



Stage 1 Archaeological Assessment

5868 County Road 65
Part of Lot 27, Concession 5
Geographic Township of Hope
Municipality of Port Hope
County of Northumberland

Prepared for:
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PIF: P321-0434-2022
Original Report



Earthworks
ARCHAEOLOGICAL SERVICES INC.

Earthworks Archaeological Services Inc.
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December 5, 2022

Executive Summary

Earthworks Archaeological Services Inc. was retained to conduct a Stage 1 archaeological assessment of a 25.21 hectare property located at 5868 County Road 65, part of Lot 27, Concession 5, Geographic Township of Hope, Municipality of Port Hope, County of Northumberland, Ontario. The assessment is undertaken as part of an application for a zoning by-law amendment/plan of subdivision and is being conducted as part of the requirements defined in Section C11.2.3 of the *Municipality of Port Hope Official Plan*, which states that where an area is identified as having archaeological potential, there requires preparations and undertaking of an archaeological assessment, by archaeologist licensed under the Ontario Heritage Act.

Section 1.3 of the *Standards & Guidelines for Consultant Archaeologists* details a list of features that indicate archaeological potential when making an evaluation for developing recommendations. As documented in Section 1.0 of this report, there are features documented during background research that indicate archaeological potential. These include:

- Location of a tributary of the Ganaraska River located within the boundaries of the study area
- Location of the study area at the border of County Road 65, a historically documented transportation route.
- The location of a historically mapped homestead within the boundaries of the study area.

As a result of the identification of these features, it is determined that the study area contains archaeological potential, and a Stage 2 archaeological assessment is recommended.

A portion of the study area is actively or recently cultivated land that is accessible to ploughing and shall be subject to a Stage 2 pedestrian survey. These lands shall be ploughed and must be weathered by one heavy rainfall or several light rains to improve the visibility of archaeological resources. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing. At least 80% of the ploughed ground surface must be visible. Survey transects shall be spaced at maximum intervals of 5 metres. If archaeological resources are found, survey transects shall be reduced to 1 metre survey intervals over a minimum 20 metre radius around the find to determine whether it is an isolated find or part of a larger scatter. This intensified survey method shall be continued outward until the full extent of any surface scatters are defined. All formal artifact types and diagnostic categories shall be collected.

For any portion of the study area that cannot be ploughed, a test pit survey shall be required. Test pits shall be spaced at maximum intervals of five metres apart, and to within a metre of standing structures. Each test pit shall be excavated by hand to 30 centimetres in diameter, and excavated into the first 5 centimetres of subsoil. Each test pit shall be examined for stratigraphy, cultural features, or evidence of fill, and all soil shall be screened through wire mesh of no



greater than six millimetre width. Any identified artifacts shall be collected according to their associated test pit. All test pits shall be backfilled.

The MHSTCI is requested to review this report and provide a letter indicating their satisfaction that the fieldwork and reporting for this archaeological assessment are consistent with the Ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences, and to enter this report into the Ontario Public Register of Archaeological Reports.



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Project Personnel

Managing Director:	Anthony Butler, M.Sc. (P310)
Licensed Archaeologist:	Shane McCartney, M.A. (P321)
Report Production:	Shane McCartney, M.A. (P321)



1.0 Project Context

1.1 Development Context

Earthworks Archaeological Services Inc. (Earthworks) was retained to conduct a Stage 1 archaeological assessment of a 25.21 hectare property located at 5868 County Road 65, part of Lot 27, Concession 5, Geographic Township of Hope, Municipality of Port Hope, County of Northumberland, Ontario (Map 1). The assessment is undertaken as part of an application for a zoning by-law amendment/plan of subdivision and is being conducted as part of the requirements defined in Section C11.2.3 of the *Municipality of Port Hope Official Plan*, which states that where an area is identified as having archaeological potential, there requires preparations and undertaking of an archaeological assessment, by archaeologist licensed under the Ontario Heritage Act (Municipality of Port Hope 2017:57).

The objectives of the Stage 1 & 2 archaeological assessment, as outlined by the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), are as follows:

- To provide information about the property's geography, history, previous archaeological fieldwork and current land condition
- To evaluate the property's archaeological potential.
- To document archaeological resources located on the property
- To determine whether any identified archaeological resources require further assessment
- To recommend Stage 3 assessment strategies for any archaeological sites determined to require additional assessment.

As part of this assessment, background research was conducted in Earthworks corporate library, the OnLand Registry Database, and the Federal Canadian Census located online at Library and Archives Canada.

Permission to access the property was provided by the proponent.

1.2 Historic Context

1.2.1 Pre-Contact Indigenous History

Table 1 provides a breakdown of the general culture history of southern Ontario, as based on Ellis and Ferris (1990).

Table 1: Summary of Pre-Contact Indigenous Culture History of Southern Ontario

Culture Period	Diagnostic Artifacts	Time Span (Years B.P.)	Detail
Early Paleo-Indian	Fluted Projectile Points	11,000-10,400	Nomadic caribou hunters
Late Paleo-Indian	Hi-Lo, Holcombe, Plano Projectile Points	10,400-10,000	Gradual population increase
Early Archaic	Nettling and Bifurcate Points	10,000-8,000	More localized tool sources
Middle Archaic	Brewerton and Stanly-Neville Projectile Points	8,000-4,500	Re-purposed projectile points and greater amount of endscrapers
Narrow Point Late Archaic	Lamoka and Normanskill Projectile Points	4,000-3,800	Larger site size
Broad Point Late Archaic	Genessee, Adder Orchard Projectile Points	3,800-3,500	Large bifacial tools. First evidence of houses
Small Point Late Archaic	Crawford Knoll, Innes Projectile Points	3,500-3,100	Bow and Arrow Introduction
Terminal Archaic	Hind Projectile Points	3,100-2,950	First evidence of cemeteries
Early Woodland	Meadowood Points, Cache Blades, and pop-eyed birdstones	2,950-2,400	First evidence of Vinette I Pottery
Middle Woodland	Pseudo-scallop shell	2,450-1550	Burial Mounds
	Princess Point pottery	1550-1100	First evidence of corn horticulture
Late Woodland	Levanna Point	1,100-700	Early longhouses
	Saugeen Projectile Points	700-600	Agricultural villages
	Nanticoke Notched Points	600-450	Migrating villages, tribal warfare



1.2.2 Oral History

The following is an excerpt from a collated oral history of the region, as recounted by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation and provided to Earthworks by Dr. Julie Kapyrka of Curve Lake First Nation:

The traditional homelands of the Michi Saagiig (Mississauga Anishinaabeg) encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as “the people of the big river mouths” and were also known as the “Salmon People” who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the “Peacekeepers” among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the “Old Ones” who spoke an ancient Algonquian dialect. The histories explain that the current Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies



would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Gitiga Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all nations involved that this area of Ontario were the homeland territories of the Michi Saagiig.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear.

Michi Saagiig Elder Gitiga Migizi (2017) recounts:

“We weren’t affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.

There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.

We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.

1.2.3 Post Contact History

Early accounts by European explorers suggest the study area was considered part of a loosely defined hunting territory associated with the Huron Confederacy (Trigger 1994). Contemporary oral histories indicate region was shared with the Huron by Anishinaabeg people who oversaw



the territory through the Odawa-led Three Fires Confederacy (Williams 2018:36-37). European influence in the region was generally restricted to the beaver pelt trade, and Indigenous groups practiced a way of life that did not differ significantly from the Pre-Contact period. By the 1640's, the increasing scarcity of beaver pelts prompted the invasion of Huronia by the League of Five Nations Iroquois, and by 1649 five Huron villages were destroyed and the remainder abandoned, resulting in the complete disintegration of the Huron Confederacy and the migration of their members into the Petun, Neutral and other groups (Stone and Chaput 1978). The Michi Saagiig retreated to the upper Great Lakes region during this period until the outbreaks of disease and violence subsided (Williams 2018:41). The study area became part of a virtually unpopulated hunting territory for the succeeding fifty years, while the Iroquois established a series of villages along the north shore of Lake Ontario to take advantage of trade with Europeans (Robinson 1933). The Michi Saagiig returned to the region at then end of the seventeenth century, forcing the Iroquois to retreat to New York State following a short period of warfare (Williams 2018:42-44).

Following their defeat of the French at the Battle of the Plains of Abraham in 1759, the British began purchasing large tracts of land in Ontario through treaties with the Indigenous communities in the region. The Royal Proclamation of 1763 asserted British sovereignty over the region while declaring the land to be in possession of the Indigenous people who occupied it while establishing the policies for Crown purchase of these lands (Surtees 1994:93). These purchasing efforts were intensified following the conclusion of the American Revolutionary War in 1783 and the War of 1812 in 1814, which saw successive waves of migration of United Empire Loyalists and British settlers into Upper Canada. The current study area forms part of Treaty 20, also known as the Rice Lake Purchase, which ceded possession of nearly one million hectares of land from the Rice Lake Mississauga at Smith's Creek to the British Government in 1818 (Surtees 1994:113).

The study area is located in the historic Hope Township, which saw European fur traders arrive as early as 1778 to trade with the Chippewa at the village of Cochingomink. The first permanent settler was named Myndert Harris, a United Empire Loyalist who arrived at the site of present day Port Hope in 1792 (Belden & Co. 1878:iv). The first grist mill was established in 1798, and the village plot for Port Hope was laid out at approximately the same time. Early settlement radiated slowly from this central community, and early economic activity focussed on subsistence agriculture and limited trade with the United States (Richardson 1944). After the Rebellion of 1837, a large influx of settlers arrived along the north shore of Lake Ontario, and the township increased in population to 6,900 people by 1851. Port Hope became a large regional industrial centre that focussed on lumber and agricultural export, which increased further with the construction of the railroad through the region in 1852. A steady decline in the area followed the collapse of the lumber industry in the 1880s and the abandonment of low productivity farms in the northern half of the township. The study area is located near present day Osaca, an unincorporated village that was first settled in the 1820s and 30s by pioneer families that has not significantly changed to the present day. In 2001, the township was amalgamated with the town of Port hope to form part of the Municipality of Port Hope, itself part of the upper tier County of Northumberland.



1.2.4 Land Use History of Study Area

The study area is located in the historic Lot 27, Concession 5, which land registry records document as having been granted to David Scott in 1802. However, the next entry records a Benjamin Marsh selling the 200 acre lot to Samuel Marsh in 1808. William Marsh sold the property to Elizabeth Beard in 1832, who sold it to James Elliott in 1852. The 1861 Tremaine Map of Durham County (Map 2, Tile 1) lists a J. Elliott as the owner. Mr. Elliott is listed as a 55 year old English farmer residing in a 1.5 storey frame house in the 1861 Federal Census, having cleared (Government of Canada 1861:58). No entries are recorded for the property in the mid nineteenth century agricultural censuses, indicating the property was likely unused. Mr. Elliott subsequently willed the property to his son Joshua in 1863, who is depicted as the owner of the property in the 1878 *Illustrated Historical Atlas of the County of Durham* (Map 2, Tile 2). The study area remained in possession of the Elliott family until 1910, when it was sold to Thomas Moore. The area has remained as a combination of agricultural land and woodlot throughout the twentieth century (Map 3).

1.2.5 Historic Plaques

As per Section 1, Standard 1.1 of the *Standards and Guidelines for Consultant Archaeologists*, Earthworks consulted local historical plaques in order to inform archaeological potential and assessment strategies. No local plaques were found which related to the history of the current study area.

1.3 Archaeological Context

1.3.1 Current Conditions

The study area consists of an agricultural field and associated farm complex backed by a mature wetland.

1.3.2 Natural Environment

The study area is situated within a sand plain (Map 4) the Iroquois Plain physiographic region (Chapman and Putnam 1984: 172-174). which is a sloping plateau from the Lake Iroquois bluff to the Lake Ontario shoreline. The glacier that once covered the area laid down several deposits of glacial till (a poorly sorted sediment of silt/sand/clay with boulder/gravel inclusions). These deposits were eventually covered by silt and clay. As the glacier retreated, the area was filled with meltwater, creating glacial Lake Iroquois around 12500 years ago (Chapman & Putnam 1984:190).



The surficial geology consists of a mixture of gravel, sand, silt and clay (Map 5). The soil within the study area consists of Brighton Sand (Map 6), a light grey-brown sand and yellow sand over a layer of coarse calcareous sand, excessively drained, resulting in stone free, but is low in fertility (Webber and Morwick 1946:39).

The nearest potable water source is a tributary of Ganaraska River running through the northern boundary of the study area. The Ganaraska River drains into Lake Ontario approximately 13.2 kilometres to the southwest.

The study area is situated in the Oshawa-Cobourg District of the Lake Simcoe-Rideau Ecoregion, which itself is part of the Mixedwood Plains Ecozone. This region encompasses 6,311,957 hectares, and contains a diverse array of flora and fauna. It is characterized by hardwood forests dominated by sugar maple, American beech, white ash, eastern hemlock, and numerous other species are found where substrates are well developed on upland sites. Lowlands, including rich floodplain forests, contain green ash, silver maple, red maple, eastern white cedar, yellow birch, balsam fir, and black ash. Peatlands (some quite large) occur along the northern edge and in the eastern portion of the ecoregion, and these contain fens, and rarely bogs, with black spruce and tamarack

Characteristic mammals include white-tailed deer, Northern raccoon, striped skunk, and woodchuck. Wetland habitats are used by many species of water birds and shorebirds, including wood duck, great blue heron, and Wilson's snipe. Open upland habitats are used by species such as field sparrow, grasshopper sparrow, and eastern meadowlark. Upland forests support populations of species such as hairy woodpecker, wood thrush, scarlet tanager, and rose-breasted grosbeak. Reptiles and amphibians found in this ecosystem include American bullfrog, northern leopard frog, spring peeper, red-spotted newt, snapping turtle, eastern gartersnake, and common watersnake. Characteristic fish species in the ecoregion include the white sucker, smallmouth bass, walleye, northern pike, yellow perch, rainbow darter, emerald shiner, and pearl dace.

(Crins et al. 2009:48-49)

1.3.3 Known Archaeological Sites

A search of registered archaeological sites within the MHSTCI Archaeological Sites Database was conducted. The Beckmann (BaGo-24) site, a Pre-Contact Indigenous findspot, is located within one kilometre of the study area.



1.3.4 Adjacent Archaeological Assessments

The property immediately south of the property was surveyed by Earthworks in 2017 under PIF #: P310-0169-2017. A combined Stage 2 pedestrian and test pit survey did not locate any cultural material, and no further archaeological assessments were recommended (Earthworks 2018).



2.0 Analysis and Conclusions

Section 1.3 of the *Standards & Guidelines for Consultant Archaeologists* details a list of features that indicate archaeological potential when making an evaluation for developing recommendations. As documented in Section 1.0 of this report, there are features documented during background research that indicate archaeological potential. These include:

- Location of a tributary of the Ganaraska River located within the boundaries of the study area
- Location of the study area at the border of County Road 65, a historically documented transportation route.
- The location of a historically mapped homestead within the boundaries of the study area.

As a result of the identification of these features, it is determined that the study area contains archaeological potential, and additional archaeological assessment are required.



3.0 Recommendations

Based on the results of the Stage 1 background investigation, the study area contains evidence of archaeological potential and a Stage 2 archaeological assessment is recommended (Map 7)

A portion of the study area is actively or recently cultivated land that is accessible to ploughing and shall be subject to a Stage 2 pedestrian survey. These lands shall be ploughed and must be weathered by one heavy rainfall or several light rains to improve the visibility of archaeological resources. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing. At least 80% of the ploughed ground surface must be visible. Survey transects shall be spaced at maximum intervals of 5 metres. If archaeological resources are found, survey transects shall be reduced to 1 metre survey intervals over a minimum 20 metre radius around the find to determine whether it is an isolated find or part of a larger scatter. This intensified survey method shall be continued outward until the full extent of any surface scatters are defined. All formal artifacts types and diagnostic categories shall be collected.

For any portion of the study area that cannot be ploughed, a test pit survey shall be required. Test pits shall be spaced at maximum intervals of five metres apart, and to within a metre of standing structures. Each test pit shall be excavated by hand to 30 centimetres in diameter, and excavated into the first 5 centimetres of subsoil. Each test pit shall be examined for stratigraphy, cultural features, or evidence of fill, and all soil shall be screened through wire mesh of no greater than six millimetre width. Any identified artifacts shall be collected according to their associated test pit. All test pits shall be backfilled.

The Ministry of Heritage, Sport, Tourism and Culture Industries is requested to review this report and provide a letter indicating their satisfaction that the fieldwork and reporting for this archaeological assessment are consistent with the Ministry's 2011 *Standards and Guidelines for Consultant Archaeologists* and the terms and conditions for archaeological licences, and to enter this report into the Ontario Public Register of Archaeological Reports.



4.0 Advice on Compliance with Legislation

This report is submitted to the Ministry of Heritage Sport Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, 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 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 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.



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Municipality of Port Hope

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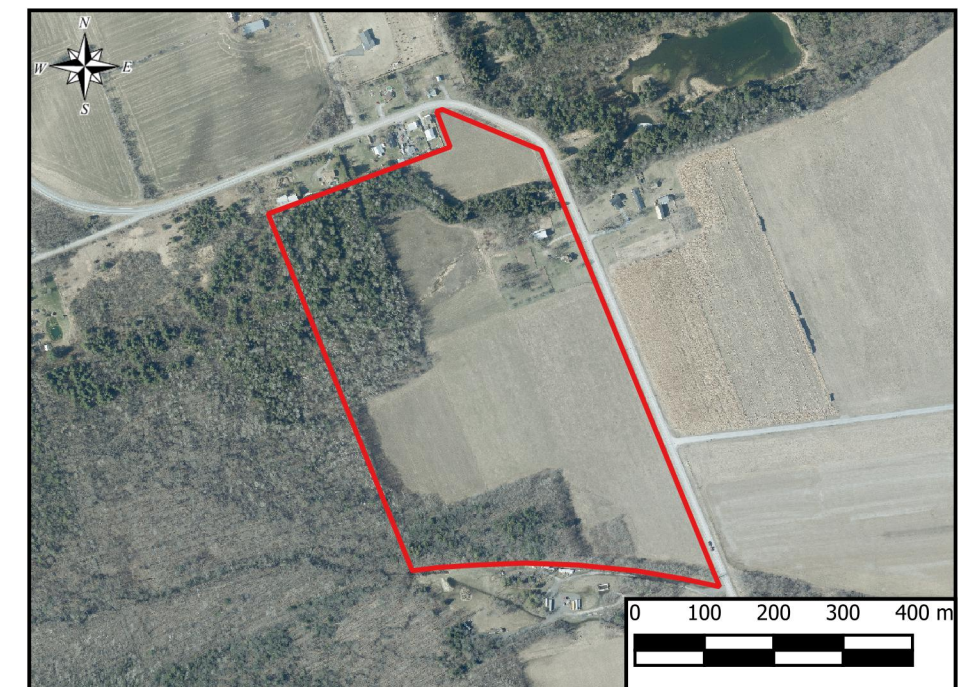
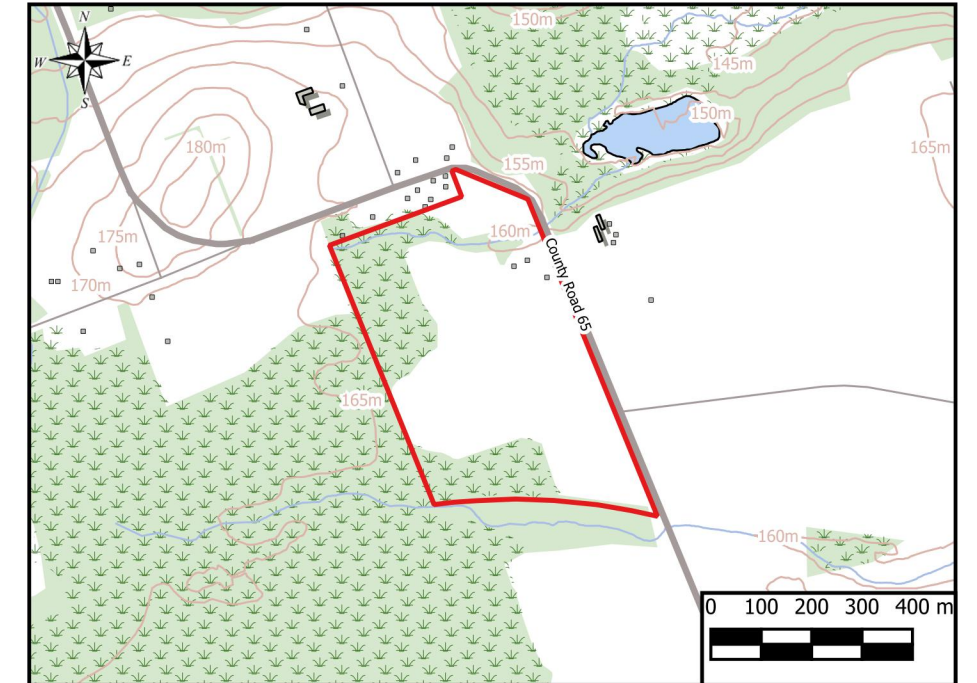
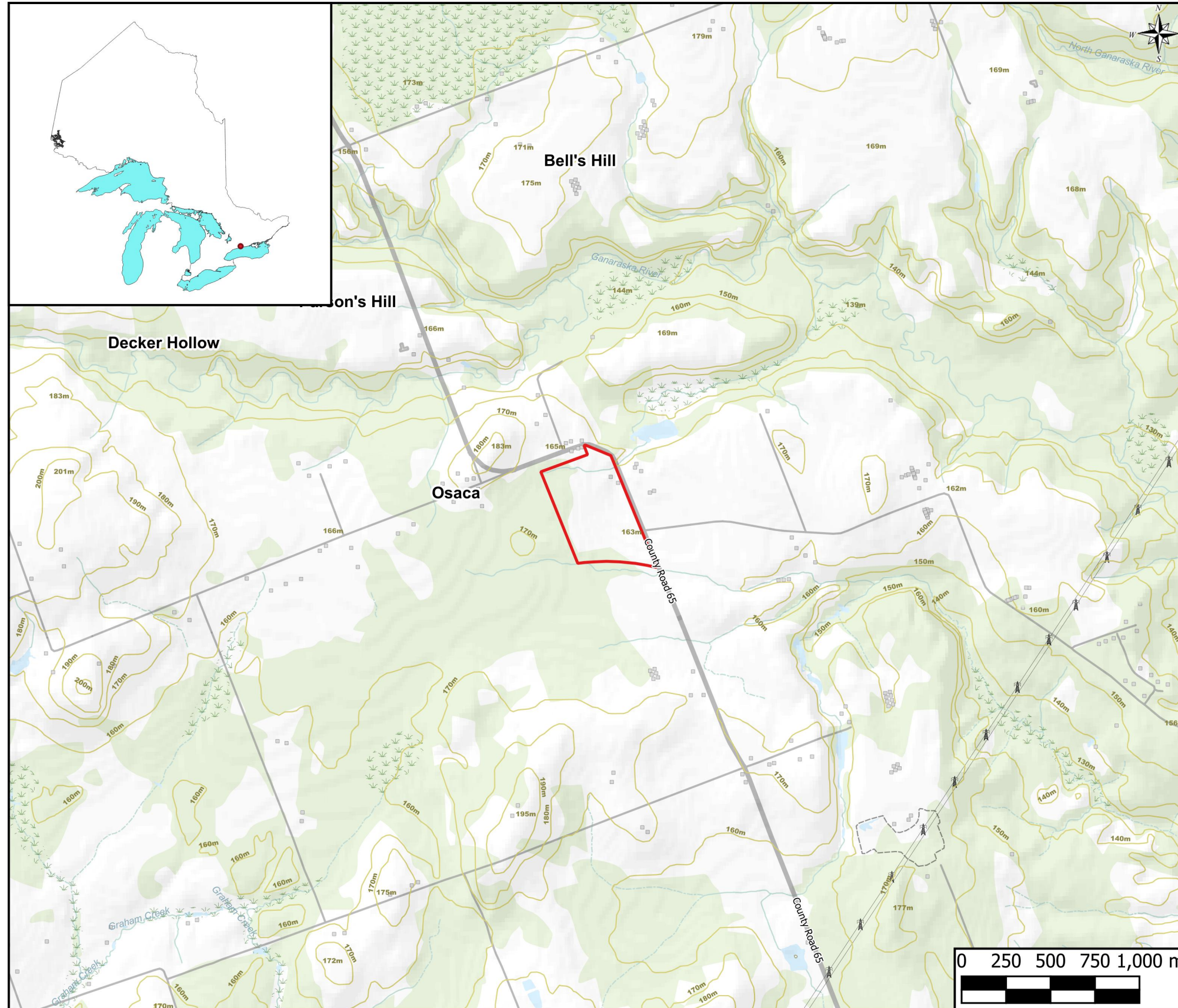
2018: *Michi Saagiig Nishnaabeg: This is our Territory.* Arp Books, Winnipeg.



6.0 Maps



Earthworks Archaeological Services Inc.
Stage 1 Archaeological Assessment
5868 County 65 Rd
Osaca



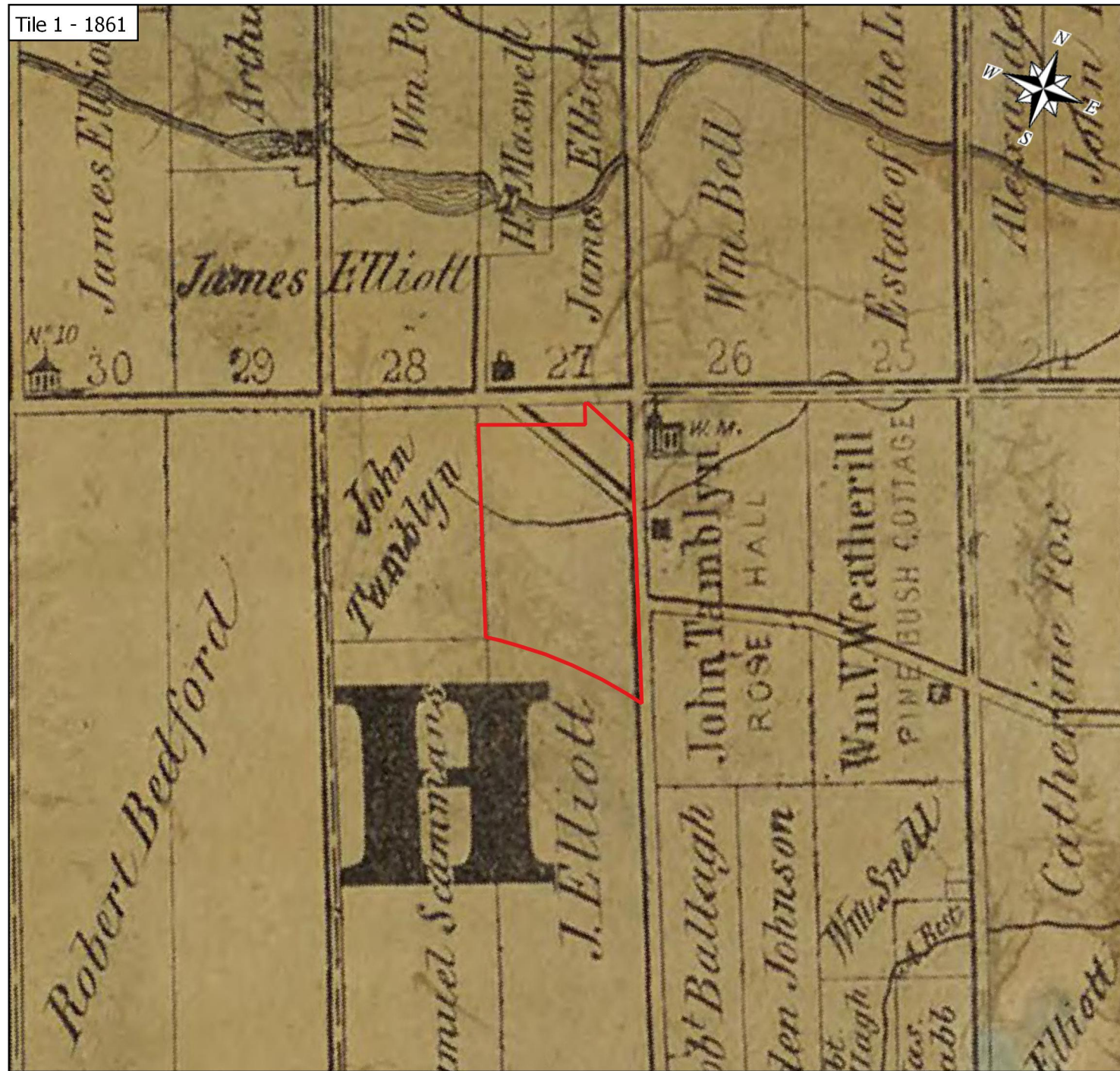
Legend

 Study Area

Reference:
Canvec Data. Scale 1:50000
Ontario Basic Mapping. Scale 1:10000
Port Hope SCOOP 2018 Aerial Imagery

Map 1: Regional Map

Tile 1 - 1861



Tile 2 - 1878



Legend

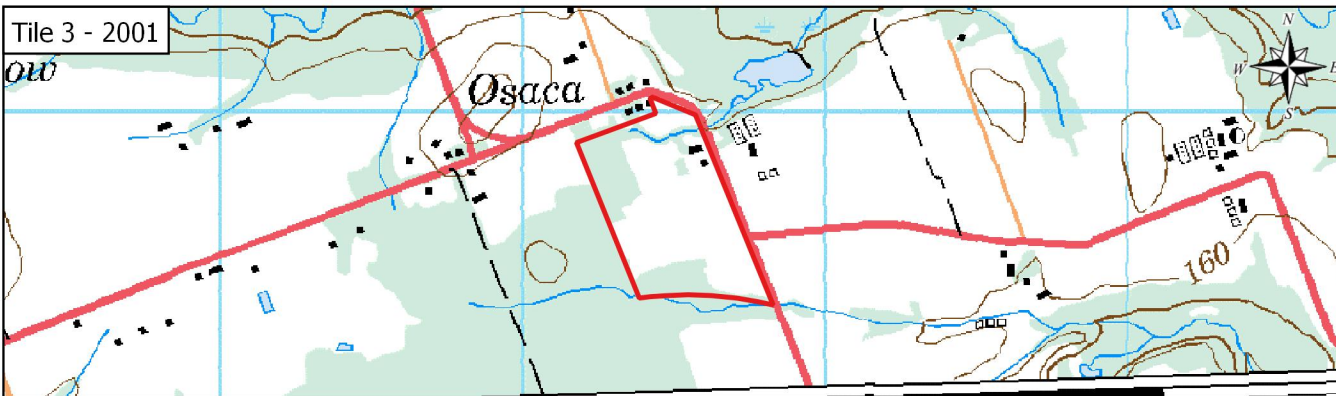
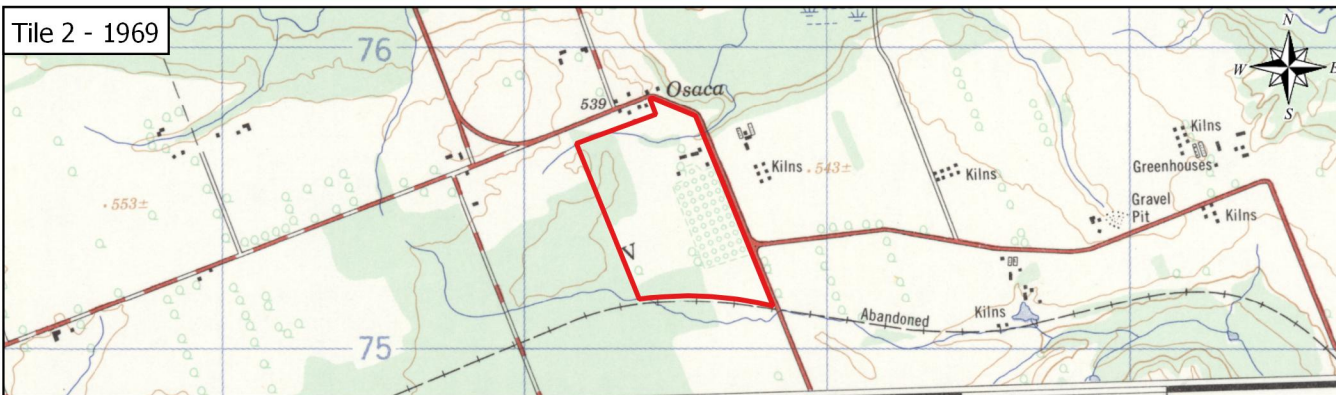
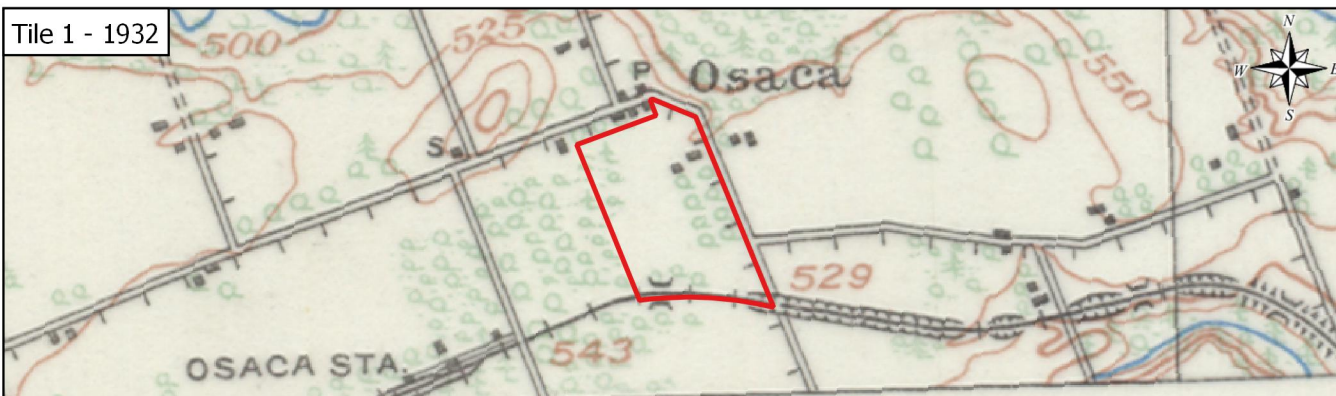
 Study Area

Not to Scale

Tile 1 - Tremaine's Map of the County of Durham, Upper Canada. Drawn by John Shier Esq. P.L.S. C.E. Assisted by Mr. John F. Ward. Published by Geo C. Tremaine. Toronto, 1861.

Tile 2 - Illustrated historical atlas of the counties of Northumberland and Durham, Ont. H. Belden & Co. 1878

Map 2: Nineteenth Century Historic Mapping



Legend

 Study Area

Tile 1 - Canada, Department of Militia and Defence [Department of National Defence], Rice Lake, Ontario. 1:63,360. Map Sheet 031D01, [ed. 1], 1932.

Tile 2 - Canada, Department of National Defence, Garden Hill, Ontario. 1:25,000. Map Sheet 031D01/D, [ed. 1], 1969.

Tile 3 - Canada, Natural Resources Canada, Rice Lake, Ontario. 1:50,000. Map Sheet 31 D/1, ed. 7, 2001.

0 200 400 600 800 m

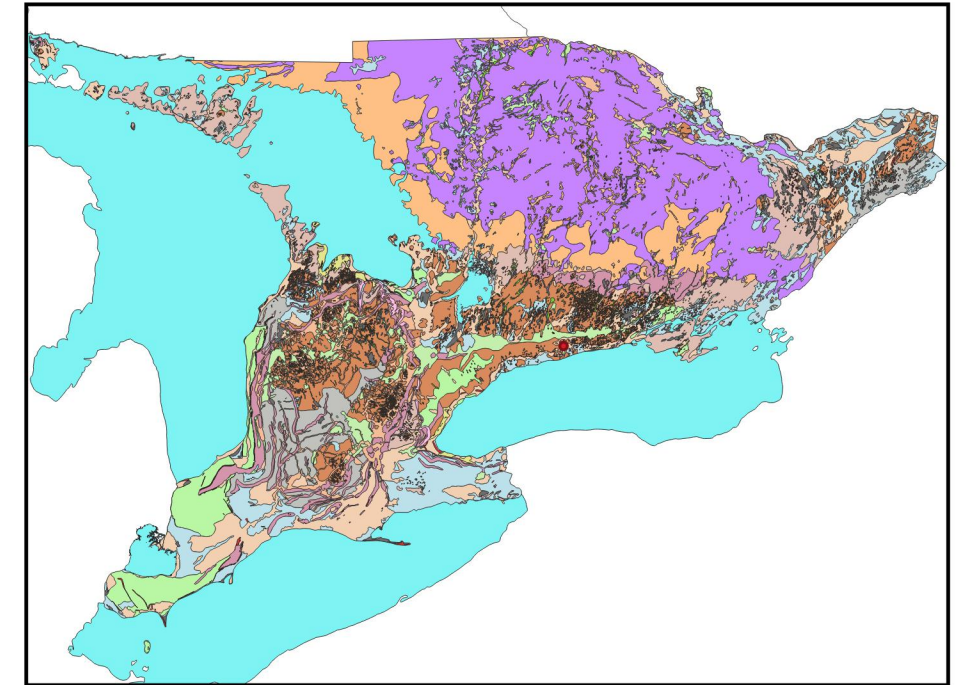
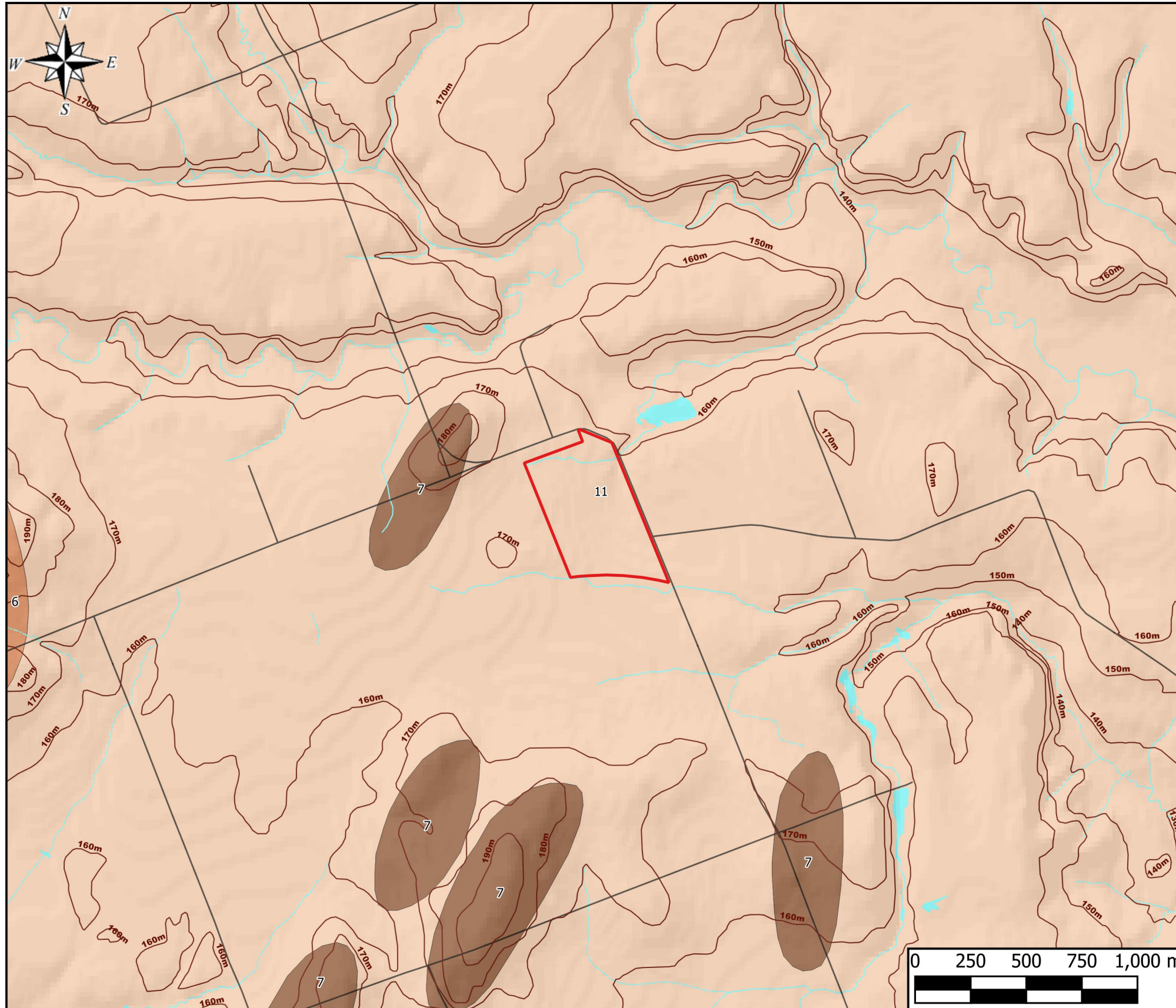


Map 3: Twentieth Century Topographic Mapping



Earthworks

ARCHAEOLOGICAL SERVICES INC.

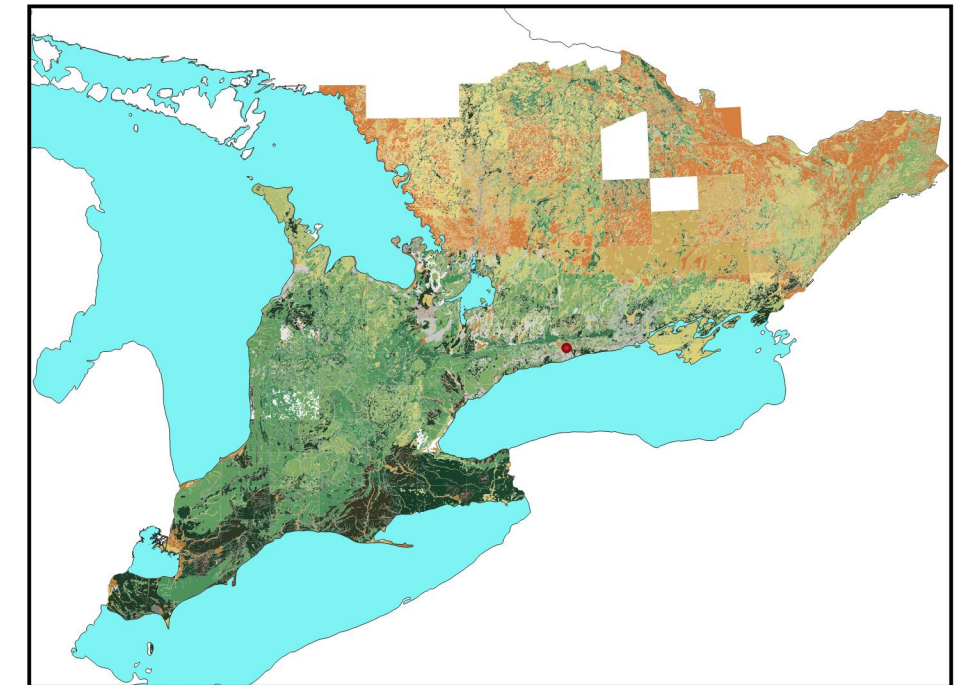
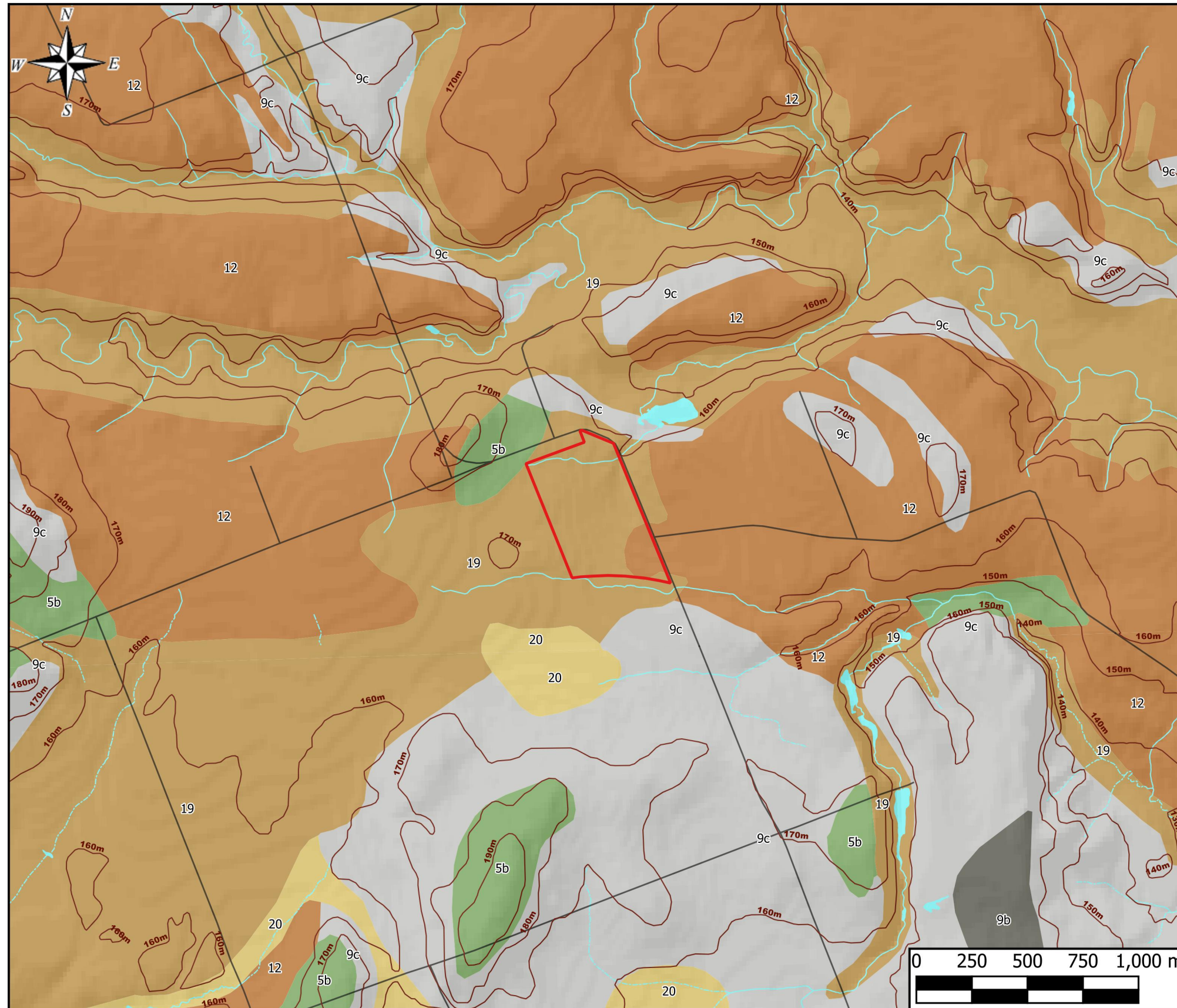


Legend

- Study Area
- Road Network
- 6 - Till Plains (Drumlinized)
- 7 - Drumlins
- 11 - Sand Plains

Base Data:
Chapman, L.J. and Putnam, D.F. 2007. Physiography of southern Ontario; Ontario Geological Survey, Miscellaneous Release—
Data 228.

Map 4: Physiographic Landforms

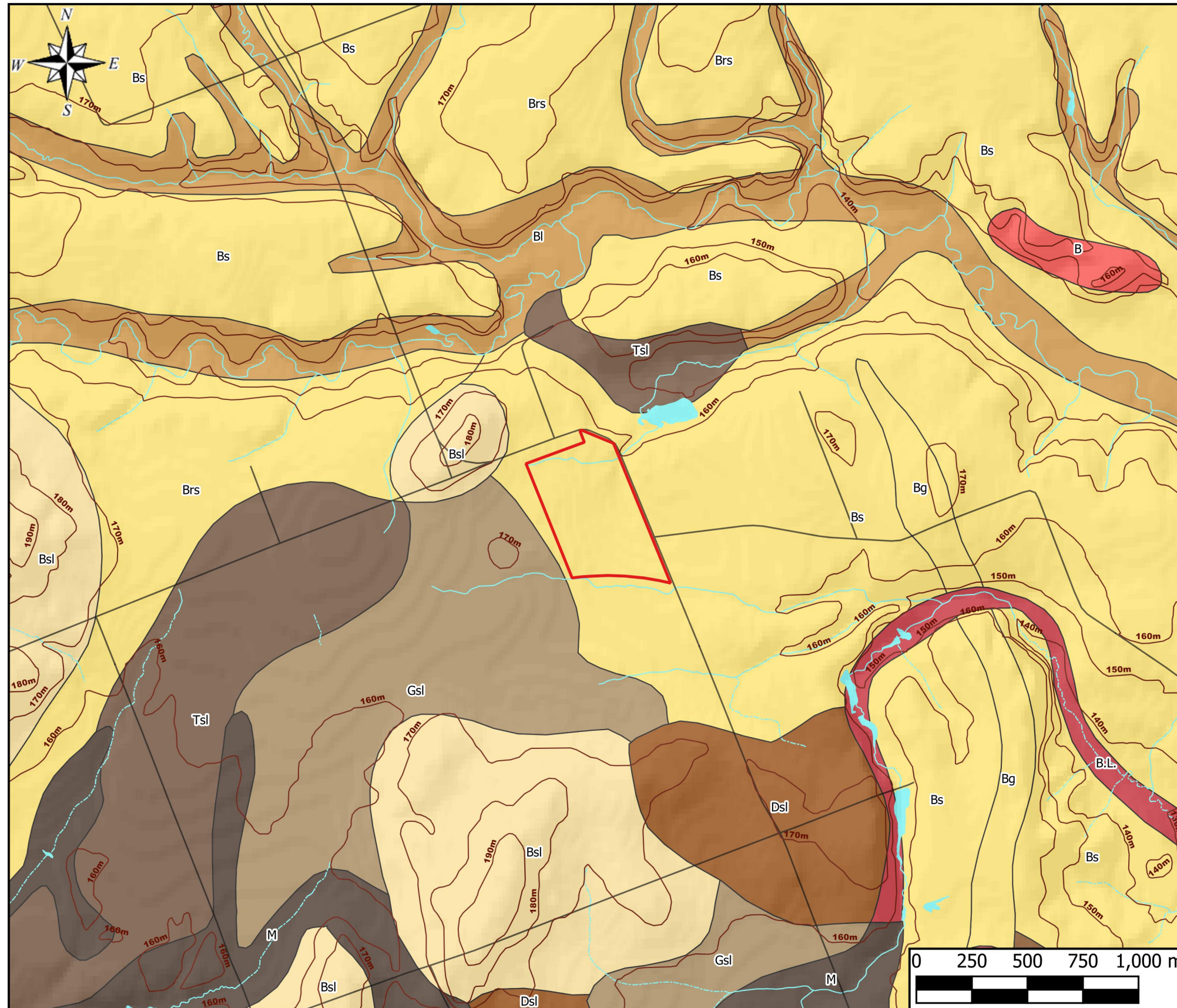


Legend

- Study Area
- Road Network
- 5b - sandy silt to sand till; 3% stone content
- 9b - Gravelly sand and gravel; 1-5m thick; raised shorelines
- 9c - Sand and silty sand; 1->50m thick
- 12 - Gravel, sand, silt, clay; 1-8m thick
- 19 - Gravel, sand, silt, clay, muck; 1-2m thick
- 20 - Peat, muck, and marl; 1-7m thick; occurs in wetlands

Base Data:
 Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data
 128-REV ISBN 978-1-4435-2483-4

Map 6: Surficial Geology

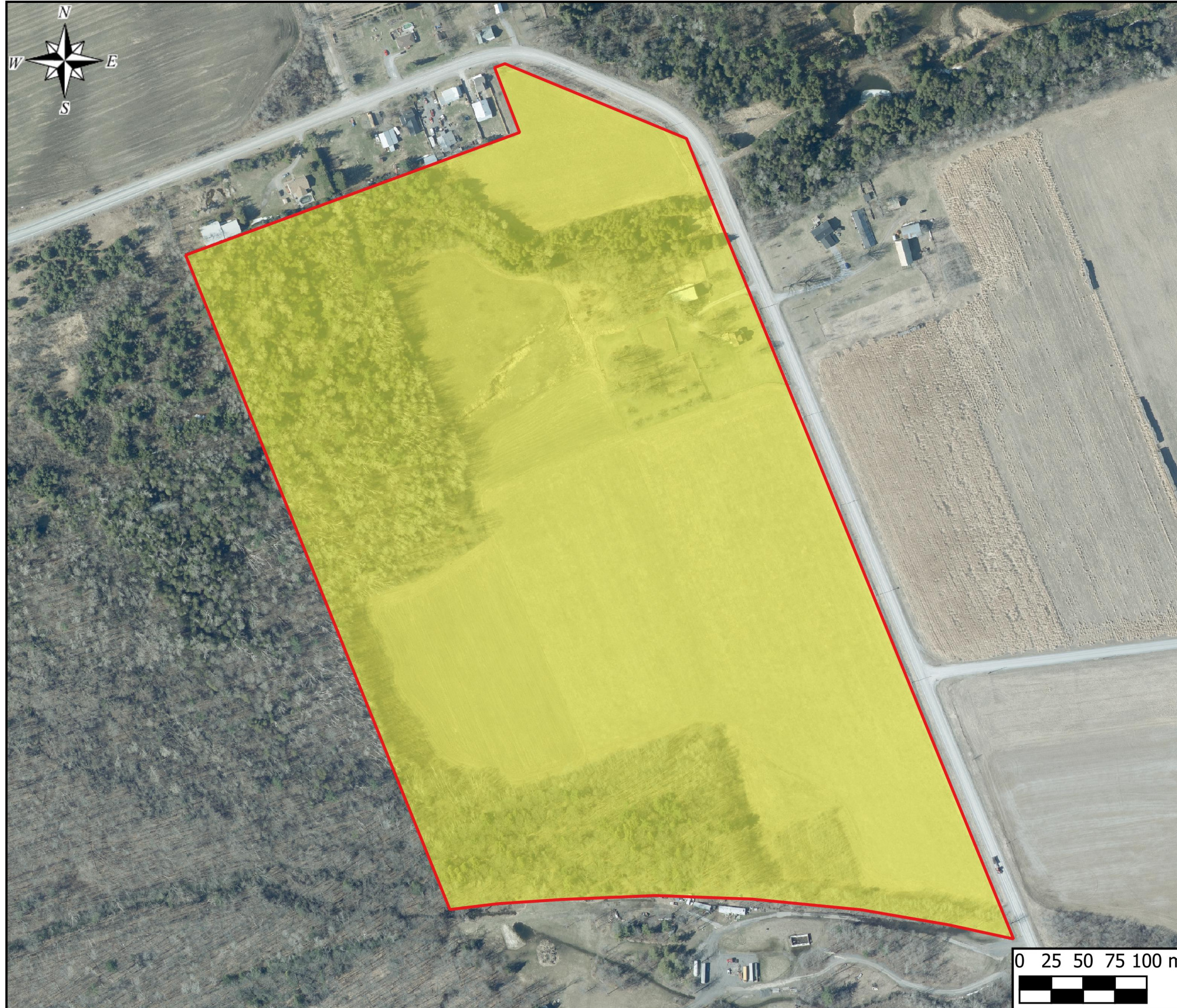


Legend

- Study Area
- Road Network
- B - Bridgman Sand
- B.L. - Bottom Land
- Bg - Brighton Gravelly Sand
- Bl - Bondhead Loam
- Brs - Brighton Sandy Loam
- Bs - Brighton Sand
- Bsl - Bondhead Fine Sandy Loam
- Dsl - Dundonald Sandy Loam
- Gsl - Granby Sandy Loam
- Gu-b - Guerin Sandy Loam - Bouldery
- M - Muck
- Pl - Percy Loam
- Tsl - Tecumseth Sandy Loam

Reference:
 Soil Map of Durham County. Soil Survey Report No. 9. Scale 1:63,360

Map 6: Regional Soil Map



Legend

-  Study Area
-  Area of Archaeological Potential
Stage 2 Archaeological Assessment Recommended

Reference:
Port Hope SCOOP 2018 Aerial Imagery

**Map 7: Stage 1
Assessment Results**