

MINISTRY OF TRANSPORTATION, EASTERN REGION

STAGE 1 ARCHAEOLOGICAL ASSESSMENT - DRAFT

HIGHWAY 401 HIGHWAY 401 PLANNING STUDY FROM
COLORNE TO BRIGHTON
PRELIMINARY DESIGN AND CLASS ENVIRONMENTAL
ASSESSMENT STUDY (GWP4054-17-00)

MAY 31, 2021





PIF P1078-0081-2020

LARA WOOD – P1078

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

HIGHWAY 401 PLANNING
STUDY FROM COLORNE TO
BRIGHTON
PRELIMINARY DESIGN AND
CLASS ENVIRONMENTAL
ASSESSMENT STUDY (GWP
4054-17-00)

MINISTRY OF TRANSPORTATION, EASTERN REGION

PARTS OF LOTS 28 AND 29, CONCESSION 2, LOTS 11-31,
CONCESSION 3, TOWNSHIP OF CRAMAHE AND LOTS 5-10,
CONCESSION 3, GEOGRAPHIC TOWNSHIP OF BRIGHTON, NOW
MUNICIPALITY OF BRIGHTON, COUNTY OF NORTHUMBERLAND
(WESTERN SEGMENT)

PARTS OF LOTS 3 AND 4, CONCESSION 4, GEOGRAPHIC TOWNSHIP
OF BRIGHTON, NOW MUNICIPALITY OF BRIGHTON, COUNTY OF
NORTHUMBERLAND (CENTER SEGMENT)

PARTS OF LOTS 29-35, CONCESSION 1, LOTS 23-36, CONCESSION 2,
GEOGRAPHIC TOWNSHIP OF BRIGHTON, NOW MUNICIPALITY OF
BRIGHTON, COUNTY OF NORTHUMBERLAND, AND PART OF LOT 22,
CONCESSION 2, GEOGRAPHIC TOWNSHIP OF MURRAY, NOW CITY
OF QUINTE WEST (EASTERN SEGMENT)

DRAFT REPORT

PROJECT NO.: 17M-01712-11

DATE: MAY 31, 2021

WSP
582 LANCASTER STREET WEST
KITCHENER, ON
CANADA N2K 1M3
T: +1 519 743-8778
F: +1 519-743-8778
WSP.COM



May 31, 2021

Stage 1 Archaeological Assessment

Highway 401 Planning Study from Colborne to Brighton, Preliminary Design and Class Environmental Assessment Study (GWP 4054-17-00)

Part of Lots 28 and 29, Concession 2, Lots 11-31, Concession 3, Township of Cramahe and Lots 5-10, Concession 3, Geographic Township of Brighton, now Municipality of Brighton, County of Northumberland (Western Segment).

Part of Lots 3 and 4, Concession 4, Geographic Township of Brighton, now Municipality of Brighton, County of Northumberland (Center Segment).

Part of Lots 29-35, Concession 1, Lots 23-36, Concession 2, Geographic Township of Brighton, Now Municipality of Brighton, County of Northumberland, and part of Lot 22, Concession 2, Geographic Township of Murray, now City of Quinte West (Eastern Segment).

Prepared for:

Ministry of Transportation, Eastern Region
1355 John Counter Blvd
P.O. Box 2170
Kingston, ON K7L 5A3

582 LANCASTER STREET WEST
KITCHENER, ON
CANADA N2K 1M3

T: +1 519 743-8778
F: +1 519-743-8778
wsp.com

SIGNATURES AND DISCLAIMERS

PREPARED BY

DRAFT

Craig Ramsomair, MA
Archaeologist

REVIEWED BY

DRAFT

Jennifer Morgan, PhD
Ontario Archaeology Lead

WSP Canada Inc (“WSP”) prepared this report solely for the use of the intended recipient, Ministry of Transportation, Eastern Region, in accordance with the professional services agreement between the parties. In the event a contract has not been executed, the parties agree that the WSP General Terms for Consultant shall govern their business relationship which was provided to you prior to the preparation of this report.

The report is intended to be used in its entirety. No excerpts may be taken to be representative of the findings in the assessment.

The conclusions presented in this report are based on work performed by trained, professional and technical staff, in accordance with their reasonable interpretation of current and accepted engineering and scientific practices at the time the work was performed.

The content and opinions contained in the present report are based on the observations and/or information available to WSP at the time of preparation, using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by WSP and other engineering/scientific practitioners working under similar conditions, and subject to the same time, financial and physical constraints applicable to this project.

WSP disclaims any obligation to update this report if, after the date of this report, any conditions appear to differ significantly from those presented in this report; however, WSP reserves the right to amend or supplement this report based on additional information, documentation or evidence.

WSP makes no other representations whatsoever concerning the legal significance of its findings.

The intended recipient is solely responsible for the disclosure of any information contained in this report. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. WSP does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report.

WSP has provided services to the intended recipient in accordance with the professional services agreement between the parties and in a manner consistent with that degree of care, skill and diligence normally provided by members of the same profession performing the same or comparable services in respect of projects of a similar nature in similar circumstances. It is understood and agreed by WSP and the recipient of this report that WSP provides no warranty, express or implied, of any kind. Without limiting the generality of the foregoing, it is agreed and understood by WSP and the recipient of this report that WSP makes no representation or warranty whatsoever as to the sufficiency of its scope of work for the purpose sought by the recipient of this report.

In preparing this report, WSP has relied in good faith on information provided by others, as noted in the report. WSP has reasonably assumed that the information provided is correct and WSP is not responsible for the accuracy or completeness of such information.

Benchmark and elevations used in this report are primarily to establish relative elevation differences between the specific testing and/or sampling locations and should not be used for other purposes, such as grading, excavating, construction, planning, development, etc.

This limitations statement is considered an integral part of this report.

EXECUTIVE SUMMARY

The Ontario Ministry of Transportation (MTO) has retained WSP Canada Inc. (WSP) to undertake a Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement / rehabilitation of bridges and structural culverts, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road. The approximate length of the study area is 16 km (GWP4054-17-00) (Figure 1 and Figure 2).

This archaeological assessment was triggered by MTO's Class Environmental Assessment process under the *Environmental Assessment Act* to ensure MTO is compliant with the *Ontario Heritage Act, 1990*. The archaeological assessment was carried out during the preliminary design phase. The boundaries of the assessment correspond to dimensions and requirements defined by MTO at the outset of the assessment.

The Stage 1 background study determined that the study area corridor exhibits high potential for the presence of both pre-contact and historic archaeological resources. Based on the property inspection, archaeological potential has been removed from Highway 401, local roads, and their associated right-of-ways, and building footprints. No further work is recommended for these areas. Archaeological potential is also low in areas of steep slope and low-lying and wet areas. These areas have been photo documented and no further archaeological investigation is required. The majority of the study area, however, retains high potential for the presence of archaeological resources. **Based on the results of the Stage 1 archaeological assessment, a Stage 2 archaeological assessment is required for those parts of the study area determined to retain archaeological potential (Figure 6a-l).**

The recommendations for the Stage 2 archaeological assessment are to follow the requirements of Section 2 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI, 2011). The recommendations are as follows:

- Recently ploughed agricultural fields must be subject to pedestrian survey at 5 m intervals as per Section 2.1.1 of the *Standards and Guidelines for Consultant Archaeologists* (2011). Prior to pedestrian survey, the field must be ploughed and weathered to allow for ideal conditions for the identification of archaeological resources. After ploughing, soil visibility must be at least 80% in order for pedestrian survey to proceed.
- Where ploughing is not possible, the property must be subject to test pit survey at 5 m intervals as per Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists* (2011). This recommendation includes areas such as wood lots, bush lots, manicured lawns, and areas of scrub overgrowth. Test pit survey can be increased to 10 m intervals in areas of confirmed disturbance based on professional judgement.
- Orchards where the area between plants is less than 5 m can be subject to test pit survey at 5 m intervals. Orchards where area between plants is greater than 5 m can be subject to strip-ploughing.

It should be noted that areas determined to no longer retain archaeological potential should not be subject to ground disturbing activities until the recommendations stated herein have been accepted by the Ontario Ministry of Heritage, Sport, Tourism and Cultural Industries, and the report has been entered into the Public Register of Archaeological Reports.

PROJECT PERSONNEL

WSP

Archaeology Project Manager	Lara Wood, MA (P1078) <i>Professional Archaeologist</i>
Field Director	Jennifer Morgan, PhD (R1176) <i>Ontario Archaeology Lead</i>
Report Preparation	Craig Ramsoomair, MA (R1106) <i>Archaeologist</i> Lara Wood
Mapping/GIS	Andrew Turner, HBA (R1042) <i>Archaeologist</i>
Report Review	Jennifer Morgan



TABLE OF CONTENTS

1	PROJECT CONTEXT	1
1.1	Objectives	1
1.2	Development Context	1
1.3	Historical Context.....	2
1.3.1	Pre-Contact Period	2
1.3.2	Post-Contact Period	8
1.3.3	Study Area Specific History	10
1.4	Archaeological Context	16
1.4.1	Current Conditions.....	16
1.4.2	Physiography and Ecology	16
1.4.3	Previous Archaeological Assessments	18
1.4.4	Registered Archaeological Sites	19
1.4.5	Listed and Designated Heritage Properties	20
2	FIELD METHODS	21
2.1	Property Inspection.....	21
2.2	Inventory of Documentation Records	21
3	ANALYSIS AND CONCLUSIONS	22
3.1	Archaeological Potential	22
3.2	Conclusion	22

4	RECOMMENDATIONS	23
5	ADVICE ON COMPLIANCE WITH LEGISLATION	24
6	REFERENCES	25
7	IMAGES	28
8	FIGURES	36

TABLES

TABLE 1: HISTORICAL LAND USE SUMMARY BY LOT AND CONCESSION FOR THE WESTERN SEGMENT	11
TABLE 2: HISTORICAL LAND USE SUMMARY BY LOT AND CONCESSION FOR THE CENTER SEGMENT	13
TABLE 3: HISTORICAL LAND USE SUMMARY BY LOT AND CONCESSION FOR THE EASTERN SEGMENT	14
TABLE 4: PREVIOUS ARCHAEOLOGICAL ASSESSMENTS ON OR WITHIN 50 M OF THE STUDY AREA	18
TABLE 5: REGISTERED ARCHAEOLOGICAL SITES WITHIN 1 KM OF THE STUDY AREA	19
TABLE 6: LISTED HERITAGE PROPERTIES WITHIN 300 M OF THE STUDY AREA.....	20

FIGURES

FIGURE 1: PROJECT LOCATION	37
FIGURE 2: STUDY AREA	38
FIGURE 3: HISTORICAL MAPPING (1878)	50
FIGURE 4: AERIAL IMAGERY (1954)	53
FIGURE 5: PREVIOUS ASSESSMENTS.....	56
FIGURE 6: RESULTS.....	59

APPENDICES

- A** MIICHI SAAGIG HISTORIES
- B** FEATURES OF ARCHAEOLOGICAL POTENTIAL

1 PROJECT CONTEXT

1.1 OBJECTIVES

The objectives of a Stage 1 Archaeological Assessment are as follows:

- Provide information regarding the property's geography, history, relevant previous archaeological fieldwork, and current land conditions;
- Provide a detailed evaluation of the property's archaeological potential; and,
- Recommend appropriate strategies for Stage 2 survey when required.

A property inspection provides first-hand knowledge of the geography, topography, and current conditions of the study area, which allows for a more accurate determination of archaeological potential.

1.2 DEVELOPMENT CONTEXT

The Ontario Ministry of Transportation (MTO) has retained WSP Canada Inc. (WSP) to undertake a Planning, Preliminary Design and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement / rehabilitation of bridges and structural culverts, establishing the future Highway 401 footprint for an interim six lanes and ultimate eight lanes to address current and future transportation needs, and commuter parking lot improvements from 0.8 km east of Percy Street to 0.4 km west of Christiani Road. The approximate length of the study area is 16 km (GWP4054-17-00) (Figure 1 and Figure 2).

The assessment involves three segments of the east-west Highway 401 corridor between east of Percy Street near Colborne to 0.4 km west of Christiani Road near Brighton.

The Western Segment extends from just east of Percy Road to approximately 0.8 km west of County Road 30. It is situated on part of Lots 28 and 29, Concession 2, Lots 11-31, Concession 3, Township of Cramahe and 5-10, Concession 3, Geographic Township of Brighton, Now Municipality of Brighton, County of Northumberland.

The Center Segment includes a small area northeast of the intersection of County Road 30 and Telephone Road, located south of Highway 401. It is situated on part of Lots 3 and 4, Concession 4, Geographic Township of Brighton, Now Municipality of Brighton, County of Northumberland.

The Eastern Segment begins at approximately 1.5 km east of County Road 30 and continues to the just beyond Christiani Road. It is situated on part of Lots 29-35, Concession 1, Lots 23-36, Concession 2, Geographic Township of Brighton, Now Municipality of Brighton, County of Northumberland, and part of Lot 22, Concession 2, Geographic Township of Murray, now City of Quinte West

This archaeological assessment was triggered by MTO's Class Environmental Assessment process under the *Environmental Assessment Act* to ensure MTO is compliant with the *Ontario Heritage Act, 1990*. The archaeological assessment was carried out during the preliminary design phase. The boundaries of the assessment correspond to dimensions and requirements defined by MTO at the outset of the assessment.

The Stage 1 archaeological assessment of the study area includes a review of previous archaeological research, historic maps and aerial photographs, land registry documents, and local histories. A property inspection was conducted to better understand the current conditions of the study area. The property inspection was conducted on November 13th, 2020. Permission to access the Highway 401 right-of-way to complete the inspection was granted by the MTO and the remainder of the study area was inspected from public lands.

1.3 HISTORICAL CONTEXT

The following sections provide a brief outline of the pre-contact and post-contact periods of Southern Ontario, the County of Northumberland, the former Geographic Townships of Cramahe and Brighton, and the study area to provide a generalized historical framework for the archaeological assessment.

1.3.1 PRE-CONTACT PERIOD

The following provides a generalized cultural history of Indigenous people within the region the study area is situated. Information is primarily derived from the archaeological record and the interpretations of archaeologists. Technological or temporal divisions have been defined to describe adaptations to changing climates, physiography, subsistence patterns, and geopolitical pressures which do not necessarily provide an accurate reflection of fluid cultural practices spanning thousands of years. The following presents a sequence of Indigenous land-use from earliest human occupation following deglaciation to the recent past based on periods defined by archaeologists as:

- The Paleo Period (formerly Paleo-Indian)
- The Archaic Period
- The Woodland Period
- The Post-Contact Period

PALEO PERIOD

Paleo period populations were the first to occupy what is now Southern Ontario, moving into the region following the retreat of the Laurentide Ice Sheet approximately 11,000 years before present (BP). The first Paleo period populations to occupy Southern Ontario are referred to by archaeologists as Early Paleo (Ellis & Deller, 1990).

Early Paleo period groups are identified by their distinctive projectile point morphological types, exhibiting long grooves, or ‘flutes’, that likely functioned as a hafting mechanism (method of attaching the point to a wooden shaft). These Early Paleo group projectile point types include Gainey (ca. 10,900 BP), Barnes (ca. 10,700), and Crowfield (ca. 10,500) (Ellis & Deller, 1990). By approximately 10,400 BP, Paleo projectile points transitioned to various unfluted varieties, such as Holcombe (ca. 10,300 BP), Hi Lo (ca. 10,100 BP), and Unstemmed and Stemmed Lanceolate (ca. 10,400 to 9,500 BP). These tool types were used by Late Paleo period groups (Ellis & Deller, 1990). Both Early and Late Paleo period populations were highly mobile, participating in the hunting of large game animals. Paleo period sites often functioned as small campsites where stone tool production and maintenance occurred (Ellis & Deller, 1990).

ARCHAIC PERIOD

By approximately 8,000 BP, climatic warming supported the growth of deciduous forests in Southern Ontario. These forests introduced new flora and faunal resources, which resulted in subsistence shifts and a number of

cultural adaptations. This change is reflected in the archaeological record by new tool-kits that are reflective of a shift in subsistence strategies and has been categorized as the Archaic period.

The Archaic period in Southern Ontario is sub-divided into the Early Archaic (ca. 10,000 to 8,000 BP), Middle Archaic (ca. 8,000 to 4,500 BP), and the Late Archaic (ca. 4,500 to 2,800 BP) periods. Generally, in North America, the Archaic period represents a transition from big game hunting to broader, more generalized subsistence strategies based on local resource availability. This period is characterized by the following traits:

- An increase in stone tool variation and reliance on local stone sources,
- The emergence of notched and stemmed projectile point types,
- A reduction in extensively flaked tools,
- The use of native copper,
- The use of bone tools for hooks, gorges, and harpoons,
- An increase in extensive trade networks, and
- The production of ground stone tools and an increase in larger, less portable tools.

The Archaic period is also marked by population growth with archaeological evidence suggesting that, by the end of the Middle Archaic period (ca. 4,500 BP), populations had steadily increased in size (Ellis et al., 1990).

Over the course of the Archaic period, populations began to rely on more localized hunting and gathering territories and were shifting to more seasonal encampments. From the spring into the fall, settlements were focused in lakeshore/riverine locations where a variety of different resources could be exploited. Settlement in the late fall and winter months moved to interior sites where the focus shifted to deer hunting and the foraging of wild plants (Ellis et al., 1990, p. 114). The steady increase in population size and the adoption of a more localized seasonal subsistence strategy led to the transition into the Woodland period.

Sites associated with the culture known as the Laurentian Archaic are typically found during the Middle Archaic along the southern edge of the Canadian Shield and the fringes of the Boreal Forest. The Laurentian Archaic is interpreted as a successful adaptation to the Lake Forest environment, the mixed forest at the boundary of the Boreal Forest and Eastern Woodlands (Ramsden, 1998). Subsistence for the Laurentian Archaic was believed to be focused on fishing and hunting to compensate for the lack of plant material in the environment. (Ellis et al. 1990, p. 114).

Laurentian Archaic sites are typically concentrated along the Ottawa River (west to Allumette Island), the St. Lawrence River (east to the mouth of the Richelieu River), the Richelieu River and Lake Champlain, and the east half of Lake Ontario (Ramsden, 1998). The maximum extent of archaeological material attributed to the Laurentian Archaic extends from Lake Abitibi in the northwest, Saguenay in the northeast, and as far south as northern New York, Vermont, and Maine, which includes eastern Ontario (Clermont, 1999).

The Laurentian Archaic was divided into two phases. The first was the Vergennes phase (ca. 5,500 to 5,000 BP) which was typified by the use of Otter Creek projectile points. These were broadly sided with wide corners and concave bases below the notch. This phase included nearby sites like the Poison Ivy, Morrow and McIntyre sites. The second phase is the Brewerton Phase (ca. 5,000 to 4,500 BP), characterized by a variety of projectile points including the corner-notched and side-notched Brewerton points. Other nearby sites include the Parker Site and the ENL Otter Creek/Brewerton Site. Aside from the Poison Ivy site, most of these sites were briefly used campsites. The Laurentian Archaic also had a strong and distinctive preference for slate and bone tools along with some made of copper (Ellis et al., 1990).

EARLY AND MIDDLE WOODLAND PERIOD

The beginning of the Woodland period is defined by the emergence of ceramic technology. Similar to the Archaic period, the Woodland period is separated into three timeframes: the Early Woodland (ca. 2,800 to 2,000 BP), the Middle Woodland (ca. 2,000 to 1,200 BP), and the Late Woodland (ca. 1,200 to 350 BP) (Spence et al., 1990; Fox, 1990).

The Early Woodland period is represented in Southern Ontario by two cultural complexes: the Meadowood Complex (ca. 2,900 to 2,500 BP), and the Middlesex Complex (ca. 2,500 to 2,000 BP). During this period, the life ways of Early Woodland populations differed little from that of the Late Archaic with hunting and gathering representing the primary subsistence strategies. The pottery of this period is characterized by its relatively crude construction and lack of decoration. These early ceramics exhibit cord impressions, which are likely the result of the techniques used during manufacture rather than decoration (Spence et al., 1990).

The Middle Woodland period has been differentiated from the Early Woodland period by changes in lithic tool forms (e.g. projectile points, expedient tools), and the increased decorative elaboration of ceramic vessels (Spence et al., 1990). Additionally, archaeological evidence suggests the rudimentary use of maize (corn) horticulture by the end of the Middle Woodland period (Warrick, 2000).

In Southern Ontario, the Middle Woodland has been divided into three different complexes based on regional cultural traditions: the Point Peninsula Complex, the Couture Complex, and the Saugeen Complex. These groups are differentiated by sets of characteristics that are unique to regions within the province, specifically regarding ceramic decorations. The Couture and Saugeen Complex were situated further southwest and outside of the study area.

The Point Peninsula Complex extends from south-central and eastern Ontario into southern Quebec. The northernmost borders of the complex can be found along the Mattawa and French Rivers. Ceramics are coil constructed with conical bases, outflaring rims, and flat, rounded, or pointed lips. The interior surfaces of vessels are often channelled with a comb-like implement, creating horizontal striations throughout. The exterior is smoothed, or brushed, and decoration generally includes pseudo-scallop stamps or dentate impressions. Occasionally, ceramics will have been treated with a red ochre wash (Spence et al, 1990).

Outside of ceramics, the most distinctive artifacts associated with the Point Peninsula Complex are often associated with burials such as the Serpent Mounds on the north shore of Rice Lake. This site is around 30 km to the northwest of the study area. There are other burial mounds in the Rice Lake and Trent River area including the LeVesconte Mound and Cameron's Point sites (Spence et al, 1990).

LATE WOODLAND PERIOD

There is much debate as to whether a transitional phase between the Middle and Late Woodland periods is present in Southern Ontario, but it is generally agreed that the Late Woodland period begins around 1,100 BP. The Late Woodland period in Southern Ontario can be divided into three cultural sub-phases: The early, middle, and late-Late Woodland periods. The early-Late Woodland is characterized by the Glen Meyer and Pickering cultures and the middle-Late Woodland is characterized by the Uren and Middleport cultures. These groups are ancestral to the Iroquoian-speaking Neutral-Erie (Neutral), the Huron-Wendat (Huron), and Petun Nations that inhabited Southern Ontario during the late-Late Woodland period (Smith, 1990, p. 285).

The Pickering and Glen Meyer cultures co-existed within Southern Ontario during the early-Late Woodland period (ca. 1250-700 BP). Pickering territory is understood to encompass the area north of Lake Ontario to Georgian Bay and Lake Nipissing (Williamson, 1990). Glen Meyer is centred around Oxford and Norfolk counties, but also includes the southeastern Huron basin and the western extent is demarcated by the Ekfrid Clay Plain southwest of

London, Ontario (Noble, 1975). Villages of either tradition were generally smaller in size (~1 ha) and composed of smaller oval structures, which were later replaced by larger structures later in the Late Woodland period. Archaeological evidence suggested a mixed economy where hunting and gathering played an important role, but small-scale horticulture was present, indicating a gradual shift from hunting-gathering to a horticultural economy (Williamson, 1990).

The first half of the middle-Late Woodland period is represented by the Uren culture (700-650 BP) and the second half by the Middleport (650-600 BP). Uren and Middleport sites of the middle-Late Woodland share a similar distribution pattern across much of southwestern and south-central Ontario. (Dodd et al., 1990). Significant changes in material culture and settlement-subsistence patterns are noted during this short time. Iroquois Linear, Ontario Horizontal, and Ontario Oblique pottery types are the most well-represented ceramic assemblages of the middle-Late Woodland period (Dodd et al., 1990). At Middleport sites, material culture changes included an increase in the manufacture and use of clay pipes as well as bone tools and adornments (Dodd et al., 1990; Ferris & Spence, 1995).

During this period, evidence in the archaeological record of small year-round villages, secondary ossuary burials, and what are thought to be semi-subterranean sweat lodges suggest a marked increase in sedentism in Southern Ontario during the Uren and Middleport cultures (Ferris & Spence, 1995). The increasing permanency of settlements was a result of the development of small-scale cultivation and a subsequent increased reliance on staple crops such as maize, beans, and squash (Dodd et al., 1990; Warrick, 2000; Ferris & Spence, 1995).

Archaeological evidence from the middle-Late Woodland sites also documents increases in population size, community organization and village fissioning, and the expansion of trade networks. The development of trade networks with northern Algonquian peoples has also been inferred from findings at Middleport sites along the northern parts of southwestern and south-central Ontario. These changes resulted in the more organized and complex social structures observed in the late-Late Woodland period.

During the late-Late Woodland period, village size significantly increased as did the complexity of community and political systems. Villages were often fortified with palisade walls and ranged in size from smaller villages with a few longhouses to larger villages with over 100 longhouses. Larger longhouses oriented differently than others in the village have been associated with primary familial groups, while longhouses that were located outside of palisade walls may have been for visiting groups for the purposes of trade or social gatherings (Ramsden, 1990). More recent research has indicated that smaller, temporary camp or cabin sites were often used seasonally for the tending of agricultural fields or as fishing camps (Ramsden, 1990). By this time, large-scale agriculture had taken hold, making year-round villages even more practical with the improved ability to store large crop yields over winter.

Late Woodland villages in the vicinity of the study area were typically associated with the Huron-Wendat nations who occupied areas as far east as the Trent River and as far west as the Niagara Escarpment. They typically inhabited each village for several decades before moving settlements to more fertile land when resources were exhausted. Throughout the fifteenth and sixteenth centuries, these settlement shifts often included northern migrations and the incorporation of multiple smaller villages into larger coalescent villages (Williamson, 2014).

The Huron-Wendat eventually migrated out of the Toronto area and into present-day Simcoe County and the Penetanguishene Peninsula, an area known as Historic Wendake. This movement northward is considered to be the result of a number of socio-political factors, including increased conflict with the Five Nations Iroquois, an increased complexity in political organization, increasing trade relations with Northern Algonquian groups, and interactions with early European traders (Ramsden, 1990; Birch, 2012; Ferris & Spence, 1995).

During the fifteenth century, ceramic styles on Huron village sites were typically consistent with the Lalonde High Collar type, which included high collars and a complex neck decoration. Artifact assemblages became more heterogeneous by the sixteenth century as ceramic styles began to favor castellation for decoration. Huron-Wendat ceramic motifs also began to reflect influences from Iroquoian speaking groups from the St. Lawrence River area to the east. European goods obtained through extensive trade routes have also been found at Huron-Wendat village sites during this time. These goods include iron kettles, axes, and knives, as well as glass beads (Ramsden, 1990). Changes in ceramic styles observed in the archaeological record also reflect increasing levels of inter-community relationships, integration, and trade between different groups during this period. For example, oral histories of the Michi Saagiig (Mississauga Anishinaabeg) speak to the arrival of, and relationships with, the Huron “corn growers” (Migizi & Kapyrka, 2015, pp. 127-136).

Early contact with European settlers at the end of the Late Woodland period resulted in extensive changes to the traditional lifestyles of most populations inhabiting Ontario including settlement size, population distribution, and material culture. The introduction of European-borne diseases significantly increased mortality rates, resulting in a drastic drop in population size (Warrick, 2000). According to the traditions of the Michi Saagiig or Mississauga, they had occupied the north shore of Lake Ontario since the distant past and had lived and traded among the Huron. When war and pandemic decimated the Huron, they retreated into their wintering grounds to the north for safety. They later returned to the land and were eventually the group to make treaties with the European settlers (Migizi & Kapyrka, 2015). The following oral history, provided by Michi Saagiig elder Gitiga Migizi, speaks to the occupation of this area of Southern Ontario by the Anishinaabeg throughout the pre-contact and post-contact periods (see Appendix A for the full text provided):

The traditional homelands of the Michi Saagiig (Mississauga Anishinaabeg) encompass a vast area of what is now known as southern Ontario. The Michi Saagiig 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 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. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

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.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

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.

Often times, southern Ontario is described as being “vacant” after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation. The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.

Migizi and Kapyrka pp. 127-136 (2015)

1.3.2 POST-CONTACT PERIOD

The large-scale population dispersals of the Late Woodland gave way for the Five Nations Iroquois to occupy the territory north of Lake Ontario where they settled along inland-running trade routes. Due to increased military pressure from the French, and the Anishinaabe Nations (Ojibwa, Odawa, and Potawatomi) who had returned from the north, the Iroquois abandoned their villages along Lake Ontario. By the 1680s, the Anishinaabeg had returned and re-occupied the land along Lake Ontario and northward beyond the Haliburton Highlands. The Anishinaabeg later participated in a significant number of treaty agreements with the British Crown, establishing the foundation of Euro-Canadian settlement in Southern Ontario (Ferris & Spence, 1995).

After the American Revolution ended in 1783, many United Empire Loyalists began to move into Southern Ontario creating a greater demand for land to settle. In 1787, senior officials from the Indian Department met with the Mississaugas of the Carrying Place to acquire land along the northern shores of Lake Ontario extending northward toward Lake Simcoe. The depth of this land was said to have covered as far back as a gunshot could be heard. It extended from the Toronto Purchase and Cook's Bay in the west to the Bay of Quinte and the Crawford Purchase in the east. Known as the Johnson-Butler Purchase, it is more commonly referred to as the "Gunshot Treaty" (Surtees, 1994, p. 107). Due to irregularities in the 1787 treaty, the Deputy Superintendent of Indian Affairs, William Claus entered negotiations to redefine the northern boundaries and to purchase a larger tract. The Williams Treaties were signed in 1823, transferring 2,000,000 ha of land to the Canadian Government (Surtees, 1994).

COUNTY OF NORTHUMBERLAND

The study area is situated in the County of Northumberland, formed as part of the Newcastle District in 1802. John Graves Simcoe had divided the district into nineteen counties, naming the counties of Durham and Northumberland after their respective counties in England. The area was settled by United Empire Loyalists as well as Scottish and Irish immigrants. Local industry was initially dominated by timber, but as the land was cleared, the fertile soils of the county gave rise to numerous prosperous farms (Mika & Mika, 1981, pp. 87-88). With Lake Ontario to the south, many of its early communities were centered on the trade brought in by its several harbours. By 1830, both Port Hope and Cobourg had established harbours (Argyris, 2000, p. 37). When the Baldwin Act of 1849 dissolved the districts of Upper Canada, both Durham and Northumberland formed a single administrative and judicial unit, the United Counties of Northumberland and Durham. Cobourg, which became a town in 1850, was to be the county seat.

This municipal organization continued for over a century until 1974, when Durham became the Regional Municipality of Durham in 1974 and Northumberland became a separate county. It consisted of nine townships (Alnwick, Brighton, Cramahe, Haldimand, Hamilton, Hope, Murray, Percy, and Seymour) and three villages (Colborne, Brighton, and Hastings). The Township of South Monaghan had previously been part of Northumberland but was moved to the County of Peterborough (Mika & Mika, 1981, pp. 87-88). Throughout its history, the county remained predominantly rural.

TOWNSHIP OF CRAMAHE

The Western Segment of the study area is situated in the Geographic Township of Cramahe. Named after the Lieutenant-Governor of Quebec from 1771 to 1782, Hector Theophilus Cramahe, the Township was surveyed by Augustus Jones beginning in 1792 (Argyris, 2000). The initial settlers were United Empire Loyalists. The first among these was Joseph Keeler, who arrived from Vermont in 1789. He later returned to the newly established United States of America before finally settling back in the township in 1793. Keeler brought with him 40 settlers

who settled across Cramahe and Haldimand Townships. He later established a sawmill, a flouring mill, a carding mill, a woollen mill, and a distillery at Keeler's Creek, present-day Colborne Harbour (Mika & Mika, 1977).

In 1799, John Graves Simcoe hired Asa Danforth to establish a road between Toronto and Kingston. Built with corduroy roads in the swamper areas, the Danforth road reached Cramahe Township in 1800. Keeler also later built a gravelled road connecting the area of Colborne with the area of Percy, present-day Warkworth. Between 1812 and 1814, Kingston Road was established and supplanted the Danforth Road. By 1836, it was rebuilt as a plank road to assist with carriage travel (Argyris, 2000, pp. 32-34).

Joseph Keeler's son, Joseph A. Keeler Junior later established the village of Colborne, named after the Lieutenant Governor of Upper Canada, John Colborne. Keeler Junior also became a successful merchant, Colborne postmaster and later the Justice of the Peace for the entire Newcastle District (Mika & Mika, 1977). The harbour near Colborne benefitted the entire township, which shipped lumber, shingles, staves and grains to America. By the 1850s, Cramahe Township already had three established wharves (Argyris, 2000, p. 37). Colborne was later incorporated as a village in 1859 and removed from the county (Mika & Mika, 1977).

In 1853, the Grand Trunk Railway was established from Toronto to Montreal, later joined by the Canadian Pacific and the Canadian Northern railways around 1911. A railroad was also built between Port Hope and Beaverton, with a branch from Millbrook to Peterborough being added in 1858. These lines became part of the Midland Railway in 1860, connecting Northumberland with Georgian Bay. These roads and railways continued to feed the growth of Cramahe Township (Argyris, 2000, pp. 50-52).

Other than timber and trade, the primary industry in Cramahe Township was agriculture. It was mostly mixed farming, dairy herds and some tobacco farms. Along the coast are apple farms with facilities for storage and canning. Underneath the township were multiple thick beds of limestone. These resources led to the development of multiple sand and gravel quarries along with a large cement plant (Mika & Mika, 1977).

By 1975, the township had a population of 2,348 (Mika & Mika, 1977). In 2001, it was once again amalgamated with the village of Colborne, which had a population of 2,040, making the total population of the township 5,713 at the time.

TOWNSHIP OF BRIGHTON

The Eastern, Central and part of the Western Segment of the study area is situated in the Geographic Township of Brighton, established in 1851 through a special act of parliament. It was created out of parts of Murray Township to the east and Cramahe Township to the west. The unexpected growth of the Brighton community meant many residents of the area had to travel long-distances to the west and east to access municipal services. The southern boundary of the township was demarcated in the south by Presqu'ile bay in Lake Ontario with Seymour Township to the north (Mika & Mika, 1977, p. 266).

The earliest settlers to the area were United Empire Loyalists at the end of the eighteenth century. The Danforth Road was constructed through the area between 1799 and 1801 with Kingston Road arriving between 1812 and 1814. The town of Brighton was originally named Singleton's Corners, and its first store was established by John Kemp in 1816. In 1817, a post office was established and John Simpson became acting postmaster. An official post office was not established until 1832 with Thomas D. Sandford becoming the first official postmaster. The township of Brighton was initially driven by the timber industry, which was centered on the saw mills at Singleton's Corners and another owned by a William Butler. Lots of produce was also shipped out of the harbour in Presqu'ile bay. Other industries in the early 1800s included a blacksmith shop and a carriage makers shop. (Mika & Mika, 1977, p. 266).

In 1853, a road was established that connected the interior of Brighton Township with the shores of Lake Ontario. The present-day County Road 30 was surveyed by Josiah Proctor and helped encourage settlement north of Brighton. This growth included the establishment of the post villages of Hilton, Newcombe's Milles (present-day Orland), and Codrington. It was also in 1853 that the Grand Trunk Railway was established in the southern part of the Township, later joined by the Canadian Pacific and the Canadian Northern railways around 1911 (Mika & Mika, 1977, p. 266).

Over the course of the nineteenth century, industry shifted from timber to agriculture. The township's first Agricultural Society was organized in 1852 which held its first fair in 1853. Agriculture continued to be an important part of the Brighton Township economy throughout its history. Fruit and mixed farming became the most dominant types. By 1975, it had a population of 3,059 (Mika & Mika, 1977, p. 266). In 2001, it was reorganized as the Municipality of Brighton.

TOWNSHIP OF MURRAY

The eastern section of the Western Segment was located in the Township of Murray, now the city of Quinte West. It was bordered on the east by Sidney Township in the County of Hastings; the Township of Brighton to the west; the Percy Reach of the Trent River and Seymour Township to the North; and Wellers Bay of Lake Ontario to the south. The Township was named after James Murray, a British soldier involved in the siege of Quebec in 1759 who later became the Governor of Quebec (Mika & Mika, 1981, p. 704).

Like the rest of Northumberland county, the earliest settlers in Murray were primarily United Empire Loyalists who migrated from the townships along the Bay of Quinte in the 1790s. They settled across the township, including at Trent Port, present-day Trenton, at the head of the Trent-Severn Waterway. The local economy was initially focused on timber due to the availability of pine and other hardwoods, as increased demand was spurred on by the War of 1812 (Mika & Mika, 1983, p. 548). The timber was transported to the sawmills in Trent Port where it was later exported to American markets. The timber industry peaked in the later nineteenth century, but the local economy gradually shifted towards agriculture where its focus remained (Mika & Mika, 1981, p. 704).

As the township grew, Wooler Village became the township seat where the town hall was constructed (Mika & Mika, 1981, p. 704). Between 1799 and 1801, the Danforth Road was constructed through the area but was replaced by the Kingston Road between 1812 and 1814. In the 1830s, work began on the Trent-Severn canal and locks. In 1856, the Grand Trunk Railway was established between Toronto and Montreal. It was later joined by the Central Ontario Railway between Trenton and Picton in 1879 and later the Canadian Northern Railway between Deseronto and Port Hope in 1911. These railways, along with the construction of Murray Canal between the Bay of Quinte and Lake Ontario in 1884, made Trent Port, now Trenton, and subsequently Murray Township a major transportation hub (Mika & Mika, 1983, p. 548). In 1998, Murray Township was amalgamated with the city of Trenton, the village of Frankford, and the Township of Sidney to become the City of Quinte West.

1.3.3 STUDY AREA SPECIFIC HISTORY

To better understand the historic land use of the study area, Belden & Co's 1878 *Illustrated Historical Atlas of the Counties of Northumberland and Durham* (Figure 3a-c) was reviewed to examine whether historic features are located within or near to the study area. This analysis contributes to the determination of archaeological potential. A list of the properties, their occupants, and any features of interest are listed in The Western Segment of the study area was a predominantly rural landscape. Features of potential within approximately 300 m or in the study area included one schoolhouse and at least 36 farmsteads. Inhabitants are largely concentrated on the east-west roadways

in the area including present-day Purdy Road, Honey Road, Crandall Road, and Telephone Road. As the highway is also an east-west corridor, a substantial number of features of potential along these roadways were encompassed within the study area. Twelve historical roadways were illustrated on the 1878 map within approximately 300 m of the study area, including present-day Elgin Street, Purdy Road, Herley Road/Durham Street North, Honey Road, Parliament Road, Samis Road, Crandall Road, Dunk Road, Dean Road, Pine Tree Lane, Lake Road, and Telephone Road.

Table 2: Historical Land Use Summary by Lot and Concession for the Center Segment

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
Brighton	4	4	Charles S. Becker (South)	N/A
		3	Charles S. Becker (South)	North-south river, north-south roadway (present-day County Road 30), 1 farmstead in northeast

The Center Segment is a small area predominantly on Lot 4, Concession 4. It is in close proximity to the present-day north-south Country Road 30 to the west and the present-day east-west Telephone Road and former north-south Tillings Road to the south. Three farmsteads are situated on the opposite side of Telephone Road as the study area.

Table 3

for the Western Segment, Table 1 for the Center Segment, and Table 3 for the Eastern Segment. Properties without features depicted were labelled as “N/A”. It should be noted, however, that the absence of structures or other features illustrated on the map does not preclude their presence on these properties. Illustrating all homesteads on the historic atlas maps would have been beyond the intended scope of the atlas and, often, homes were only illustrated for those landowners who purchased a subscription. Properties with features of potential within approximately 300 m of the study area are bolded.

Table 1: Historical Land Use Summary by Lot and Concession for the Western Segment

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
Cramahe	2	28	Estate of D. Robertson (North)	1 farmstead in southeast, river in center
		29	S (Northwest)	1 structure
Brighton	3	5	Wade Estate	1 farmstead in northeast
		6	J. P. Smith (Northwest)	1 farmstead in northeast
			George Brownson (Northwest)	1 farmstead in northwest, east-west river surrounded by swamp in south
		7	William Langdon (West)	1 farmstead in northeast, east-west river surrounded by swamp in center
			L. H. Hodges (Northeast)	1 farmstead in northeast, east-west river surrounded by swamp in south
		8	Jason Smith	2 farmsteads in northeast, river and swamp in center
			C. A. Shears (Northwest)	2 farmsteads in north, area of swamp in south
9	D. R. Bedell (North)	Lake in south surrounded by swamp		

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
Cramahe	3	10	D. R. Bedell (North)	1 structure in northwest, mostly swamp with east-west river in center
		11	Charles Barker (West)	East-west river in north, 1 farmstead on northern banks
			E. Wait (Northeast)	East-west river in north
		12	Edward Cochrane	East-west river in north, 1 farmstead on southern banks
		13	Peter Wright (South)	East-west river in south, 1 farmstead on southern banks in north
			Mr. Caruthers N. R. (North)	East-west river in south, 1 farmstead on northern banks in southeast
		14	Jonathan D. Clouston (West)	2 farmsteads in north, river flows through center
			Peter Wright (Southeast)	N/A
			Mr. Caruthers N. R. (Center east)	N/A
		15	Ira Brintnall	2 farmsteads in north, 1 farmstead on a smaller separate property, two north-south rivers, Little Lake in southwest
		16	Anson Avery	1 farmhouse in northeast, borders Little Lake and river in southeast
		17	B. McDonald (Central)	1 farmhouse in northwest, borders little lake in south
			W. Ives (North)	1 house and schoolhouse in northeast
		18	R. Sprentnall (North, south of present-day Pine Tree Lane)	2 structures in northeast
			C. Peterson (South, north of present-day Pine Tree Lane)	1 farmhouse in northeast
			J. McDonald (Central, north of present-day Pine Tree Lane)	2 farmhouses (1 in northwest and 1 in southeast)
		19	J. Lacey (South)	Bisected by roadway (present-day Pine Tree Lane), 1 farmhouse on southside of road with roadway heading north (present-day Dean Road)
			P. Inglis (Northwest)	1 farmhouse in northeast
			R. Challen (Northeast central)	1 farmhouse in northwest
		20	P. Inglis (Center)	Bisected by roadway (present-day Pine Tree Lane)
			Jonathan Gummer (North)	N/A
		21	J. Drinkwater (South)	1 farmhouse on roadway (present-day Crandall Road)
			William Roney (North)	1 farmhouse on roadway (present-day Crandall Road)
22	J. W. Philip (South)	1 farmhouse on roadway (present-day Crandall Road)		
	J. J. Onion (North)	N/A		
23	W. H. Jackson (South)	1 river in southeast		

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
		24	G. N. McDonald (North)	1 farmhouse in north, Bisected by roadway (present-day Crandall Road), 1 farmhouse on southside of road
			J. Marks (South)	Bisected by roadway (present-day Crandall Road), 1 farmhouse on northside of road
			J. Onion (North)	1 farmhouse, northwest
		25	E. Thompson (Southwest)	1 farmhouse, south on roadway
			W. Thompson (Southwest central)	N/A
			S Conklin, N. R. (Southeast)	1 roadway in northeast (present-day Crandall Road)
			S. Borland	1 farmhouse, northeast, two roadways in south (present-day Honey Road and Crandall Road)
		26	R. Scott (West)	Bisected by roadway (present-day Honey Road), 1 farmhouse on south of roadway
			Mrs. Kelly (East)	Bisected by roadway (present-day Honey Road)
		27	W. H. Cotton (East)	1 farmhouse in East central, bisected by roadway (present-day Honey Road)
			R. Martin (Southwest)	1 farmhouse in southwest, bisected by roadway (present-day Honey Road)
		28	Charles Labell (South)	1 farmhouse and river in the south, bisected by roadway (present-day Honey Road)
		29	S. McCracken (Southwest)	N/A
			C. McCracken (Southeast)	1 farmhouse in southwest
		30	W. Thompson (Southwest)	1 farmhouse in southeast
			S. McCracken (Southeast)	1 farmhouse in southeast
31	Thomas Creer	1 farmhouse, southcentral and 1 schoolhouse on southside		

The Western Segment of the study area was a predominantly rural landscape. Features of potential within approximately 300 m or in the study area included one schoolhouse and at least 36 farmsteads. Inhabitants are largely concentrated on the east-west roadways in the area including present-day Purdy Road, Honey Road, Crandall Road, and Telephone Road. As the highway is also an east-west corridor, a substantial number of features of potential along these roadways were encompassed within the study area. Twelve historical roadways were illustrated on the 1878 map within approximately 300 m of the study area, including present-day Elgin Street, Purdy Road, Herley Road/Durham Street North, Honey Road, Parliament Road, Samis Road, Crandall Road, Dunk Road, Dean Road, Pine Tree Lane, Lake Road, and Telephone Road.

Table 2: Historical Land Use Summary by Lot and Concession for the Center Segment

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
Brighton	4	4	Charles S. Becker (South)	N/A

		3	Charles S. Becker (South)	North-south river, north-south roadway (present-day County Road 30), 1 farmstead in northeast
--	--	---	---------------------------	---

The Center Segment is a small area predominantly on Lot 4, Concession 4. It is in close proximity to the present-day north-south Country Road 30 to the west and the present-day east-west Telephone Road and former north-south Tillings Road to the south. Three farmsteads are situated on the opposite side of Telephone Road as the study area.

Table 3: Historical Land Use Summary by Lot and Concession for the Eastern Segment

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
Brighton	1	29	Cory Scriver	1 farmstead in east, east-west river in north and south
		30	G. L. Breckenridge (Northwest)	N/A
			H. Scriver (Northeast)	North-south river throughout
		31	Matt Mills (Northwest)	1 farmstead in center
			William Brooks (East)	1 farmstead and river in south
		32	Caleb G. Tompkins (West)	N/A
			William Brooks (East)	N/A
		33	And Oliver (West)	1 farmstead in south, river in southwest
			Caleb G. Tompkins (East)	1 farmstead in south
		34	S. M. Hicks (Northwest)	1 farmstead, 1 pond, and 2 branches of a roadway (present-day County Road 26)
A. Rogers	1 farmstead in southwest, 1 roadway (present-day County Road 26)			
35	A. C. Singleton	2 east-west rivers, Grist Mill “Spring Valley Mills” on northern river, east-west roadway (present-day County Road 26)		
Murray	2	22	Mrs. E Ireland (Northwest)	1 farmstead in northwest
			J. McCunan (Southwest)	1 farmstead in north, along present-day Christiani Road
			P. W. McMasters (South Central)	1 farmstead in north, along present-day Christiani Road
Brighton	2	23	R. McMaster (Northwest)	Two east-west rivers in center with farmstead in southwest
			J. B. Potts (Southwest)	Two east-west rivers and one southwest-northwest river with church in north
			R. Reddick (Northeast)	East-west river and farmstead in center
			Jonathan Potts (Southeast)	East-west river and farmstead in center
		24	M. K. Lockwood (South)	2 farmsteads in west, two east-west rivers in east
			G. McMaster (North)	East-west river in south with swamp, farmstead in center
		25	G. McMaster (Southwest)	N/A
			M. Terry (Southeast)	Farmstead in southwest
			Mrs. James Derine (Center)	N/A
		26	G. Snellgrove (Southwest)	East-west river, 2 farmsteads in northwest

Township	Concession	Lot	1878 Atlas Map	
			Occupants	Features
			G. McMaster (Southeast)	Farmstead in southeast
			Mrs. James Derine (Center)	2 farmsteads in southwest, river in northwest
		27	J. Peister (Southwest)	East-west river
			J Snellgrove (Southeast)	East-west river, farmstead in east
		28	Terry Estate (Southwest)	2 farmsteads in west
			P. Peister Junior (Southeast)	Farmstead in southwest
		29	John Harvey (Southwest)	East-west roadway, 2 farmstead in northwest
			F. W. Field (Southeast)	N/A
		30	B. Brown (Southwest)	N/A
			C. Bullock (Southeast)	Farmstead in northeast
		31	Ben Brown (South)	1 farmstead in southeast, hop kiln in northwest along southwest to northeast roadway
		32	H. Breeze (Southwest)	Schoolhouse and farmstead north along east-west roadway (present-day County Road 26)
			G. L. Emory (Southeast)	3 structures in north along east-west roadway
		33	Levi Belles (Southwest)	1 farmstead on a southwest-northeast roadway (present-day County 26), 1 farmstead in south
			J. M. Winter (East)	1 farmstead on a west-east roadway (present-day County Road 26)
		34	S. McMaster (Southwest)	1 farmstead on a southwest-northeast roadway (present-day County Road 26)
			W. McConnell	1 farmstead on a southwest-northeast roadway (present-day County Road 26)
		35	Jonathan E. Proctor	1 structure in south
		36	Alex Davidson (Southeast)	N/A

The Eastern Segment of the study area was a predominantly rural landscape. Features of potential within approximately 300 m or in the study area included one schoolhouse and at least 23 farmsteads. Inhabitants are largely concentrated on the east-west Telephone Road, which the Eastern Segment corridor straddled. As a result, a substantial number of features of potential were within the study area. Settlement also concentrated on the north-south County Road 26 and three roadways that have since been abandoned between Lots 28 and 29; Lots 26 and 27; and Lots 24 and 25. In the far east, there were some structures on the bend of Christiani and Coltman Roads. Ten historical roadways were illustrated on the 1878 map within approximately 300 m of the study area, including present-day Telephone Road, County Road 26, western First Avenue, Scrivner Road, Middle Ridge Road, Coltman Road, Christiani Road and the three abandoned roadways between Lots 28 and 29; Lots 26 and 27; and Lots 24 and 25.

To gain a better understanding of the more recent land use of the study area, aerial imagery from 1954 was reviewed, made available by the University of Toronto (Figure 4a-c). By 1954, the landscape in the immediate vicinity of the study areas remained largely unchanged from what is illustrated on the 1878 map nor from present-day. Multiple farmsteads from 1878 appear to be still present on Purdy Road, Durham/Hurley Road, Crandall Road, Lake Road and Telephone Road in the Western Segment; Telephone Road, County Road 26, the abandoned road between Lots 24 and 25, Coltman Road, and Christiani Road in the Eastern Segment. With the Central Segment, the farmsteads are still present on the opposite side of Telephone Road while the study area proper has been developed into a small orchard.

The most significant development since 1954 was the construction of Highway 401, which severed many of the lots it was built through. Some of the cultivated plots in the area have been consolidated into larger plots, others have been abandoned and overgrown while many of the woodlots have persisted or even grown. In the Western Segment, Highway 401 has also altered some of the historical roadways such as Crandall Road, which has been disconnected from Quarry Road, Pine Tree Lane and Lake Road with sections of these roads being abandoned. Crandall Road has since also been extended all the way to Little Lake, referred to as Biddy Lake in 1954. Despite the development of the highway, Little Lake and its tributaries seemed to be largely unaltered. The only significant development in the vicinity of the Western Segment is the industrial park at Purdy Road and County Road 25; the quarries on Lot 19 and 20, Concession 3; the housing along Little Lake; the trailer park on Lot 7, Concession 3; and a general increase in residential homes. The Center Segment has become a carpool lot for Highway 401 and the homesteads opposite are now a gas station.

In the Eastern Segment, Highway 401 has diverted other historic roadways, including present-day Telephone Road, which was shifted slightly southwards. Multiple roadways north of the highway have since been abandoned and some of the areas they previously serviced have become overgrown bush and wood lots. First Avenue has been altered and constructed to parallel the highway in an east-west orientation for a short period. North of First Avenue appears to be a large tree farm or orchard. Otherwise, the only significant change is a general increase in residential homes, particularly on Telephone Road.

The largely unaltered landscape indicates that, with the exception of the disturbance associated with the construction of Highway 401, the remainder of the study area retains archaeological potential.

1.4 ARCHAEOLOGICAL CONTEXT

1.4.1 CURRENT CONDITIONS

The assessment involves three segments of the east-west Highway 401 corridor within this section. The first area, the Western Segment, continued from the western extent to approximately 0.8 km west of County Road 30. The second area, the Center Segment, includes a small area northeast of the intersection of County Road 30 and Telephone Road. The third area, the Eastern Segment, begins at approximately 1.5 km east of County Road 30 and continues to the eastern extent.

The immediate right-of-way on either side of the highway typically consisted of scrub land, grassy areas, bush lots and wooded areas. Beyond that, the landscape is generally comprised primarily of cultivated farmlands or wood lots with small quarries, roadways, industrial buildings, residential homes, and other infrastructure only occasionally encountered. Part of the study area includes Little Lake, a sizeable body of water, and there are small north-south extensions of the corridor that include parts of Durham Street North and Lake Road in the western segment and an extension along County Road 26 in the eastern segment.

1.4.2 PHYSIOGRAPHY AND ECOLOGY

The study area corridor falls within two physiographic regions of Southern Ontario: the Iroquois Plains and the South Slope Physiographic regions. The western and eastern extents are within the Iroquois Plains while the majority is within the South Slope.

The South Slope is situated between Lake Ontario and the Oak Ridges Moraine. This physiographic region is higher than the glacial Lake Iroquois Plain and extends from the Niagara Escarpment in the west to the Trent River in the east (Chapman & Putnam 1984, p. 172). The region is primarily a ground moraine with irregular knolls and hollows with Chinguacousy clay loam soil. These soils are developed on tills which are often also very clayey with black and grey shale (Chapman & Putnam, 1983, pp. 173-174). These soil types lend themselves well for agricultural purposes. The first settlers in this area favored the cultivation of grain and wheat, which thrived in this soil, and became abundant enough to be exported as cash crops to the rest of Ontario. The focus on crops would later shift to a focus on livestock and animal products, including beef cattle, hogs, and dairy. (Chapman & Putnam, 1983, pp. 174-175).

The Iroquois Plains physiographic region of Southern Ontario is described as a former zone of beaches of ancient glacial Lake Iroquois (Chapman & Putnam, 1984, p. 190). The Iroquois Plain physiographic region encircles the western portion of Lake Ontario from the Niagara River to the Trent River (Chapman & Putnam, 1984, pp. 190-196). The Iroquois Plain was formed as a result of glacial recession and the emptying of Lake Iroquois towards New York State (Chapman & Putnam, 1984, p. 190). In the area between Newcastle and Trenton, the landscape of the Iroquois Plains is interrupted by a group of drumlinized uplands which once were islands or promontories within the greater Lake Iroquois. The waves of Lake Iroquois altered them from the typical drumlin shape. The water eroded away the ends and cut steep shore cliffs in the drumlins. The material that was eroded away formed broad offshore terraces in the hollows of the drumlins. These terraces are dry now but are cut deeply by river and stream valleys.

In the stretch from Cobourg to several kilometers past Colborne, the Iroquois Plains were only around 5.6 km in width. The drumlins in this area also formed a belted pattern through the centre, along Highway 2. They are typically 45 m in height and oriented to the southwest with their sides eroded by glacial Lake Iroquois. The soil of these hollows between these drumlins are quite silty. Just to the north of Highway 401 is the old shoreline of Lake Iroquois, which rises from 172 m near Baltimore to a peak of 182 m near Bidby/Little Lake, which is near the center of the study area. Between Highway 2 and Lake Ontario, the topography is quite flat with only a shallow drift over the bed rock and lacustrine deposits of sand, fine sand and silt. There are also the occasional western-oriented drumlin and cedar-forested swamps. After Brighton, the Iroquois Plains expand once more to almost 10 km in width. It retains a similar belted pattern but instead of drumlins, there are rolling hills. To the south of Brighton is Presqu'île Bay, which is a rock mass connected to the rest of the area by a long sand spit (Chapman & Putnam, 1984, p. 194-195).

In terms of land-use, the Iroquois Plains are one of the more densely populated areas of Ontario. The lakefront lends itself to trade and the flat topography makes transportation easy overland. Its sandbars and offshore aprons of sand act as aquifers for many of its communities, supplying them with domestic water. The presence of Lake Ontario also provides a moderating climatic advantage. The old clay of the lake bed has been used in the manufacturing of brick.

The Colborne and Brighton area has remained largely agricultural since the 1940s, and it has become part of the Ontario tobacco belt. Areas with good drainage are often used for orchards and in the east, tomatoes and other canning crops are produced. On the hill-sides of the drumlins, the land is often used as pasture for dairy farming. Other crops grown include hay, silage corn, oats and mixed grain. It has numerous gravel bars whose quarries have provided useful road metal and building materials (Chapman & Putnam, 1984, pp. 194-196).

There are nine main soil types encountered in the study area. Of these nine soil types, five have good to rapid drainage, which includes Bondhead sandy loam, Brighton sandy loam, Colborne sandy loam, Dundonald sandy loam, and Pontypool sand or gravelly sand. Three have poor drainage, which includes Granby sandy loam, Tecumseth sandy loam, and Lyons loam. Finally, there are sections within the study area which are simply muck. These areas are characterized by wet organic deposits which are very poorly drained (Hoffman & Acton, 1974).

The study area lies within the Mixedwood Plains Ecozone, within the Lake Simcoe-Rideau Ecoregion (Ecoregion 6E) (Crins et al., 2009). The climate of the Lake Simcoe-Rideau Ecoregion is mild and moist, with a mean annual temperature range of 4.9 to 7.8 degrees Celsius. This region is characterized predominantly by an underlying Paleozoic dolomite and limestone bedrock, primarily of Ordovician and Silurian ages, with the exception of the Frontenac Axis, which contains a complex zone of mixed bedrock types. (Crins et al., 2009).

Typical mammals of the area include the white-tailed deer, the northern raccoon, the striped skunk and the woodchuck. Wetland habitats are used by many species of water birds and shorebirds, including wood duck, great blue heron, and Wilson’s snipe. Birds common in open uplands include the field sparrow, grasshopper sparrow and the eastern meadowlark while forests often contain species such as hair woodpeckers, wood thrush, scarlet tanager and the rose-breasted grosbeak. Typical reptiles include the bullfrog, northern leopard frog, spring peeper, red-spotted newt, snapping turtle, eastern garter snake and the common water snake. Fish species in the area include the white sucker, smallmouth bass, walleye, northern pike, yellow perch, rainbow darter emerald shiner and pearl dace (Crins et al., 2009).

The Lake Simcoe-Rideau Ecoregion falls within the Great Lakes-St. Lawrence Forest Region. The vegetation of this forest region is relatively diverse. Hardwood forests are dominated by Sugar Maple, American Beech, White Ash, and Eastern Hemlock. 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 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. Some of the best examples of North American alvar vegetation are located in this ecoregion (Rowe, 1972).

1.4.3 PREVIOUS ARCHAEOLOGICAL ASSESSMENTS

A search of the MHSTCI’s *Ontario Public Register of Archaeological Reports* on January 26th, 2021 indicates that four archaeological assessments have been conducted on or within 50 m of the study area (Figure 5a-c). All of these assessments include small sections of land within the study area boundaries, primarily in the far west of the western segment. These reports are detailed in Table 4 and summarized below.

Table 4: Previous archaeological assessments on or within 50 m of the study area

Year	PIF	Title	Researcher
2015	P390-0127-2015	<i>Stage 1 Archaeological Assessment for the Proposed Development of Industrial Park Within Part of Lot 31, Concession 3 In the Geographic Township of Cramahe, Historical County of Northumberland, Township of Cramahe, County of Northumberland, Ontario</i>	Archeoworks Inc.
2016	P1016-0105-2015	<i>Stage 2 Archaeological Assessment for the Proposed Development of Industrial Park Within Part of Lot 31, Concession 3, In the Geographic Township of Cramahe, Historical County of Northumberland, Township of Cramahe, Now the County of Northumberland</i>	Archeoworks Inc.
2018	P248-0274-2016	<i>Stage 1 and Stage 2 Archaeological Assessment 21 Culvert Replacements on Highway 401 between 3.1 km West of County Road 30 and Glen Miller Road Various Lots and Concessions in the Geographic Townships of Brighton and Murray, Northumberland and Hastings Counties Project #15841-6</i>	The Central Archaeology Group Inc

Year	PIF	Title	Researcher
2019	P415-0161-2018	<i>Stage 1 Archaeological Assessment: Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00, Various Lots and Concessions, Geographic Townships of Hamilton, Haldimand, and Cramahe, now Township of Alnwick,/Haldimand and Town of Cobourg, County of Northumberland, Ontario.</i>	Stantec Consulting Ltd

In 2015, Archeoworks Inc. was retained to conduct a Stage 1 archaeological assessment for the proposed development of an Industrial Park on part of Lot 31, Concession 3, in the Geographic Township of Cramahe, County of Northumberland, Ontario. This assessment including a small section within the southwest corner of the western segment of the current study area. It was determined the entire area had archaeological potential. Stage 2 archaeological assessment was recommended (Archeoworks Inc., 2015).

In 2016, Archeoworks Inc. was retained to conduct a Stage 2 archaeological assessment for the proposed development of an Industrial Park on part of Lot 31, Concession 3, in the Geographic Township of Cramahe, County of Northumberland, Ontario, including a small section within the southwest corner of the western segment of the current study area. The entire study area was subject to a test pit survey at 5 m intervals. No archaeological resources were identified and no further work was recommended (Archeoworks Inc., 2016).

In 2018, The Central Archaeology Group Inc. was retained by MTO to conduct a Stage 1 and 2 archaeological assessment for the replacement or rehabilitation of multiple Highway 401 culverts which included seven structures and within the current study area. The impacted areas were subject to test pit survey at 5 m intervals. No archaeological resources were identified and no further work was recommended (The Central Archaeology Group Inc., 2018).

In 2019, Stantec Consulting Ltd. was retained by the MTO to conduct a Stage 1 archaeological assessment for a planning study for Highway 401 from Cobourg to Colborne. The majority of the study area was considered to have archaeological potential. Stage 2 archaeological assessment was recommended for these areas. This recommendation included areas that overlap with the western segment of the current study area (Stantec, 2019).

1.4.4 REGISTERED ARCHAEOLOGICAL SITES

A search of the *Ontario Archaeological Sites Database* (OASD) indicates that there are three registered archaeological sites within 1 km of the study area (MHSTCI, 2021). Although there are few known archaeological sites in the area, this is not an indication that no sites exist, but is a reflection of the lack of archaeological studies that have been completed given that there has been little development beyond the construction of Highway 401. Details on the sites identified are provided in Table 5.

Table 5: Registered archaeological sites within 1 km of the study area

Borden	Site Name	Time Period	Cultural Affinity	Site Type	Current Development Status
BaGl-6	-	Woodland, Early; Woodland, Middle	Indigenous*	Findspot*	No further work required*
BaGl-7	-	Post-Contact	Euro-Canadian	Unknown	No further work required*
BaGk-7	Snyder	Pre-Contact	Indigenous*	Burial	Further work required*

- denotes no information listed

* denotes inferences made by author

BaGl-6 and BaGl-7 were identified by York North Archaeological Services in 2008 as part of a Stage 1-2 archaeological assessment in advance of the Voskamp-Cotter Pit Quarry. BaGl-6 consisted of a single partial pre-contact projectile point identified as either an Early Woodland Meadowood or a Middle Woodland Saugeen type. BaGl-7 is a late nineteenth century, Euro-Canadian site consisting of a scatter of 154 artifacts including ceramics, glass, metal and bone. No further work was recommended for this site (York North Archaeological Services, 2009). According to the OASD, the Snyder Site (BaGk-7) were the skeletal remains of three individuals that were impacted by the excavation of a well. It is situated on a hill overlooking confluence of Mayhew Creek and tributary stream. The site was documented by archaeologist Christen Junker-Andersen in 1999 (MHSTCI, 2021).

1.4.5 LISTED AND DESIGNATED HERITAGE PROPERTIES

There are five listed heritage properties but no designated heritage properties or cemeteries within 300 m of the study area (Municipality of Brighton, 2017; Northumberland Tourism, 2019; Heritage Cramahe, 2020). Listed Heritage properties and their information are provided in Table 6 below.

Table 6: Listed Heritage Properties within 300 m of the study area

Location	Status	Address	Details
Cedar Grove	Listed	14835 Telephone Road	Gothic architecture, built ca. 1870
Gibbard Farmhouse	Listed	15064 Telephone Road	Built ca. 1870
15120 Telephone Road	Listed	15120 Telephone Road	Ontario Gothic Cottage, built ca. 1883
15154 Telephone Road	Listed	15154 Telephone Road	Ontario Gothic Cottage, built ca. 1875
Wade School (SS#88)	Listed	79 Newton Lane	One-time Boy Scout hall, built ca. 1866

2 FIELD METHODS

2.1 PROPERTY INSPECTION

A property inspection was completed on November 13th, 2020 to gain first-hand knowledge of the geography, topography, and current conditions of the study area. The study areas within the Highway 401 corridor were spot-checked and inspected from the publicly accessible right-of-way with permission of the MTO, while the remainder of the inspection occurred from public lands. The weather during the property inspection ranged from 8 to 10 °C with clear to overcast skies. Lighting and ground conditions were adequate for the documentation of features of archaeological potential.

Concerning archaeological potential, the Western and Eastern segments are largely similar. Both areas are entirely bisected by the Highway 401, which was inspected and visually determined to be disturbed. This corridor consisted of two-lanes of traffic and shoulders for both eastbound and westbound lanes, separated by a grass or paved median of varying width (Images 1-3). The median was artificially graded and ditched with drainage complemented by structural culverts (Image 4). On either side of the highway was its right-of-way which consisted primarily of scrub land, grassy areas, bush lot, and wooded areas (Images 5, 6). In areas of flat topography, the highway had been bevelled to grade and the right-of-way was artificially ditched to assist with any drainage needs (Images 7-12). In areas of elevated and irregular topography, the highway was excavated down to grade and the right-of-way consisted of artificially cut-slopes and drainage ditches (Images 13-14). At several points, Highway 401 was crossed by other roadways. These areas were extensively landscaped with foundational berms for the construction of the corresponding overpasses (Images 15). These are all indicators of disturbance demonstrating that the Highway 401 corridor has been significantly impacted by the construction, grading, and paving of the highway; the construction of the overpasses; and the excavation of associated ditching, drainage and sloping on either side.

Outside of the Highway 401 corridor, the study area is predominantly rural where the landscape typically consisted of either bush lots, wood lots, or ploughed agricultural fields (Images 16-18). Structures consisted either of residential homes or farmsteads and their associated driveways, barns, and outbuildings (Images 19, 20). The footprints of these buildings are disturbed as a result of the necessary ground disturbance required for basements, foundations, and other landscaping activities. Otherwise, the study area beyond the Highway 401 right-of-way largely retains its archaeological potential. Aside from the construction of buildings, potential has only been removed in these areas for one of four reasons: roadway construction (Images 21-28); areas of excessive slope of greater than 20° (Images 29-33); wet and low-lying areas (Images 34-38); and areas used as quarries. The latter requires further confirmation of deep disturbance as these were not readily accessible.

All referenced images (Images 1-40) are located on Figure 6a-1 and their GPS coordinates are retained by WSP.

2.2 INVENTORY OF DOCUMENTATION RECORDS

The following represents all the documentation taken in the field relating to this project and is being retained by WSP:

- 1 page of field notes
- 50 digital photographs in JPG format
- GPS readings taken during the property inspection

3 ANALYSIS AND CONCLUSIONS

3.1 ARCHAEOLOGICAL POTENTIAL

Based on the results of the background study, there is high potential for the presence of archaeological resources within the study area. The criteria for determining the level of archaeological potential is primarily focused on physiographic variables that include distance and nature of the nearest source/body of water, distinguishing features in the landscape (e.g. ridges, knolls, eskers, wetlands), the agricultural viability of soils, resource availability, and other features which would have made the area more suitable for settlement and occupation. A more comprehensive list of features indicative of archaeological potential, as outlined in the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI, 2011), can be found in Appendix B.

There is high potential for the presence of pre-contact archaeological resources given the proximity to Little Lake and Lake Ontario. The Highway 401 corridor closely straddles the former shore line of the ancient glacial Lake Iroquois, where there are many deposits of well-drained sandy soils and notable promontories. This would have made this area ideal for pre-contact settlement given the readily available terrestrial and marine resources. Additionally, a registered pre-contact archaeological site (BaGI-6) is within 1 km of the study area, demonstrating the presence of Indigenous use of the landscape.

Historic background and archival research, including reviews of historic maps and county/township histories provide the basis for determining historic archaeological potential. The potential for the presence of historic Euro-Canadian archaeological resources is also high based on the presence of at least 62 historic farmsteads and 22 historic roadways within and immediately surrounding the entire corridor, as well as an historic Euro-Canadian site (BaGI-7) within 1 km of the study area boundaries. The largely agriculturally focused land has been occupied since the early nineteenth century.

3.2 CONCLUSION

The Stage 1 archaeological assessment determined that the study area corridor exhibits potential for the presence of both pre-contact and historic archaeological resources. Archaeological potential has been removed in portions of the study area as a result of the construction of Highway 401; local roads and their associated right-of-ways; residential and commercial building footprints; carpool parking areas; and underground gas lines. Archaeological potential is considered low in areas of steep slope and wet and low-lying areas. The remainder of the study area is largely rural and undeveloped and retains potential for the presence of archaeological resources (Figure 6a-1).

4 RECOMMENDATIONS

The Stage 1 archaeological assessment was carried out in accordance with the Ontario MHSTCI's *Standards and Guidelines for Consultant Archaeologists* (MHSTCI, 2011) supporting the *Ontario Heritage Act*. The resultant archaeological recommendation has been made based on the results of background historic research, an understanding of the geography and natural environment of the study area, and the property inspection to confirm the presence and/or absence of indicators of archaeological potential as outlined in *Standards and Guidelines for Consultant Archaeologists*.

Highway 401; local roads and their associated right-of-ways; building footprints; carpool parking areas; and areas disturbed by gas line utilities no longer retain archaeological potential and no further work is recommended for these areas. Archaeological potential is also low in areas of steep slope and low-lying and wet areas. These areas have been photo documented and no further archaeological investigation is required. The majority of the study area, however, retains high potential for the presence of archaeological resources. **Based on the results of the Stage 1 archaeological assessment, a Stage 2 archaeological assessment is required for those parts of the study area determined to retain archaeological potential (Figure 6a-1).**

The recommendations for the Stage 2 archaeological assessment are to follow the requirements of Section 2 of the *Standards and Guidelines for Consultant Archaeologists* (MHSTCI, 2011). The recommendations are as follows:

- Recently ploughed agricultural fields must be subject to pedestrian survey at 5 m intervals as per Section 2.1.1 of the *Standards and Guidelines for Consultant Archaeologists* (2011). Prior to pedestrian survey, the field must be ploughed and weathered to allow for ideal conditions for the identification of archaeological resources. After ploughing, soil visibility must be at least 80% in order for pedestrian survey to proceed.
- Where ploughing is not possible, the property must be subject to test pit survey at 5 m intervals as per Section 2.1.2 of the *Standards and Guidelines for Consultant Archaeologists* (2011). This recommendation includes areas such as wood lots, bush lots, manicured lawns, and areas of scrub overgrowth. Test pit survey can be increased to 10 m intervals in areas of confirmed disturbance based on professional judgement.
- Orchards where the area between plants is less than 5 m can be subject to test pit survey at 5 m intervals. Orchards where area between plants is greater than 5 m can be subject to strip-ploughing.

It should be noted that areas determined to no longer retain archaeological potential should not be subject to ground disturbing activities until the recommendations stated herein have been accepted by the Ontario Ministry of Heritage, Sport, Tourism and Cultural Industries, and the report has been entered into the Public Register of Archaeological Reports.

5 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the Standards and Guidelines for Consultant Archaeologists (2011a) 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 Archaeological 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 human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

6 REFERENCES

- Archaeoworks Inc. (2015). *Stage 1 Archaeological Assessment for the Proposed Development of Industrial Park Within Part of Lot 31, Concession 3 In the Geographic Township of Cramahe, Historical County of Northumberland, Township of Cramahe, County of Northumberland, Ontario*. Ontario Archaeology License Report within the Ontario Public Register of Archaeological Reports under MHSTCI file PIF# P390-0127-2015.
- Archaeoworks Inc. (2016). *Stage 2 Archaeological Assessment for the Proposed Development of Industrial Park Within Part of Lot 31, Concession 3, In the Geographic Township of Cramahe, Historical County of Northumberland, Township of Cramahe, Now the County of Northumberland*. Ontario Archaeology License Report within the Ontario Public Register of Archaeological Reports under MHSTCI file PIF# P1016-0105-2015.
- Argyris, E. (2000). *How Firm a Foundation: A History of the Township of Cramahe and the Village of Colborne*. Erin, Ontario: Boston Mills Press.
- Birch, J. (2012). Coalescent Communities: Settlement Aggregation and Social Integration in Iroquoian Ontario. *American Antiquity* 77: pp. 646-670.
- Chapman L.J. & D.F. Putnam. (1984) *The Physiography of Southern Ontario*. Ontario Geological Survey, Special Volume 2. Ontario, Canada.
- Clermont, N. (1999). The Archaic Occupation of the Ottawa Valley. In J.-L. Pilon, *Ottawa Valley Prehistory* (pp. 43-54). Hull, Quebec: Outaouais Historical Society.
- Crins, W.J., P.A. Gray, P.W.C. Uhlig and M.C. Wester. (2009). *The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions. Technical Report SIB TER IMA TR-01*. Ontario Ministry of Natural Resources, Science & Information Branch (Inventory, Monitoring and Assessment Section), Peterborough, Ontario.
- Dodd, C. F., Poulton, D. R., Lennox, P. A., Smith, D. G., & Warrick, G. A. (1990). The Middle Ontario Iroquoian Stage. In C. J. Ellis & N. Ferris, *The Archaeology of Southern Ontario to A.D. 1650* (pp. 321-360). London, Ontario: London Chapter, Ontario Archaeological Society.
- Ellis, C.J. & D.B. Deller. (1990). *Paleo-Indians*. In C.J. Ellis & N. Ferris (Eds.) *The Archaeology of Southern Ontario to A.D. 1650* (pp. 37-74). London, Ontario: London Chapter, Ontario Archaeological Society.
- Ellis, C.J., I.T. Kenyon, & M.W. Spence. (1990). The Archaic. In C.J. Ellis & N. Ferris (Eds.) *The Archaeology of Southern Ontario to A.D. 1650* (pp. 65-124). London, Ontario: London Chapter, Ontario Archaeological Society.
- Ferris, N. & Spence, M.W. (1995). The Woodland Traditions in Southern Ontario. *Revista de Arqueologia Americana* 9: 83-138.
- Fox, W. (1990). *The Archaeology of Southern Ontario to A.D. 1650*, (Eds) C.J. Ellis & N. Ferris. London, Ontario: London Chapter, Ontario Archaeological Society.
- H. Belden & Co. (1878). *Illustrated Historical Atlas of the Counties of Northumberland and Durham*. Toronto, Ontario: H. Belden & Co.

- Heritage Cramahe (2020). *Cultural Heritage Property Register by Location*. Retrieved 06-Jul-20 at: <https://heritagecramahe.ca/properties-by-location/>
- Hoffman, D. W. & C. J. Acton (1974). *The Soils of Northumberland County*. Report No. 42 of the Ontario Soil Survey. Guelph, Ontario.
- Mika, N. & H. Mika. (1977). *Places in Ontario, Their Name Origins and History, Part I A-E*. Belleville, Ontario: Mika Publishing Company.
- Mika, N. & H. Mika. (1981). *Places in Ontario, Their Name Origins and History, Part II F-M*. Belleville, Ontario: Mika Publishing Company.
- Mika, N. & H. Mika. (1983). *Places in Ontario, Their Name Origins and History, Part III N-Z*. Belleville, Ontario: Mika Publishing Company.
- Ministry of Heritage, Sport, Tourism and Culture Industries. (Feb 3, 2021). Sites within a One Kilometre Radius of the Project Area. Provided from the Ontario Archaeological Sites Database.
- Ministry of Heritage, Sport, Tourism and Culture Industries (2011). *Standards and Guidelines for Consultant Archaeologists*. Toronto, Ontario: Queen's Printer for Ontario.
- Migizi, G and J. Kapyrka (2015). Before, During and After: Mississauga Presence in the Kawarthas. In *Peterborough Archaeology*, Dirk Verhulst, editor (pp 127-136). Ontario Archaeological Society: Peterborough, ON.
- Municipality of Brighton (2017). *Heritage and History*. Retrieved 06-Jul-20 at: <https://www.brighton.ca/en/discover-brighton/heritage-and-history.aspx>.
- Noble, W. (1975). Van Biesen: A Study in Glen Meyer Development. *Ontario Archaeology* 24: 3-95.
- Northumberland Tourism (2019). *Heritage*. Retrieved 06-Jul-20 at: <https://www.northumberlandtourism.com/en/see-do/heritage.aspx#>.
- Ramsden, P. G. (1990). The Hurons: Archaeology and Culture History. In *The Archaeology of Southern Ontario to A.D. 1650*, Ed C.J. Ellis and N. Ferris, pp. 361-384. Occasional Publication of the London Chapter, OAS No. 5. London: Ontario Archaeology Society.
- Ramsden, P. (1998). Laurentian Archaic in the Kawartha Lakes and Haliburton. In P. J. Woodley, P. Ramsden, P. J. Woodley, & P. Ramsden (Eds.), *Preceramic Southern Ontario* (pp. 141-147). Dundas, Ontario: Copetown Press.
- Rowe, J. S. (1972). *Forest Regions of Canada*. Department of the Environment Canada Forestry Services. Ottawa, Ontario.
- Smith, D. (1990). Iroquoian Societies in Southern Ontario: Introduction and Historic Overview. In C.J. Ellis & N. Ferris (Eds.) *The Archaeology of Southern Ontario to A.D. 1650* (pp. 279-290). London, Ontario: London Chapter, Ontario Archaeological Society.
- Spence, M.W., R.H. Pihl, & C. Murphy. (1990). Cultural Complexes of the Early and Middle Woodland Periods. In C.J. Ellis & N. Ferris (Eds.) *The Archaeology of Southern Ontario to A.D. 1650* (pp. 125-170). London, Ontario: London Chapter, Ontario Archaeological Society.

- Stantec Consulting Ltd. (2019). *Stage 1 & 2 Archaeological Background Study and Property Assessment of 7 Bevan Road, City of Vaughan, Regional Municipality of York, Historically Part 20, Concession 4, Township of Vaughan, County of York*. Ontario Archaeology License Report within the Ontario Public Register of Archaeological Reports under MHSTCI file PIF# P141-151-2011.
- Surtees, R.J. (1994). Land Cessions, 1763-1830. In *Aboriginal Ontario: Historical Perspectives on the First Nations*. E.S. Rogers, Ed. Toronto, Ontario: Dundurn Press Limited.
- The Central Archaeology Group Inc. *Stage 1 and Stage 2 Archaeological Assessment 21 Culvert Replacements on Highway 401 between 3.1 km West of County Road 30 and Glen Miller Road Various Lots and Concessions in the Geographic Townships of Brighton and Murray, Northumberland and Hastings Counties Project #15841-6*. Ontario Archaeology License Report within the Ontario Public Register of Archaeological Reports under MHSTCI file PIF# P248-0274-2016.
- Warrick, G. (2000). The Precontact Iroquoian Occupation of Southern Ontario. *Journal of World Prehistory* 14(4), 415-456.
- Williamson, R.F. (1990). The Early Iroquoian Period of Southern Ontario. In C.J. Ellis & N. Ferris (Eds.) *The Archaeology of Southern Ontario to A.D. 1650* (pp. 291-320). London, Ontario: London Chapter, Ontario Archaeological Society.
- Williamson, R. F. (2014). The Archaeological History of the Wendat to A.D. 1651: An Overview. *Ontario Archaeology* 94: pp. 3-63.
- Wright, J. V. (1966). *The Ontario Iroquois Tradition*. Ottawa: National Museum of Canada, Bulletin No. 210.
- York North Archaeological Services Inc. (2009). *REVISED - Stage 1-2 Archaeological/Heritage Assessment of the Proposed Voskamp - Cotter Pit: Located on Part of Lot 20, Concession 3, In the Geographic Township of Cramahe, In the County of Northumberland, Ontario*. Ontario Archaeology License Report within the Ontario Public Register of Archaeological Reports under MHSTCI file PIF# P156-058-2008.

7 IMAGES



Image 1: Field conditions along Highway 401 and right-of-way. Facing northeast.



Image 2: Field conditions along Highway 401. Facing north.



Image 3: Field conditions along Highway 401. Facing northwest.



Image 4: Ditched median along Highway 401. Facing southeast.



Image 5: Field conditions along Highway 401 right-of-way. Facing northeast.



Image 6: Field conditions along Highway 401 right-of-way. Facing west.



Image 7: Disturbance along Highway 401 right-of-way (Note yellow gas line marker along fence line). Facing west.



Image 8: Ditching and drainage along Highway 401 right-of-way. Facing west.



Image 9: Ditching and drainage along Highway 401 right-of-way. Facing southwest.



Image 10: Ditching and artificial berm along Highway 401 right-of-way. Facing southwest.



Image 11: Local roadway and artificial berm for Highway 401 corridor. Facing northeast.



Image 12: Artificial berm/build-up and scrub land along Highway 401 corridor. Facing east.



Image 13: Artificially cut slope along Highway 401 right-of-way. Facing northeast.



Image 14: Artificially cut slope along Highway 401 right-of-way. Facing southwest.



Image 15: Overpass berm. Facing northeast.



Image 16: Field Conditions of bush lots and woodlots. Facing east.



Image 17: Typical agricultural field conditions. Facing northeast.



Image 18: Typical agricultural field conditions. Facing north.



Image 19: Typical farmstead in study area. Facing east.



Image 20: Residential cottages along Little Lake. Facing northeast.



**Image 21: Field conditions along Purdy Road.
Facing southwest.**



**Image 22: Field conditions along Purdy Road.
Facing east.**



**Image 23: Field conditions along Honey Road.
Facing southwest.**



**Image 24: Field Conditions along Honey Road.
Facing northeast.**



**Image 25: Field conditions along County Road 26.
Facing southeast.**



**Image 26: Field conditions along County Road 26.
Facing southwest.**



Image 27: Manicured lawn, residences, and ditching along County Road 26 right-of-way. Facing northeast.



Image 28: Field Conditions along Telephone Road. Facing east.



Image 29: Area of steep slope (>20°) along Honey Road. Facing east.



Image 30: Area of steep slope (>20°) along Crandall Road. Facing southwest.



Image 31: Area of steep slope (>20°) along Crandall Road. Facing east.



Image 32: Area of steep slope (>20°) along Crandall Road. Facing northwest.



Image 33: Overgrown scrub, road berm, and gas line utility disturbance along Telephone Road. Facing west.



Image 34: Permanently wet and low-lying area. Facing south.



Image 35: Permanently wet and low-lying area. Facing west.



Image 36: Little Lake, Permanently wet and low-lying area. Facing northeast.



Image 37: Permanently wet and low-lying area. Facing northwest.



Image 38: Permanently wet and low-lying area. Facing northwest.

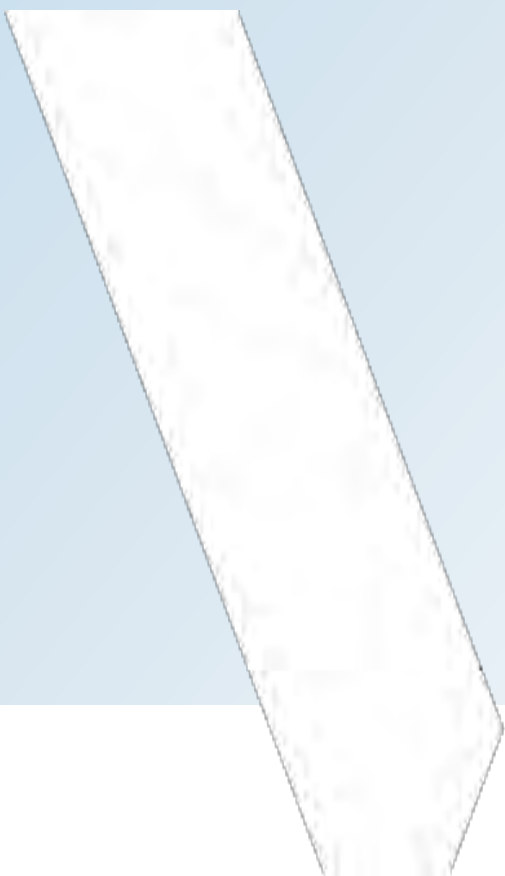


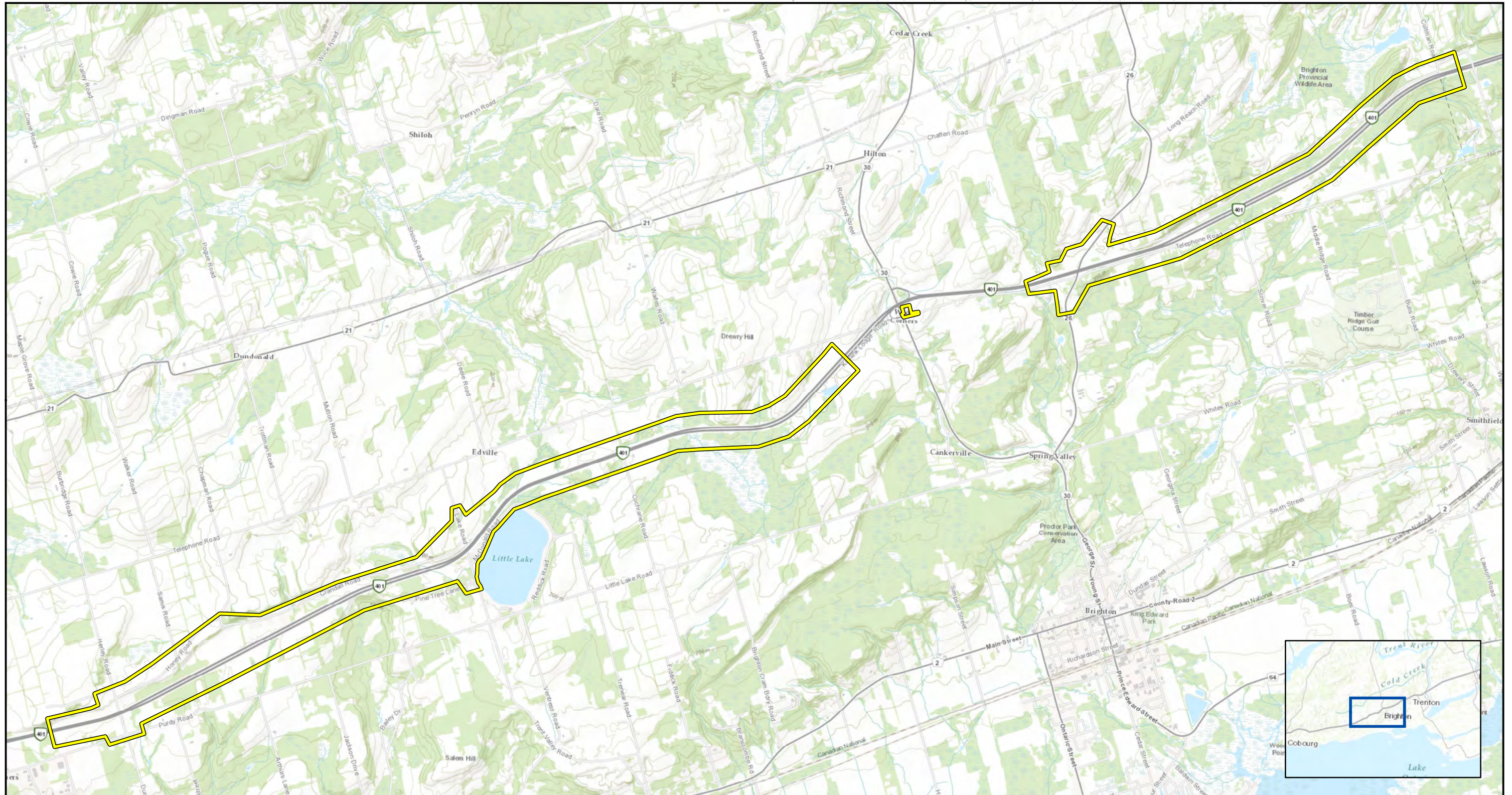
Image 39: Carpool lot in Center Segment. Facing southwest.




Image 40: Scrubland in Center Segment. Facing north.

8 FIGURES





LEGEND

 Study Area

TITLE:
FIGURE 1: PROJECT LOCATION

PROJECT:
**HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT**

0 800 1,600 m



SCALE:
1:45,000

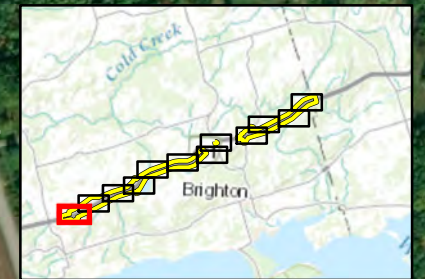
PROJECT NO:
17M-01712-11

DATE:
JUNE 2021


DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

 Study Area

TITLE:
FIGURE 2a: STUDY AREA

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

DRAWN BY:
AST

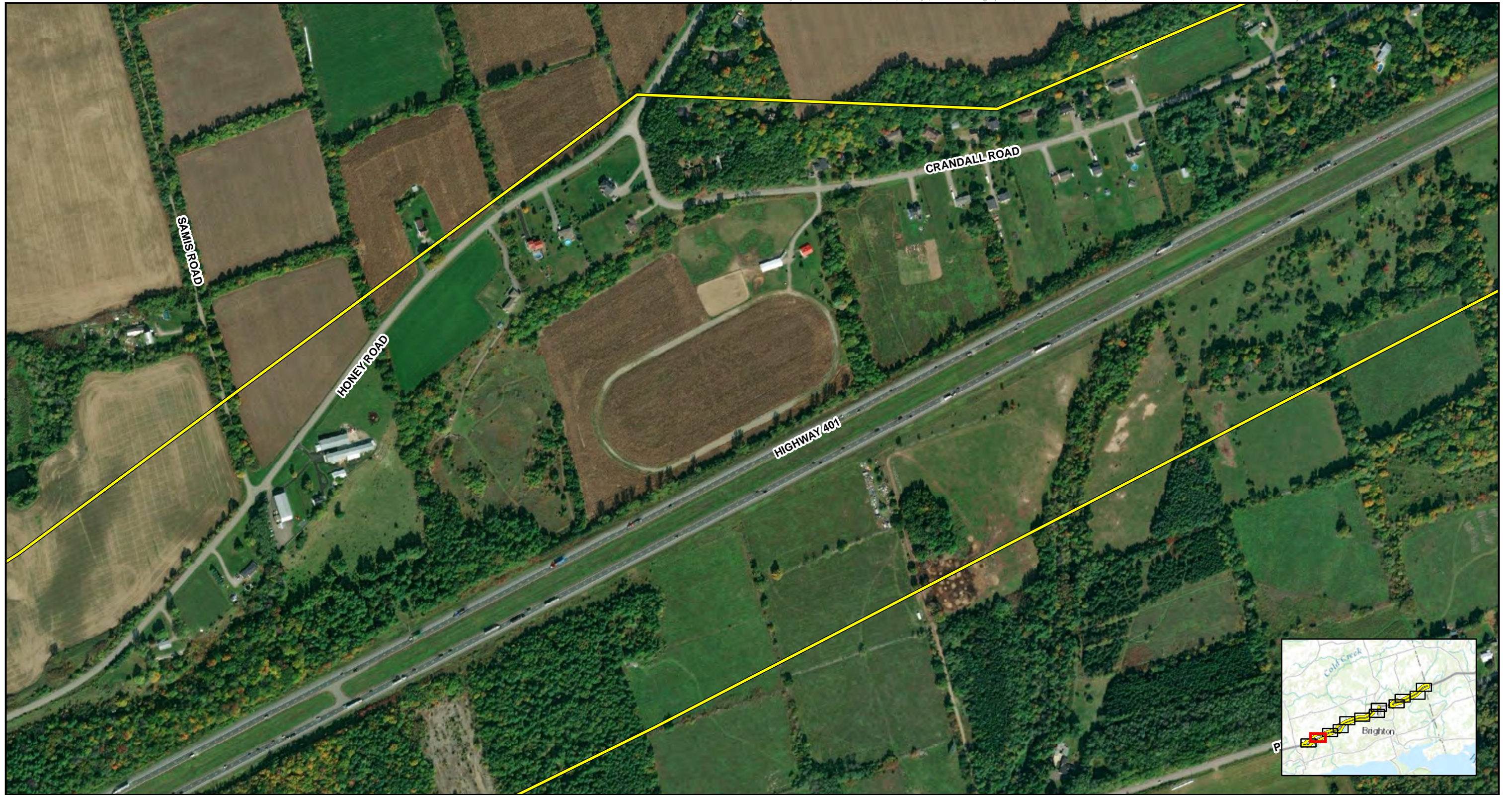
CLIENT:
MTO - EASTERN REGION

CREDITS:


LAND INFORMATION ONTARIO

0 100 200 m





LEGEND

 Study Area

TITLE:
FIGURE 2b: STUDY AREA

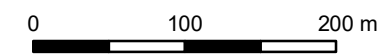
SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
-------------------	-----------------------------	--------------------

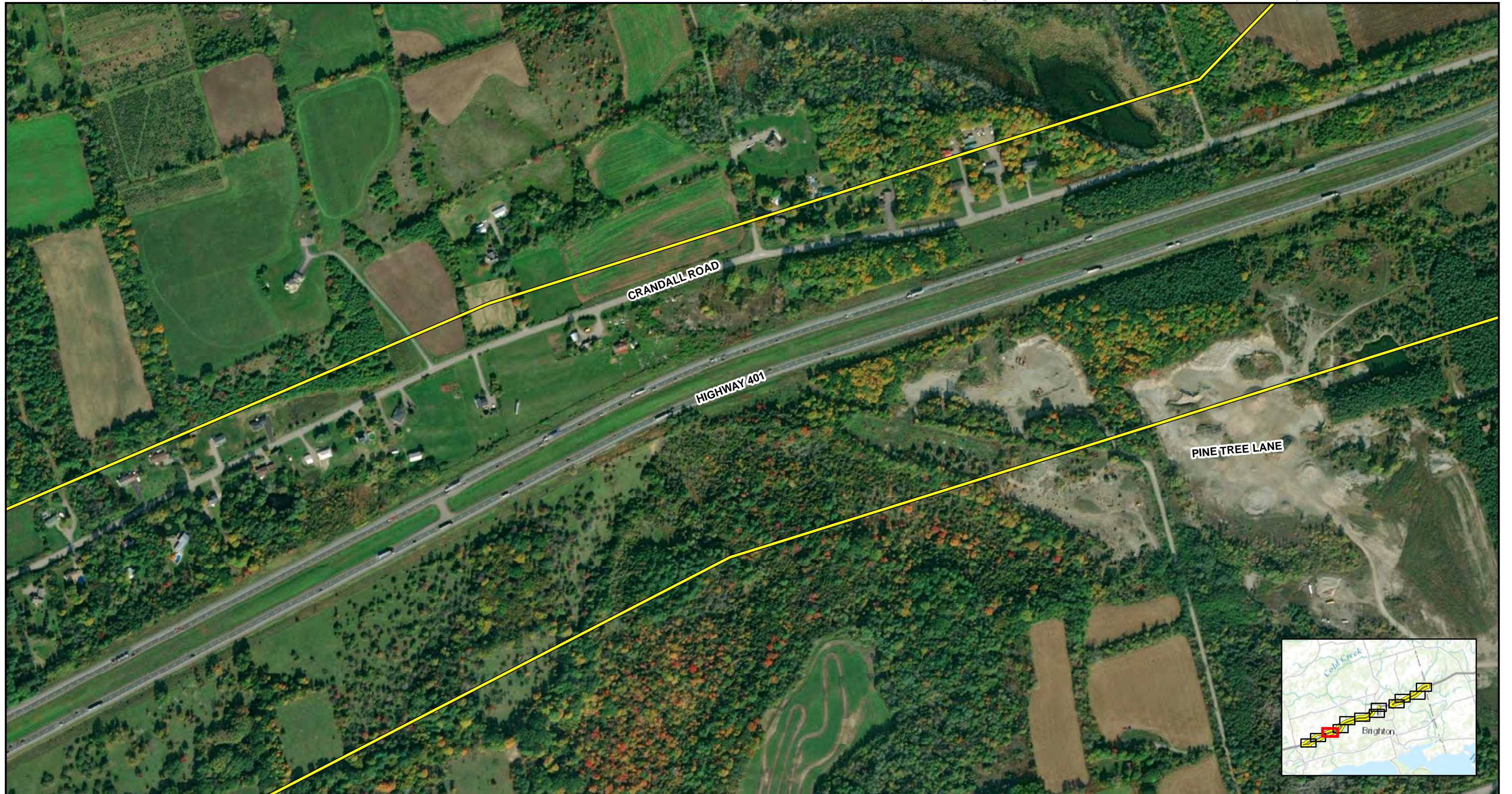
DRAWN BY: AST	CLIENT: MTO - EASTERN REGION
------------------	---------------------------------

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


CREDITS:

LAND INFORMATION ONTARIO





LEGEND

 Study Area

TITLE:
FIGURE 2c: STUDY AREA

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

0 100 200 m




CREDITS:

LAND INFORMATION ONTARIO



LEGEND

 Study Area

TITLE:

FIGURE 2d: STUDY AREA

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

DRAWN BY:
AST

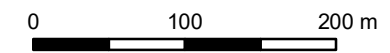
CLIENT:
MTO - EASTERN REGION

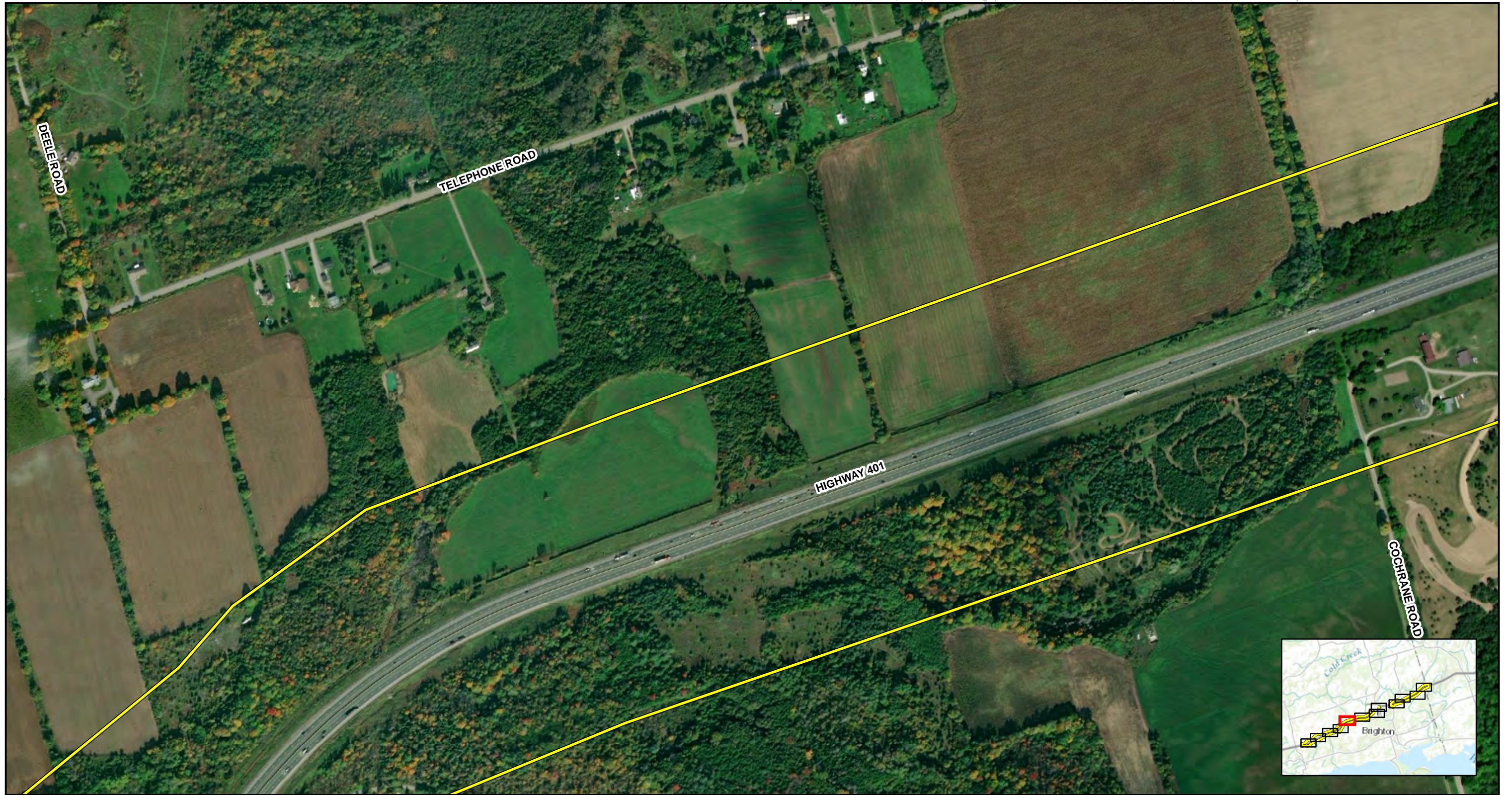
PROJECT:

HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


CREDITS:

LAND INFORMATION ONTARIO





LEGEND

 Study Area

TITLE:
FIGURE 2e: STUDY AREA

SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
-------------------	-----------------------------	--------------------

DRAWN BY: AST	CLIENT: MTO - EASTERN REGION
------------------	---------------------------------

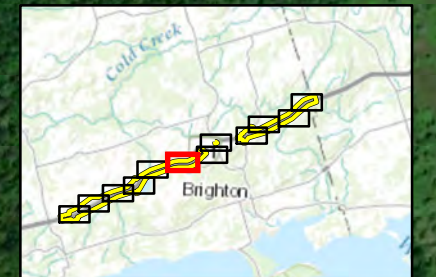
PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

CREDITS:


LAND INFORMATION ONTARIO

0 100 200 m





LEGEND

 Study Area

TITLE:
FIGURE 2f: STUDY AREA

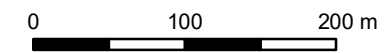
SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
-------------------	-----------------------------	--------------------

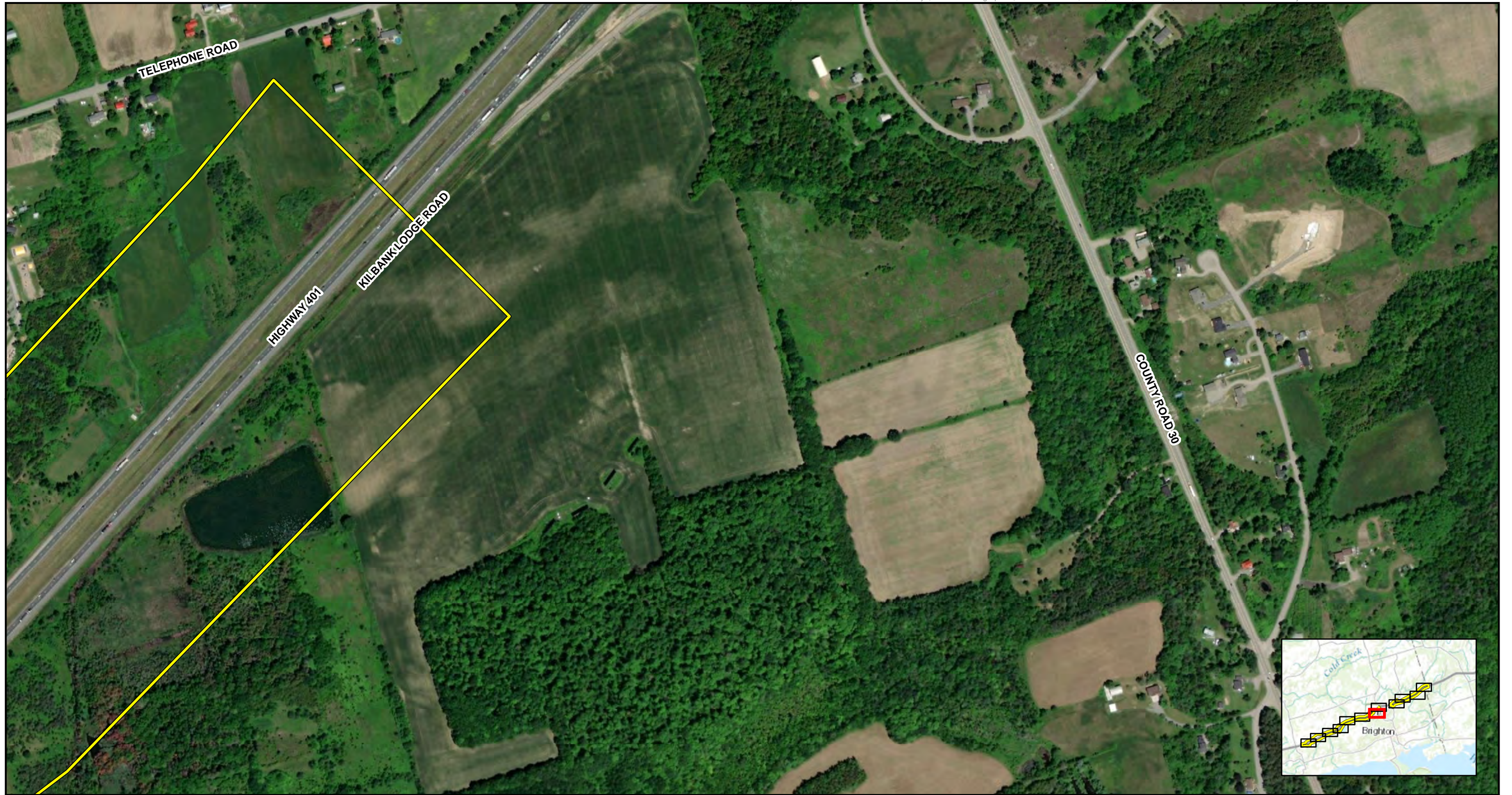
DRAWN BY: AST	CLIENT: MTO - EASTERN REGION
------------------	---------------------------------

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


CREDITS:

LAND INFORMATION ONTARIO





LEGEND

 Study Area

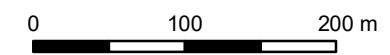
TITLE:
FIGURE 2g: STUDY AREA

SCALE: 1:5,000
PROJECT NO: 17M-01712-11
DATE: JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


DRAWN BY: AST
CLIENT: MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO





LEGEND

 Study Area

TITLE:
FIGURE 2h: STUDY AREA

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

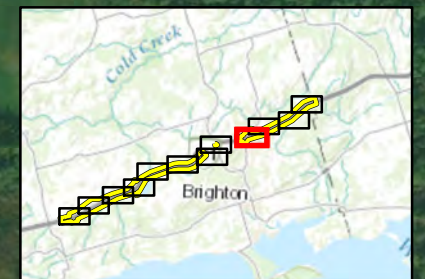
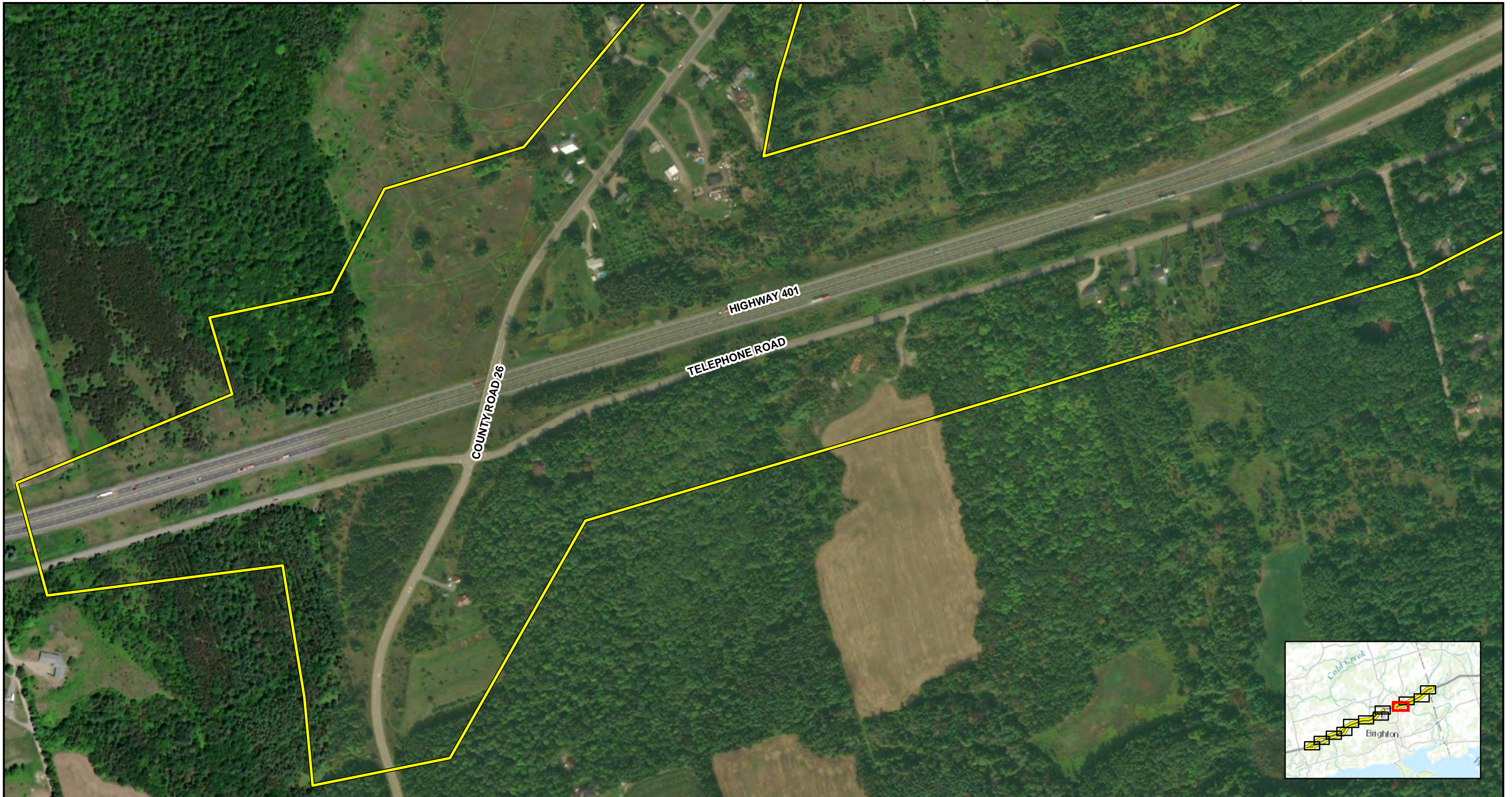
DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION


0 100 200 m



CREDITS:
LAND INFORMATION ONTARIO



LEGEND

 Study Area

TITLE:
FIGURE 2i: STUDY AREA

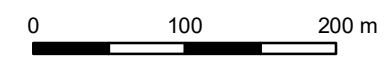
SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
-------------------	-----------------------------	--------------------

DRAWN BY: AST	CLIENT: MTO - EASTERN REGION
------------------	---------------------------------

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


CREDITS:

LAND INFORMATION ONTARIO





LEGEND

 Study Area

TITLE:
FIGURE 2j: STUDY AREA

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

DRAWN BY:
AST

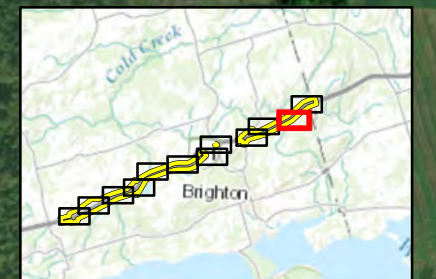
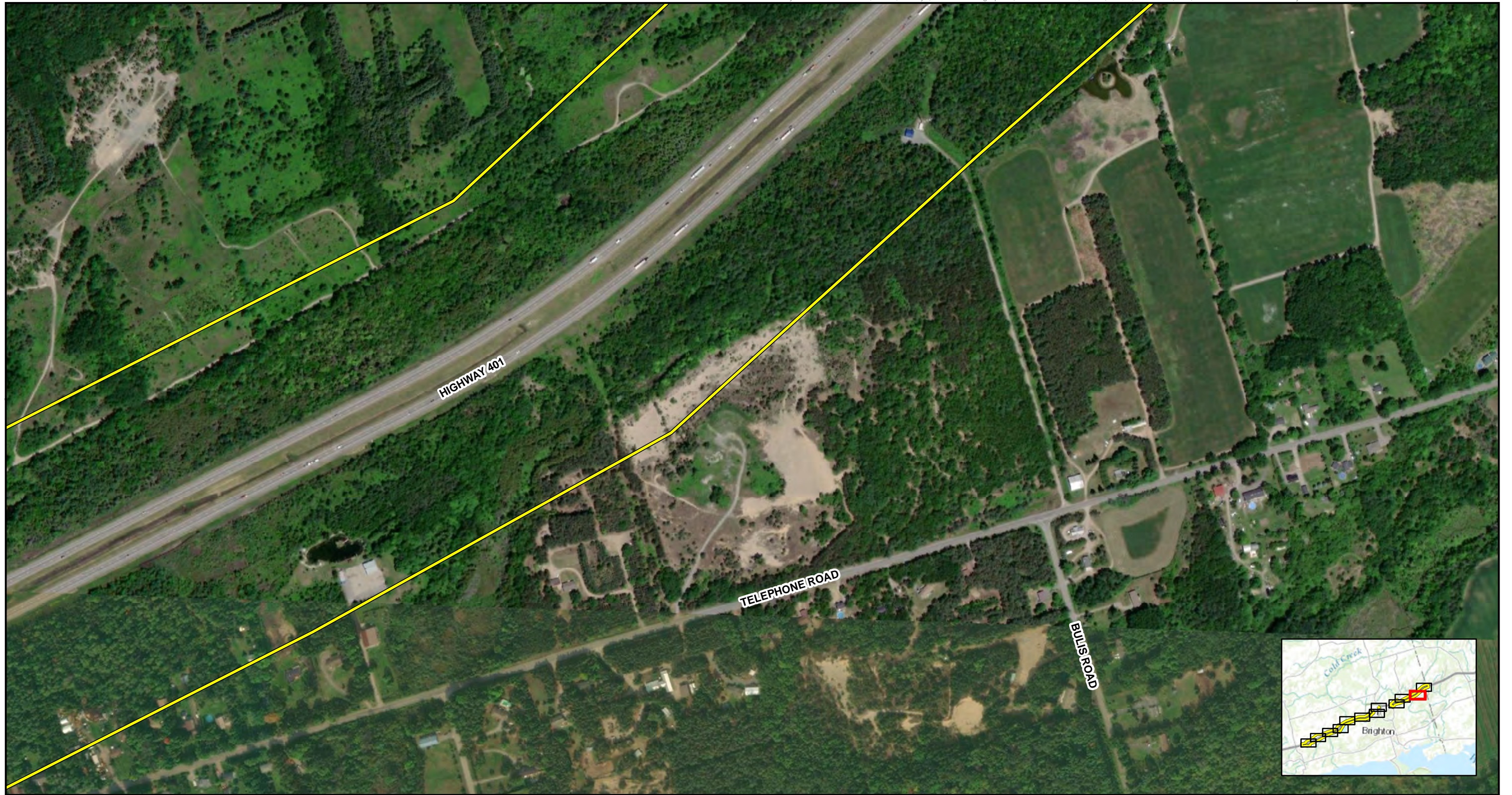
CLIENT:
MTO - EASTERN REGION

0 100 200 m




CREDITS:

LAND INFORMATION ONTARIO



LEGEND

 Study Area

TITLE:
FIGURE 2k: STUDY AREA

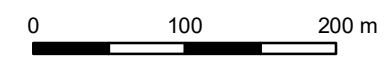
SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
-------------------	-----------------------------	--------------------

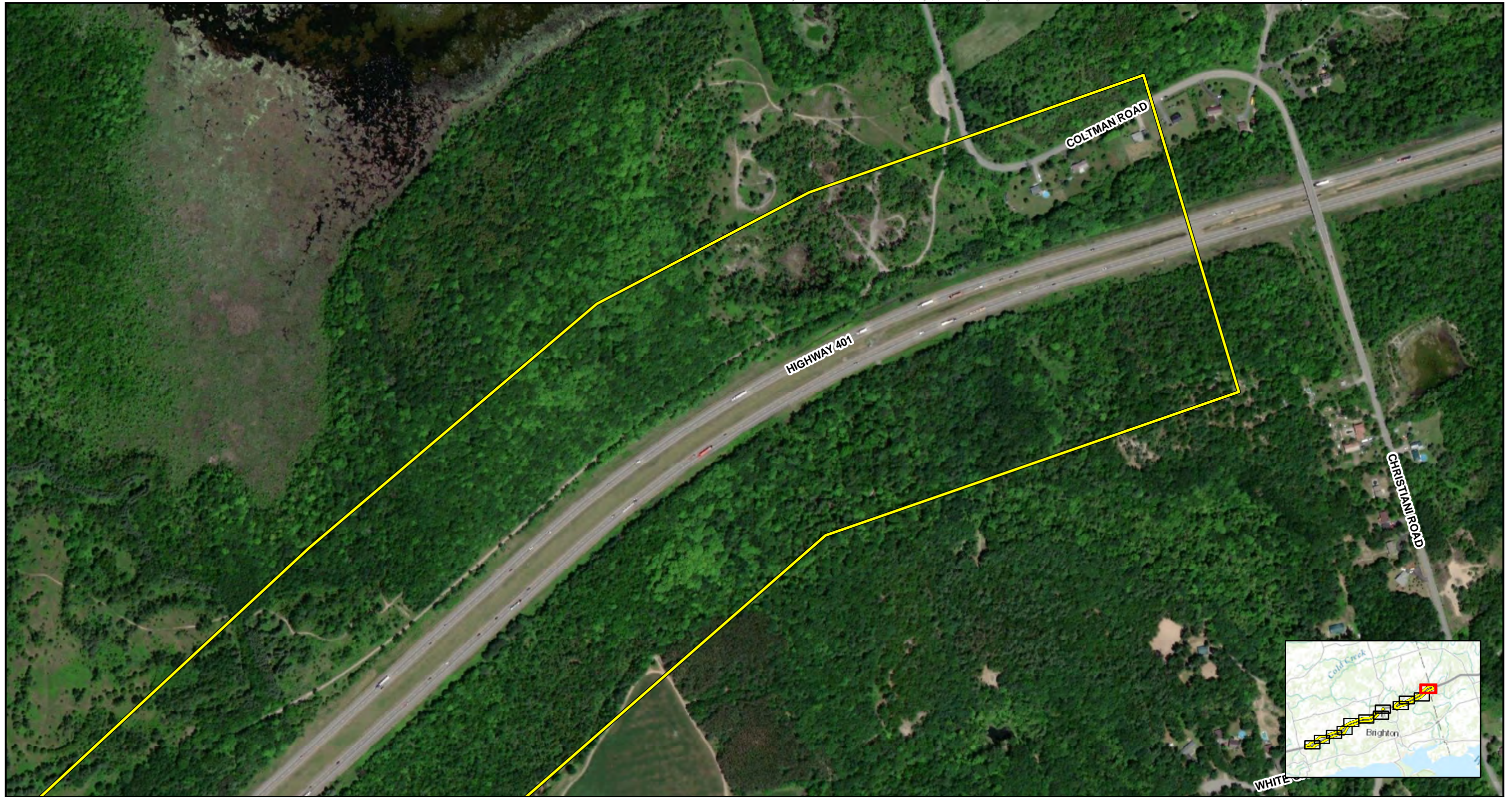
DRAWN BY: AST	CLIENT: MTO - EASTERN REGION
------------------	---------------------------------

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


CREDITS:

LAND INFORMATION ONTARIO





LEGEND

 Study Area

TITLE:
FIGURE 2I: STUDY AREA

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

DRAWN BY:
AST

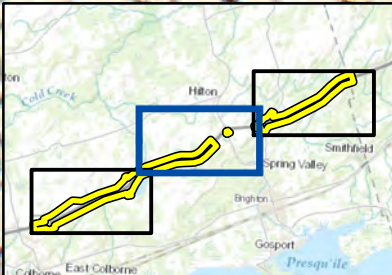
CLIENT:
MTO - EASTERN REGION

0 100 200 m



CREDITS:

LAND INFORMATION ONTARIO



LEGEND
 Study Area

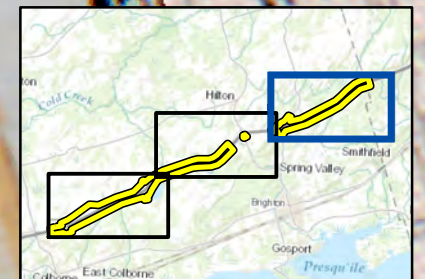
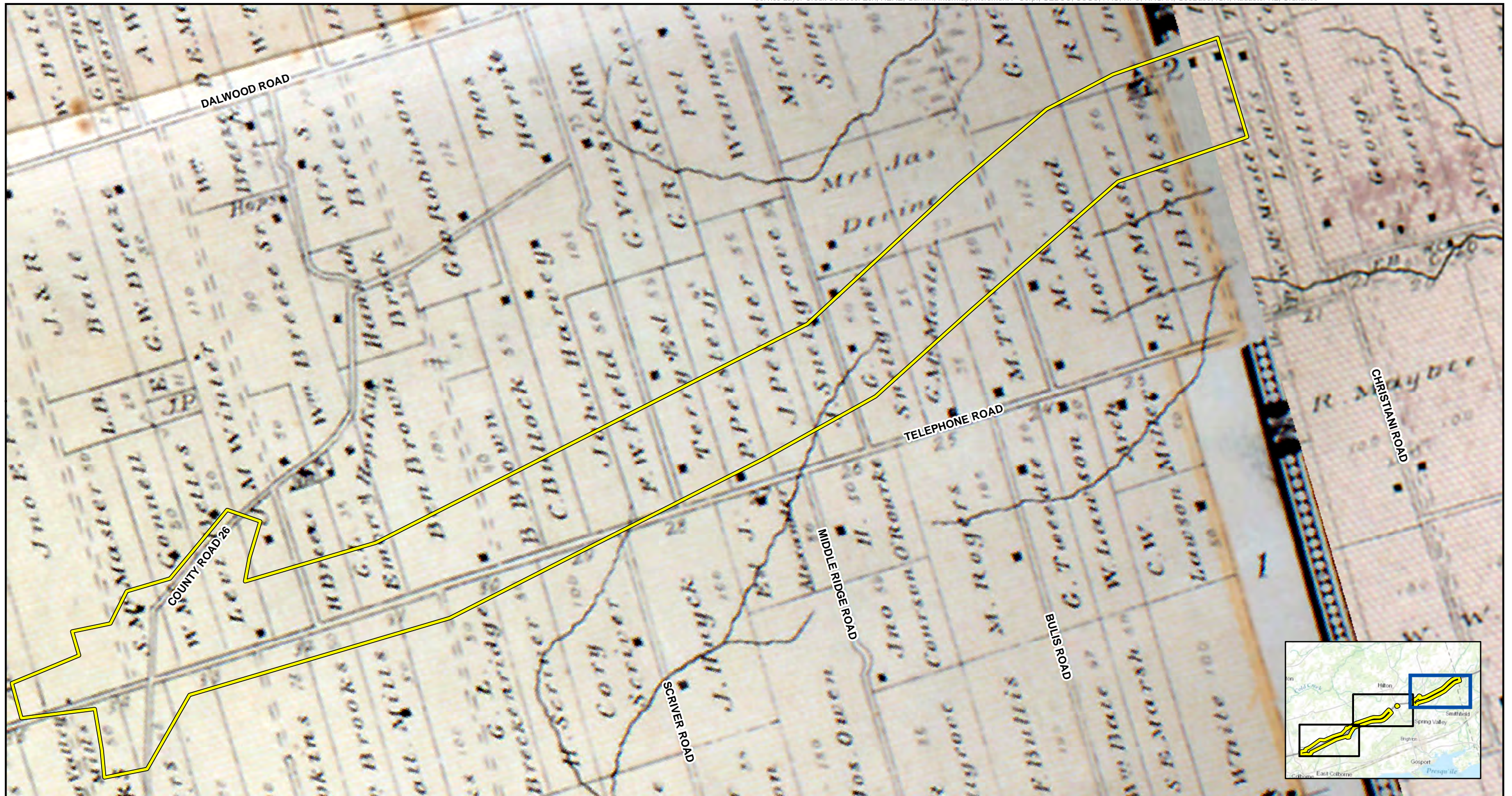
TITLE:
 FIGURE 3b: HISTORICAL MAPPING (1878)

SCALE: 1:16,000	PROJECT NO: 17M-01712-11	DATE: DECEMBER 2020
DRAWN BY: AST		CLIENT: MTO - EASTERN REGION


PROJECT:
 HIGHWAY 401 COLBORNE TO BRIGHTON
 STAGE 1 ARCHAEOLOGICAL ASSESSMENT

CREDITS:
 ILLUSTRATED HISTORICAL ATLAS OF THE
 COUNTIES OF NORTHUMBERLAND AND
 DURHAM, ONTARIO (H.BELDEN & CO., 1878)





LEGEND

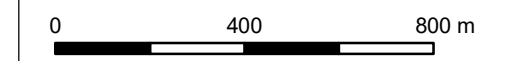
 Study Area

TITLE:
FIGURE 3c: HISTORICAL MAPPING (1878)

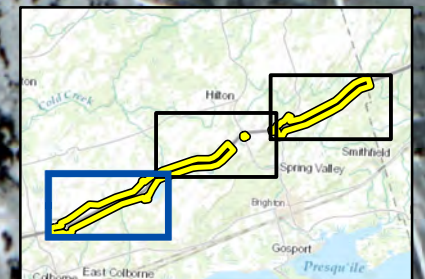
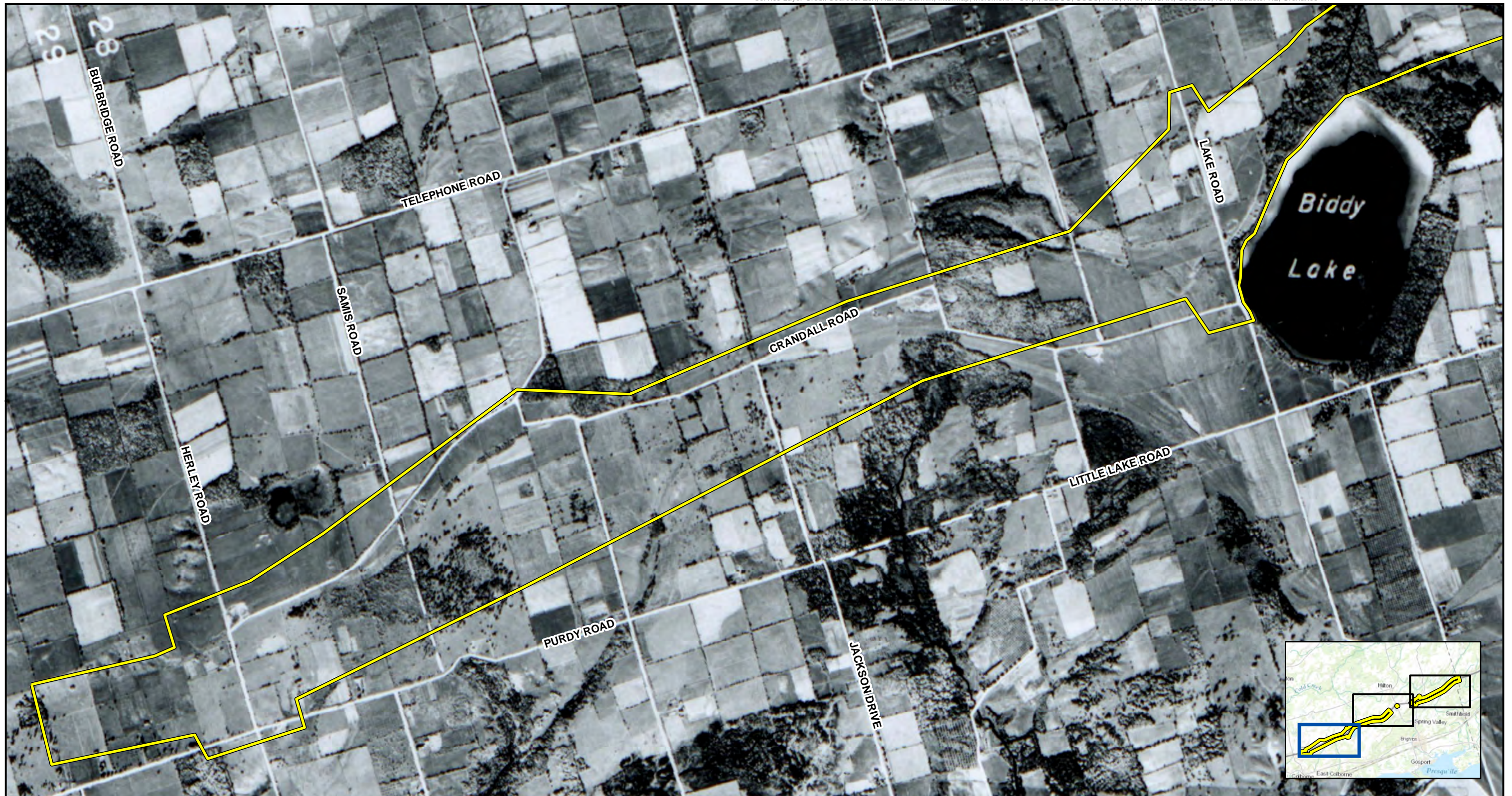
SCALE: 1:16,000
PROJECT NO: 17M-01712-11
DATE: DECEMBER 2020

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

DRAWN BY: AST
CLIENT: MTO - EASTERN REGION



CREDITS:
ILLUSTRATED HISTORICAL ATLAS OF THE
COUNTIES OF NORTHUMBERLAND AND
DURHAM, ONTARIO (H.BELDEN & CO., 1878)



LEGEND

Study Area

TITLE:
FIGURE 4a: AERIAL IMAGERY (1954)

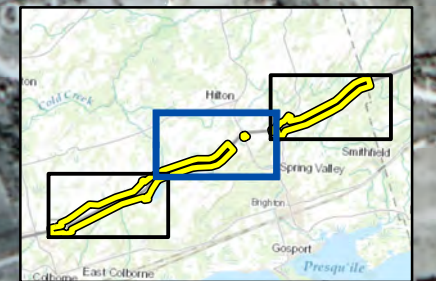
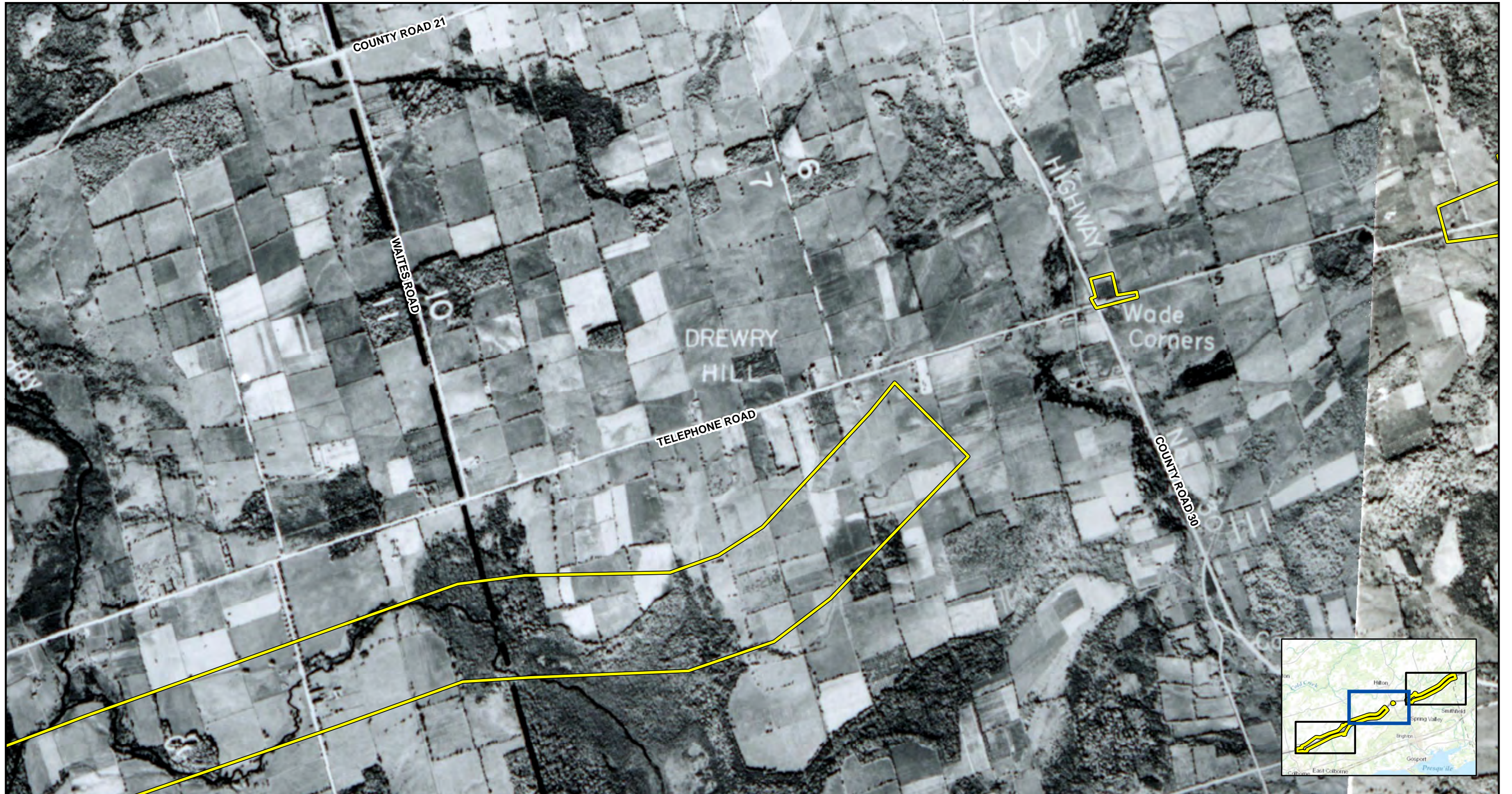
SCALE: 1:16,000	PROJECT NO: 17M-01712-11	DATE: DECEMBER 2020
DRAWN BY: AST	CLIENT: MTO - EASTERN REGION	

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT


CREDITS:

UNIVERSITY OF TORONTO
MAP AND DATA LIBRARY
441.773 & 441.774





LEGEND

 Study Area

TITLE:

FIGURE 4b: AERIAL IMAGERY (1954)

PROJECT:

HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

0 400 800 m



SCALE:
1:16,000

DRAWN BY:
AST

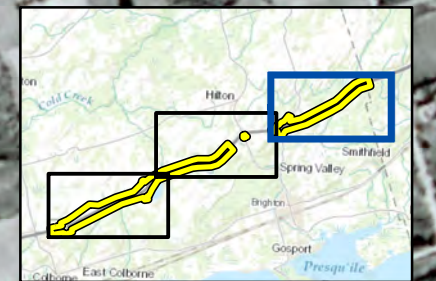
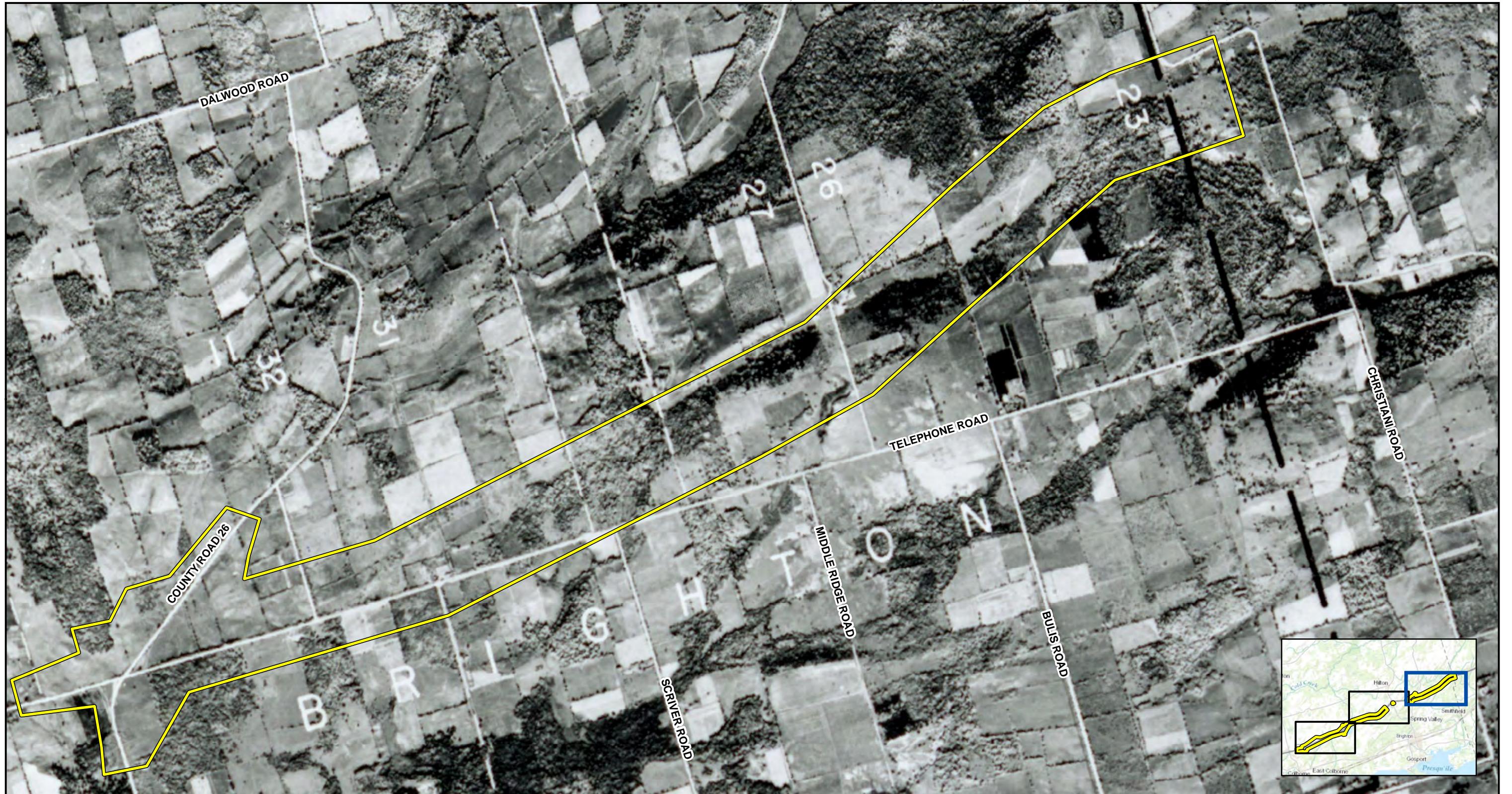
CREDITS:

PROJECT NO:
17M-01712-11


CLIENT:
MTO - EASTERN REGION

UNIVERSITY OF TORONTO
MAP AND DATA LIBRARY
441.773 & 441.774

DATE:
DECEMBER 2020



LEGEND

 Study Area

TITLE:
FIGURE 4c: AERIAL IMAGERY (1954)

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

0 400 800 m



SCALE:
1:16,000

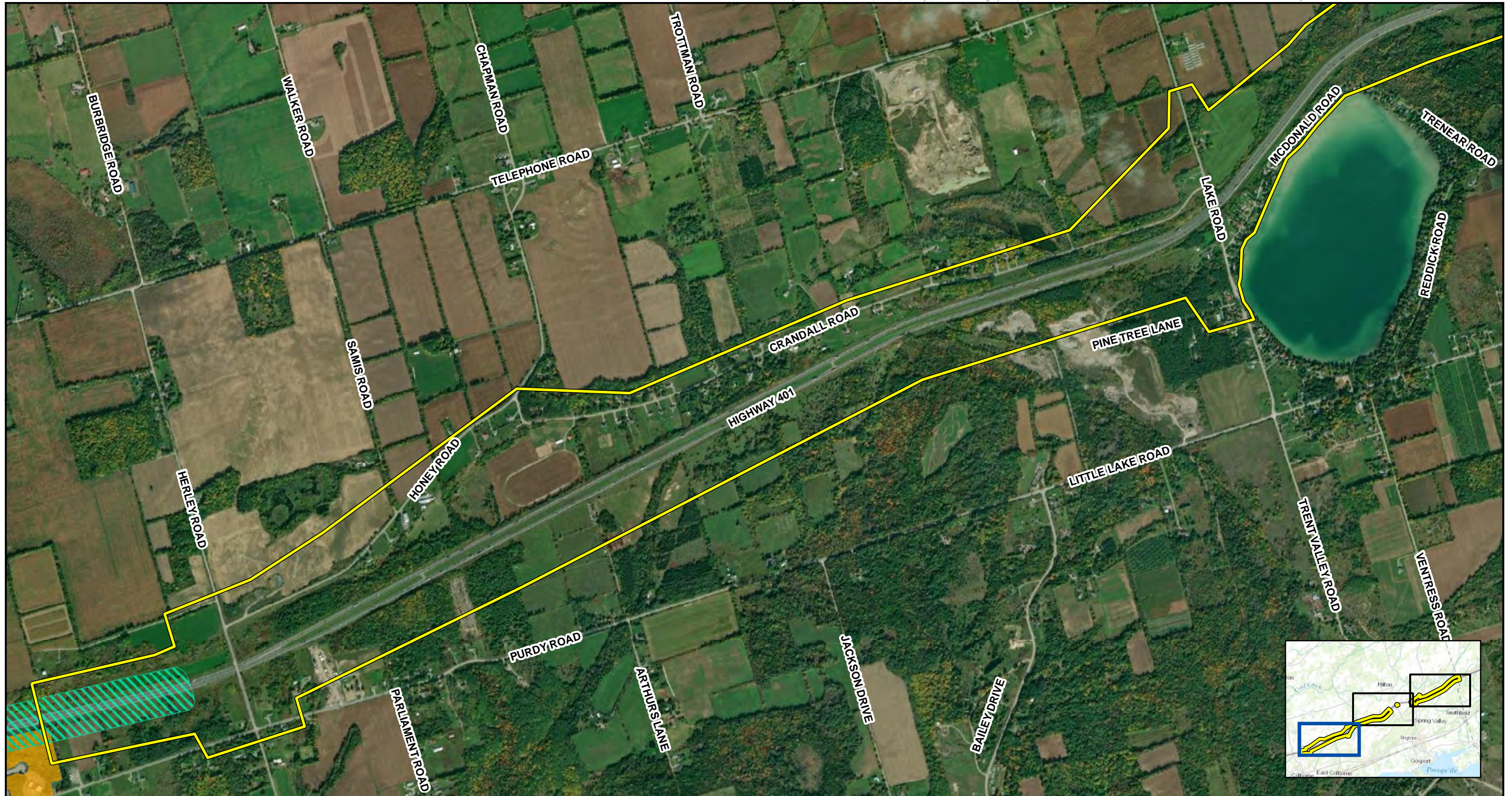
PROJECT NO:
17M-01712-11

DATE:
DECEMBER 2020

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
UNIVERSITY OF TORONTO
MAP AND DATA LIBRARY
441.773 & 441.774



LEGEND

Study Area

Previously Assessed:

- The Central Archaeology Group Inc. (PIF #P248-0274-2016)
- Archeoworks Inc. (PIF #P390-0127-2015 & #P1016-0105-2015)
- Stantec (PIF #P415-0161-2018)

TITLE:

FIGURE 5a: PREVIOUS ASSESSMENTS

SCALE:
1:16,000

PROJECT NO:
17M-01712-11

DATE:
DECEMBER 2020

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

PROJECT:

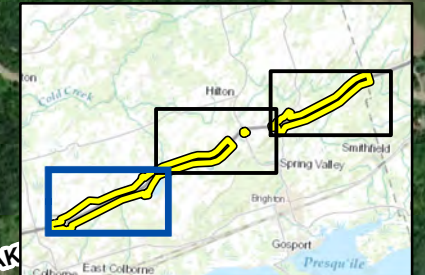
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

CREDITS:

LAND INFORMATION ONTARIO

0 400 800 m





LEGEND

Study Area

Previously Assessed:

- The Central Archaeology Group Inc. (PIF #P248-0274-2016)
- Archeoworks Inc. (PIF #P390-0127-2015 & #P1016-0105-2015)
- Stantec (PIF #P415-0161-2018)

TITLE:
FIGURE 5b: PREVIOUS ASSESSMENTS

SCALE:
1:16,000

PROJECT NO:
17M-01712-11

DATE:
DECEMBER 2020

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

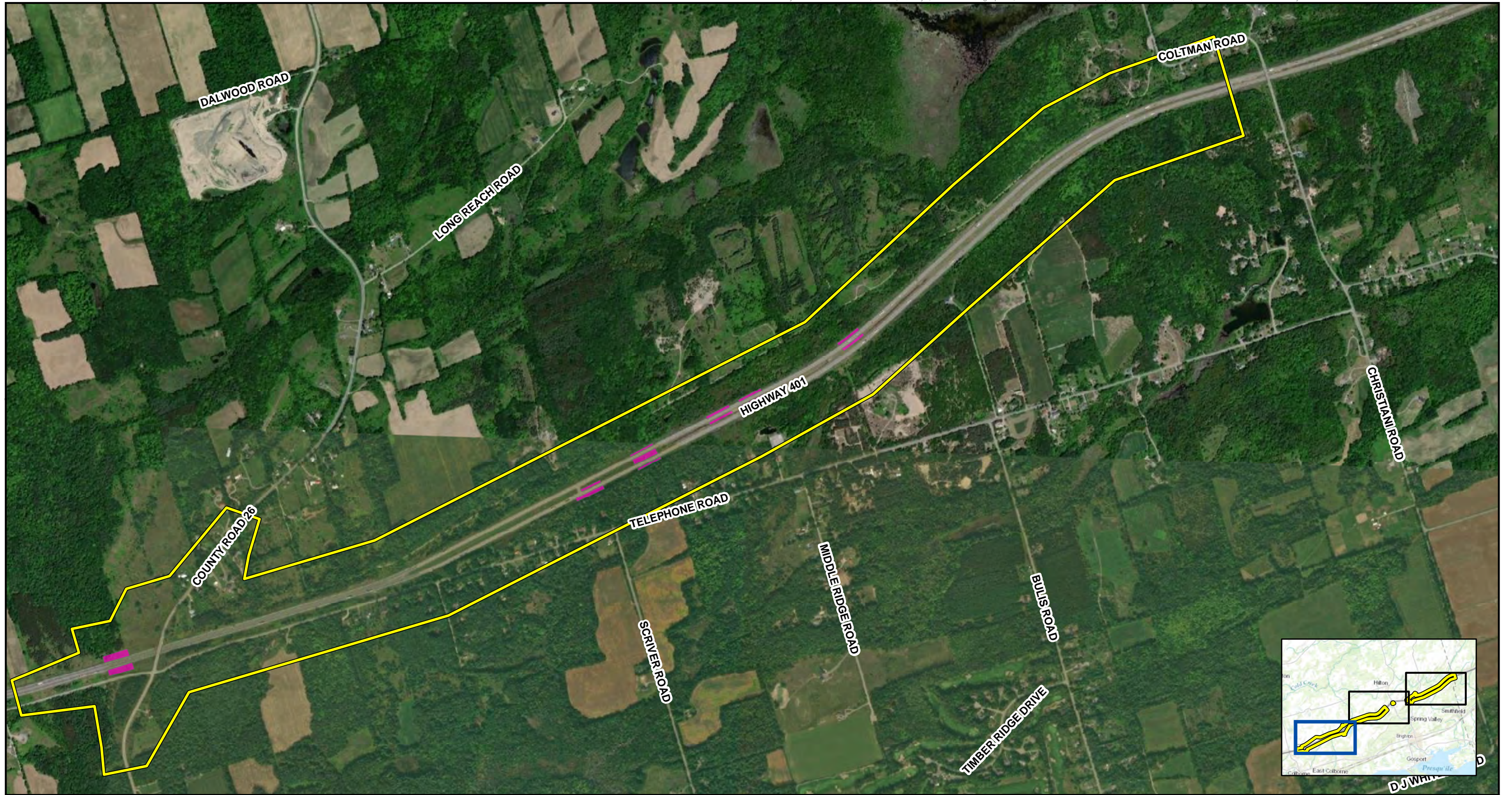
DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:

LAND INFORMATION ONTARIO





LEGEND

Study Area

Previously Assessed:

- The Central Archaeology Group Inc. (PIF #P248-0274-2016)
- Archeoworks Inc. (PIF #P390-0127-2015 & #P1016-0105-2015)
- Stantec (PIF #P415-0161-2018)

TITLE:

FIGURE 5c: PREVIOUS ASSESSMENTS

SCALE:
1:16,000

PROJECT NO:
17M-01712-11

DATE:
DECEMBER 2020

PROJECT:

HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

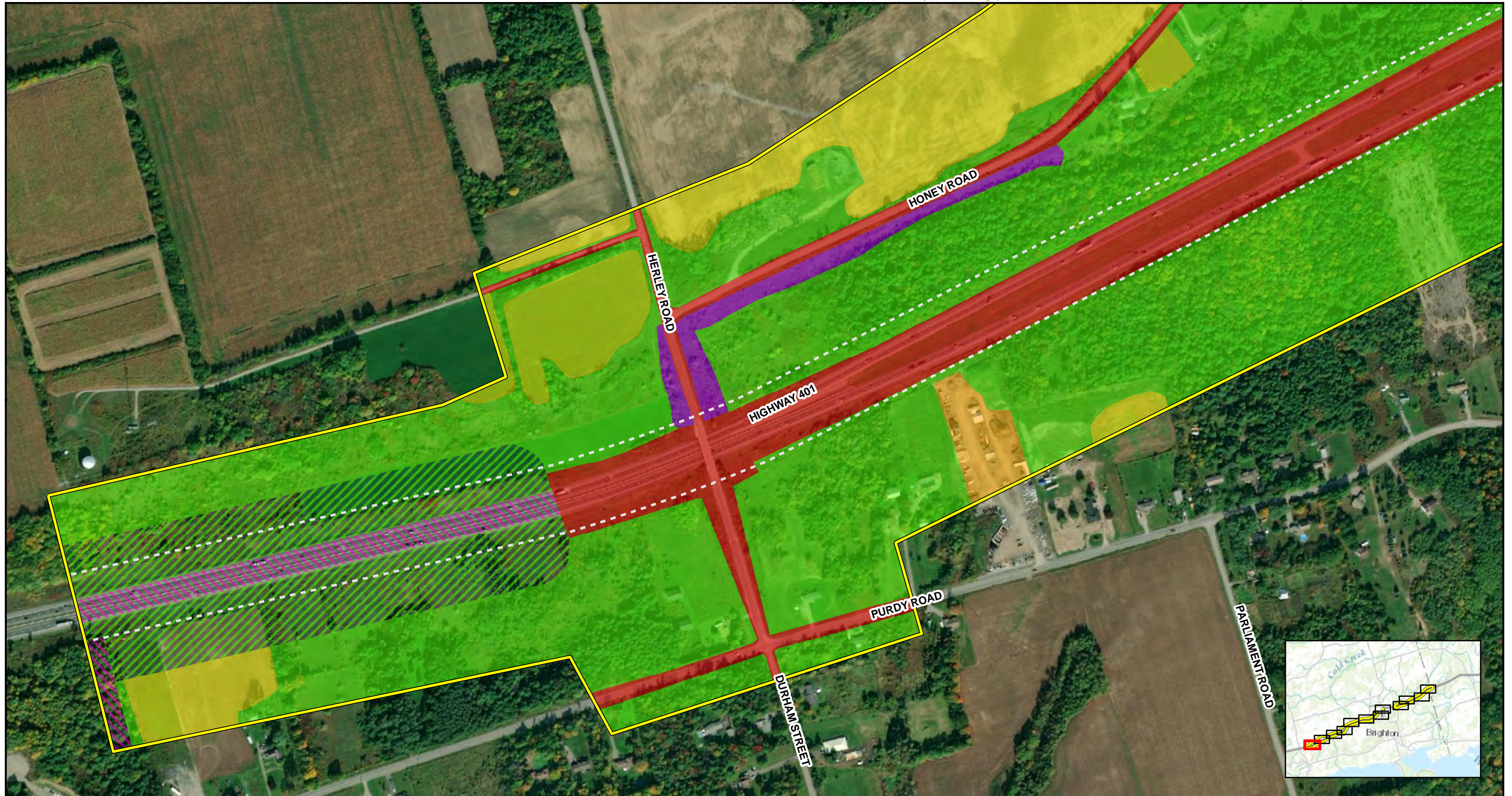
DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:

LAND INFORMATION ONTARIO





LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Previously Assessed - Further Assessment Required
- Test Pit to Confirm Disturbance Required
- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Previously Assessed - No Further Assessment Required
- Slope > 20° - No Further Assessment Required

TITLE:
FIGURE 6a: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

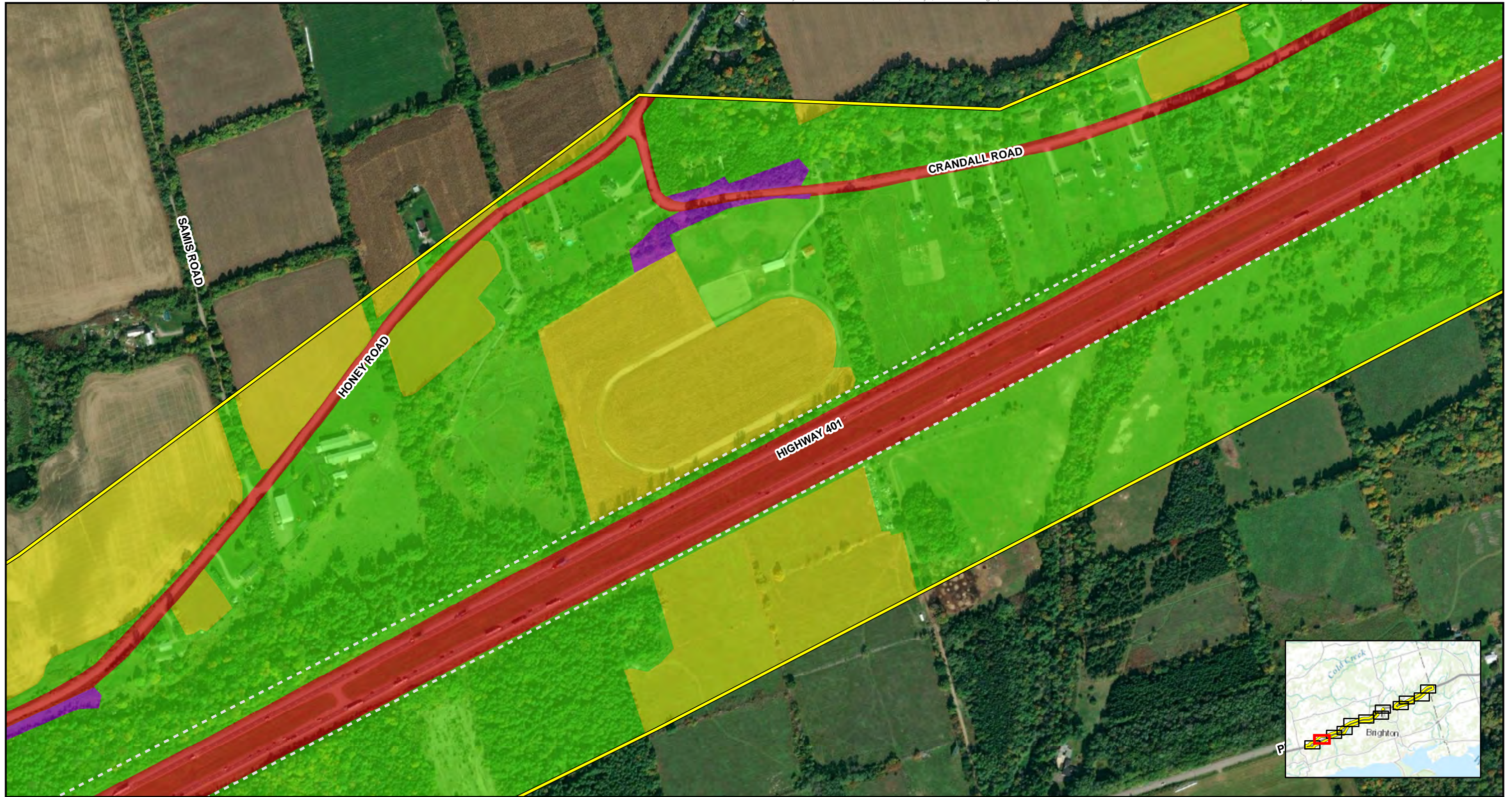
0 100 200 m



SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
DRAWN BY: AST	CLIENT: MTO - EASTERN REGION	

CREDITS:

LAND INFORMATION ONTARIO



LEGEND

△ Photograph Location

▭ Study Area

⋯ MTO ROW

Results

▭ Pedestrian Survey at 5 m Interval Required

▭ Test Pit at 5 m Interval Required

▭ Disturbed - No Further Assessment Required

▭ Slope > 20° - No Further Assessment Required

TITLE:

FIGURE 6b: RESULTS

PROJECT:

HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

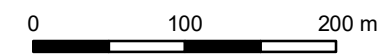
DATE:
JUNE 2021

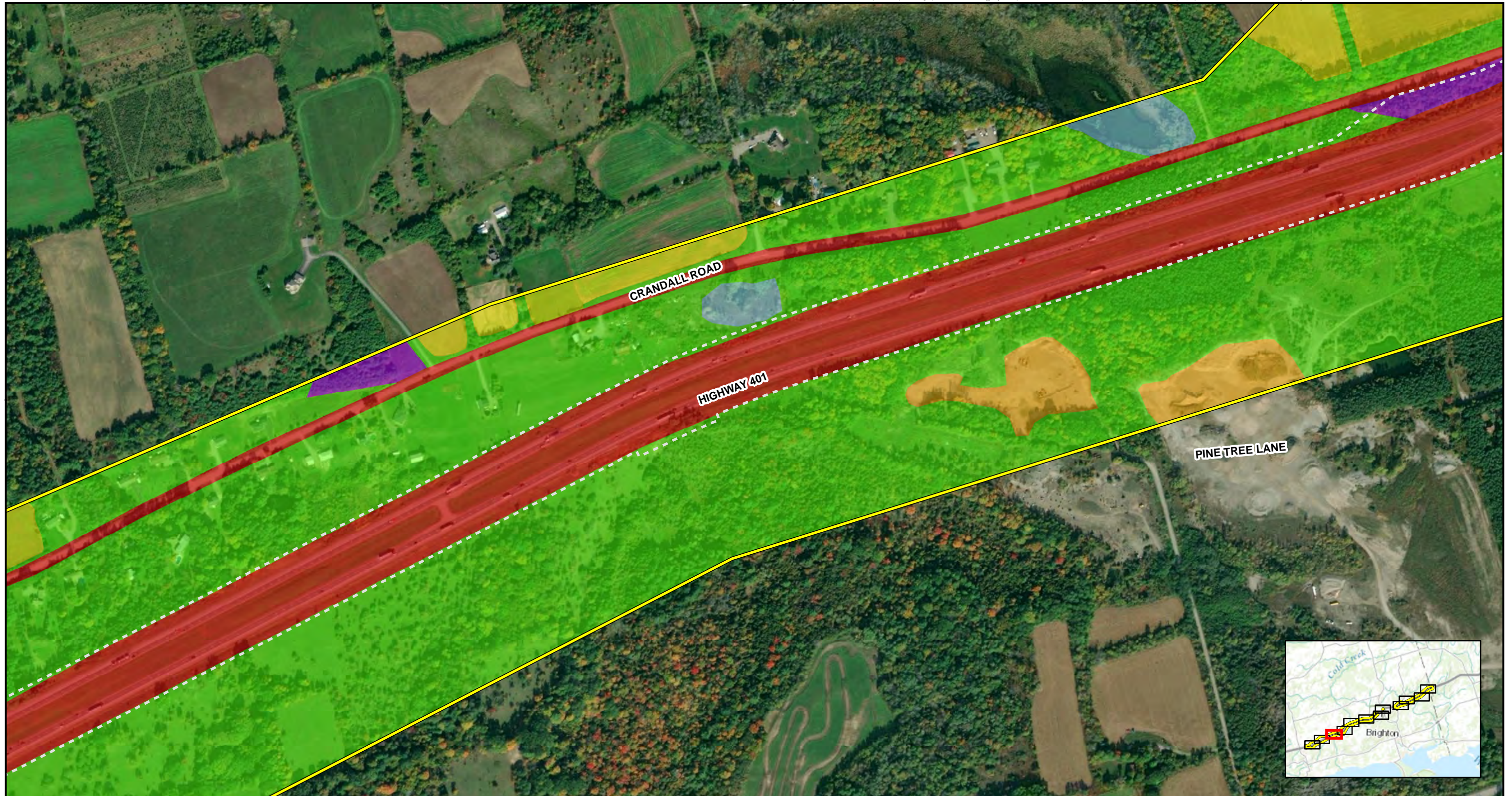
DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:

LAND INFORMATION ONTARIO





LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Test Pit to Confirm Disturbance Required
- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Low and Wet - No Further Assessment Required
- Slope > 20° - No Further Assessment Required

TITLE:
FIGURE 6c: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

0 100 200 m



SCALE:
1:5,000

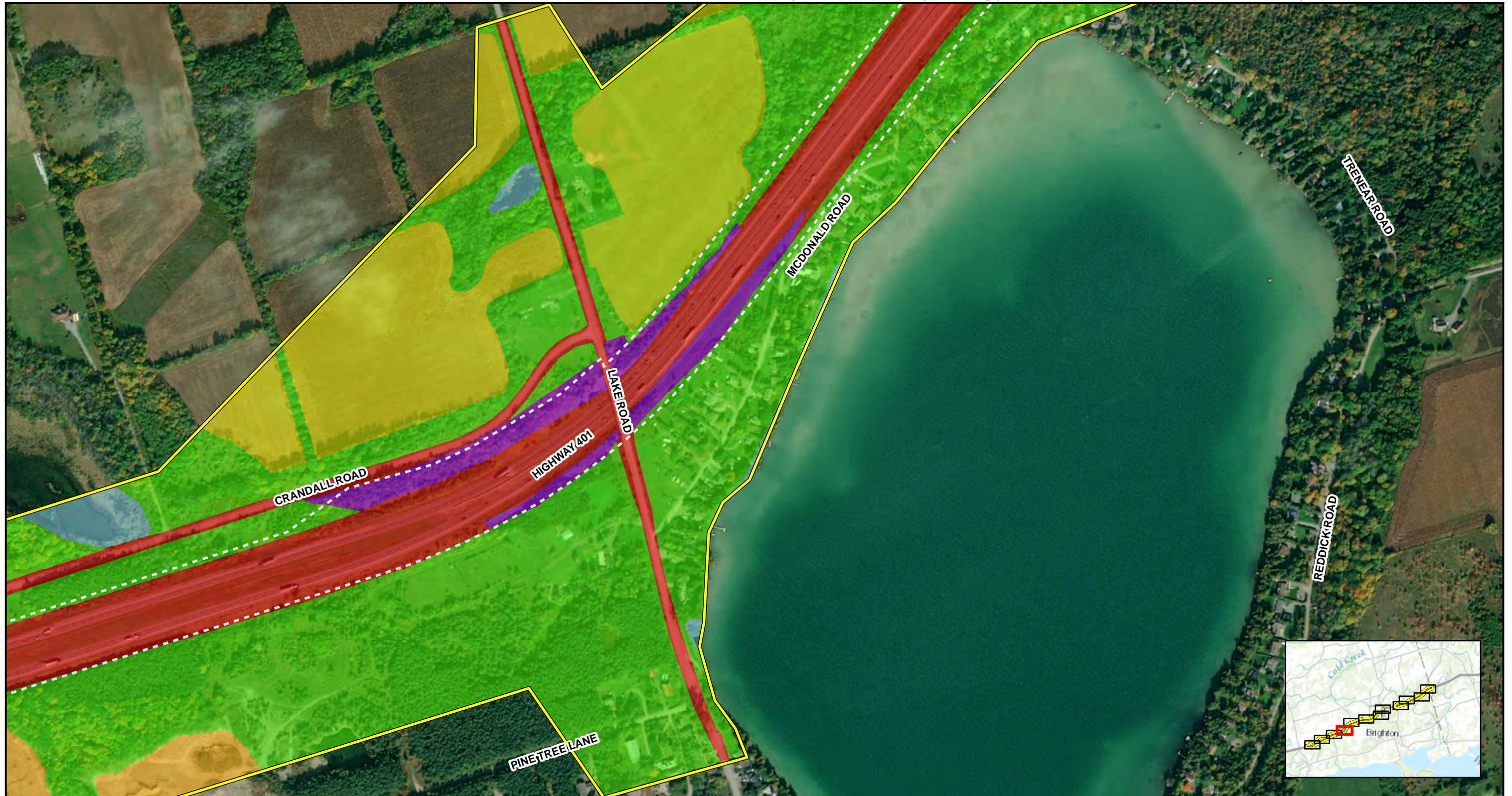
PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Test Pit to Confirm Disturbance Required
- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Low and Wet - No Further Assessment Required
- Slope > 20° - No Further Assessment Required

TITLE:
FIGURE 6d: RESULTS

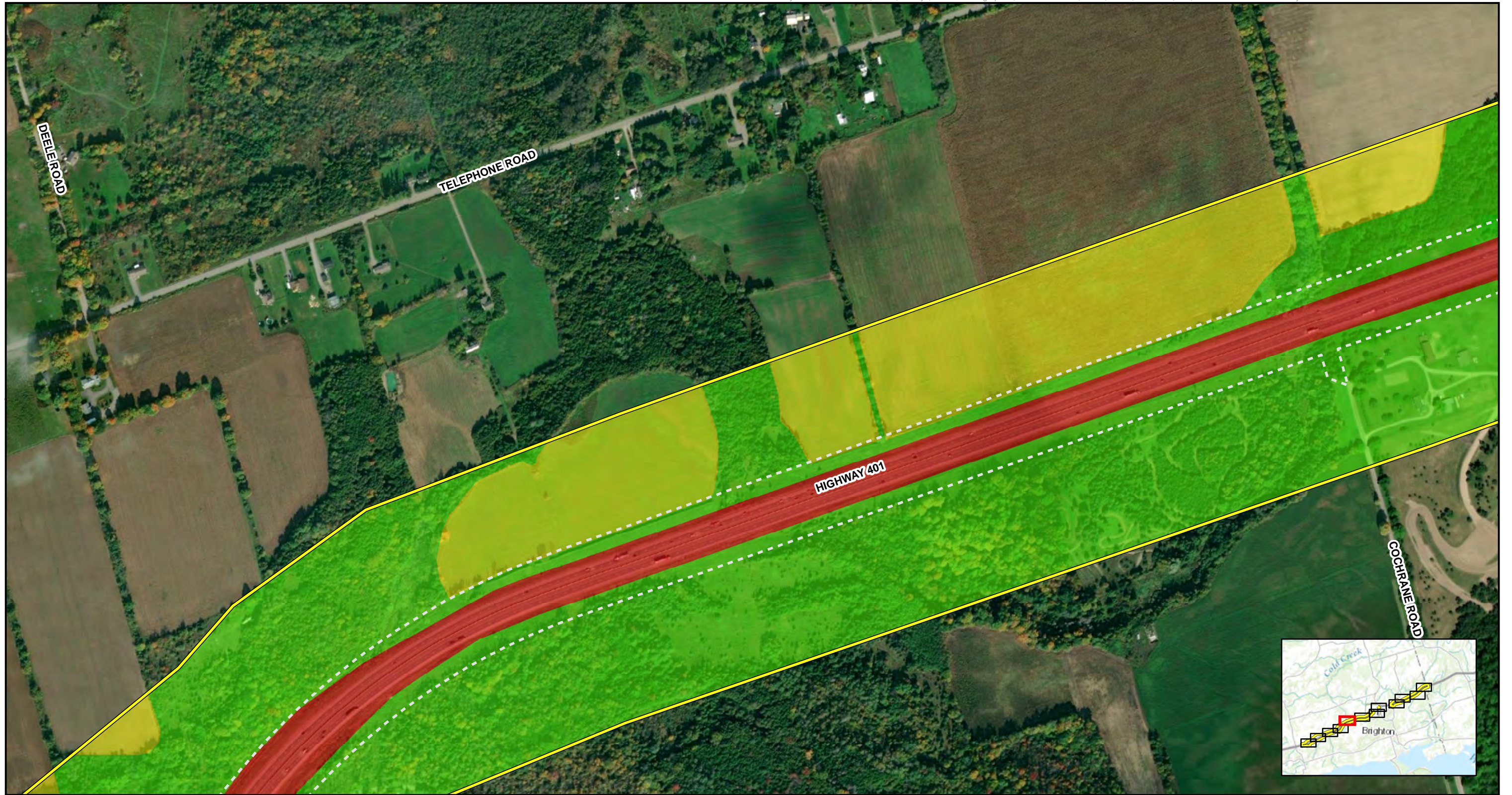
PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



SCALE: 1:5,000	PROJECT NO: 17M-01712-11	DATE: JUNE 2021
DRAWN BY: AST	CLIENT: MTO - EASTERN REGION	

CREDITS:

LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required
- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required

TITLE:
FIGURE 6e: RESULTS

SCALE: 1:5,000
PROJECT NO: 17M-01712-11
DATE: JUNE 2021

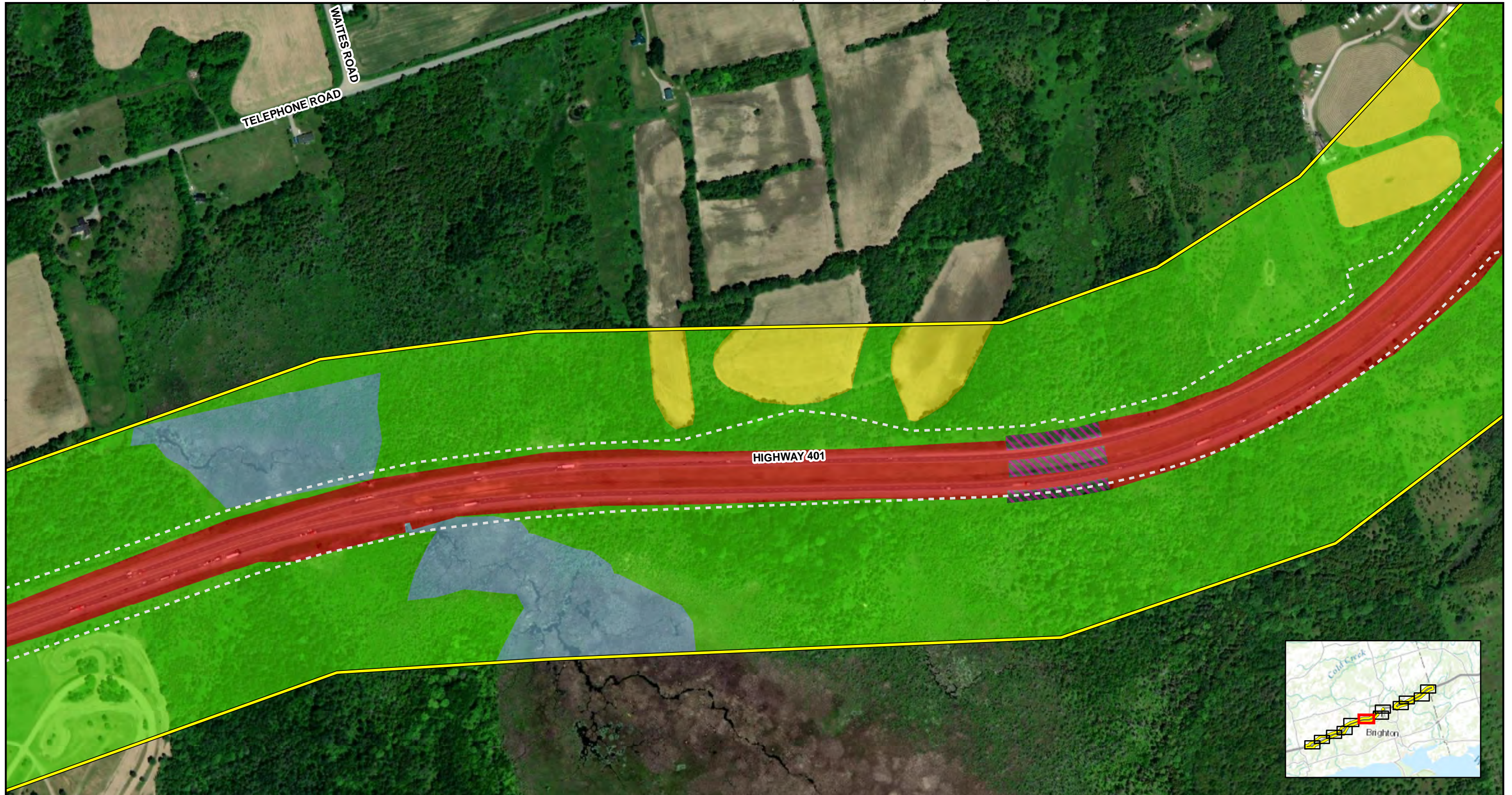
PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

DRAWN BY: AST
CLIENT: MTO - EASTERN REGION

0 100 200 m



CREDITS:
LAND INFORMATION ONTARIO



LEGEND

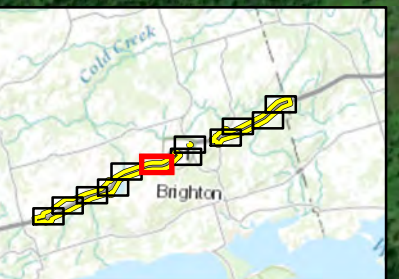
- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Low and Wet - No Further Assessment Required
- Previously Assessed - No Further Assessment Required

TITLE:
FIGURE 6f: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

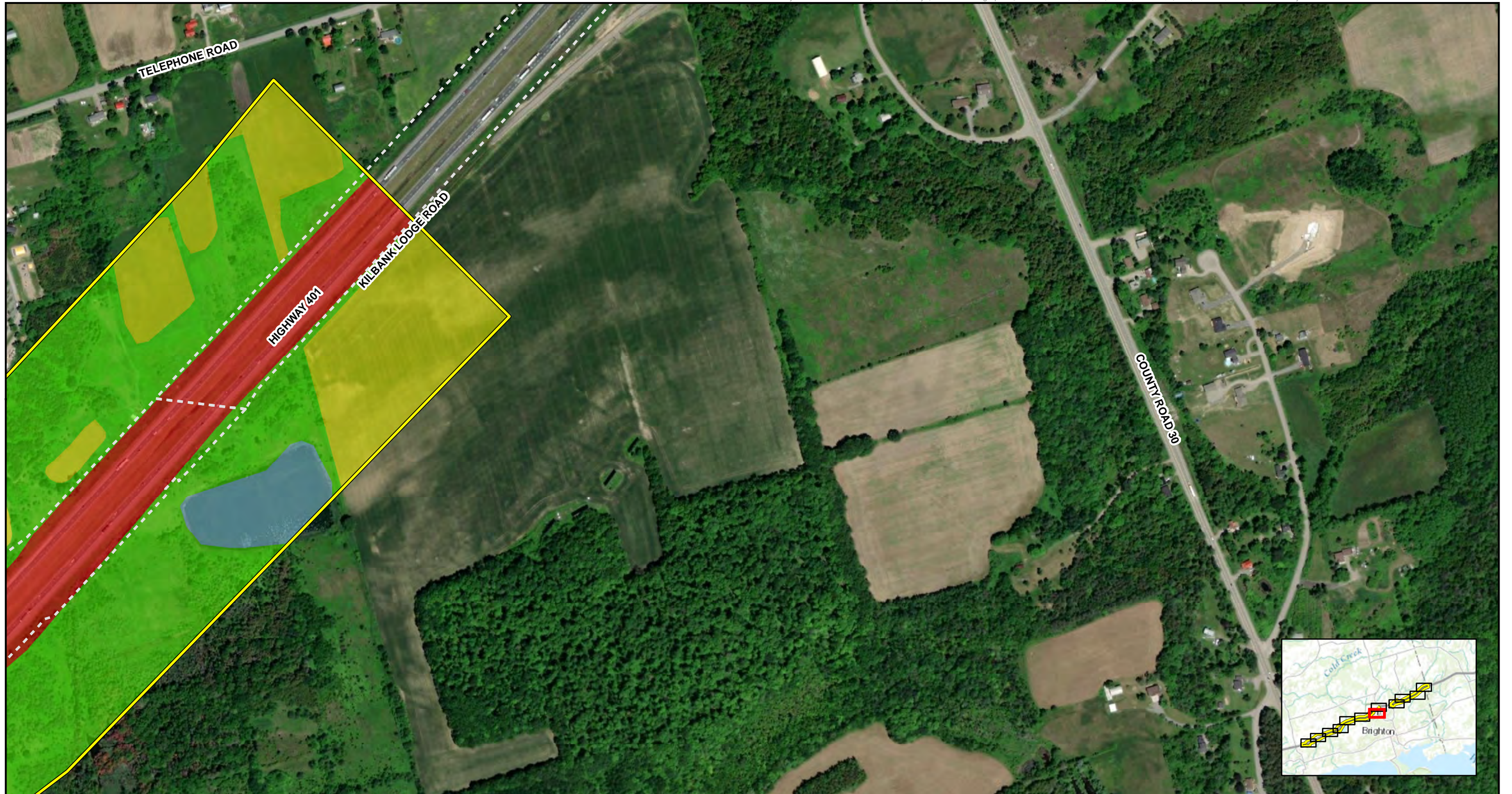
0 100 200 m



SCALE: 1:5,000 PROJECT NO: 17M-01712-11 DATE: JUNE 2021

DRAWN BY: AST CLIENT: MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

▲ Photograph Location

▭ Study Area

⋯ MTO ROW

Results

▭ Pedestrian Survey at 5 m Interval Required

▭ Test Pit at 5 m Interval Required

▭ Disturbed - No Further Assessment Required

▭ Low and Wet - No Further Assessment Required

TITLE:
FIGURE 6g: RESULTS

SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

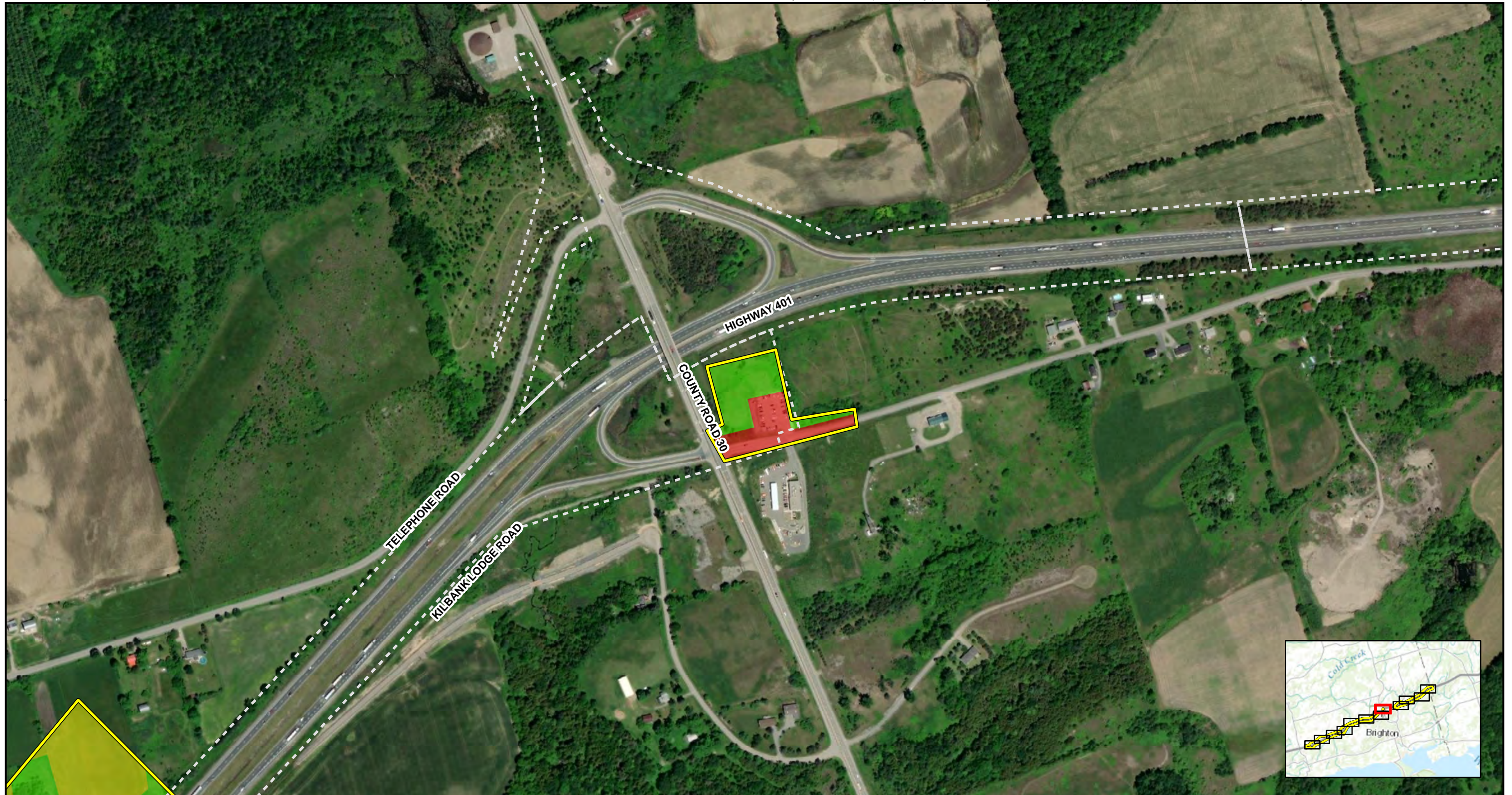
DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

0 100 200 m



CREDITS:
LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required

TITLE:
FIGURE 6h: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



SCALE:
1:5,000

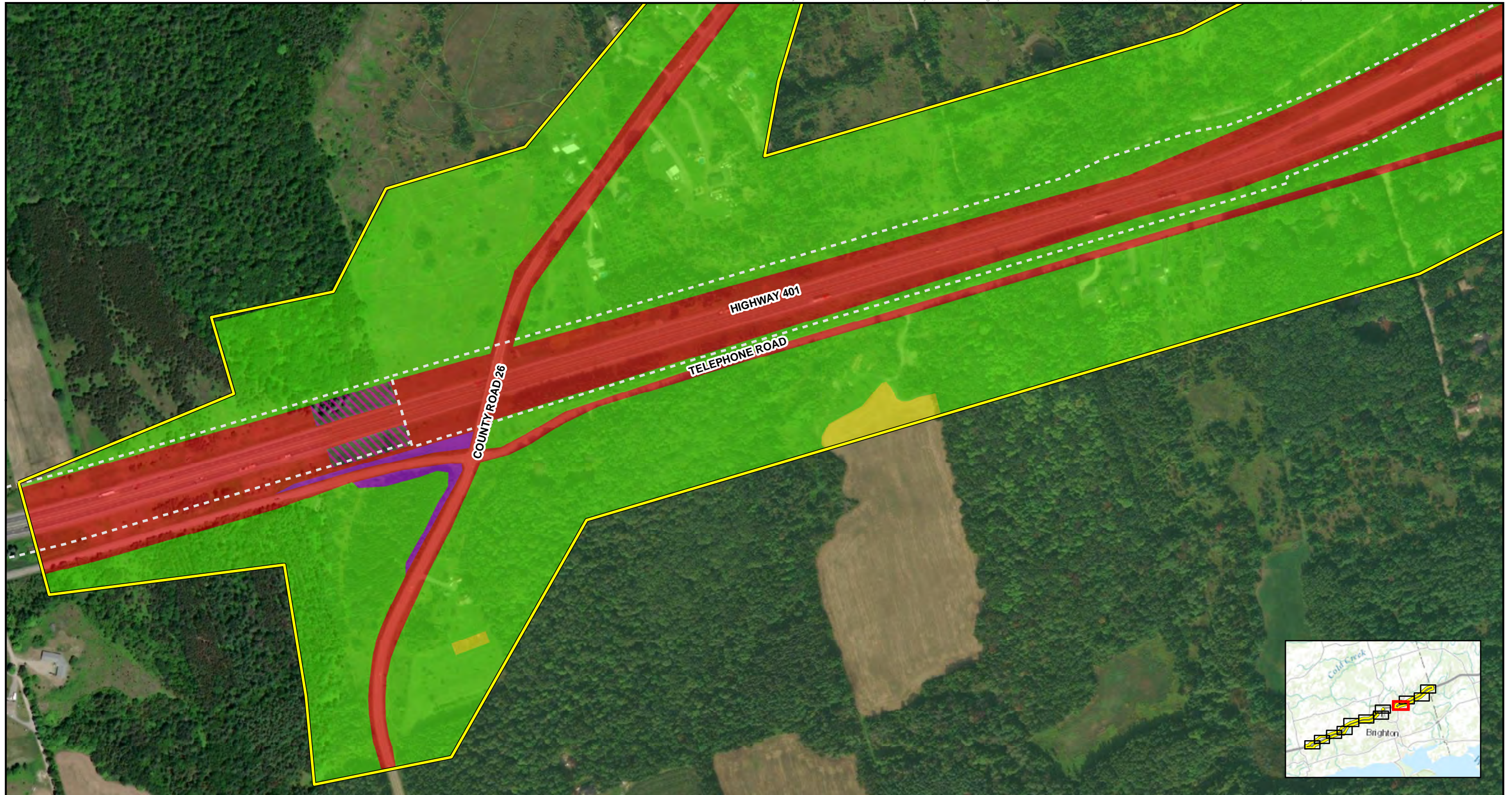
PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Previously Assessed - No Further Assessment Required
- Slope > 20° - No Further Assessment Required

TITLE:
FIGURE 6i: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



SCALE:
1:5,000

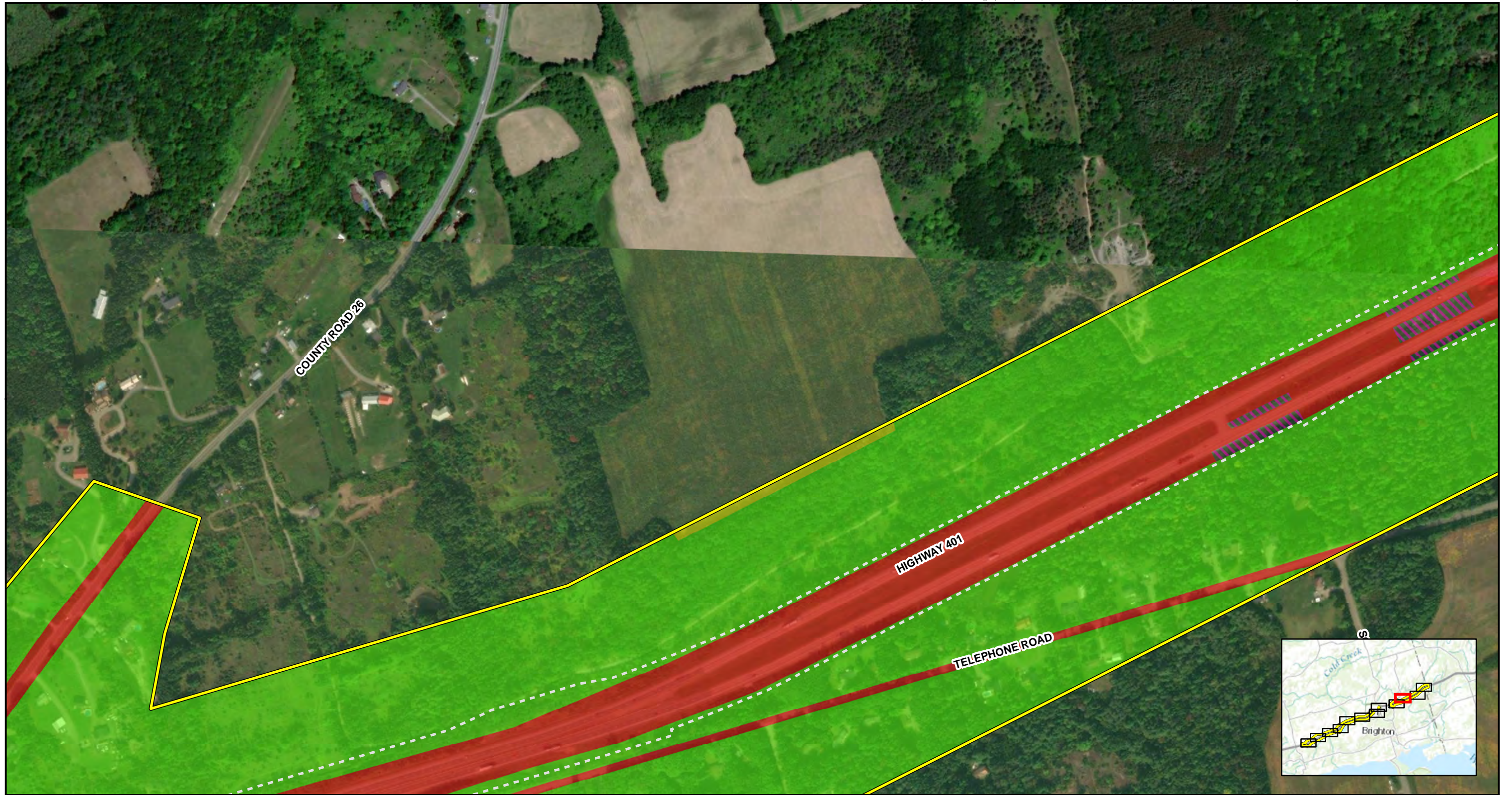
PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW
- Results**
- Pedestrian Survey at 5 m Interval Required

- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Previously Assessed - No Further Assessment Required

TITLE:
FIGURE 6j: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

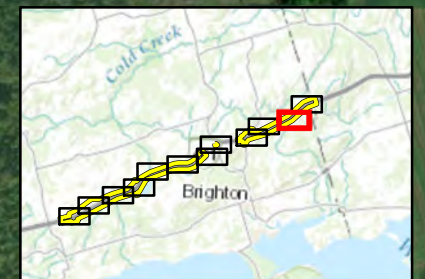
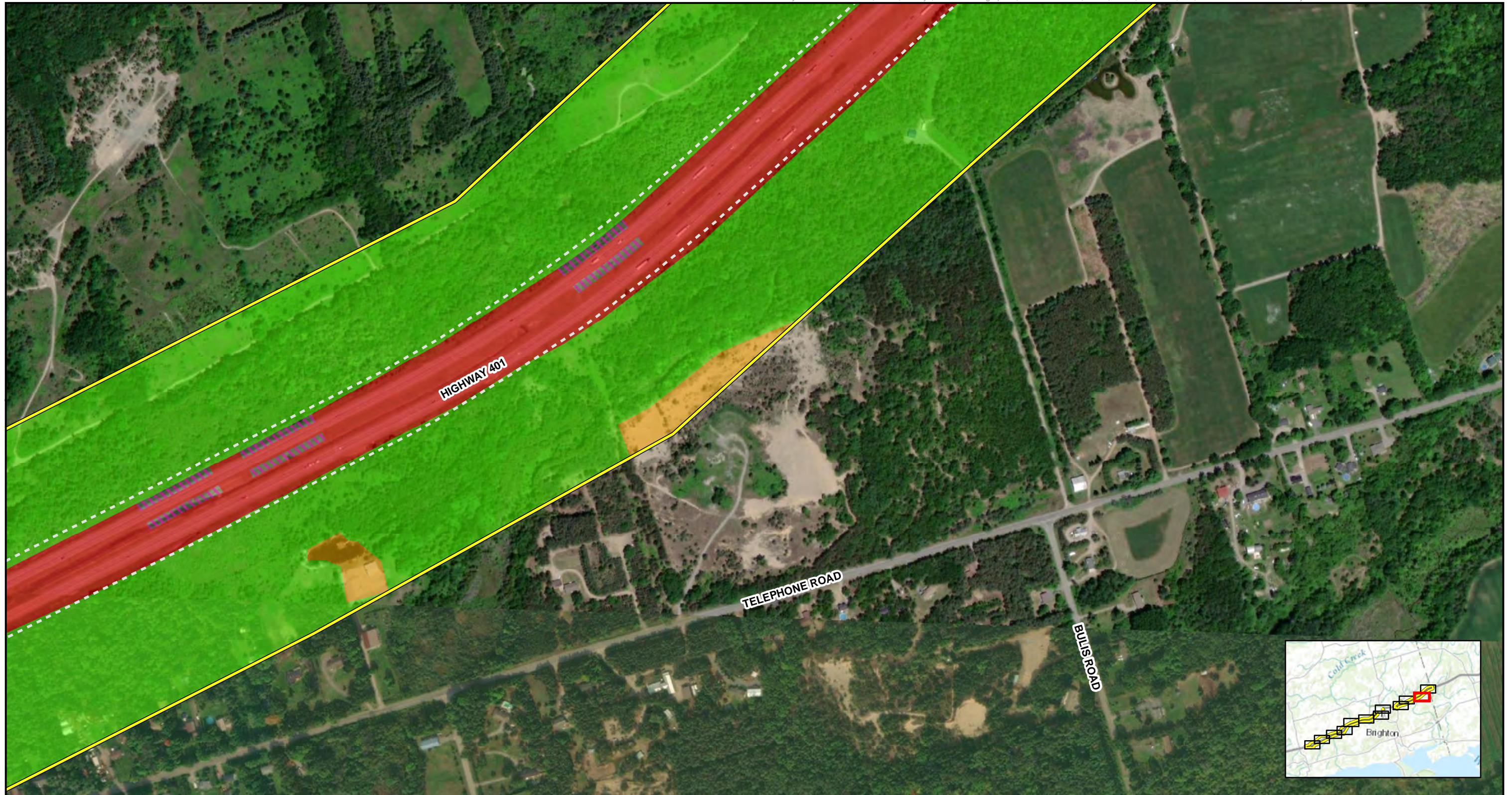
0 100 200 m



SCALE: 1:5,000 PROJECT NO: 17M-01712-11 DATE: JUNE 2021

DRAWN BY: AST CLIENT: MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW

Results

- Test Pit to Confirm Disturbance Required

- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required
- Previously Assessed - No Further Assessment Required

TITLE:
FIGURE 6k: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT



SCALE:
1:5,000

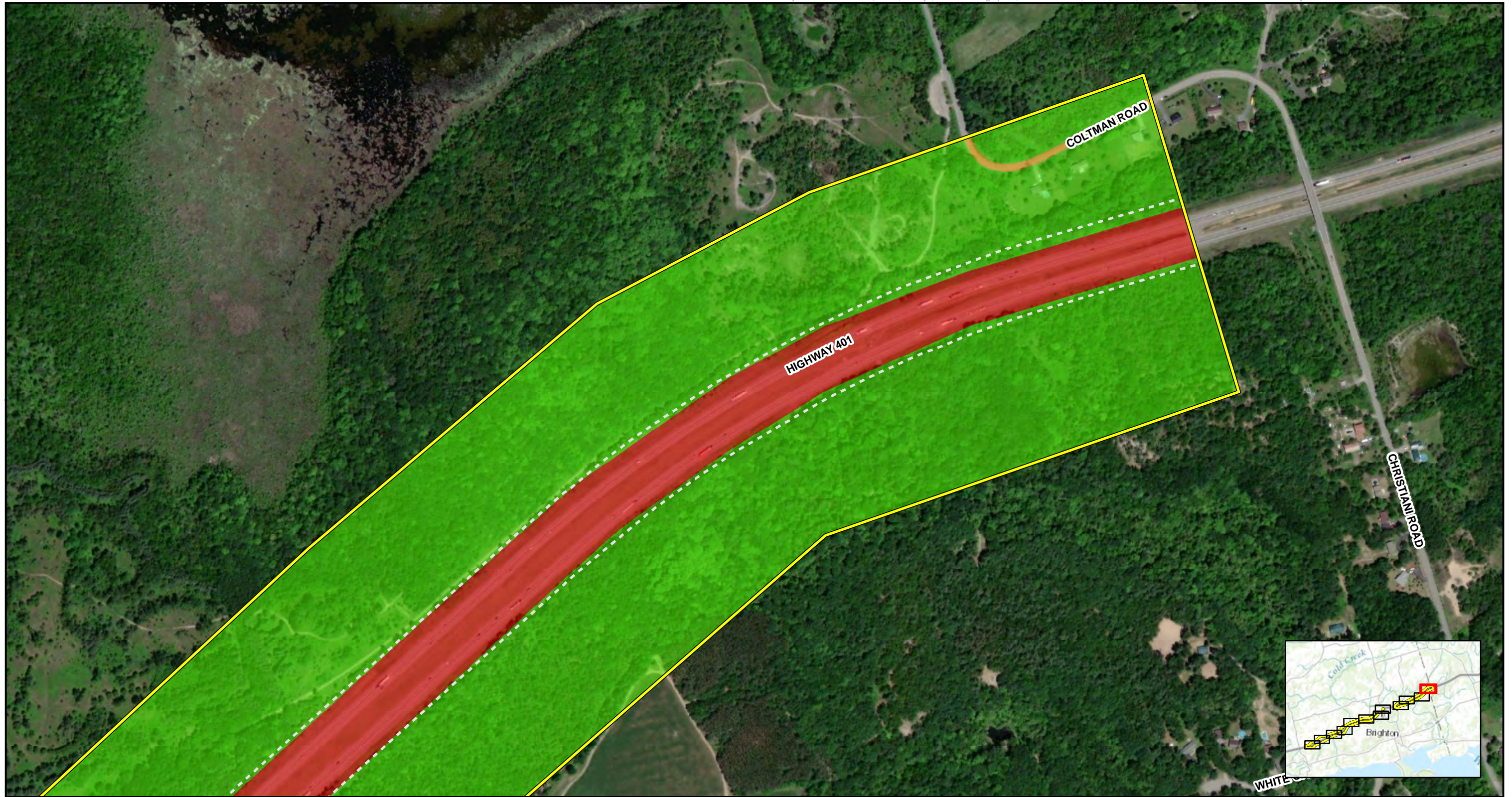
PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO



LEGEND

- Photograph Location
- Study Area
- MTO ROW

Results

- Test Pit to Confirm Disturbance Required

- Test Pit at 5 m Interval Required
- Disturbed - No Further Assessment Required

TITLE:
FIGURE 6I: RESULTS

PROJECT:
HIGHWAY 401 COLBORNE TO BRIGHTON
STAGE 1 ARCHAEOLOGICAL ASSESSMENT

0 100 200 m



SCALE:
1:5,000

PROJECT NO:
17M-01712-11

DATE:
JUNE 2021

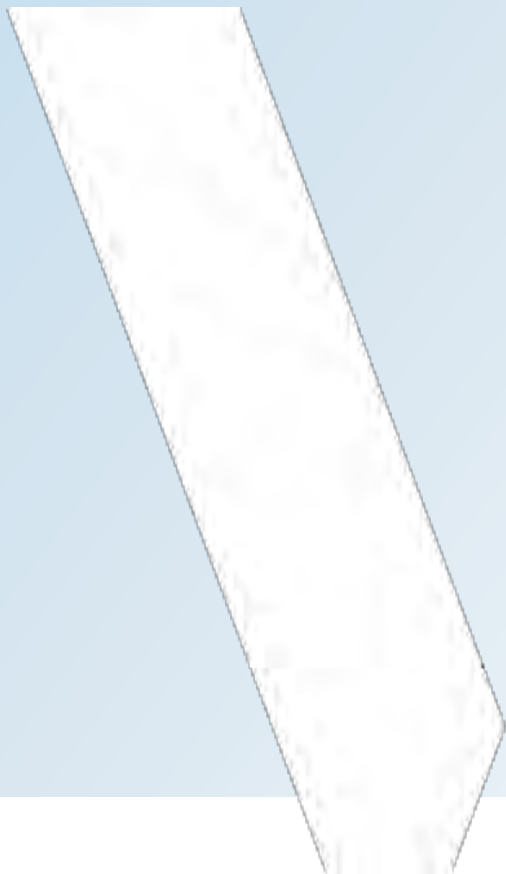
DRAWN BY:
AST

CLIENT:
MTO - EASTERN REGION

CREDITS:
LAND INFORMATION ONTARIO

APPENDIX

A MIICHI SAAGIG HISTORIES



APPENDIX

MICHI SAAGIIG HISTORICAL/BACKGROUND CONTEXT

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. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

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.

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

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.

APPENDIX

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.

Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn’t mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis.”

Often times, southern Ontario is described as being “vacant” after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

Note: This historical context was prepared by Gitiga Migizi, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation.

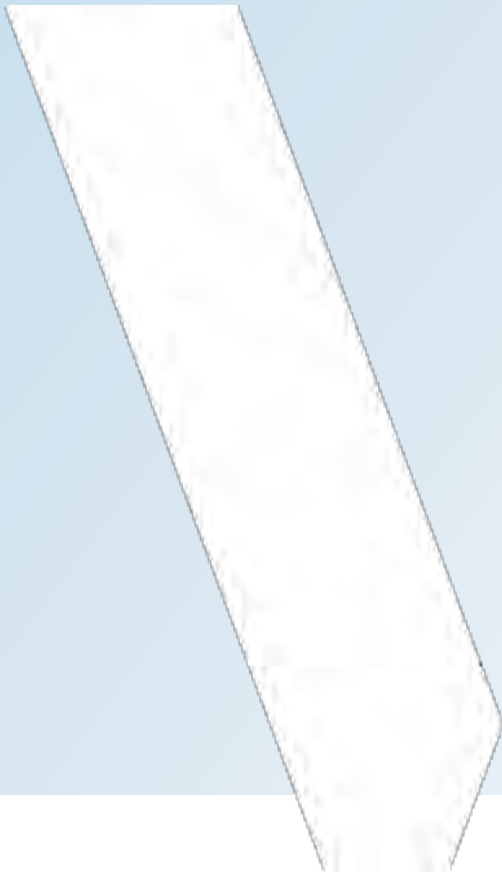
Source

Migizi, G. & J Kapyrka (2015). Before, During, and After: Mississauga Presence in the Kawarthas. In D. Verhulst (eds.) *Peterborough Archaeology* (pp.127-136). Peterborough, Ontario: Peterborough Chapter of the Ontario Archaeological Society.

APPENDIX

B

FEATURES OF
ARCHAEOLOGICAL POTENTIAL



APPENDIX

FEATURES INDICATING ARCHAEOLOGICAL POTENTIAL

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, relic river or stream channels, shorelines of drained lakes or marshes, cobble beaches).
- Accessible or inaccessible shoreline (e.g. high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh).
- Elevated topography (e.g. 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.
- Resource areas, including:
 - Food or medicinal plants (e.g. migratory routes, spawning areas, prairie).
 - Scarce raw materials (e.g. quartz, copper, ochre, or outcrops of chert).
 - Early Euro-Canadian industry (e.g. fur trade, logging, prospecting, mining).
- Areas of early Euro-Canadian settlement. These include places of early military or pioneer settlement (e.g. pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries.
- Early historical transportation routes (e.g. trails, passes, roads, railways, portage routes).
- Property listed on a municipal register or designated under the Ontario Heritage Act or that is federal, provincial or municipal historic landmark or site.
- Property that local histories or informants have identified with possible archaeological sites, historic events, activities, or occupations

Source

Section 1.3. Ministry of Heritage, Sport, Tourism, and Culture Industries. (2011). *Standards and Guidelines for Consultant Archaeologists*. Toronto, Ontario: Queen's Printer for Ontario.