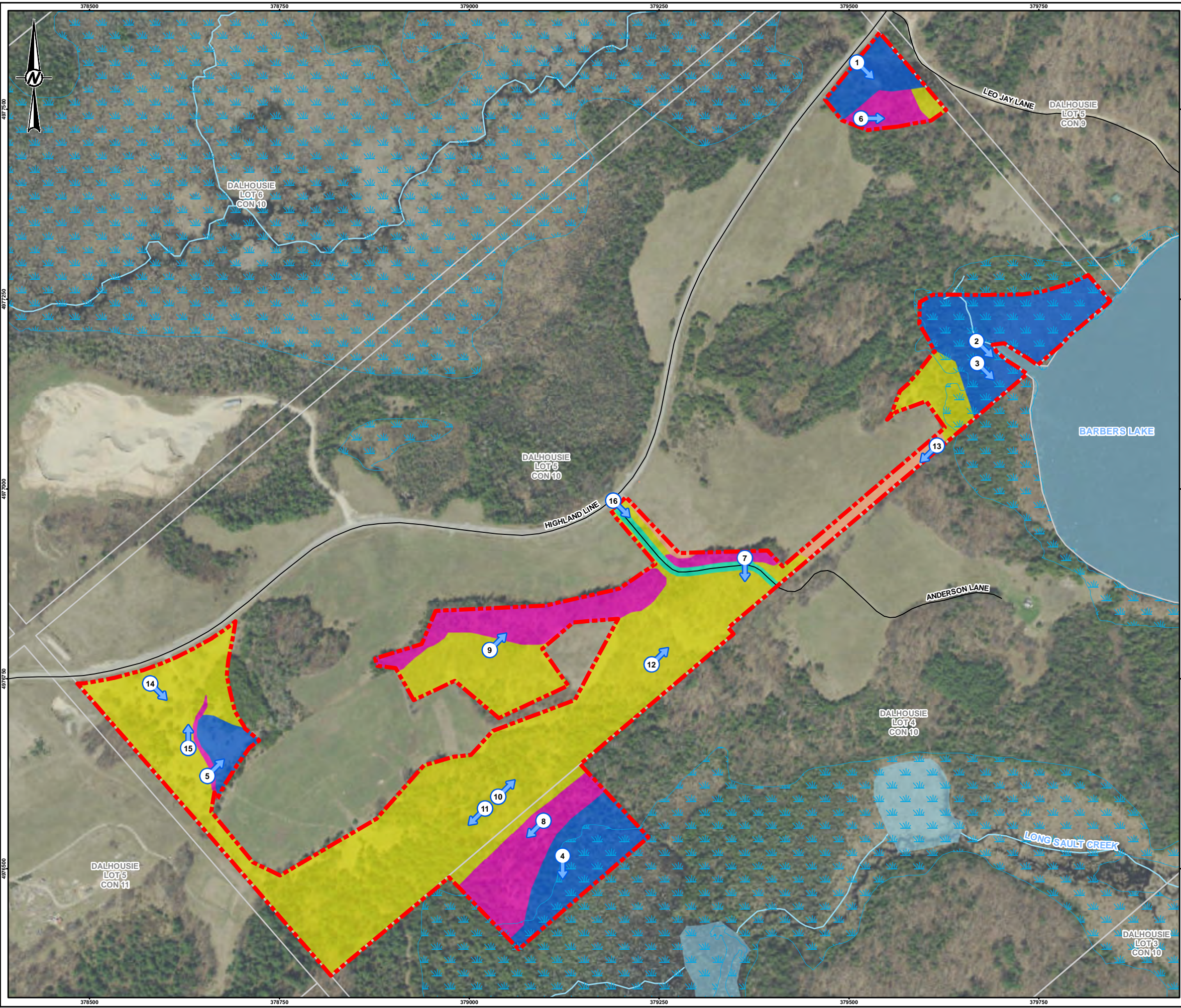
**TITLE**  
SURFICIAL GEOLOGY

CONSULTANT	YYYY-MM-DD	2021-04-14
DESIGNED	---	
PREPARED	BR	
REVIEWED	RH	
APPROVED	MT	

PROJECT NO. 19126620 CONTROL 0013 REV. 0 MAP 5

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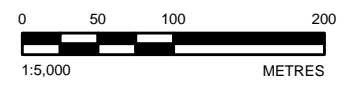


SCALE 1:425,000

- LEGEND**
- PHOTO LOCATION AND DIRECTION
  - STUDY AREA
  - ROADWAY
  - WATERCOURSE
  - WETLAND
  - WATERBODY
  - LOT/CONCESSION FABRIC
  - ARCHAEOLOGICAL POTENTIAL - STAGE 2 PEDESTRIAN SURVEY REQUIRED
  - ARCHAEOLOGICAL POTENTIAL - STAGE 2 TEST PIT SURVEY REQUIRED
  - DISTURBED - NO FURTHER ARCHAEOLOGY
  - SLOPE (>20 DEGREES) - NO FURTHER ARCHAEOLOGY
  - WET - NO FURTHER ARCHAEOLOGY

**NOTE(S)**  
1. ALL LOCATIONS ARE APPROXIMATE

**REFERENCE(S)**  
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2. PROJECTION: TRANSVERSE MERCATOR, DATUM: NAD 83, COORDINATE SYSTEM: UTM ZONE 18, VERTICAL DATUM: CGVD28



CLIENT  
THOMAS CAVANAGH CONSTRUCTION LIMITED

PROJECT  
STAGE 1 ARCHAEOLOGICAL ASSESSMENT HIGHLAND LINE PIT, PART OF LOT 5, CONCESSION 10, DALHOUSIE TOWNSHIP, LANARK COUNTY, ONTARIO

TITLE  
**STAGE 1 RESULTS, RECOMMENDATIONS AND PHOTO LOCATIONS**

CONSULTANT	YYYY-MM-DD	2021-04-14
DESIGNED	----	
PREPARED	BR	
REVIEWED	RH	
APPROVED	MT	

PROJECT NO. 19126620 CONTROL 0013 REV. 0 MAP 6

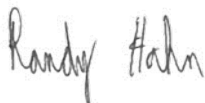
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## Signature Page

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

### **Golder Associates Ltd.**



Randy Hahn, Ph.D.  
*Archaeologist*



Michael Teal, M.A.  
*Associate, Senior Archaeologist*

RH/MT/ca

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