

Stage 1 Archaeological Assessment

Panhandle Loop and Leamington Interconnect, Panhandle
Regional Expansion Project
Part of Multiple Lots and Concessions, Multiple Geographic
Townships, Essex and Kent Counties, Now the Municipalities of
Leamington, Lakeshore, and Chatham-Kent, Ontario

Enbridge Gas Inc.

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Original Report

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Executive Summary

AECOM Canada Ltd. (AECOM) was retained by Enbridge Gas Inc. to conduct a Stage 1 archaeological assessment as part of the Panhandle Regional Expansion Project (the Project). Enbridge Gas is proposing to increase the capacity of the Panhandle Transmission System, which serves residential, commercial, industrial, greenhouse and power generation customers in Windsor, Essex County and Chatham-Kent. The Study Area is located within multiple lots, concessions, and geographic townships in what is historically known as Essex and Kent Counties, now located as part of the municipalities of Leamington, Lakeshore, and Chatham-Kent, Ontario (**Figures 1 and 2**), and is based on the preferred routes for two proposed pipelines: the Panhandle Loop and the Leamington Interconnect, as part of the Project. Descriptions of these proposed pipelines are provided below.

- ◆ **Panhandle Loop:** Approximately 19 kilometres (km) of new pipeline which loops – or parallels – the existing 20-inch Panhandle Pipeline. The new pipeline will be 36 inches in diameter and located adjacent to an existing pipeline corridor between Richardson Side Road in the Municipality of Lakeshore, and Enbridge Gas' existing Dover Transmission Station in the Municipality of Chatham-Kent.
- ◆ **Leamington Interconnect:** Approximately 12 km of new pipeline, 16 inches in diameter, adjacent to or within an existing road allowance on public or private property to connect the existing Leamington North Lines to both the Kingsville East Line and Leamington North Reinforcement Line, located in the Municipality of Lakeshore, Town of Kingsville, and the Municipality of Leamington.

This Stage 1 archaeological assessment was triggered by the requirements of the Ontario Energy Board's (OEB) *Environmental guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario* and conducted in accordance with Chapter 4, subsection 4.3.4 prior to implementation of the project (Ontario Energy Board 2016). This project is also subject to the *Ontario Heritage Act* (Ontario Government 1990) and *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

All archaeological consulting activities were conducted under PIF number P438-0278-2021, issued to Professional Archaeologist Samantha Markham, MES (P438) in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' (MHSTCI) *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

AECOM's Stage 1 background study and property inspection for the Panhandle Loop and Leamington Interconnect Study Areas as part of the Panhandle Regional Expansion Project has determined that the potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the Study Areas is high. **Based on these findings, a Stage 2 archaeological assessment is recommended for all areas of potentially undisturbed land within the Study Area limits addressed within the scope of this report (Figures 9 and 10).**

The Stage 2 archaeological assessment for areas retaining archaeological potential must be conducted by a licensed archaeologist and must follow the requirements set out in *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario, 2011), including:

- ◆ The standard test pit survey method at 5 m intervals is to be conducted in all areas that will be impacted by the project where ploughing is not feasible (e.g., woodlots, overgrown areas, manicured lawns, small sections of agricultural land); and
- ◆ Pedestrian survey at 5 m intervals where ploughing is possible (e.g., agricultural fields). This assessment will occur when agricultural fields have been recently ploughed, weathered by rain, and exhibit at least 80% surface visibility.

- ◆ Poorly drained areas, areas of steep slope, and areas of confirmed previous disturbance (e.g., building footprints, roadways, areas with identifiable underground infrastructure) are to be mapped and photo-documented but are not recommended for Stage 2 survey as they possess low to no archaeological potential.

Should additional land outside of the current Study Area boundaries be included as part of the Panhandle Regional Expansion Project, the standard requirements for archaeological assessments to be conducted prior to land disturbance remain in place.

The proposed pipeline installation method will be by horizontal directional drilling (HDD) to allow the pipeline to cross under the Thames River and Baptiste and Jeanettes Creeks. Therefore, no impacts are proposed to the beds of those areas. If any changes are made to the method of installation and impacts may occur to the beds of the Thames River or the Baptiste or Jeanettes Creeks, a marine archaeological checklist should be completed, which may result in the recommendation that a marine archaeological assessment be undertaken.

While there are currently no plans to impact the Malott cemetery as it is located approximately 20 m south of the Study Area corridor (**Figure 11**), if construction activities occur within 10 m of the surveyor's staked cemetery boundaries, a Cemetery Investigation will be required to determine the potential to impact unmarked burials. Arrangements must be made with the cemetery owner/operator, the Bereavement Authority of Ontario (BAO) and the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) prior to any ground-disturbing activities within 10 m of the cemetery to ensure provisions under the *Funeral, Burial, Cremations Services Act* (Ontario Government 2002) are addressed. Any invasive Stage 2-4 archaeological fieldwork within the cemetery limits will also require a Cemetery Investigation Authorization from the BAO.

The MHSTCI is asked to accept this report into the Ontario Public Register of Archaeological Reports thereby concurring with the recommendations presented herein. As further archaeological assessment is required, archaeological concerns for the Panhandle Loop and Leamington Interconnect Study Areas, Part of Multiple Lots and Concessions, Multiple Geographic Townships, Essex and Kent Counties, Now the Municipalities of Leamington, Lakeshore, and Chatham-Kent, Ontario, have not been fully addressed.

Please note that this archaeological assessment report has been written to meet the requirements of the MHSTCI's *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011); however, properties that are subject to archaeological assessment are not considered cleared for ground disturbance activities until the associated report has been reviewed and accepted by the MHSTCI. In order to maintain compliance with the MHSTCI and the *Ontario Heritage Act* (1990), no ground disturbing activities are to occur until the proponent and approval authority receive a formal letter from the MHSTCI stating that the recommendations provided herein are compliant and that the report has been accepted into the MHSTCI register of archaeological reports.

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1. Project Context

1.1 Development Context

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1.1.1 Objectives

The objective of the Stage 1 background study is to document the archaeological and land use history and current conditions of the Study Area. This information will be used to support recommendations regarding cultural heritage value or interest as well as assessment and mitigation strategies. The Stage 1 research information will be drawn from:

- ◆ The MHSTCI Archaeological Sites Database (ASDB) for a listing of registered archaeological sites within a 1 km radius of the Study Area;
- ◆ Reports of previous archaeological assessments within 50 metres (m) of the Study Area;
- ◆ Recent and historical maps of the Study Area;
- ◆ Archaeological management plans or other archaeological potential mapping where available;
- ◆ Municipal Registers of listed heritage properties and properties designated under the *Ontario Heritage Act* (Ontario Government 1990);
- ◆ Commemorative plaques and monuments identified on or near the property; and
- ◆ A visual inspection of the existing conditions of the Study Area and surroundings.

1.2 Historical Context

Years of archaeological research and assessments in southern Ontario have resulted in a well-developed understanding of the historic use of land in Essex and Kent Counties from the earliest Indigenous peoples to the more recent Euro-Canadian settlers and farmers. **Table 1** provides a breakdown of the cultural and temporal history of past occupations in Essex and Kent Counties.

Table 1: Cultural Chronology for Essex and Kent Counties

Archaeological Period	Time Period	Comments
Early Paleo	9000-8400 BC	<ul style="list-style-type: none"> Fluted Points Arctic tundra and spruce parkland, caribou hunters
Late Paleo	8400-8000 BC	<ul style="list-style-type: none"> Holcombe, Hi-Lo and Lanceolate Points Slight reduction in territory size
Early Archaic	8000-6000 BC	<ul style="list-style-type: none"> Notched and Bifurcate Base Points Growing populations
Middle Archaic	6000-2500 BC	<ul style="list-style-type: none"> Stemmed and Brewerton Points, Laurentian Development Increasing regionalization
Late Archaic	2000-1800 BC	<ul style="list-style-type: none"> Narrow Point Environment similar to present
	1800-1500 BC	<ul style="list-style-type: none"> Broad Point Large lithic tools
	1500-1100 BC	<ul style="list-style-type: none"> Small Point Introduction of bow
Terminal Archaic	1100-950 BC	<ul style="list-style-type: none"> Hind Points, Glacial Kame Complex Earliest true cemeteries
Early Woodland	950-400 BC	<ul style="list-style-type: none"> Meadowood Points Introduction of pottery
Middle Woodland	400 BC – AD 500	<ul style="list-style-type: none"> Couture Corded Ceramics Increased sedentism
Late Woodland	AD 500-800	<ul style="list-style-type: none"> Riviere au Vase Phase Seasonal hunting and gathering
	AD 800-1200	<ul style="list-style-type: none"> Younge Phase Agriculture combined with seasonal rounds
	AD 1200-1400	<ul style="list-style-type: none"> Springwells Phase Agricultural villages
	AD 1400-1500	<ul style="list-style-type: none"> Wolf Phase Earthwork villages, warfare
Contact Period	AD 1600-1875	<ul style="list-style-type: none"> Early written records and treaties
Historic	AD 1749-present	<ul style="list-style-type: none"> French and English Euro-Canadian settlement

Notes: Taken from Ellis and Ferris (1990)

The following sections provide a detailed summary of the archaeological cultures that have settled in the vicinity of the Study Area. As Chapman and Putnam (1984) illustrate, the modern physiography of southern Ontario is largely a product of events of the last major glacial stage and the landscape is a complex mosaic of features and deposits

produced during the last series of glacial retreats and advances prior to the withdrawal of the continental glaciers from the area. Southwestern Ontario was finally ice free approximately 12,500 years ago. With continuing ice retreat and lake regressions the land area of southern Ontario progressively increased while barriers to the influx of plants, animals, and people steadily diminished (Karrow and Warner 1990). The lands within Essex and Kent Counties have been extensively utilized by pre-contact Indigenous peoples who began occupying southwestern Ontario as the glaciers receded from the land, as early as 11,000 BC.

1.2.1 Pre-Contact First Nation Settlement

The Paleo Period

In this period the first human settlement can be traced back to 11,000 BC; these earliest well-documented groups are referred to as *paleo* which literally means old or ancient. During the Paleo period people were non-agriculturalists who depended on hunting and gathering of wild food; they moved their encampments on a regular basis to be in the locations where these resources naturally became available, and the size of the groups occupying any particular location would vary depending on the nature and size of the available food resources (Ellis and Deller 1990). The picture that has emerged for the early and late Paleo is of groups at low population densities who were residentially mobile and made use of large territories during annual cycles of resource exploitation.

The Archaic Period

The next major cultural period following the Paleo is termed the Archaic, which is broken temporally into the Early, Middle, and Late Archaic periods. There is much debate on how the term Archaic is employed; general practice bases the designation on assemblage content as there are marked differences in artifact suites from the preceding Paleo and subsequent Woodland periods. As Ellis *et al.* (1990) note, from an artifact and site characteristic perspective the Archaic is simply used to refer to non-Paleo manifestations that predate the introduction of ceramics. Ellis *et al.* (1990) stress that Archaic groups can be distinguished from earlier groups based on site characteristics and artifact content.

Early Archaic sites have been reported throughout much of southwestern Ontario and extend as far north as the Lake Huron Basin region and as far east as Rice Lake (Deller *et al.* 1986). A lack of excavated assemblages from southern Ontario has limited understandings and inferences regarding the nature of stone tool kits in the Early Archaic and tool forms other than points are poorly known in Ontario; however, at least three major temporal horizons can be recognized and can be distinguished based on projectile point form (Ellis *et al.* 1990). These horizons are referred to as Side-Notched (*ca.* 8,000-7,700 BC), Corner-Notched (*ca.* 7,700-6,900 BC), and Bifurcated (*ca.* 6,900-6,000 BC) (Ellis *et al.* 1990). Additional details on each of these horizons and the temporal changes to tool types can be found in Ellis *et al.* (1990).

The Middle Archaic period (6,000-2,500 BC), like the Early Archaic, is relatively unknown in southern Ontario. Ellis *et al.* (1990) suggest that artifact traits that have come to be considered as characteristic of the Archaic period, first appear in the Middle Archaic. These traits include fully ground and polished stone tools, specific tool types including banner stones and net-sinkers, and the use of local and/or non-chert type materials for lithic tool manufacture (Ellis *et al.* 1990).

The Late Archaic begins around approximately 2,000 BC and ends with the beginning of ceramics and the Meadowood Phase at roughly 950 BC. Much more is known about this period than the Early and Middle Archaic and several Late Archaic sites are known. Sites appear to be more common than earlier periods, suggesting some degree of population increase. True cemeteries appear and have allowed for the analysis of band size, biological relationships, social organization, and health. Narrow and Small point traditions appear as well as tool recycling wherein points were modified into drills, knives, end scrapers, and other tools (Ellis *et al.* 1990). Other tools include serrated flakes used for sawing or shredding, spokeshaves, and retouched flakes manufactured into perforators,

gravers, micro-perforators, or piercers. Tools on coarse-grained rocks such as sandstone and quartz become common and include hammerstones, net-sinkers, anvils, and cobble spalls. Depending on preservation, several Late Archaic sites include bone and/or antler artifacts which likely represent fishing toolkits and ornamentation. These artifacts include bone harpoons, barbs, or hooks, notched projectile points, and awls. Bone ornaments recovered have included tubular bone beads and drilled mammal canine pendants (Ellis *et al.* 1990).

Throughout the Early to Late Archaic periods the natural environment warmed, and vegetation changed from closed conifer-dominated vegetation cover, to the mixed coniferous and deciduous forest in the north and deciduous vegetation in the south we see in Ontario today (Ellis *et al.* 1990). During the Archaic period there are indications of increasing populations and decreasing size of territories exploited during annual rounds; fewer moves of residential camps throughout the year and longer occupations at seasonal campsites; continuous use of certain locations on a seasonal basis over many years; increasing attention to ritual associated with the deceased; and, long range exchange and trade systems for the purpose of obtaining valued and geographically localized resources (Ellis *et al.* 1990).

The Woodland Period

The Early Woodland period is distinguished from the Late Archaic period primarily by the addition of ceramic technology, which provides a useful demarcation point for archaeologists but is expected to have made less difference in the lives of the Early Woodland peoples. The settlement and subsistence patterns of Early Woodland people shows much continuity with the earlier Archaic with seasonal camps occupied to exploit specific natural resources (Spence *et al.* 1990). During the Middle Woodland well-defined territories containing several key environmental zones were exploited over the yearly subsistence cycle. Large sites with structures and substantial middens appear in the Middle Woodland associated with spring macro-band occupations focussed on utilizing fish resources and created by consistent returns to the same site (Spence *et al.* 1990). Groups would come together into large macro-bands during the spring-summer at lakeshore or marshland areas to take advantage of spawning fish; in the fall inland sand plains and river valleys were occupied for deer and nut harvesting and groups split into small micro-bands for winter survival (Spence *et al.* 1990). This is a departure from earlier Woodland times when macro-band aggregation is thought to have taken place in the winter (Ellis *et al.* 1988; Granger 1978).

The period between the Middle and Late Woodland periods was both technically and socially transitional for the ethnically diverse populations of Southern Ontario and these developments laid the basis for the emergence of settled villages and agriculturally based lifestyles (Fox 1990). A distinct cultural occupation emerged during the late Woodland Period in southern Ontario in the modern counties of Kent, Essex and Lambton as well as portions of west Middlesex and west Elgin. This emerging cultural manifestation may be generally classified as Western Basin Tradition, which was observed also in southeastern Michigan and northwestern Ohio. The inhabitants of these communities are considered distinct from Iroquoian groups to the east and Mississippian to the south. Instead, they represent prehistoric Central Algonquians.

Until recently little attention was paid to Western Basin Late Woodland occupations in southern Ontario, although several sites have been the focus of systematic excavation over the past 30 years, including Walpole Island First Nation in the late 1980s. Based on these investigations, the Late Woodland Western Basin Tradition of Southern Ontario may be broken down into four sub-phases based on evolving ceramic traditions and innovations in settlement-subsistence strategies. The Riviere au Vase Phase (AD 600 - 800/900) grew seamlessly out of the Middle Woodland tradition, with the most visible advancements observed in ceramic production and decoration. Lithic production was also a well-established industry during this early phase of the Late Woodland Period. Typical point forms are corner notched or, among less well-made examples, side-notched and triangular Levanna-like points appear in the final stages of the Riviere au Vase Phase. Subsistence strategies were maintained from the Middle Woodland Period, with the addition of seasonal harvesting as well as hunting and gathering activities. The general picture suggests that small hunting and gathering groups occupied south-western Ontario in the early Late Woodland period, exploiting

seasonally abundant plant and animal resources. Settlement-subsistence practices over the coldest months are not known.

The following Younger Phase (AD 800 or 900 – 1200) witnessed a shift from seasonally mobile bands moving in an annual cycle to permanent or semi-permanent villages founded inland from major waterways and lakefronts. Subsistence strategies still comprised regional resource exploitation supplemented by agriculture. During warmer months, the Younger Phase communities focused their activities along lakeshores and major drainages. During colder months, they moved inland to gather nuts and hunt deer and settled in small family winter camps. No formal villages existed at this time.

The Springwells Phase (AD 1200-1400) maintained the trends established during the earlier Late Woodland Period phases. The general practice of exploitation was maintained, although warmer weather settlements began to develop into more established villages with formalised living areas and evidence of longhouses and palisades. These new communities centred around small lineage-based groups. By the end of this phase, large settlements with earthworked enclosures emerged. The shift toward more permanent communities may be partnered with the introduction of maize horticulture into general subsistence activities.

The distinction between the material culture of the Younger and Springwells Phases is blurred, particularly with regard to ceramic styles. Vessels from both periods are well made and highly decorated. The Springwells phase maintains heterogeneity between decorative styles and is characterised by a diffusion of ceramic types throughout the Western Basin Tradition region. Lithic tools are sparse, well used, and of local, poor quality chert. Point styles follow the traditions established during the previous Riviere au Vase Phase, and generally comprise a Levanna-like triangular form becoming increasingly narrower.

The last phase, the Wolfe Phase (AD 1400-1550), is poorly represented in the archaeological record because of a general drop in the number of sites. The general trends suggest fewer, larger, fortified settlements supported by seasonal camps. Fewer sites may also indicate a continued western shift into Michigan with an eastern limit marked by sites along Lake Huron and the St. Clair River. Generally, however, a lack of data limits the understanding of the communities at this time, including their relationship with the expanding Iroquoian groups and their overall material culture.

1.2.2 Post-Contact Period Settlement

The post-contact Indigenous occupation of southern Ontario was heavily influenced by the dispersal of Iroquoian speaking peoples, including the Six Nations of the Iroquois – Mohawk, Cayuga, Oneida, Seneca, Onondaga, and Tuscarora. This was followed by the return of Algonkian speaking groups from northern Ontario, including the Michi Saagig, who had temporarily retreated to their wintering grounds in the mid-1600s to avoid warfare and disease as a result of colonial settlement. Algonkian speaking Ojibwe (Chippewa), Odawa (Ottawa), and Pottawatomi, known as the Three Fires Confederacy, remained in their traditional territory that covered a vast area of southern Ontario as well as eastern Michigan.

As European settlers encroached on their territory the nature of First Nation population distribution, settlement size and material culture changed. Despite these changes it is possible to correlate historically recorded villages with archaeological manifestations and the similarity of those sites to more ancient sites reveals an antiquity to documented cultural expressions that confirms a long historical continuity to systems of Indigenous ideology and thought (Ferris 2009).

It is important to note that, when discussing the historical documentation of the movement of Indigenous people, what has been documented by early European explorers and settlers represents only a very small snapshot in time. Documentation of where Indigenous groups were residing during European exploration and settlement is

restricted to only a very short period and does not reflect previous and subsequent movements of these groups. This brief history does not reflect the full picture of the pre- or post-contact period occupation of Indigenous groups or cultures. As such, relying on historic documentation regarding Indigenous occupation and movement across the landscape can lead to misinterpretation. For example, noting the movement of Indigenous groups into an area may incorrectly suggest to the reader that these groups had not occupied the area previously; however, this is not the case. It is clear from Indigenous oral histories and the archaeological record that pre-contact Indigenous populations were extremely mobile and not tied to any one specific area. Over the vast period prior to the arrival of Europeans, Indigenous groups, language families, and cultures were fluid across the landscape.

The Study Area falls within the limits of McKee Purchase (Treaty No. 2), made on May 19, 1790, between the Crown, represented by British Deputy Agent Alexander McKee, and the Odawa, Chippewa, Pottawatomi, and Huron (AANDC 2013). This treaty negotiated the acquisition of what is now most of southwestern Ontario by the British Crown. The boundaries of this Treaty are illustrated on **Figure 3** and includes a large tract of land along the northwestern shore of Lake Erie. It is pertinent to note that Treaty No. 35 was once included as part of McKee Treaty No. 2 and as such, remains of interest to the Three Fires Confederacy. As part of this treaty, the British set aside two tracts of land for the Huron-Wendat; the one near the church came to be known as the “Huron Church Reserve” and the one near Canard River came to be known as the “Anderdon Reserve”. The Ojibwa, Odawa and Potawatomi Nations remained in their territory and are now represented by the Council of Three Fires of Walpole Island First Nation. Walpole Island First Nation leaders made a treaty with the British in 1790 that reserved several tracts of land. It was intended to be a rectangular shaped reserve containing about 4,500 acres. When it was surveyed, the shape was changed to a triangle and the area reduced to 1,139 acres. This shortfall is now the subject of a land claim made by Walpole Island First Nation. A part of the triangle reserve was sold but 61 acres, known as the “camping ground” near the Ambassador Bridge, was retained. In 1853 the Huron-Wendat sold the camping ground without permission from the Three Fires and Walpole Island First Nation continues to assert authority over this part of their territory.

1.2.3 Walpole Island History

Walpole Island First Nation currently occupies the delta islands on the Canadian side of Lake St. Clair and is known in the Anishinabe language as “Bkejwanong”, meaning “the place where the waters divide” (Lytwyn 2009). Bkejwanong has been occupied by the Ojibwe, Odawa, and Pottawatomi for thousands of years. Archaeological sites on the island have found tools that date to as early as 10,000 years ago. Walpole Island is a collection of islands that includes Walpole Island, Squirrel Island, St. Anne Island, Seaway Island, Basset Island, and Potawatomi Island.

Walpole Island was situated on a north-south travel corridor, which would have allowed access to acquire resources across long distances. Archaeological evidence suggests that this corridor allowed travel from as far away as Ohio. Resources including gourds, squash, and corn may have planted as early as 2,500 years ago and permanent villages may have been present on Walpole Island at this time.

Long before the arrival of Europeans, the Three Fires camped and hunted at Walpole Island. Throughout the 18th century, after the surrender of most of southern Ontario, the Ojibwe and Odawa peoples permanently settled at Walpole Island with the Pottawatomi arriving after 1836. Between 1790 and 1827, land cession treaties with the British Crown resulted in the surrender of millions of acres of land; however, the Three Fires did not surrender Walpole Island as part of the McKee Treaty No. 2 and the land remains unceded.

1.2.4 Euro-Canadian Settlement

The Study Area is located within what is historically known as part of multiple lots, concessions, and geographic townships within Essex and Kent Counties, now located as part of the municipalities of Leamington, Lakeshore, and Chatham-Kent, Ontario. **Table 2** includes the lots, concessions, and geographic townships included within the

Panhandle Loop Study Area, while **Table 3** includes those of the Leamington Interconnect Study Area. Further details and historical context on the major geographic townships are provided in the following pages.

Table 2: Lots, Concessions, and Geographic Townships, Panhandle Loop Study Area

LOT	CONCESSION	GEOGRAPHIC TOWNSHIP
LOT 1	CONCESSION 3 WEST DIVISION	DOVER
LOT 1	CONCESSION 6 EAST DIVISION	DOVER
LOT 2	CONCESSION 3 WEST DIVISION	DOVER
LOT 3	CONCESSION 3 WEST DIVISION	DOVER
LOT 4	CONCESSION 3 WEST DIVISION	DOVER
LOT 5	CONCESSION 2 WEST DIVISION	DOVER
LOT 5	CONCESSION 3 WEST DIVISION	DOVER
LOT 6	CONCESSION 2 WEST DIVISION	DOVER
LOT 6	CONCESSION 1	TILBURY EAST
LOT 7	CONCESSION 1	TILBURY EAST
LOT 7	CONCESSION 2	TILBURY EAST
LOT 8	CONCESSION 2	TILBURY EAST
LOT 9	CONCESSION 2	TILBURY EAST
LOT 10	CONCESSION 3	TILBURY EAST
LOT 10	CONCESSION 2	TILBURY EAST
LOT 11	CONCESSION 3	TILBURY EAST
LOT 12	CONCESSION 3	TILBURY EAST
LOT 12	CONCESSION 4	TILBURY EAST
LOT 13	CONCESSION 4	TILBURY EAST
LOT 13	CONCESSION 4	TILBURY EAST
LOT 14	CONCESSION 5	TILBURY EAST
LOT 14	CONCESSION 4	TILBURY EAST
LOT 15	CONCESSION 5	TILBURY EAST
LOT 24	MIDDLE ROAD SOUTH SIDE	TILBURY EAST
LOT 24	MIDDLE ROAD NORTH SIDE	TILBURY EAST
LOT 25	MIDDLE ROAD SOUTH SIDE	TILBURY EAST
LOT 26	MIDDLE ROAD SOUTH SIDE	TILBURY EAST
LOT 27	MIDDLE ROAD SOUTH SIDE	TILBURY EAST
LOT 28	MIDDLE ROAD SOUTH SIDE	TILBURY EAST
LOT 19	MIDDLE ROAD SOUTH SIDE	TILBURY WEST
LOT 20	MIDDLE ROAD SOUTH SIDE	TILBURY WEST
LOT 21	MIDDLE ROAD SOUTH SIDE	TILBURY WEST

LOT 22 MIDDLE ROAD SOUTH SIDE TILBURY WEST

Table 3: Lots, Concessions, and Geographic Townships, Leamington Interconnect Study Area

LOT	CONCESSION	GEOGRAPHIC TOWNSHIP
LOT 25	CON 11	GOSFIELD
LOT 1	CON 10	MERSEA
LOT 1	CON 11	MERSEA
LOT 30	CON 1	ROCHESTER
LOT 30	CON 2	ROCHESTER
LOT 30	CON 3	ROCHESTER
LOT 30	CON 4	ROCHESTER
LOT 30	CON 5	ROCHESTER

Essex County

In 1747, settlement began on the Canadian side of the Detroit River on the lands that would later become Essex County. Essex was the first county to be settled in Ontario and early settlers primarily included French soldiers who became farmers, craftsmen, merchants, or fur traders (County of Essex 1992). In 1792, Sir John Graves Simcoe, the first Lieutenant-Governor of the new province of Upper Canada, divided the province into 19 counties. During the first session of the provincial government, Simcoe proclaimed Essex County as the 18th of the 19 counties which, along with Kent and Suffolk Counties, formed the Western District. The first towns to be settled in Essex, Amherstburg and Sandwich, were established in 1817 as police villages (County of Essex 1992). Several decades later, in 1845, an act to better define the limits of the Counties and Districts of Upper Canada resulted in the rearrangement of townships which included detaching townships from some counties and incorporating them into others. It was at this time that the County of Essex consisted of the Townships of Anderdon, Colchester, Gosfield, Maidstone, Mersea, Malden, Rochester, and Sandwich (Essex County 2014).

Township of Rochester (now in the Municipality of Lakeshore)

In 1701, Antoine de la Mothe, Sieur de Cadillac, dispatched French soldiers from Fort Pontchartrain (now the city of Detroit) to explore the south shore of Lake St. Clair, which included the township of Rochester. They began their search in the Puce area and moved eastward towards the area described as Belle River, one of the oldest communities in the Township of Rochester. The first European settler to the area was a Jacques Menard who occupied a homestead in Belle River in 1741. As early as 1806, there was an inn in Belle River owned and operated by a M. Labaline on the Stage Road, now Tecumseh Road (County of Essex 1992).

The first survey of the lots fronting the major rivers in the Township of Rochester was conducted by Abraham Iredell between 1796 and 1798 (Clark 2002). The early landscape consisted of densely forested areas, with ash, elm, buttonwood, ironwood and hickory, intermingled with extensive swamps and bogs (County of Essex 1992). Rochester Township was first settled by French immigrants from Detroit and Sandwich, followed by Irish immigrants in the 1840; however, further settlement occurred once Lieutenant-Colonel Mahlon Burwell completed his survey of Middle Road in 1823-1824, which passed through the southern portion of Rochester Township. Around this time, the lumber industry flourished, as vast expanses of forest were cut down and transported using water-driven sawmills. As the land was cleared, a promising agricultural industry began to take shape, and the area remains one of the most fertile areas for farming in southwestern Ontario (County of Essex 1992).

Following the 1833 Slavery Abolition Act that abolished slavery in the British Empire, Rochester Township became one of several end points for the Underground Railroad (County of Essex 1992). The Refugee Home Society purchased scattered lots in and around Maidstone, Puce, and Belle River in 1851, which gave refugees escaping slavery a place to settle. Along with the significant establishment of Black communities in the area, the growth of the township's population was also spurred when a line of the Great Western Railway was introduced in 1854, which connected Detroit with the east (County of Essex 1992). Later in 1872, a line of the Canada Southern Railway was also laid through Rochester Township near the community of Comber (County of Essex 2019). Ultimately, the Municipality of Lakeshore was incorporated in 1999 through the amalgamation of the Town of Belle River with the former Townships of Rochester, Maidstone, Tilbury North, and Tilbury West (Municipality of Lakeshore 2021). Today, the former Township of Rochester remains predominantly rural thanks to the fertile agricultural lands surrounding the south shores of Lake St. Clair.

Township of Mersea (now in the Municipality of Leamington)

Similar to Rochester Township, Mersea Township was originally surveyed in 1792 by Mahlon Burwell, who was commissioned by Colonel Thomas Talbot. Mersea Township was named after an island in a bay off the North Sea in Essex County, England (Municipality of Leamington 2020). The earliest pioneers to Mersea Township settled along Talbot Road, which remained the core settlement hub in the area for years to come (Belden 1880-81). Eventually in 1835, three pioneers named Charles Stewart, Phillip Fox, and Thomas Whittle established a settlement on a ridge surrounded by dense forest along the Mersea-Gosfield Townline (Municipality of Leamington 2020). Around this time, another settler named Alex Wilkinson built a farm on both sides of Mersea Sideroad (present-day Erie Street). In time, the first tavern was opened in the fledgling community, and grist and sawmills were also erected along Hillman Creek (Municipality of Leamington 2020). In 1850, the first municipal council was elected for Mersea Township, and they constructed a brick town hall to house public meetings (Belden 1880-81; Municipality of Leamington 2020). The most notable settlement in the township was initially known as "Wilkinson's Corners" though was eventually named "Leamington" in 1854 after a post office was established in the community (Municipality of Leamington 2020).

By 1858, the population of Leamington had increased to a modest 75 denizens, though significant developments in the local lumber industry soon brought improvements to both transportation and infrastructure, including the establishment of a wharf—Scott's Dock—in 1869. Two other docks were to follow, and these were pivotal since they facilitated shipments of tobacco, lumber, and agricultural products. By 1874, Leamington's development had become so extensive that it was incorporated as a village, then as a town in 1890 (Municipality of Leamington 2020). Ultimately, the Town of Leamington amalgamated with Mersea Township to form the Municipality of Leamington in 1999 (Municipality of Leamington 2020). Today, Leamington is known for containing the highest concentration of greenhouses in North America and is renowned for its fertile agricultural lands (Municipality of Leamington 2020).

Township of Tilbury West (now in the Municipality of Lakeshore)

The Township of Tilbury West is located at the northeastern extent of Essex County and is bordered to the east by Tilbury East in the former County of Kent, by Mersea Township to the south, and Rochester Township to the west (Belden 1880-81). Of note, the section of Middle Road that extends through Tilbury West was settled later than the surrounding townships to the east and west, since road remained uncleared through Tilbury West until after 1840 (Belden 1880-81). The first notable village to be settled in the township was Comber, which was named by an early pioneer after his native shire in Scotland with the opening of its post office in 1843 (Belden 1880-81). Over time, the village of Henderson also began to develop, which later became known as Tilbury (Belden 1881). Its growth was fueled by the introduction of a line of the Canada Southern Railway in 1872 (Welch and Payne 2012). By 1887, it was incorporated as the village of Tilbury Centre—named after a town in England but also since the village was located at the nexus of the townships of Tilbury West, Tilbury East, and Tilbury North (Welch and Payne 2012). Ultimately, the establishment of the Municipality of Lakeshore in 1999 resulted in the incorporation of Tilbury West, among other townships in Essex County (Municipality of Lakeshore 2021).

Kent County

Lieutenant-Governor of Upper Canada John Graves Simcoe created Kent County in 1792, named for the County of Kent in southeast England (Kent Historical Society 1948). The first settler to the area, Parson, had arrived at least two years earlier around 1790 and settled along the southern bank of the Thames River in the township of Raleigh. His son, Edward, born the next year, was said to have been the first Euro-Canadian child to have been born in what would become Kent County. That same year, in 1791, Simcoe became the first Governor of the new Province of Upper Canada and promoted the immigration into Kent County primarily along the Thames River. Within the fledgling county, Chatham was founded in 1794, making it one of the oldest communities in western Ontario. It was originally planned to be a military settlement; however, these plans did not come to fruition, and Chatham's growth was slow until the 1830s (County of Kent 1948). Early settlement in this area, like so many others, was greatly influenced by Colonel Thomas Talbot. For instance, Talbot allotted the settlement locations and supervised the tasks settlers were required to uphold, such as clearing land and constructing a road fronting their property (Belden 1880-81). Logging emerged as the first industry in Kent County, and once the land was cleared, Chatham became a marketing centre for the fertile agricultural lands in the county. Eventually, Chatham was elevated to town status in 1855 but only became responsible for its own management in 1879, when it formally separated from Kent County (County of Kent 1948). From there, Chatham was incorporated as a city in 1895, but over a century later in 1999, the City of Chatham amalgamated once more with Kent County, along with several other former municipalities, to form the Municipality of Chatham-Kent (Francis 2012).

Township of Tilbury East (now in the Municipality of Chatham-Kent)

Tilbury East is situated south of the Thames River and is bordered to the west by Tilbury West, in Essex County. Initially, Tilbury East was slow to develop due to the quantity of low lying and wetlands that were unfit for agriculture, especially in the township's northern extent (Belden 1880-81). Early communities in the township were established along Middle Road, including Valetta and Edgeworth, which were predominantly settled by Scottish farmers (Belden, 1880-81). Aside from the village of Tilbury, whose growth was spurred by its location as a railway hub, the Township of Tilbury East contained few sizeable communities and its growth remained static over time. Ultimately, Tilbury East was among the townships incorporated to form the Municipality of Chatham-Kent in 1999 (Francis 2012). Today, the former Township of Tilbury East remains predominantly agrarian and has not experienced significant industrial development over time.

Township of Dover (now in the Municipality of Chatham-Kent)

The Township of Dover is located on the eastern bank of Lake St. Clair and its southern border is demarcated by the Thames River (Belden 1880-81). As a result of the surrounding bodies of water, the Township of Dover was initially characterized by its low-lying swamp lands; however, the elevated areas of the township where drainage was feasible were fertile and conducive to agriculture (Belden 1880-81). For instance, the community of Pain Court, which developed along a tributary of the Thames River known as Pain Court Creek, came to be known for exceptional barley and cereal crops (Belden 1880-81). Like the farmlands surrounding the Holland Marsh in King Township, the swampy conditions in the Township of Dover ended up being beneficial for nearby farms where the land was arable. However, flooding and consequently the loss of crops became a persistent problem for early pioneers, which is why no significant population centres emerged in the township. The first European settlers to the township were United Empire Loyalists who hailed from Pennsylvania, though Pain Court was later settled by French denizens from 1815 to 1820 (Belden 1880-81). The name "Pain Court" was chosen to convey the poverty of its early residents, who were often short on essential supplies like bread. Ultimately, Dover was among the townships incorporated to form the Municipality of Chatham-Kent in 1999 (Francis 2012). Notably, the Township of Dover contains the St. Clair National Wildlife Area: a marsh habitat that was recognized as a Wetland of International Significance under the Ramsar Convention (Government of Canada 2021).

Historic Land Use and Settlement of the Study Area

The 1821 Surveyor General's Office early survey mapping and the 1876 *Shackleton & McIntosh's Map of the County of Kent* (Figures 4 and 5) were also reviewed for the presence of historic landowners and features within and adjacent to the Study Area boundaries; however, they only demonstrate a portion of the Study Area (with the Leamington Interconnect Study Area unavailable). Further, many of the landowners indicated are illegible or difficult to decipher, and no structures are illustrated. The 1821 mapping may show potential mills near the river, indicating early industry. However, for the reasons above, only the 1880-1881 *Illustrated Historical Atlas of the Counties of Essex and Kent* is discussed in detail below (Figure 6).

It should be noted that not all features of interest, particularly farmhouses and smaller homesteads, were mapped systematically as this would have been beyond the intended scope of the Ontario historical atlas series. In addition, given that atlases were funded by subscription, preference regarding the level of detail included was given to subscribers. As such, the absence of structures or other features on historic atlas maps does not preclude the presence of historic features at the time the area was surveyed. Table 4 below includes landowners and features visible on the 1880-1881 historic mapping; those parcels without landowners or features are excluded but listed above in Tables 2 and 3.

Table 4: 1880-81 Landowners and Historic Features within and adjacent to the Study Area (Panhandle Loop and Leamington Interconnect)

Lot	Concession	Geographic Township	Landowner	Historic Feature(s)
2-5	3	Dover	John Northwood	None visible
8	2	Tilbury East	None visible	Great Western Railway
14	5	Tilbury East	None visible	1 structure, schoolhouse
24	North of Middle Road (NMR)	Tilbury East	And. [Andrew] Wilson	1 structure, homestead, or farmstead
24	South of Middle Road (SMR)	Tilbury East	R.H. Waddell	1 structure, homestead, or farmstead
24	SMR	Tilbury East	Hy [Henry] Magee	1 structure, homestead, or farmstead
26	SMR	Tilbury East	Arnold Wilson	1 structure, homestead, or farmstead
20	SMR	Tilbury West	J.B. Lupuis	None visible
20	SMR	Tilbury West	Antoine Thibert	1 structure, homestead, or farmstead
5	9	Mersea	D.W. Reid	1 structure, homestead, or farmstead
30	1	Rochester	George Jariett	1 structure, homestead of farmstead

Only the schoolhouse illustrated on Lot 14, Concession 5 is located within the Study Area boundaries; the remaining structures are adjacent with their respective lots. The Great Western Railway line crosses the Study Area on Lot 8, Concession 2; the Thames River, Jeannette's Creek, Baptiste Creek, Trembley's Creek, Rusom River, and Silver Creek are also all visible on the mapping and intersect with the Study Area boundaries. The Canada Southern Railway

intersects with the Study Area just south of the schoolhouse on Lot 14, and a number of churches, post offices, and other structures are illustrated on all sides within the vicinity of the Study Area boundaries.

Finally, the 1913 National Topographic System (NTS) map of Essex, the 1913 NTS map of Chatham, and the 1910 NTS map of Romney were all reviewed for the presence of any additional structures or features continuing into the early 20th century. The 1913 NTS map of Essex (**Figure 7-1**) shows the Leamington Interconnect adjacent to three brick structures: two depicted along Mersea Road 10, and one along County Road 31. Next, the 1910 Romney mapping (**Figure 7-2**) depicts a pioneer cemetery (the Malott Cemetery, discussed in detail below) located within an agricultural field between Middle Road (now County Road 46) and Gray Line; the Study Area is located just north of this cemetery. Three wood frame structures are also illustrated on the north side of the Study Area. The 1913 Chatham mapping (**Figure 7-3**) no longer depicts the schoolhouse from the 1880-1881 mapping, but instead a brick structure on Wheeler Line, as well as a wood structure located where Wheeler Line once extended to connect with Coutts Line prior to the construction of Highway 401. The mapping depicts structures in proximity to the Study Area along Coutts, Middle, and Pollard Lines.

Archaeological Management/Master Plans and Archaeological Potential Mapping

There does not yet appear to be archaeological management/master plan(s) or archaeological potential mapping available for Essex or Kent counties. This may be because the majority of land within these counties is situated within predominantly rural settings with limited development that could be informed by a master plan study.

Cultural Heritage Resources

A review of cultural heritage resources was completed to determine the presence of any known heritage properties or historically significant sites within or adjacent to the Study Area boundaries. The results of this desktop search identified no properties designated by the Minister, provincial heritage properties, or heritage plaques located within the Study Area boundaries. However, three resources with cultural heritage value or interest were identified within or adjacent to the Panhandle Loop Study Area boundaries and are indicated in **Figure 10**.

- ◆ **Built Heritage Resource (BHL) 1:** 23696 Dashwheel Road, Tilbury: a farmhouse dating to 1905 (adjacent to the Study Area boundaries).
- ◆ **Cultural Heritage Landscape (CHL) 1:** Malott Cemetery, 3049 Gray Line: a pioneer cemetery dating to between the late 19th to early 20th century (adjacent to the Study Area boundaries).
- ◆ **CHL 2:** Thames River: Canadian Heritage River, formally designated a Canadian Heritage River on August 14, 2000 (within the Study Area boundaries).

Additional detail on these resources may also be found in AECOM's *Cultural Heritage Assessment Report: Existing Conditions and Preliminary Impact Assessment* (AECOM 2022, forthcoming), completed as part of the Panhandle Regional Expansion Project, prepared in conjunction with this Stage 1 archaeological assessment report.

Cemeteries

No cemeteries are located within the Study Area boundaries; however, one small, abandoned pioneer cemetery, the Malott cemetery, located at 3049 Gray Line, East Tilbury, Ontario, is located approximately 20 m south of the Panhandle Loop, within an agricultural field. The Panhandle Loop does not encroach into the legal cemetery limits of the Malott cemetery but extends through the surrounding agricultural parcel of land. The Malott cemetery is visible in the 1910 NTS map of Romney as described above, but no documentary record appears to exist for this cemetery; no archival information, historical mapping, plot mapping, previous assessment reports, or historical church records were encountered as part of AECOM's background study. The cemetery is managed by the Municipality of Chatham-Kent and licensed to the same by the Bereavement Authority of Ontario (BAO), as the cemetery is declared abandoned.

AECOM contacted the cemetery operator, the Municipality of Chatham-Kent, and communicated with Collin Mardling (Supervisor, Cemetery Operations) on March 22, 2022 by telephone. Mr. Mardling noted that the cemetery was established as early as 1874 and remained in operation until approximately 1939; it was subsequently declared abandoned sometime in the latter half of the 20th century. As the current cemetery operator, the Municipality is tasked with maintaining the property, including grass-cutting and other maintenance activities; a modern grass-cutting map (**Appendix A**) was provided that demonstrates the limits of the cemetery and the areas maintained by the Municipality. Local volunteers had also, in the past, participated in the maintenance of the cemetery property and monuments. Mr. Mardling confirmed that the boundaries of the cemetery are marked by surveyor's stakes surrounding a concrete pad in which the cemetery's stone monuments are encased. He also confirmed that the Municipality does not retain any archival information, historical mapping, plot mapping, or any other resources with regard to this cemetery. As with many pioneer cemeteries in the area, he noted, information with regard to the history of the cemetery has been compiled and shared primarily online by local stakeholders and volunteers interested in genealogy and local history. He directed AECOM to FindaGrave, an online database of cemetery records, and the personal website of John Skakel (d. 2015), a local stakeholder and volunteer who once managed the CKCemeteries.ca website, a website dedicated to the compilation of Chatham-Kent cemetery history. AECOM also contacted the BAO on March 22, 2022, and received responses from Michael D'Mello and Ray Porrill on March 24, 2022, and March 29, 2022, respectively, confirming that the BAO does not have any archival information, historical mapping, or plot mapping available for the Malott cemetery. As such, the historical information provided below is compiled from the online stakeholder resources recommended by Collin Mardling.

According to John Skakel's website (last updated January 18, 2013), the cemetery was established in 1874 and remained in use until 1939 (Skakel 2013); it is also known as the United Empire Loyalist Cemetery. The land was donated by a Mr. Jonas Malott to serve as a private Protestant burial ground; it measured less than 1 acre and was found to have very sandy soils excellent for digging. The cemetery can be reached from a 200-yard-long pathway bordering a ditch from Gray Line. Approximately 175 individuals are interred in the cemetery, of which some family names are Baker, Burke, Cavanagh, Cowan, Dales, Davis, Dawdy, Malott, and potentially Davidson and Cottingham; the website refers to a newspaper article in the *Tilbury Times* (no date) that suggests the two latter families may also be interred there. Skakel also refers to concerns with regard to the cemetery's condition: "Over the years there were a number of concerns over the condition of the cemetery. Vandalism, theft and disrepair ravished this little historical cemetery. Stones faded, disappeared and toppled over" (Skakel 2013). He includes the following excerpt from a June 1938 article from the same newspaper, penned by the Women's Institute of Quinn:

Although no resolution passed by the Women's Institute, hope was expressed that men in the community would spend a few hours with shovels and scythes to bring some semblance of former glory to the graveyard. The discussion which was aired on previous occasions recommended that more respect should be shown the rugged pioneer United Empire Loyalists. It was stated that bodies of a few members of the valiant army here have been disinterred in the past and transferred elsewhere. The blame was attached to the lack of upkeep in the cemetery.

According to Skakel, sometime in the 1950s the Tilbury East Township Council placed the remaining upright monuments in lines within a concrete foundation or pad, but the stones were still broken and moved. In the 1980s, local stakeholders Percy and Veta Atkinson, as well as others, attempted to raise council and public awareness on behalf of the cemetery; however, financial difficulties and lack of public interest prevented any further cemetery maintenance. Councillors Brian King and Larry Davidson put up a cemetery sign and performed some landscaping, but the idea of building a concrete pyramid to hold the monuments never materialized (Skakel 2013). Skakel provides a suggested sketch map of the cemetery (Plate 3) but notes that it may not be accurate and provides no further details on how the sketch was conceptualized or which sources were consulted. It is stated that it is partially based on volunteer 'sensing' and 'dowsing' activities that he does not describe further other than to say the practices are

'slightly suspect' (Skakel 2013). He states that the 'sensing' may have picked up the remains of an old structure or 'building' south of the concrete pad, which he suggests could have been a church structure.



Plate 1: Malott cemetery concrete pad, demonstrating upright monuments encased in concrete for preservation (courtesy of John Skakel)



Plate 2: Malott cemetery signage (courtesy of John Skakel)

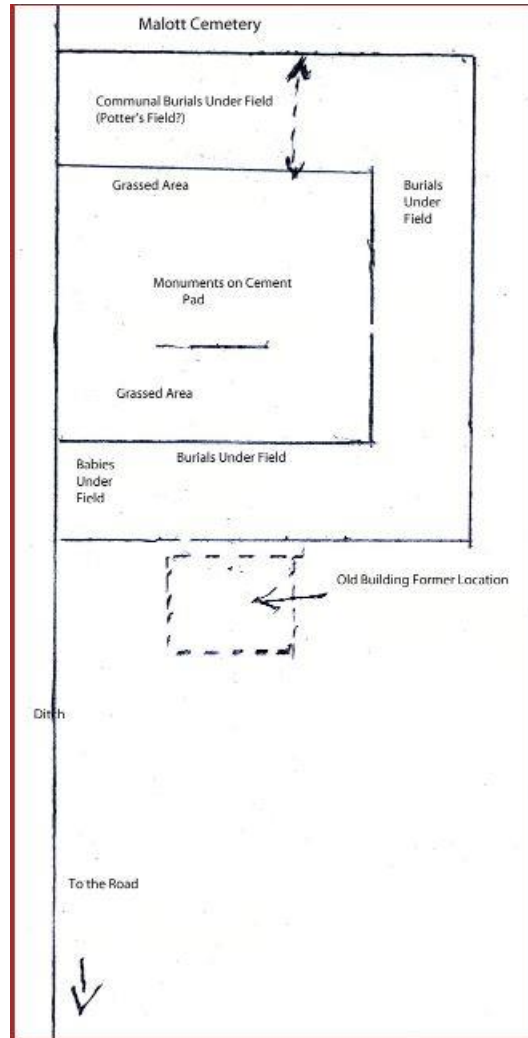


Plate 3: Skakel's sketch map of the Malott Cemetery

FindaGrave was also consulted in order to compile any available information about the Malott family, many of whom are interred in the family cemetery; some family history was provided by Peggy Nagle, a descendant of Jonas Malott, who Skakel notes donated the land for the Malott cemetery. Nagle writes that Jonas farmed on old Highway 98, now Chatham-Kent Road 8, just south of Tilbury, on the second farm east of Queen Street, and was the first person interred in the Malott cemetery, which was created on his farm when he died at age 51 in a barn-building accident. Jonas was born on March 28, 1822 in Mersea Township and died on April 13, 1874. He was married to Miranda Crittenden Malott, who was born on April 9, 1820, and died on March 9, 1874. The couple had at least 11 children, including Lavina Malott Nagle, the ancestor of Peggy Nagle. On Lavina's FindaGrave page, Peggy writes that though there is no longer a building structure at the Malott family farm, the address of the farm would be 3273 Chatham Kent Road 8, south side of the road (FindaGrave 2021).

Based on AECOM's background research, review of historic mapping (including the 1910 NTS mapping of Romney), local stakeholder knowledge, consultation with the Malott cemetery operator and the BAO, as well as professional judgement, AECOM makes the conclusion that the cemetery limits, marked by surveyor's stakes in the surrounding agricultural field, can reasonably be confirmed as the legal limits of the cemetery, given the fact that these survey boundaries were established when management and care of the Malott cemetery were transferred to the Municipality of Chatham-Kent. These limits encompass not only the pad which includes the formerly upright cemetery plot

monuments encased in concrete by the Tilbury East Township Council in the 1950s, depicted in Plate 1, but also account for the additional burials described as ‘potter’s field’, ‘burials under field’, and ‘babies under field’ surrounding the pad which were sketched by local stakeholder and cemetery researcher John Skakel in Plate 3, to account for the locations of graves which were left unmarked, and/or buried in communal areas, such as in the potter’s field or babies’ section. The limits of the cemetery to the south are also delineated in relation to the limits of the ‘old building’ structure also illustrated in Plate 3.

The access road and former structure provide boundaries to the west and south, and a buffer of land was included in the legal limits of the cemetery to the north, east and south; therefore, it is believed that the legal limits of the cemetery encompass all burials associated with this early pioneer burial site.

The Panhandle Loop does not encroach into the legal cemetery limits of the Malott cemetery but extends through the surrounding agricultural parcel of land; it is located approximately 20 m to the north of the cemetery limits.



Plate 4, left, and Plate 5, right: Upright monuments of Jonas Malott and Miranda Crittenden Malott, now encased in concrete pad.

1.3 Archaeological Context

1.3.1 Natural Environment

The modern physiography of Southern Ontario is largely a product of events of the last major glacial stage, the Wisconsinian and Late Wisconsinian time (ca. 25,000-10,000 BC). The landscape of Essex and Kent Counties are made up of a complex arrangement of features and deposits produced during the last series of glacial advances and retreats by the Simcoe Lobe and Ontario Lobe of the North American Laurentide ice sheets prior to the withdrawal of the glacier from Southern Ontario (Ellis and Ferris 1990). Those features and deposits that were formed by glacial action are represented by till plains, end moraines, and drumlins.

The Study Area is situated primarily within the St. Clair Clay Plain physiographic region, as described by Chapman & Putnam (1986) below. The majority of this region is characterized by bevelled till plains, which are tills wave-modified by the glacial lakes. The Study Area falls within clay plains, bevelled till plains, and sand plains, with the types of soils illustrated in **Figure 8**.

Adjoining Lake St. Clair in Essex and Kent County Counties and the St. Clair River in Lambton County are extensive clay plains covering 2,270 square miles. The region is one of little relief, lying between 575 and 700 feet a.s.l.,

except for the moraine at Ridgetown and Blenheim which rises 50 to 500 feet higher....Glacial Lake Whittlesey, which deeply covered all of these lands, and Lake Warren which subsequently covered nearly the whole area, failed to leave deep stratified beds of sediment on the underlying clay till except around Chatham, between Blenheim and the Rondeau marshes, and in a few other smaller areas. Most of Lambton and Essex Counties, therefore, are essentially till plains smoothed by shallow deposits of lacustrine clay which settled in the depressions while the knolls were being lowered by wave action.

Chapman & Putnam 1986

The single most important environmental feature necessary for extended human occupation is potable water. As such, proximity to water is regarded as a useful index for the determination of potential for the presence of archaeological resources. The Study Area intersects a number of waterbodies, including the Ruscom River (Leamington Interconnect Study Area), and Tilbury Creek, Baptiste Creek, Jeannettes Creek, and the Thames River (Panhandle Loop Study Area). A number of smaller tributaries, the St. Clair River, and the St. Clair Marsh complex are also located adjacent and surrounding the Study Area boundaries.

Given the overall drainage of the area, and the proximity to the rivers, these environmental characteristics would have provided an ideal environment for both temporary and permanent settlement throughout the pre-and post-contact periods. These water sources would have served as important pre- and post-contact transportation routes as well as sources of potable water and riverine resources. During the 19th and 20th centuries, rapid deforestation resulted in significant land clearance and over time, the once diverse forest life and wide range of tree species and natural resources would have also been depleted as agricultural and modern residential and commercial development continued. Over the course of the 19th century, the Study Area would have been made up of agricultural land just outside of the rapidly expanding municipality along historically surveyed road allowances. As a result of continuing development, this portion of southern Ontario is almost completely deforested today.

1.3.2 Previous Archaeological Work

To inform the current Stage 1 archaeological assessment and further establish the archaeological context of the Study Area, a search of the ASDB was conducted by AECOM to determine if any previous archeological work has been completed within the current Study Area or within 50 m of the Study Area boundaries. Only one assessment was encountered as part of this search, with the assessment taking place within the Study Area boundaries; it is detailed below in **Table 5**.

Table 5: Archaeological Reports within the Study Area

Year	Title	Author	PIF Number
2011	<i>Stage 2 Property Assessment, South Kent Wind Project, Romney, East Tilbury, Raleigh, Harwich and Howard Townships, Former Kent County, Municipality of Chatham-Kent, Ontario</i>	Archaeological Services Inc. (ASI)	P347-001-2011

In 2011, Archaeological Services Inc. (ASI) completed a Stage 2 archaeological assessment as part of the South Kent Wind Project, a 270 MW wind energy project located within the Municipality of Chatham-Kent, Ontario. The Stage 2 assessment was completed following a number of Stage 1 archaeological assessments conducted by various consultants as part of the project, where the Study Areas assessed were determined to retain high potential for the recovery of pre-contact and 19th century Euro-Canadian archaeological resources. The subsequent Stage 2 assessment resulted in the discovery of 77 pre-contact Aboriginal sites, and 8 Euro-Canadian sites, for a total of 85 archaeological sites. Of these sites, only 23 were recommended for Stage 3 site-specific archaeological assessment, while the remainder of the sites were determined to retain no further cultural heritage value or interest (ASI 2011). Archaeological site AbHo-4, the only site to be found within 1 km of the Study Area boundaries of the current report, was located as part of this assessment, and discussed in detail below.

1.3.3 Known Archaeological Sites

AECOM conducted a data search of the ASDB to determine if any registered archaeological sites are located within the Study Area, as well as within 1 km of the current Study Area boundaries. This search resulted in the identification of one registered archaeological site, a precontact Middle Woodland findspot site, located approximately 150 m west of the Study Area boundaries. One Snyders corner-notched projectile point was recovered during pedestrian survey of an agricultural field as part of the Stage 2 assessment conducted by ASI (ASI 2011). **Table 6** provides further details on the registered archaeological site.

Table 6: Registered Archaeological Sites within 1 km of the Study Area

Borden #	Site Name	Cultural Affiliation	Site Type	Development Status
AbHo-4	-	Precontact, Middle Woodland	Findspot	No Further CHVI, not recommended for Stage 3 site-specific assessment

*CHVI = Cultural Heritage Value or Interest

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

1.3.4 Existing Conditions

The Panhandle Loop extends from the Dover Transmission Station, located within the Municipality of Chatham-Kent, to Richardson Side Road, located within the Municipality of Lakeshore. It crosses agricultural fields and extends underneath the Thames River, Baptists and Jeanettes Creeks, and Highway 401. The route runs parallel to Davidson Road from south of Highway 401 to north of Gray Line. The lands within and adjacent to the Panhandle Loop are located within a rural context consisting of active agricultural fields, rural residential properties, and farm complexes. The Leamington Interconnect is located adjacent to or within an existing road allowance on public or private property and extends from the Municipality of Leamington to the Municipality of Lakeshore. The route runs west and parallel to Mersea Road 10, then north alongside Essex County Road 31 until it intersects with Essex County Road 8. From there, the proposed pipeline crosses the intersection to the north side of Essex County Road 8 and continues west to just beyond where two power transmission lines intersect.

1.4 Stage 1 Property Inspection

In order to gain first-hand knowledge to evaluate if modern disturbance may have occurred and to confirm whether or not features of archaeological potential perhaps not visible on mapping were present within the Study Area, AECOM conducted a Stage 1 field review on December 3, 2021, under PIF P438-0278-2021 issued to licensed archaeologist Samantha Markham (P438), with Joshua Keddy, MA (P484) acting as field director. The field review was carried out as outlined in Section 1.2 of *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011). Weather conditions during this time were described as overcast, with an average temperature of 2° Celsius. Visibility was not impaired at any time.

The Study Areas were photo-documented from publicly accessible lands as permission to enter was not pursued; the ability to assess potential of archaeological resources. Each of the corridors were examined, and the inspection was completed through both random spot checking and investigation of features of archaeological potential to examine

areas accessible from the ROW. **Table 7** contains the inventory of the documentary record from the Stage 1 field review. As the Malott cemetery is not located within the Study Area boundaries, it was not accessed as part of this field review.

Table 7: Inventory of Documentary Record

Document Type	Quantity	Location	Additional Comments
Field Notes	~ 1 page	AECOM London Office	In original field folder and stored digitally in project file
Hand Drawn Maps	0	AECOM London Office	In original field folder and stored digitally in project file
Proponent Maps	2	AECOM London Office	Hard copy and digital copy in project file
Digital Photographs	100	AECOM London Office	Stored digitally in project file

2. Analysis and Conclusions

2.1 Determination of Archaeological Potential

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Criteria commonly used by the MHSTCI to determine areas of archaeological potential are listed in Section 1.3.1 of *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011).

Distance to modern or ancient water sources is generally accepted as the most important element for past human settlement patterns and when considered alone may result in a determination of archaeological potential. In addition, any combination of two or more of the listed criteria indicates archaeological potential.

Based on a review of the historical, environmental, and archaeological context of the Study Area, AECOM's Stage 1 background study has determined that the potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the Study Area is high, based on the presence of the following features:

- Proximity to one previously-identified precontact Middle Woodland archaeological site;
- Distance to various types of water sources (Ruscom River, Tilbury Creek, Baptiste Creek, Jeannettes Creek, Thames River);
- Soil texture and drainage (St. Clair Clay Plain physiographic region);
- Glacial geomorphology, elevated topography and the general topographic variability of the area;
- Resource areas including food or medicinal plants, scarce raw materials and early Euro-Canadian industry;
- Areas of early Euro-Canadian settlement and early transportation routes (as described in **Section 1.2.4**;
- Proximity to historic landmarks or sites (CHL 1 - Malott Cemetery (3049 Gray Line), pioneer cemetery; CHL-2 – Thames River (Canadian Heritage River), BHR 1 – (23696 Dashwheel Road, historic farmhouse).

It should be noted that certain features indicate that archaeological potential has been removed, such as lands that have been subject to extensive and intensive deep land alterations that have severely damaged the integrity of any archaeological resources. This includes landscaping that involves grading below the topsoil level, building footprints, quarrying, and sewage and infrastructure development (Ontario Government 2011). Furthermore, extensive and intensive modern disturbance associated with right-of-way upgrades, commercial and residential development, and infrastructure improvements will have significantly impacted the potential for the survival of any deposits or features of archaeological potential.

The entirety of the Leamington Interconnect Study Area is located adjacent to the disturbed right-of-way (ROW). Typically, the existing road ROW can be divided into two areas: the disturbed ROW and ROW land beyond the disturbed ROW. The disturbed ROW extends outwards from either side of the centreline of the traveled lanes; it includes the traveled lands and shoulders and extends to the toe of the fill slope, the top of the cut slope, or the outside edge of the drainage ditch whichever is furthest from the centreline. Subsurface disturbance within these lands may be considered extreme thereby negating any archaeological potential.

ROW construction disturbance may be found to extend beyond the typical disturbed ROW area, generally including additional grading, cutting and filling, additional drainage ditching, watercourse alteration or channelization, servicing, removals, intensive landscaping and heavy construction traffic.

2.2 Conclusions

AECOM's Stage 1 background study and property inspection for the Panhandle Loop and Leamington Interconnect Study Areas as part of the Panhandle Regional Expansion Project has determined that the potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the Study Areas is high within areas not previously disturbed. Areas where archaeological potential has been removed include areas that have been subject to extensive land alterations that have significantly compromised the recovery of archaeological materials such as constructed roadways and buildings. Stage 2 archaeological assessment is recommended for all areas identified as retaining archaeological potential, as illustrated in **Figures 9 and 10**.

As the Panhandle Loop does not encroach into the legal cemetery limits of the Malott cemetery (the cemetery is located approximately 20 m south of the route) and is not directly adjacent to area of proposed impact (**Figure 11**), but extends through the surrounding agricultural parcel of land, no further archaeological assessment is required unless construction activities are to occur within 10 m of the legal cemetery boundaries. These conclusions are based on AECOM's background research, review of historic mapping, review of previous archaeological assessments, consultation with the Malott cemetery operator and the BAO, the field review completed by AECOM on December 3, 2021, as well as professional judgement.

3. Recommendations

AECOM's Stage 1 background study and property inspection for the Panhandle Loop and Leamington Interconnect Study Areas as part of the Panhandle Regional Expansion Project has determined that the potential for the recovery of pre- and post-contact First Nation and 19th century Euro-Canadian archaeological resources within the Study Areas is high. **Based on these findings, a Stage 2 archaeological assessment is recommended for all areas of potentially undisturbed land within the Study Area limits addressed within the scope of this report (Figures 8 and 9).**

The Stage 2 archaeological assessment for areas retaining archaeological potential must be conducted by a licensed archaeologist and must follow the requirements set out in *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario, 2011), including:

- ◆ The standard test pit survey method at 5 m intervals is to be conducted in all areas that will be impacted by the project where ploughing is not feasible (e.g., woodlots, overgrown areas, manicured lawns, small sections of agricultural land); and
- ◆ Pedestrian survey at 5 m intervals where ploughing is possible (e.g., agricultural fields). This assessment will occur when agricultural fields have been recently ploughed, weathered by rain, and exhibit at least 80% surface visibility.
- ◆ Poorly drained areas, areas of steep slope, and areas of confirmed previous disturbance (e.g., building footprints, roadways, areas with identifiable underground infrastructure) are to be mapped and photo-documented but are not recommended for Stage 2 survey as they possess low to no archaeological potential.

Should additional land outside of the current Study Area boundaries be included as part of the Panhandle Regional Expansion Project, the standard requirements for archaeological assessments to be conducted prior to land disturbance remain in place.

The proposed pipeline installation method will be by horizontal directional drilling (HDD) to allow the pipeline to cross under the Thames River and Baptiste and Jeanettes Creeks. Therefore, no impacts are proposed to the beds of those areas. If any changes are made to the method of installation and impacts may occur to the beds of the Thames River or the Baptiste or Jeanettes Creeks, a marine archaeological checklist should be completed, which may result in the recommendation that a marine archaeological assessment be undertaken.

While there are currently no plans to impact the Malott cemetery as it is located approximately 20 m south of the Study Area corridor (**Figure 10**), if construction activities occur within 10 m of the surveyor's staked cemetery boundaries, a Cemetery Investigation will be required to determine the potential to impact unmarked burials. Arrangements must be made with the cemetery owner/operator, the Bereavement Authority of Ontario (BAO) and the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) prior to any ground-disturbing activities within 10 m of the cemetery to ensure provisions under the *Funeral, Burial, Cremations Services Act* (Ontario Government 2002) are addressed. Any invasive Stage 2-4 archaeological fieldwork within the cemetery limits will also require a Cemetery Investigation Authorization from the BAO.

The MHSTCI is asked to accept this report into the Ontario Public Register of Archaeological Reports thereby concurring with the recommendations presented herein. As further archaeological assessment is required, archaeological concerns for the Panhandle Loop and Leamington Interconnect Study Areas, Part of Multiple Lots and Concessions, Multiple Geographic Townships, Essex and Kent Counties, Now the Municipalities of Leamington, Lakeshore, and Chatham-Kent, Ontario, have not been fully addressed.

Please note that this archaeological assessment report has been written to meet the requirements of the MHSTCI's *Standards and Guidelines for Consultant Archaeologists* (Ontario Government 2011); however, properties that are subject to archaeological assessment are not considered cleared for ground disturbance activities until the associated report has been reviewed and accepted by the MHSTCI. In order to maintain compliance with the MHSTCI and the *Ontario Heritage Act* (1990), no ground disturbing activities are to occur until the proponent and approval authority receive a formal letter from the MHSTCI stating that the recommendations provided herein are compliant and that the report has been accepted into the MHSTCI register of archaeological reports.

4. Advice on Compliance with Legislation

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

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

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

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

The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force in 2012) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ontario Ministry of Government and Consumer Services.

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6. Images

6.1 Property Inspection, December 3, 2021



Photo 1: ROW disturbed, ditched and built up; facing southwest



Photo 2: ROW disturbed, ditched and built up; facing southwest



Photo 3: Existing conditions, channelized, agricultural field, facing southwest



Photo 4: ROW disturbed, deep ditch/agricultural canal, facing northwest



Photo 5: Existing conditions, agricultural field, facing northeast



Photo 6: Built up roadway, disturbed to bottom of slope, facing west



Photo 7: Existing conditions, agricultural field, facing southwest



Photo 8: ROW, ditched, disturbance to be confirmed, facing south



Photo 9: Disturbed ROW, extensive ditching, facing south



Photo 10: Existing conditions, agricultural field, facing northeast



Photo 11: Existing conditions, agricultural field and woodlot, facing southwest



Photo 12: Disturbed ROW, channelized, agricultural canal, facing south



Photo 13: Ditched ROW, facing south



Photo 14: Existing conditions, agricultural field, facing southwest



Photo 15: ROW with utilities, facing east



Photo 16: ROW graded to slope, facing west



Photo 17: Ditched ROW, agricultural field under wheat, facing east



Photo 18: Ditched and graded ROW, facing east



Photo 19: Existing conditions, ploughed agricultural field, facing southwest



Photo 20: Ditched ROW, facing north



Photo 21: Ditched and disturbed ROW, facing north



Photo 22: Existing conditions, agricultural field, facing west



Photo 23: Ditched ROW, facing west



Photo 24: Existing conditions, agricultural field, facing west



Photo 25: Deeply ditched ROW, and existing conditions in agricultural field, facing west



Photo 26: Ditched ROW, facing north



Photo 27: ROW, disturbance to be confirmed, facing north



Photo 28: Disturbed, deeply ditched ROW between 401 and municipal road, facing east



Photo 29: Disturbed ROW, built up and culverted, facing west



Photo 30: Ditched, built up disturbed ROW between municipal road and old rail line, facing east



Photo 31: Visually confirmed disturbance, possibly old structure footprint, facing north



Photo 32: Visually confirmed disturbance, possibly modern structure footprint, facing northwest



Photo 33: Deeply ditched ROW between municipal road and old rail bed, facing east



Photo 34: Deeply ditched/reinforced ROW, facing west



Photo 35: Deeply ditched ROW, facing west



Photo 36: Existing conditions, agricultural field, facing south



Photo 37: Graded ROW, disturbance to be confirmed, facing west



Photo 38: Existing conditions, wheat agricultural field, facing north



Photo 39: Ditched and culverted ROW, facing northeast



Photo 40: Existing conditions, agricultural field ploughed (south) and wheat (north), facing southwest



Photo 41: Deeply ditched ROW, facing northeast



Photo 42: Ditched ROW, facing north



Photo 43: Existing conditions, facing northeast



Photo 44: Ditched ROW, facing north



Photo 45: Existing conditions, agricultural field and woodlot, facing west



Photo 46: Ditched ROW, facing north



Photo 47: Existing conditions, agricultural field (beans), facing northeast



Photo 48: Ditched ROW, facing north



Photo 49: Ditched ROW, facing north



Photo 50: Ditched ROW, facing north



Photo 51: Existing conditions, agricultural wheat field, facing northwest



Photo 52: Deeply ditched ROW and utilities, facing north



Photo 53: Ditched ROW, facing north



Photo 54: Graded and ditched ROW, facing north



Photo 55: Deeply ditched and graded ROW, facing south



Photo 56: Deeply ditched ROW, facing north



Photo 57: Existing conditions, agricultural field (beans), facing northeast



Photo 58: Disturbed ROW, ditched, utilities visible, facing north



Photo 59: Ditched ROW, utilities visible, facing east



Photo 60: Steeply ditched ROW, facing east



Photo 61: ROW disturbance, facing west



Photo 62: Ditched ROW, facing east



Photo 63: Ditched ROW, facing east



Photo 64: Ditched ROW with utilities visible, facing west



Photo 65: Ditched ROW, facing east



Photo 66: Ditched ROW, facing east



Photo 67: Ditched ROW, facing west



Photo 68: Deeply ditched ROW, facing southwest



Photo 69: Ditched ROW, facing south



Photo 70: Ditched ROW, facing south



Photo 71: Deeply ditched ROW, facing south



Photo 72: Ditched ROW with utilities visible, facing north



Photo 73: Ditched ROW, facing east



Photo 74: Ditched ROW, facing west



Photo 75: Ditched ROW, facing west



Photo 76: Riverbanks, sloped, facing south



Photo 77: Disturbed ROW with utilities, facing east



Photo 78: Disturbed ROW with utilities, facing west



Photo 79: Disturbed ROW, ditched, utilities visible, facing west



Photo 80: Built up ROW, facing east



Photo 81: Existing conditions, agricultural field (beans), facing north



Photo 82: Disturbed ROW, deeply ditched with culvert, facing east



Photo 83: Existing conditions, treeline between agricultural fields, facing south



Photo 84: ROW, ditched and built up, facing east



Photo 85: Existing conditions, treeline between agricultural fields, facing north



Photo 86: ROW, ditched and culverted, facing west



Photo 87: Existing conditions, agricultural field, facing south



Photo 88: ROW, disturbed, ditched and culverted with utilities, facing west



Photo 89: Existing conditions, agricultural field, facing north



Photo 90: ROW, ditched and culverted, facing east



Photo 91: Existing conditions, agricultural field, facing south



Photo 92: ROW disturbed and ditched, facing west



Photo 93: Existing conditions, agricultural field, facing north



Photo 94: ROW, ditched and culverted, facing northeast



Photo 95: Existing conditions, agricultural field, facing north



Photo 96: ROW, disturbed and ditched, facing west



Photo 97: Existing conditions, treeline between agricultural fields, facing south



Photo 98: ROW, disturbed, graded and ditched, facing north



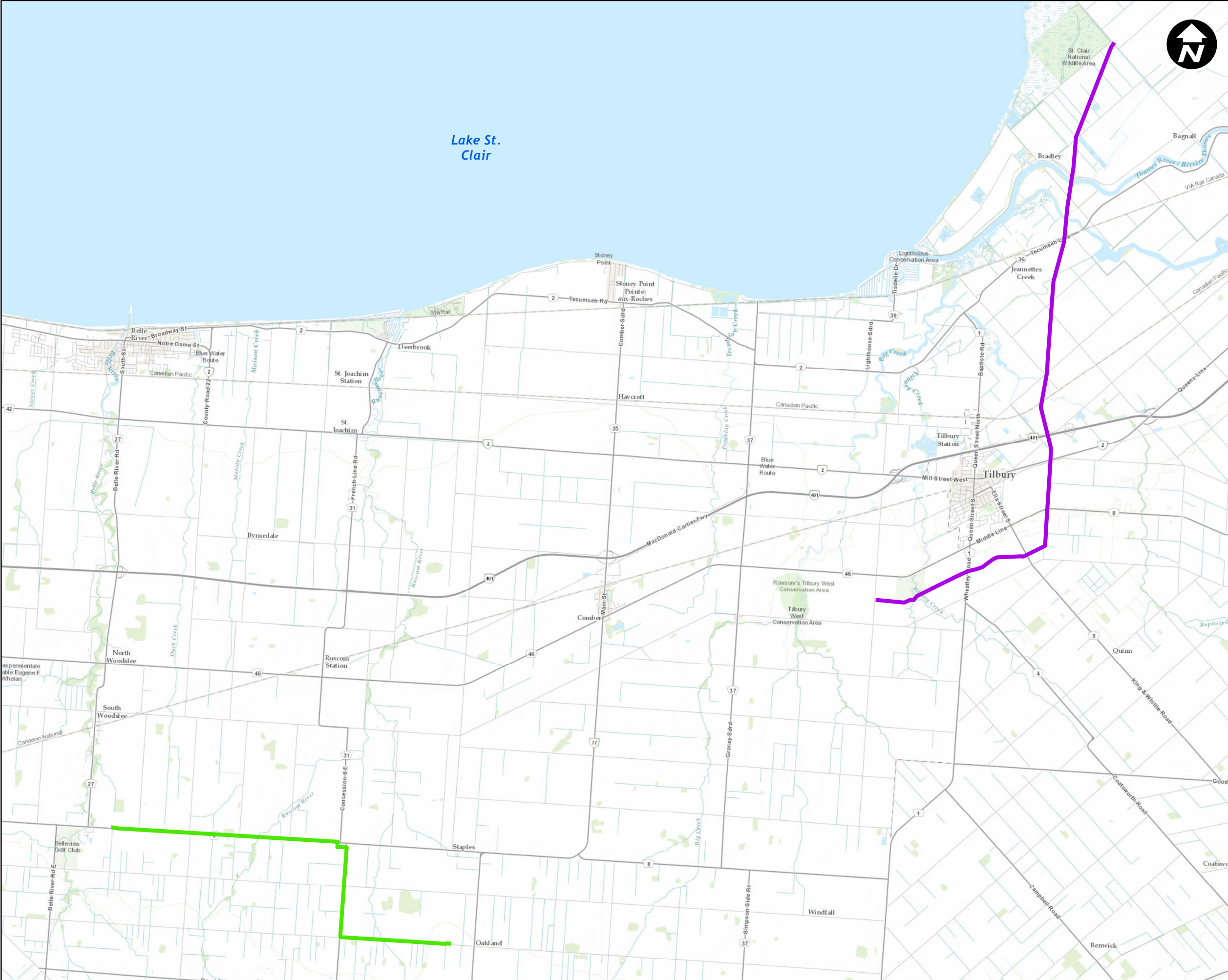
Photo 99: ROW, disturbed, graded and ditched, utilities visible, facing north



Photo 100: Existing conditions, agricultural field, facing west

7. Figures

All figures pertaining to the Stage 1 archaeological assessment are provided on the following pages. Any maps providing the locations of the previously identified sites are not subject to the *Freedom of Information and Protection of Privacy Act* as the disclosure of this information has led to looting in the past. Any information that pinpoints the locations of the archaeological sites, maps, and GPS coordinates are provided in the supplementary documentation of this report.



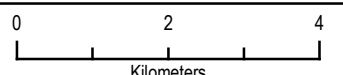
Map Location

Legend

- Panhandle Loop
- Leamington Interconnect

**Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario**

**Location of Panhandle Regional
Expansion Project Study Area**



DATUM: NAD 1983 UTM Zone 17N

April 2022
P#: 60665521

1:100,000
V#:

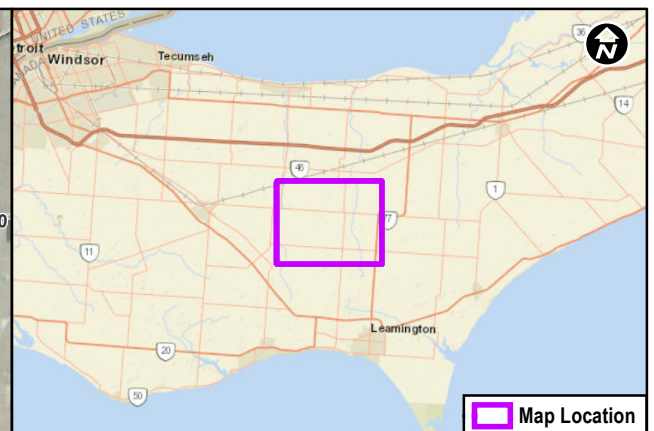
Source: MNRF 2020
Image: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Figure 1

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Map location: \\na.aecocom.com\ASAM\ER\Kibrene\COK\GIS\Projects\60665521_Ebridge_Panhandle\Design\01_Reports\ASAM\MXD_60665521_LFig1_topo.mxd Date saved: 21/02/22 12:23:43 AM User Name: gauri

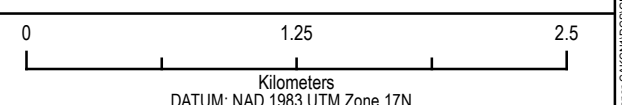


Legend

- Municipal Boundary
- Study Area

Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

Study Area in Detail – Leamington Interconnect

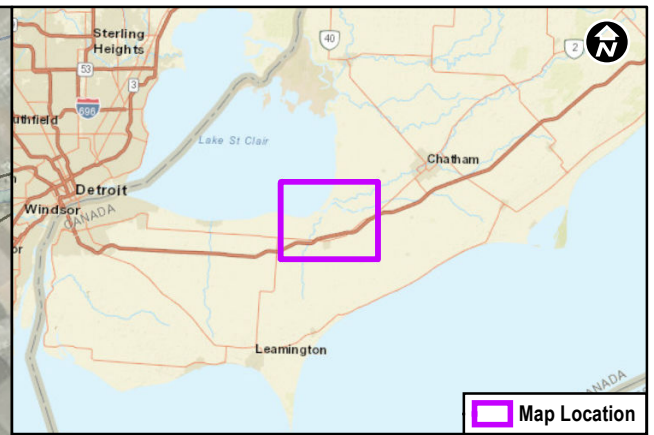
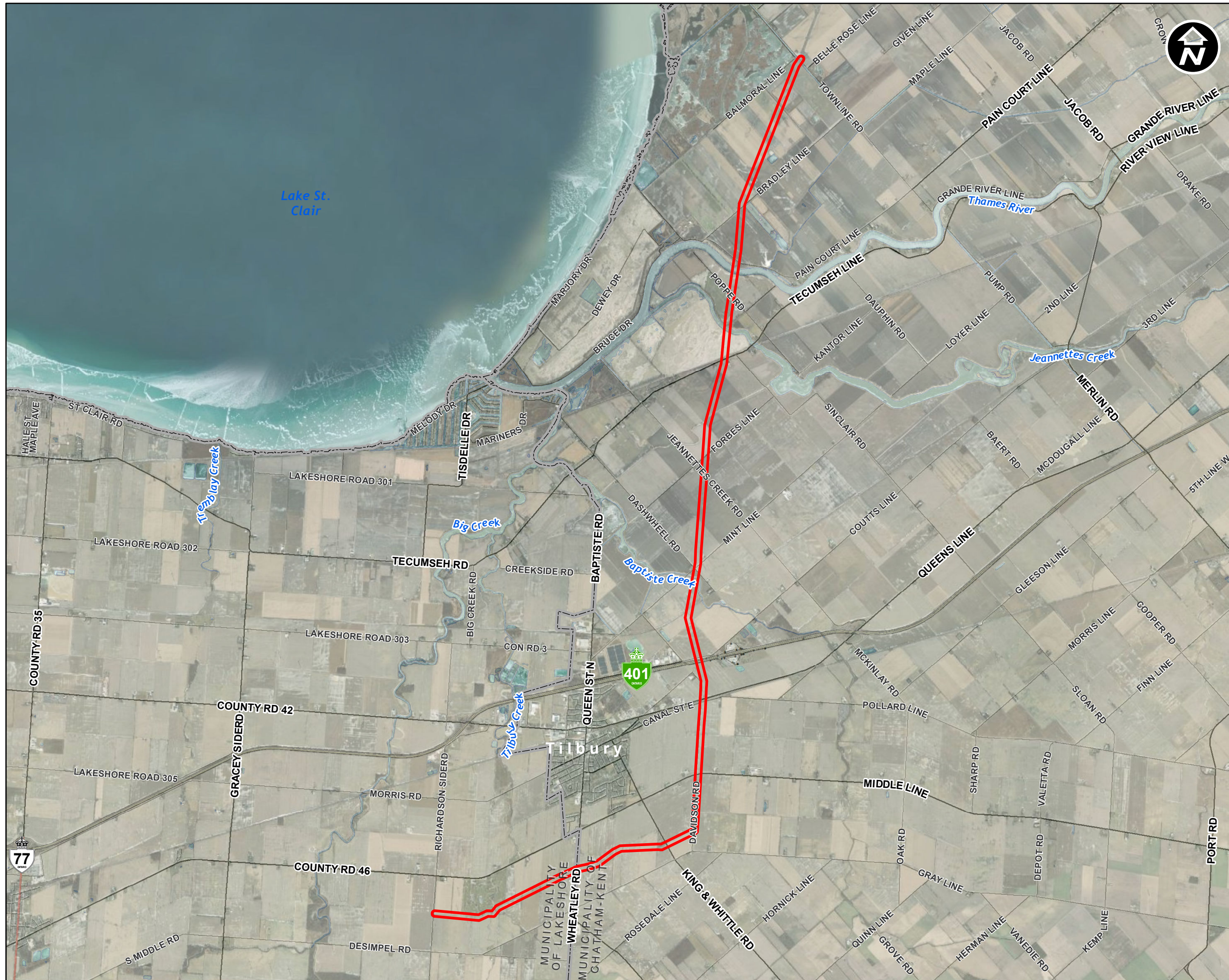


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P#:60665521	V#:	

AECOM	Figure 2-1
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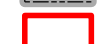
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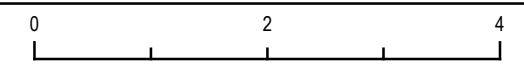
Map Location

Legend

-  Municipal Boundary
-  Study Area

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

Study Area in Detail – Panhandle



DATUM: NAD 1983 UTM Zone 17N

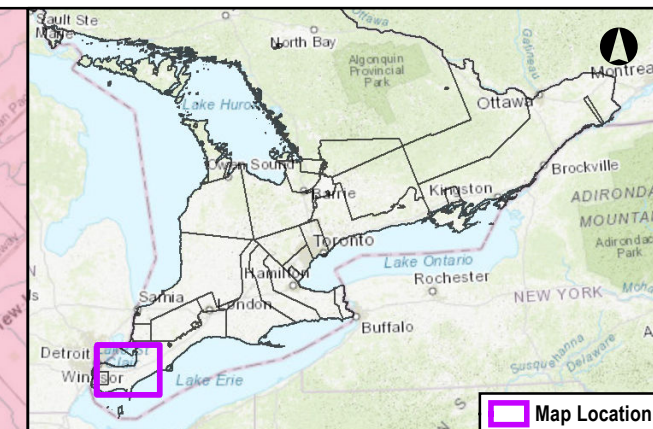
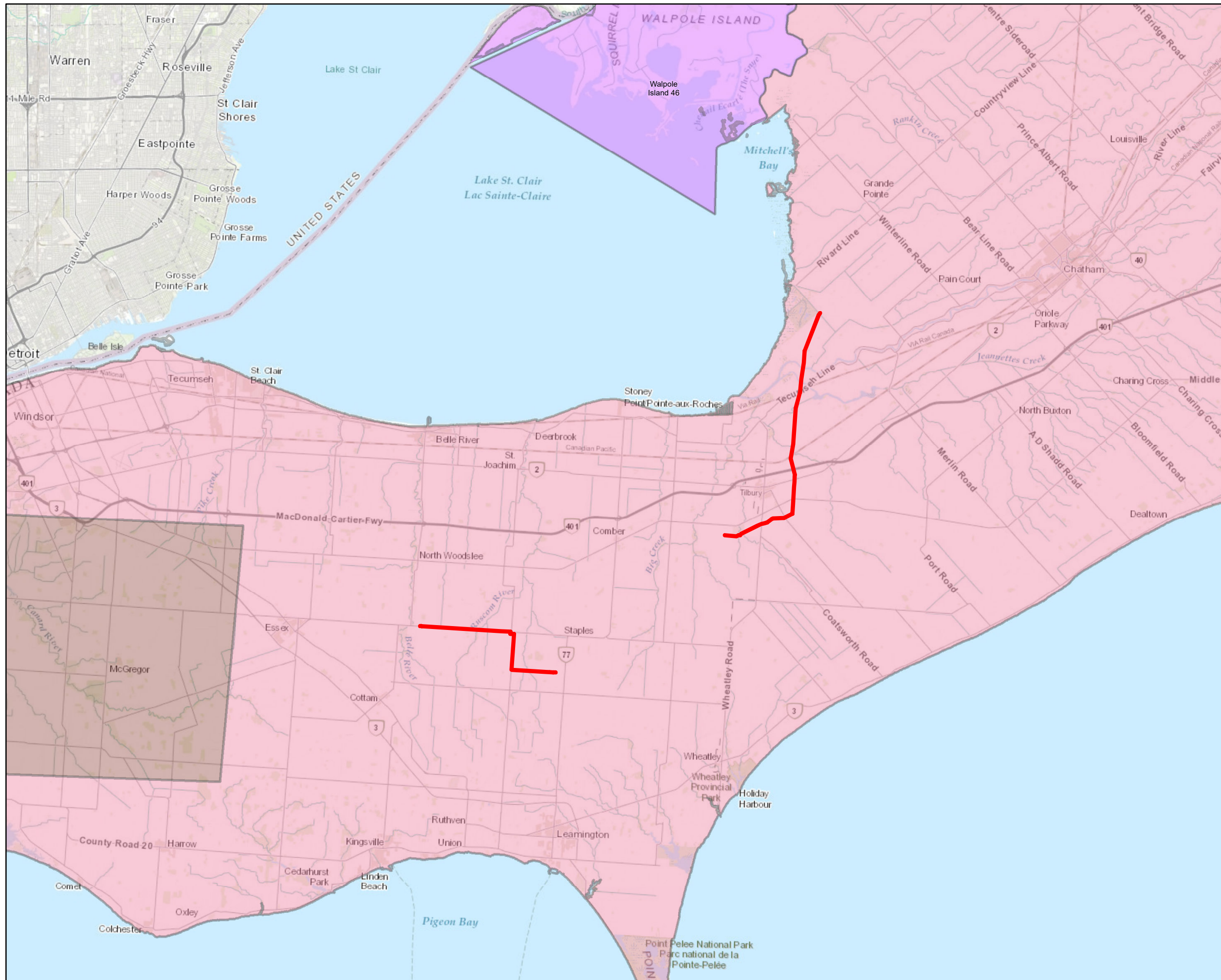
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P#: 60665521	V#:	

AECOM

Figure 2-2

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Map Location: \\na.aecom.com\NA\ESSEX\KENT\Interconnect\GIS\Projects\60665521_Embargo_Panhandle\Design\01_Reports\AAS\11\MO_20160521_Fig2-Aerial.mxd
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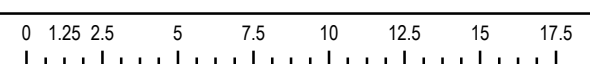


Legend

- Study Area
- First Nations Reserve Land
- Treaty**
- Treaty 35, August 13, 1833
- McKee Purchase, Treaty 2, May 19, 1790

**Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario**

Ontario Treaties Map



Kilometers
DATUM: NAD 1983 UTM Zone 17N

April 2022	1:250,000 * when printed 11"x17"	Source: MNR 2020, www.ontario.ca/ page/map-ontario-treaties-and-reserves#r7 Image: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS
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Figure 3

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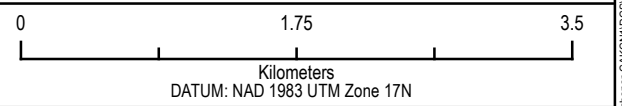
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Date saved: 21/02/22 12:37:37 PM User Name: c.dale



Legend
 Study Area

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

Early Survey Mapping, Essex and Kent
 Counties, Surveyor General's Office (1821)

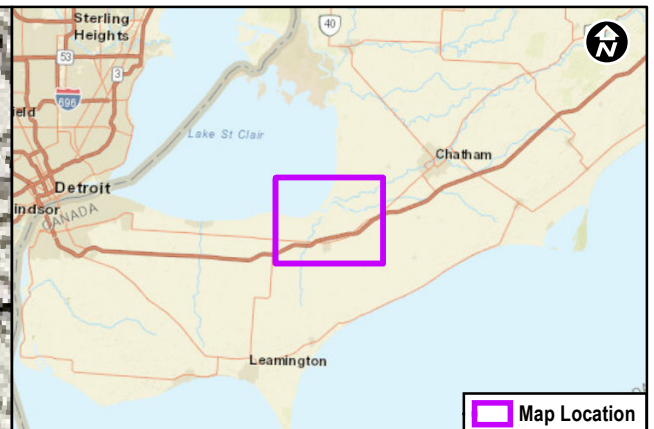
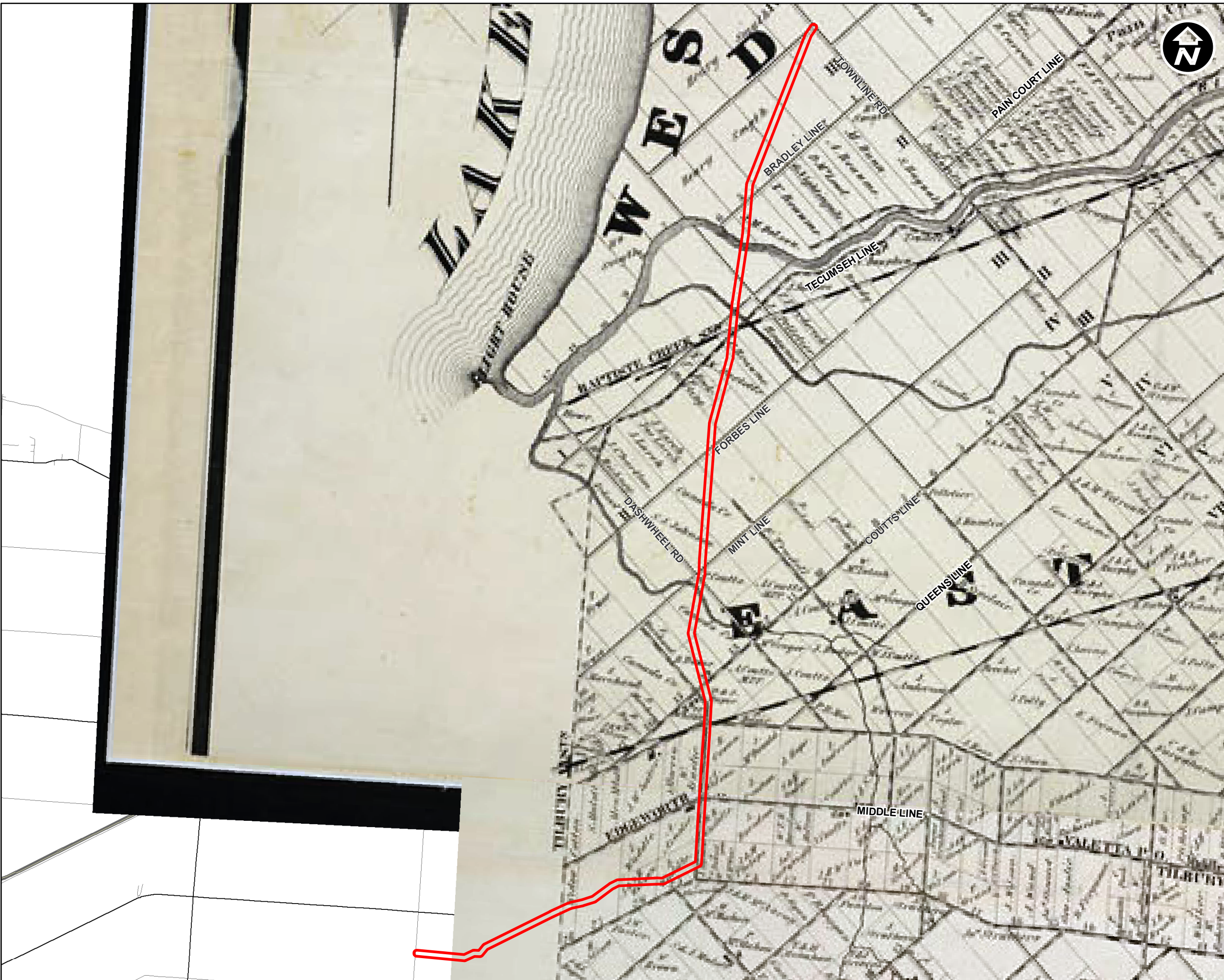


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P#:60665521	V#:	

AECOM **Figure 4**


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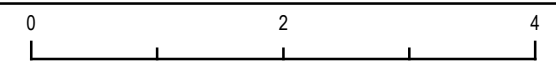
Map Location

Legend

 Study Area

Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

1876 Map for Kent



DATUM: NAD 1983 UTM Zone 17N

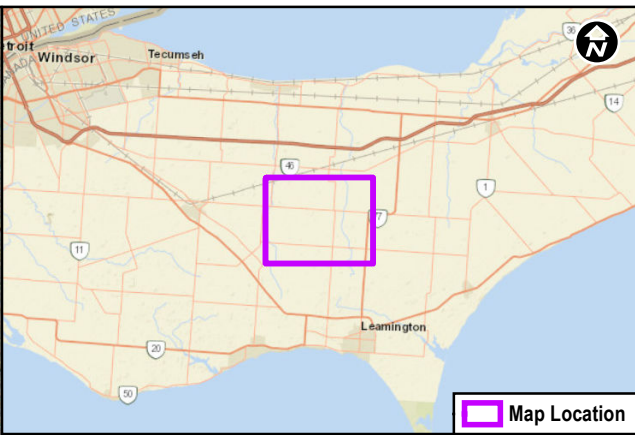
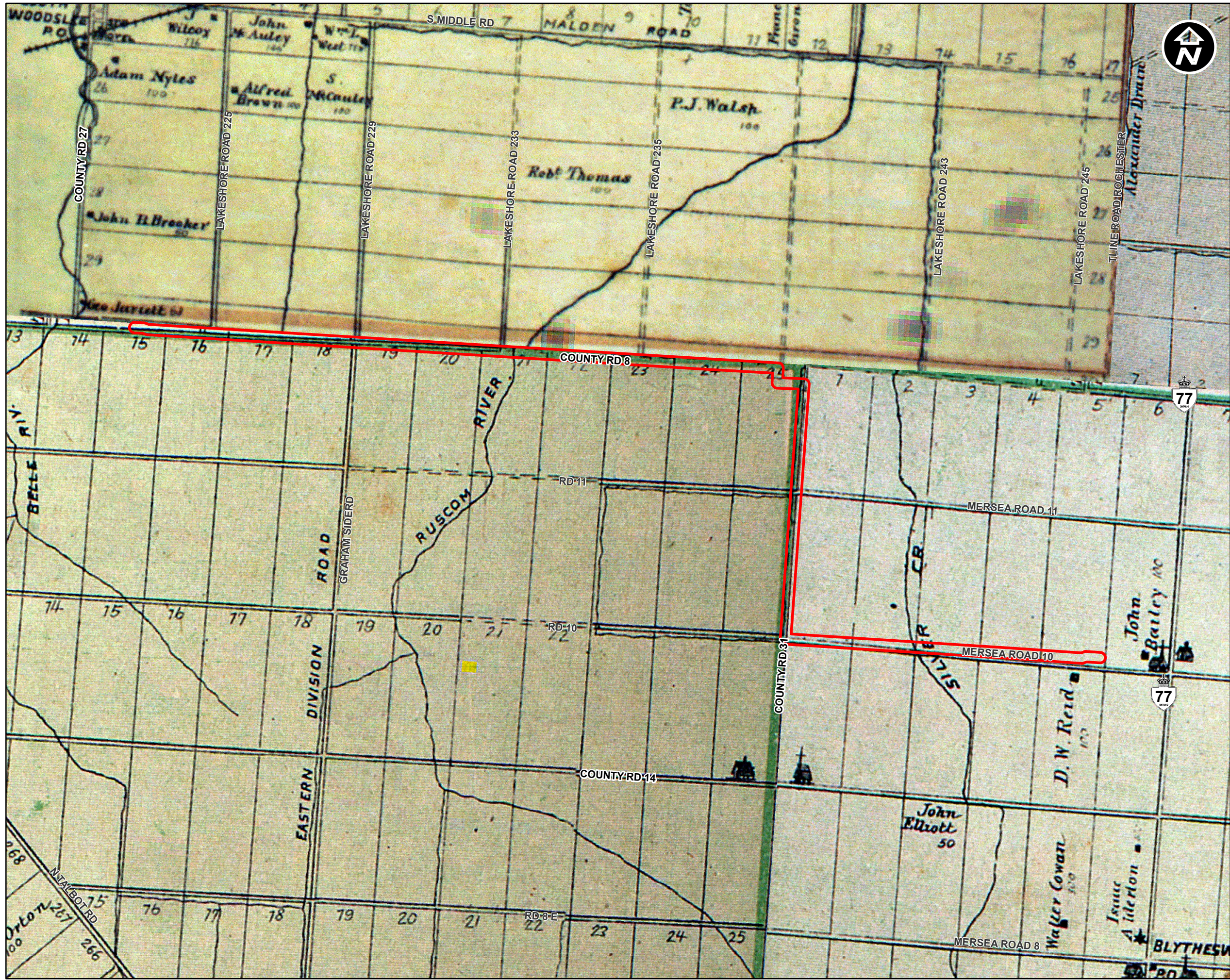
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Figure 5

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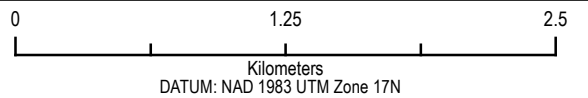
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Legend
 Study Area – Leamington Interconnect

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

H. Belden & Co. 1880-1881, Illustrated
 Historical Atlas of the Counties of Essex and Kent

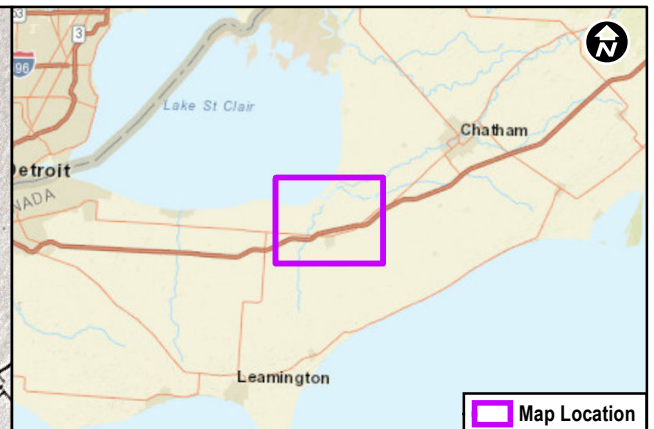
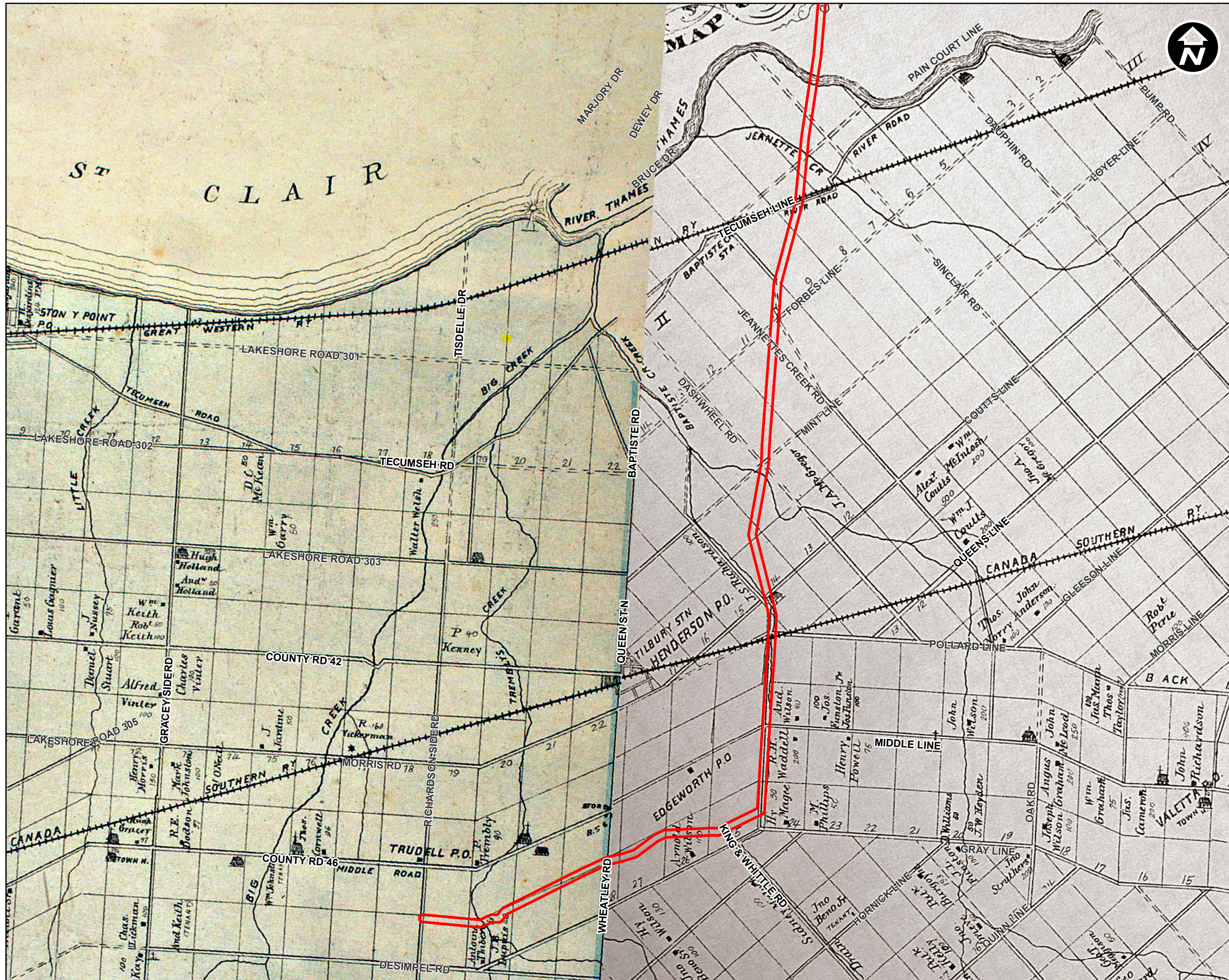


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AECOM Figure 6-1

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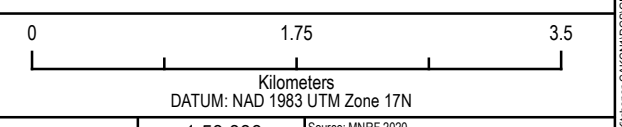
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Legend
 Study Area – Panhandle

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

H. Belden & Co. 1880-1881, Illustrated
 Historical Atlas of the Counties of Essex and Kent



April 2022 1:50,000
* when printed 11"x17"

P#:60665521 V#:
AECOM **Figure 6-2**

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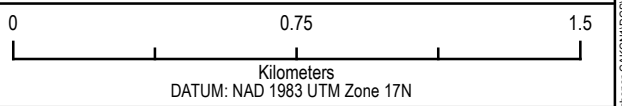
Map Location

Legend

Study Area – Panhandle

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

H. Belden & Co. 1880-1881, Illustrated
 Historical Atlas of the Counties of Essex and Kent

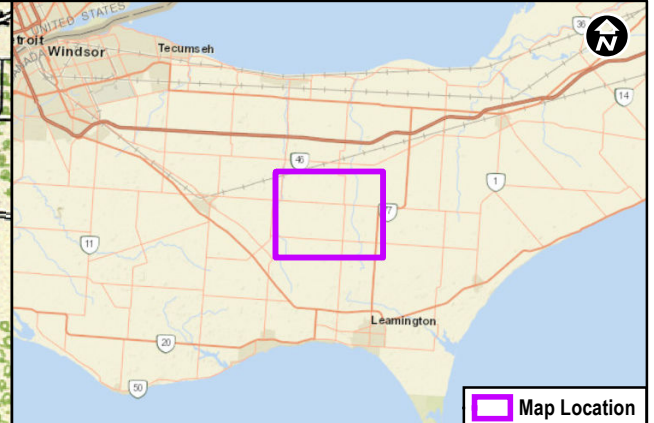
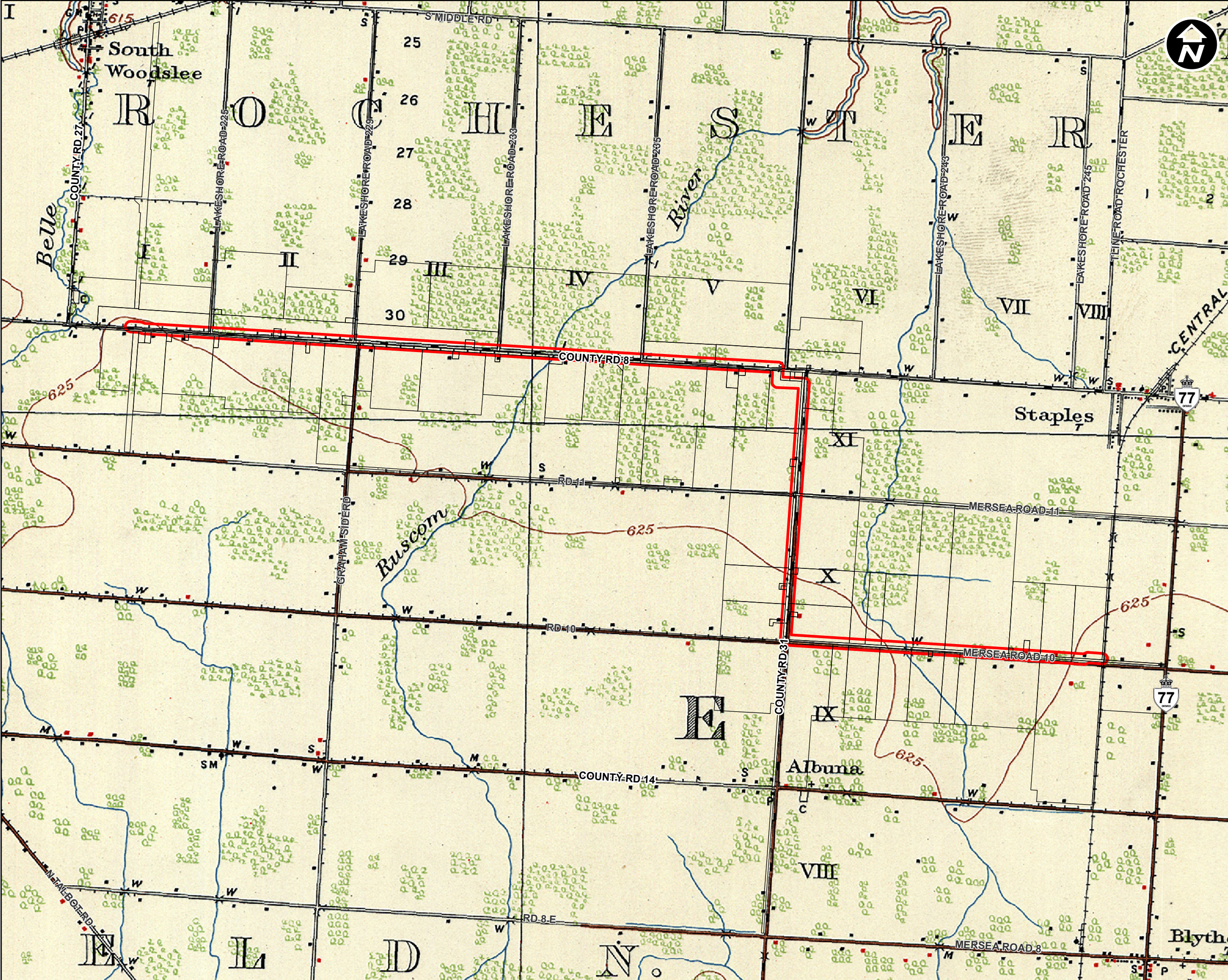


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P#:60665521	V#:	

AECOM	Figure 6-3
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 Date saved: 2/2/2022 1:43:43 PM User Name: csaib



- Legend**
- Parcel Boundary
 - Study Area – Leamington Interconnect

Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

1913 Topographic Map
Essex, Ontario

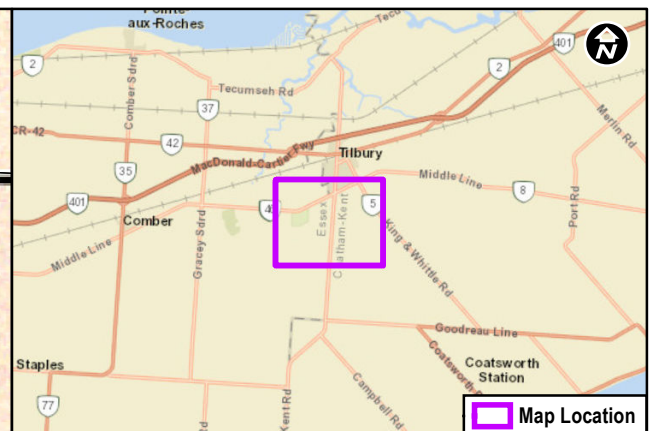
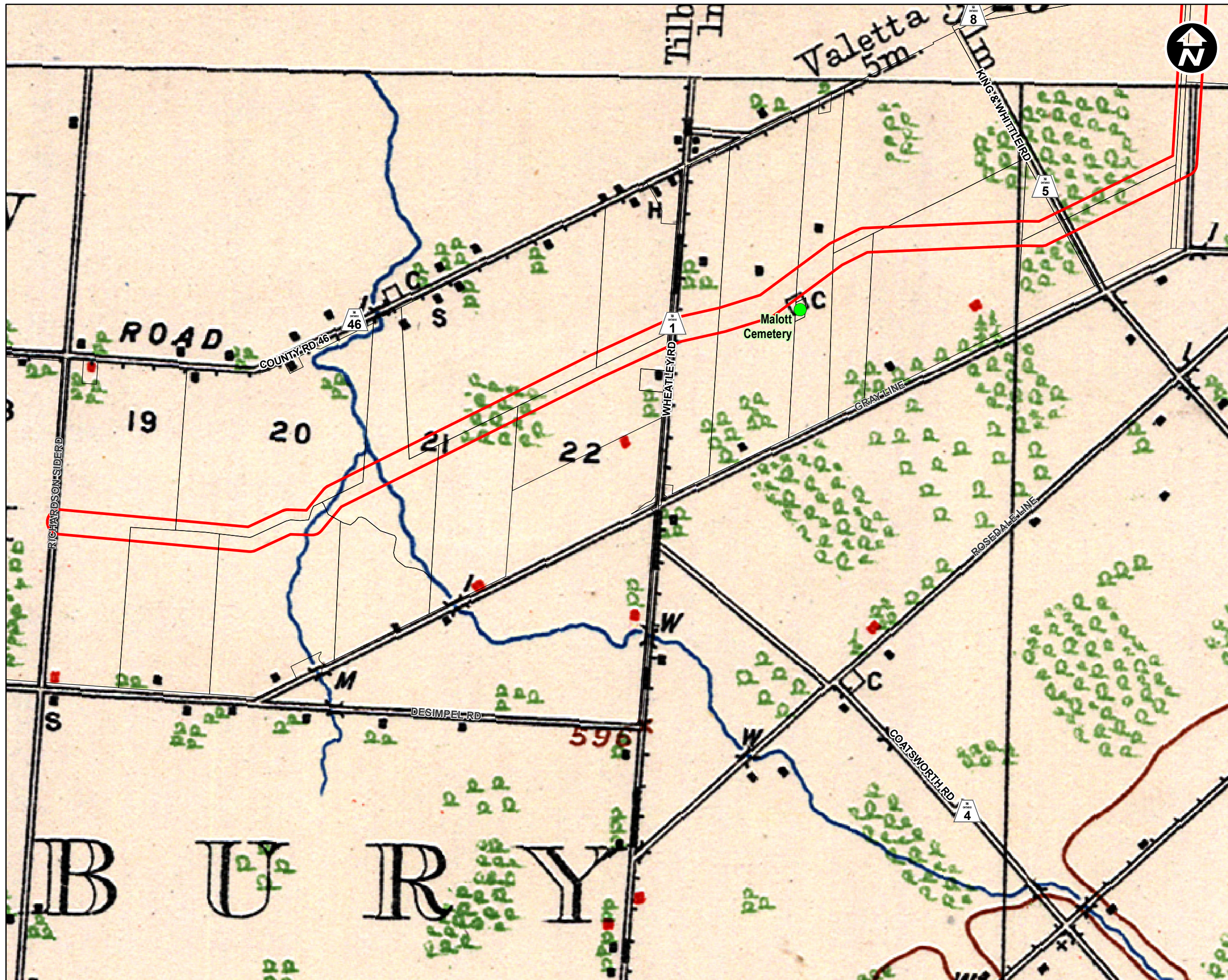
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Kilometers
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P#:60665521	V#:	

AECOM **Figure 7-1**

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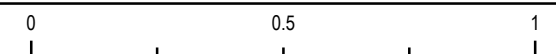
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Date Saved: 04/20/2022 2:14:27 PM User: Name: Gault



- Legend**
- Malott Cemetery
 - Parcel Boundary
 - Study Area - Panhandle

Panhandle Regional Expansion Project

1910 Topographic Map
Romney, Ontario



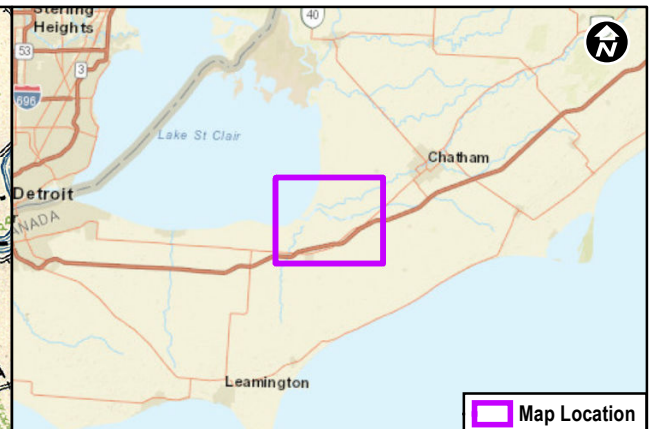
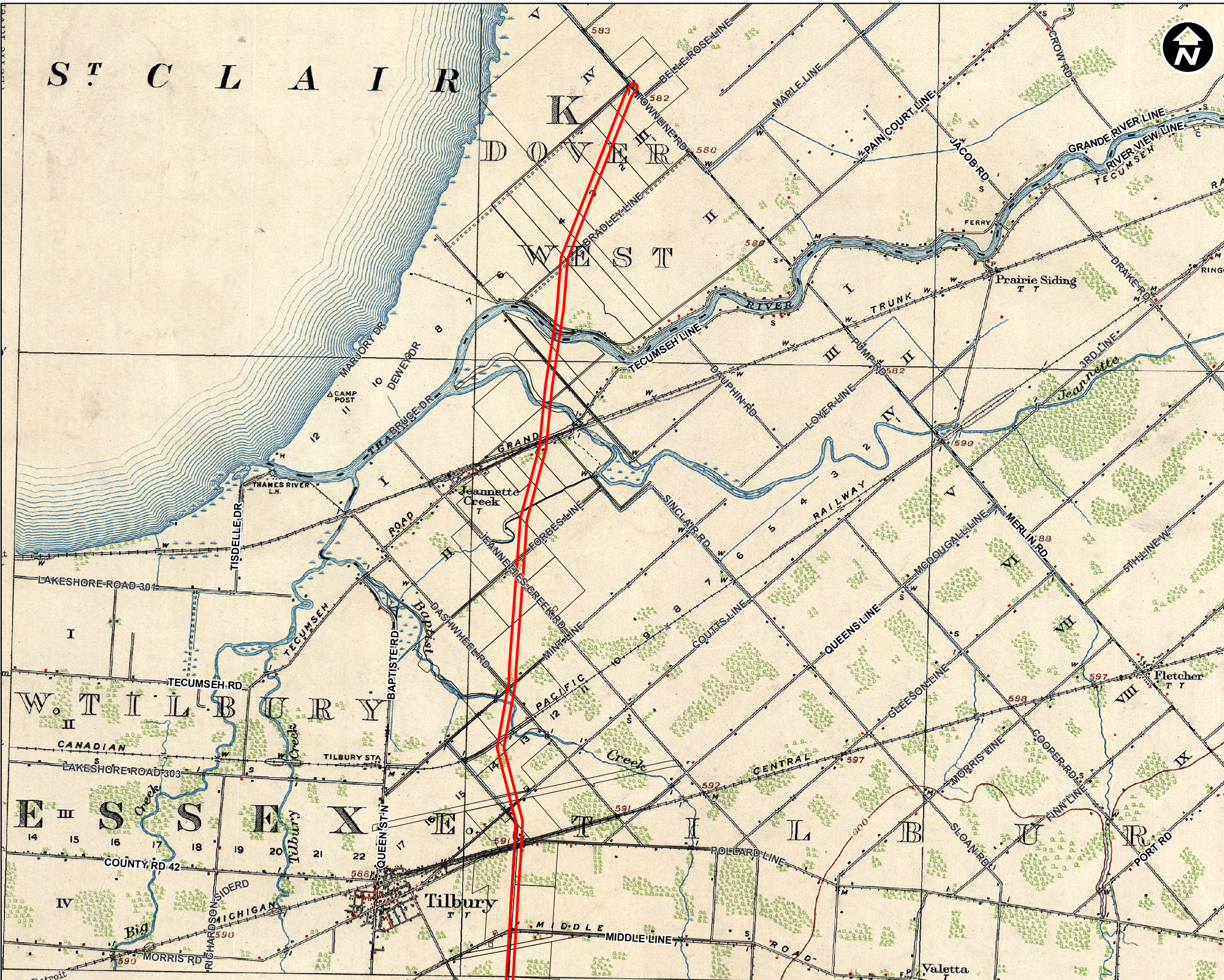
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P#:60665521	V#:	



AECOM Figure 7-2

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Map location: \\na.aecocom.com\ASAM\KRM\Brenner-CARON\GIS\Projects\60665521_Embargo_Panhandle\Design\01_Report\ASAM\MXD_60665521_Fig-2_HistoricPanhandle 1910.mxd
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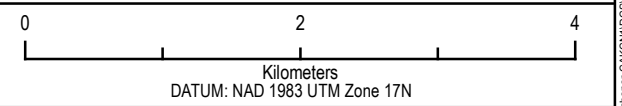


Legend

-  Parcel Boundary
-  Study Area - Panhandle

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

1913 Topographic Map
 Chatham, Ontario

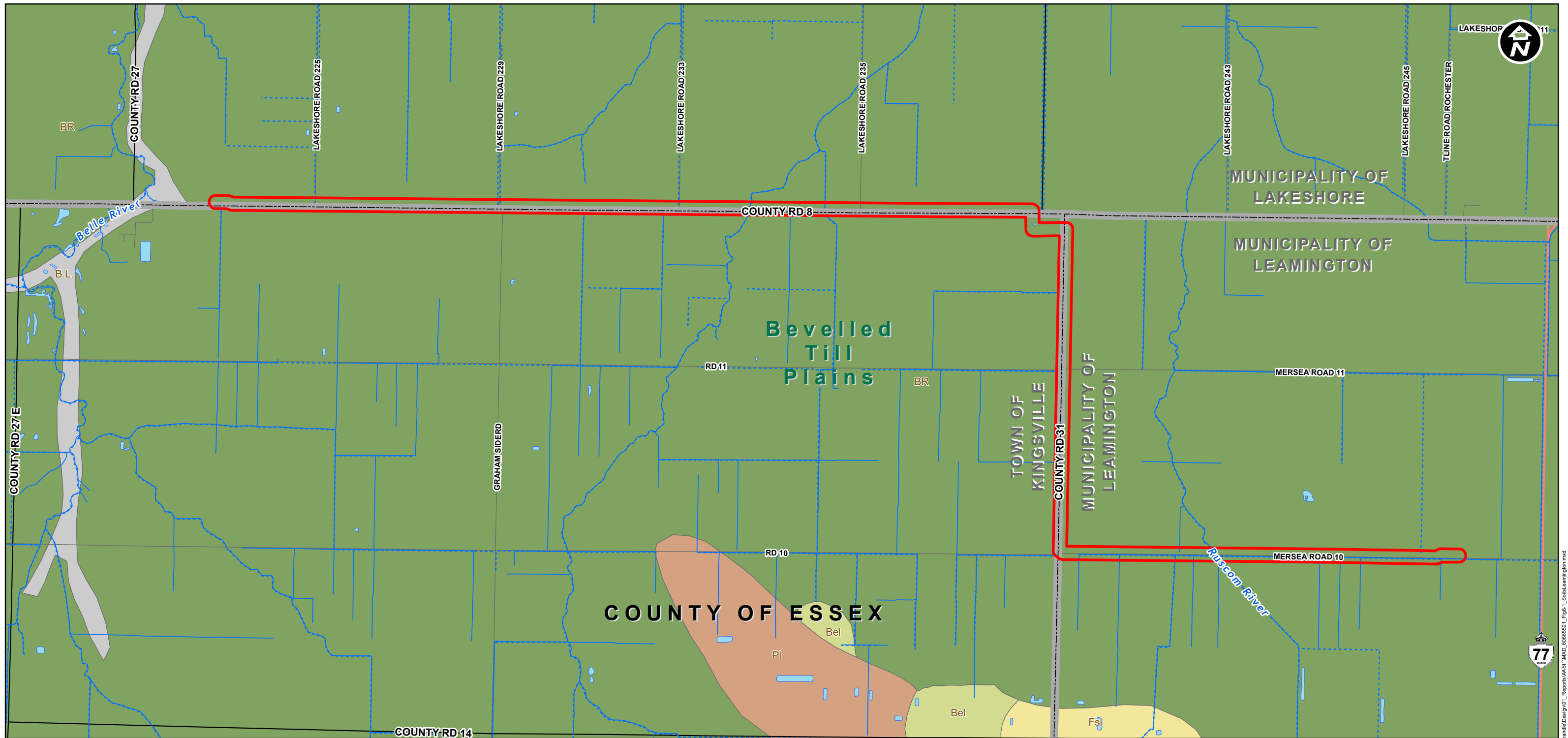


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P#:60665521	V#:	

AECOM **Figure 7-3**

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Map location: \\na.aecocom.com\ASAM\KBR\Bridges-C&K\GIS\Projects\60665521_Embargo_Panhandle\Design\01_Reports\AAS\1\MXD_06065521_Fig-3_Hatch\Panhandle 01 1.mxd
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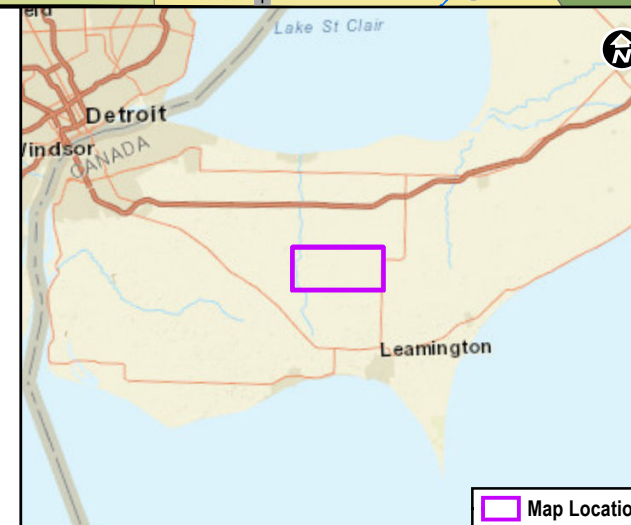


Legend

- - - - - Constructed Drain
- Permanent Stream
- - - - - Intermittent Stream
- Waterbody
- Municipal Boundaries
- Physiographic Region

Soils

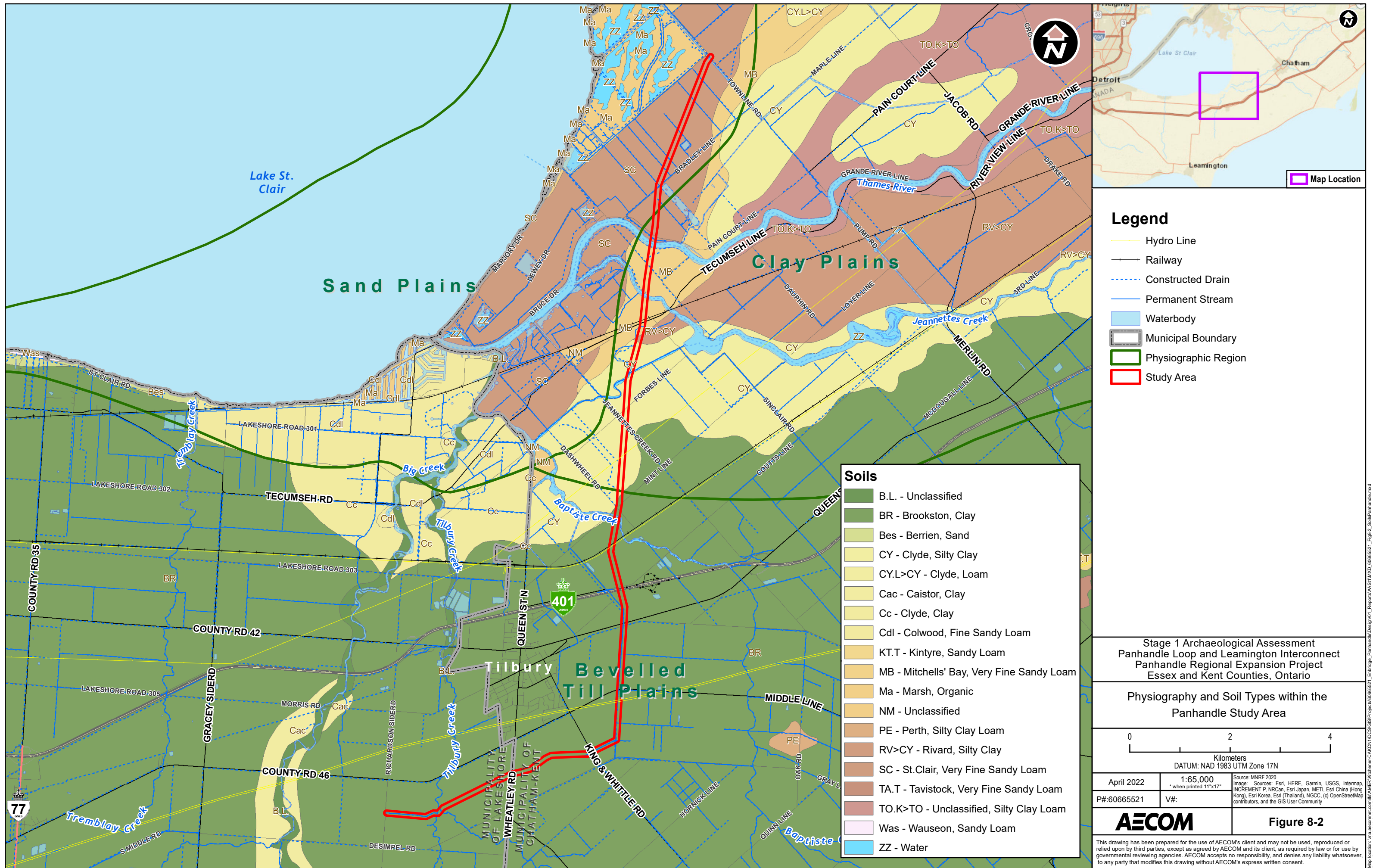
- B.L. - Unclassified
- BR - Brookston, Clay
- Bel - Berrien, Sandy Loam
- Fsl - Fox, Sandy Loam
- PI - Parkhill, Loam
- Study Area



<p>Stage 1 Archaeological Assessment Panhandle Loop and Leamington Interconnect Panhandle Regional Expansion Project Essex and Kent Counties, Ontario</p>			
<p>Physiography and Soil Types within the Leamington Interconnect Study Area</p>			
<p>DATUM: NAD 1983 UTM Zone 17N</p>			
April 2022	1:28,000 <small>* when printed 11"x17"</small>	Source: MNRF 2020 Image: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community	
P#:60665521	V#:		
		<p>Figure 8-1</p>	
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 Map Location

Map location: \\na.aecom.com\proj\60665521\GIS\Projects\60665521_Ebridge_Panhandle\Design\01_Reports\ASST\MXD_06065521_Fig8-1_SoilsLeamington.mxd
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Legend

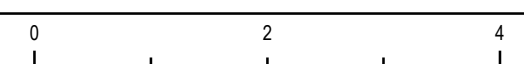
- Hydro Line
- Railway
- Constructed Drain
- Permanent Stream
- Waterbody
- Municipal Boundary
- Physiographic Region
- Study Area

Soils

- B.L. - Unclassified
- BR - Brookston, Clay
- Bes - Berrien, Sand
- CY - Clyde, Silty Clay
- CY.L>CY - Clyde, Loam
- Cac - Caistor, Clay
- Cc - Clyde, Clay
- Cdl - Colwood, Fine Sandy Loam
- KT.T - Kintyre, Sandy Loam
- MB - Mitchells' Bay, Very Fine Sandy Loam
- Ma - Marsh, Organic
- NM - Unclassified
- PE - Perth, Silty Clay Loam
- RV>CY - Rivard, Silty Clay
- SC - St.Clair, Very Fine Sandy Loam
- TA.T - Tavistock, Very Fine Sandy Loam
- TO.K>TO - Unclassified, Silty Clay Loam
- Was - Wauseon, Sandy Loam
- ZZ - Water

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

Physiography and Soil Types within the
 Panhandle Study Area



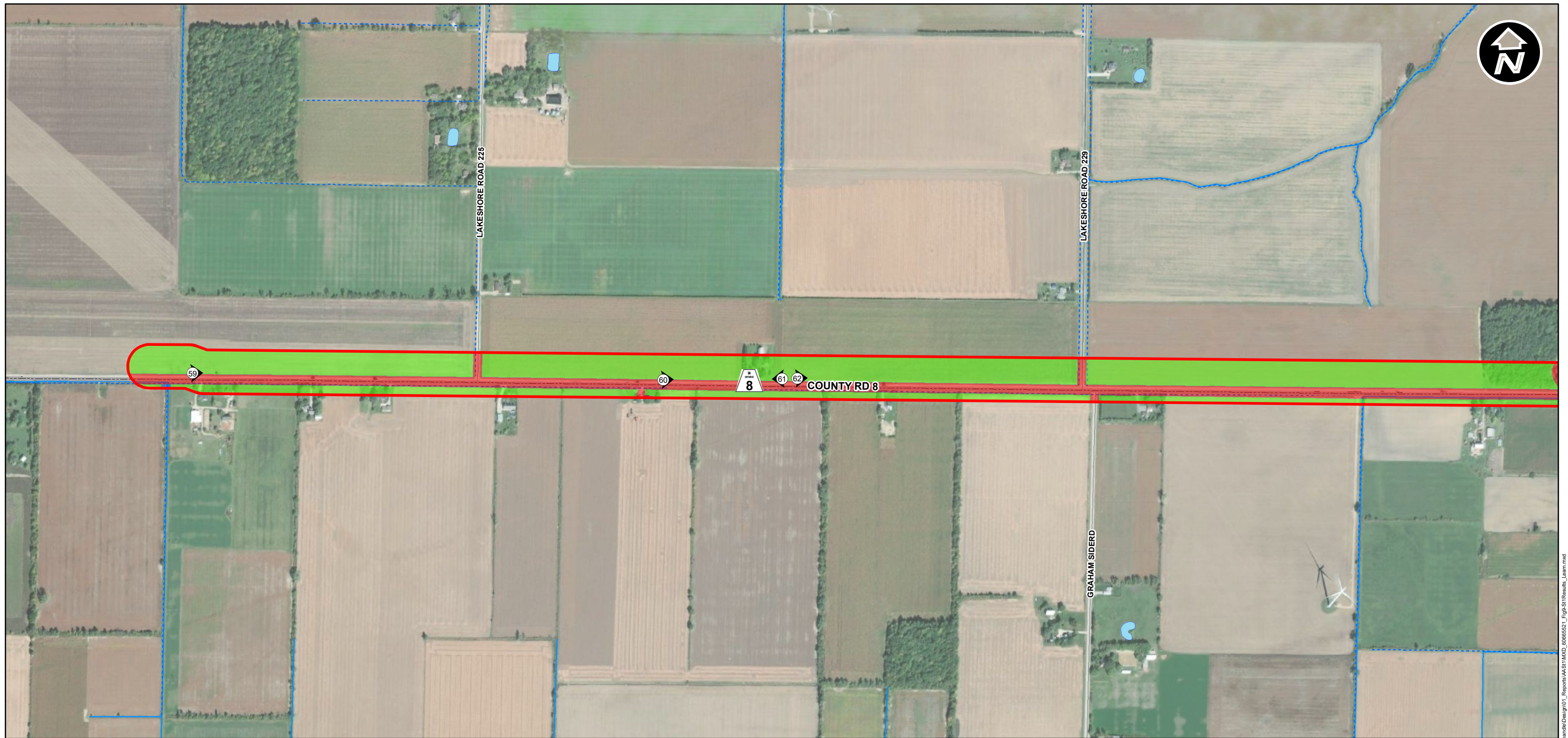
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



AECOM **Figure 8-2**

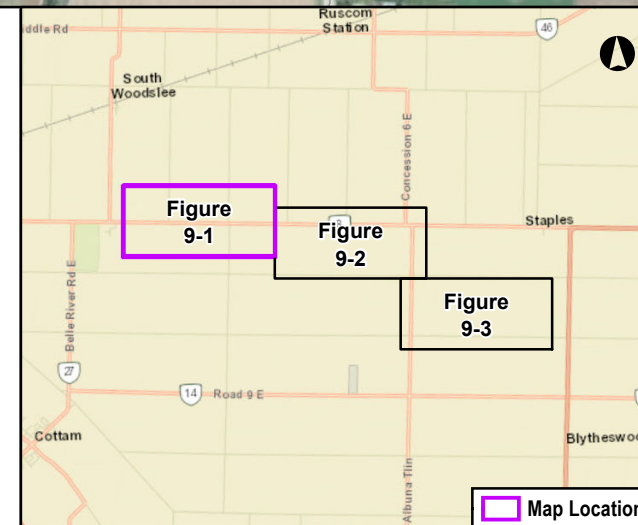
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Legend

-  Photo Location and Direction
-  Constructed Drain
-  Watercourse
-  Waterbody
-  Municipal Boundaries
-  Visually Confirmed Disturbance
-  Stage 2 Archaeological Assessment Required
-  Wet & Low-lying (No Assessment Required)
-  Study Area



Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

Results of the Stage 1 Archaeological Assessment
Leamington Interconnect

0 40 80 160 240 320 400 480 560
 Meters
 DATUM: NAD 1983 UTM Zone 17N

April 2022	1:8,500 * when printed 11"x17"	Source: MNRF 2020 Image: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT
P#:60665521	V#:	










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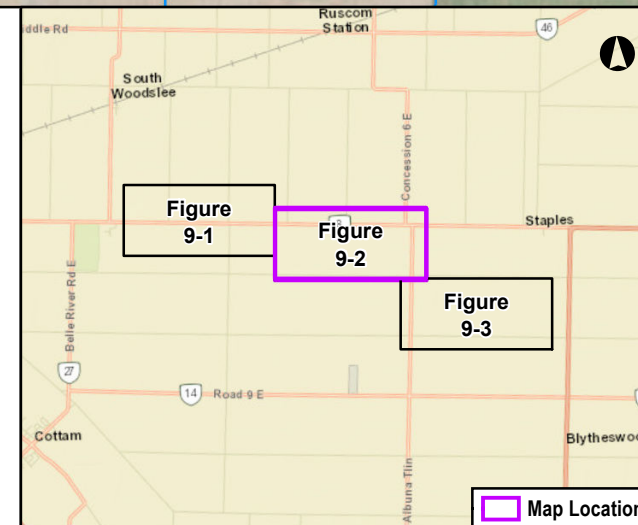
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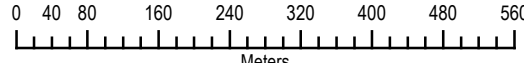

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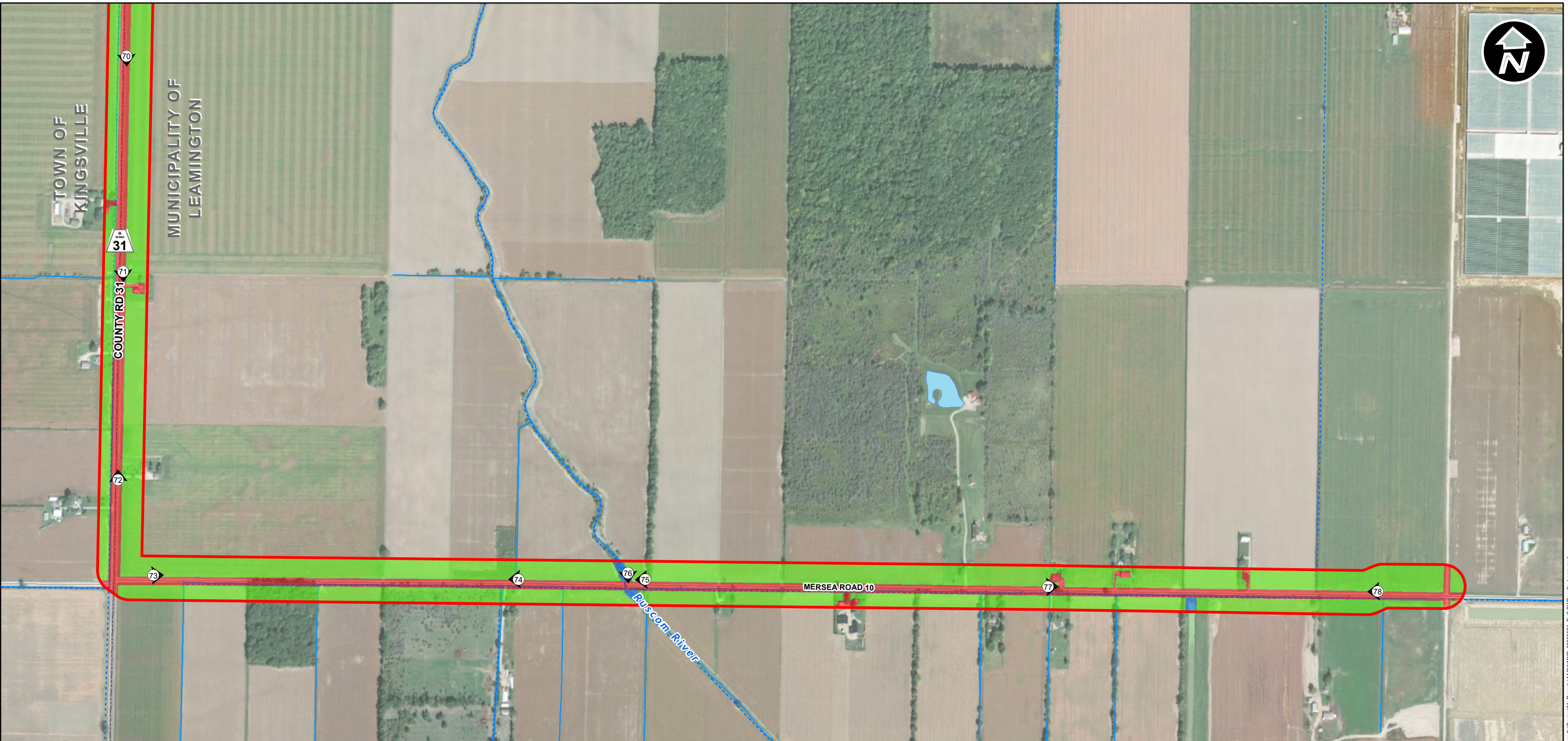
Legend

-  Photo Location and Direction
-  Constructed Drain
-  Watercourse
-  Waterbody
-  Municipal Boundaries
-  Visually Confirmed Disturbance
-  Stage 2 Archaeological Assessment Required
-  Wet & Low-lying (No Assessment Required)
-  Study Area



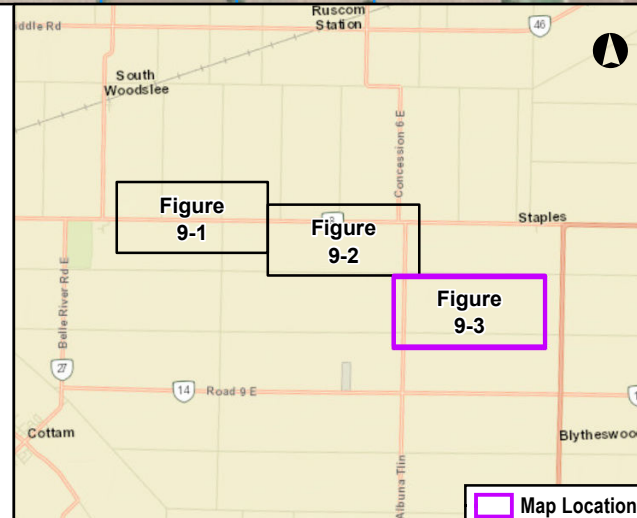
Stage 1 Archaeological Assessment Panhandle Loop and Leamington Interconnect Panhandle Regional Expansion Project Essex and Kent Counties, Ontario		
Results of the Stage 1 Archaeological Assessment Leamington Interconnect		
 0 40 80 160 240 320 400 480 560 Meters DATUM: NAD 1983 UTM Zone 17N		
April 2022	1:8,500 * when printed 11"x17"	Source: MNR 2020 Image: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT
P#:60665521	V#:	Figure 9-2
		
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Legend

- Photo Location and Direction
- Constructed Drain
- Watercourse
- Waterbody
- Municipal Boundaries
- Visually Confirmed Disturbance
- Stage 2 Archaeological Assessment Required
- Wet & Low-lying (No Assessment Required)
- Study Area



Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

Results of the Stage 1 Archaeological Assessment
Leamington Interconnect

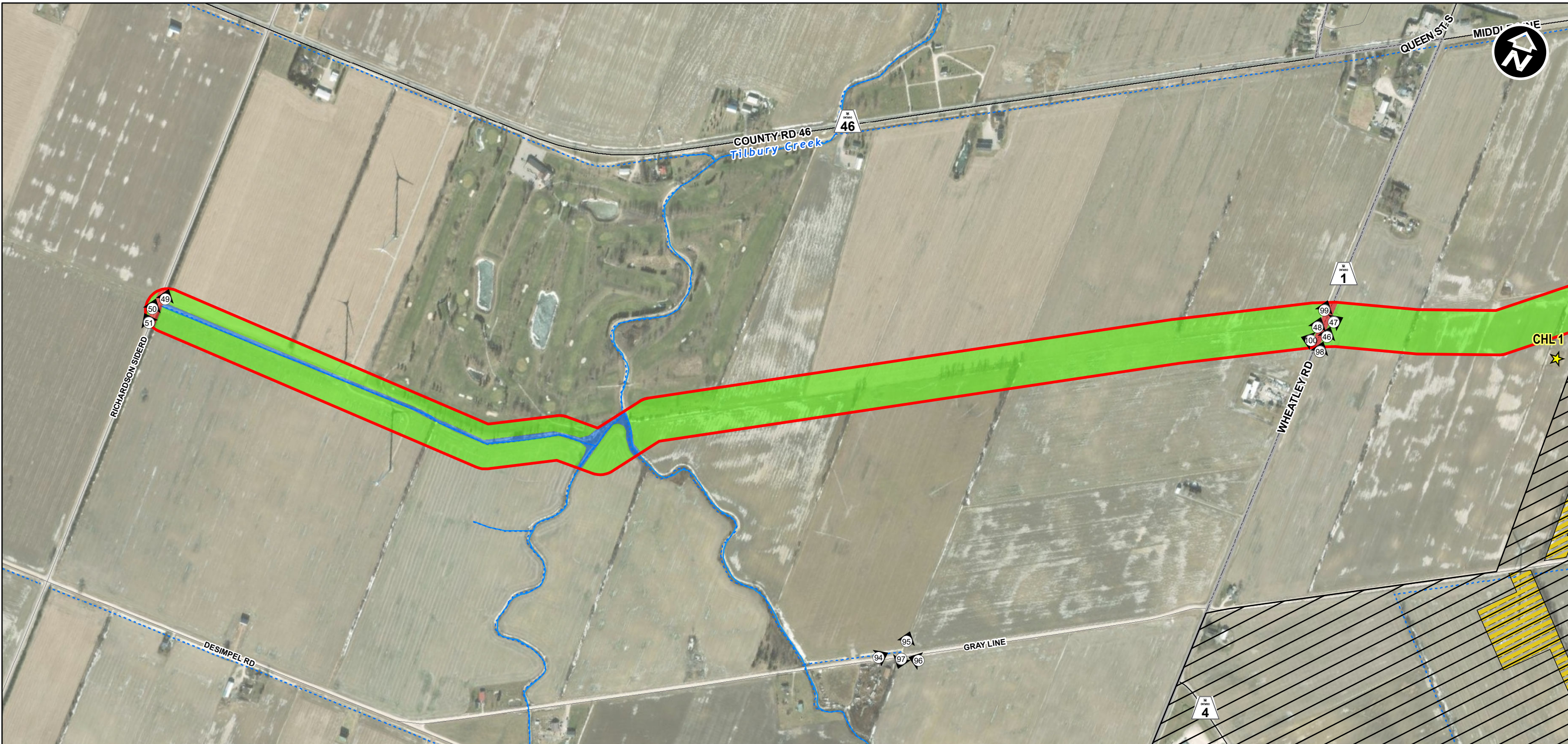
Meters

DATUM: NAD 1983 UTM Zone 17N

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P#: 60665521	V#:	Figure 9-3

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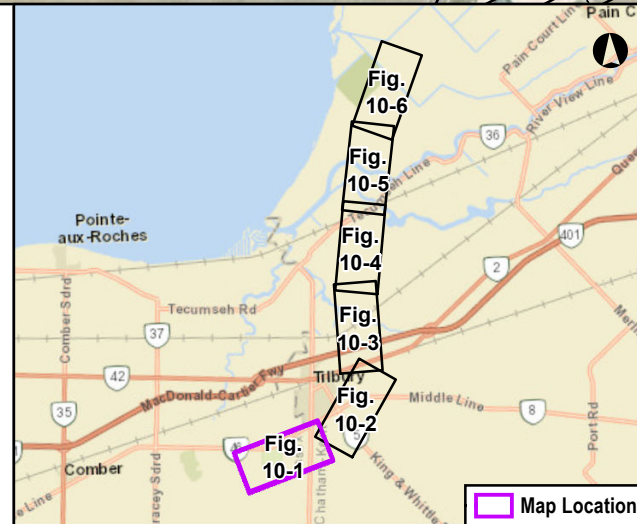


Legend

- ③ Photo Location and Direction
- ★ Cultural Heritage Location
- Constructed Drain
- Watercourse
- ▭ Study Area
- ▭ Visually Confirmed Disturbance
- ▭ Stage 2 Archaeological Assessment Required
- ▭ Wet & Low-lying (No Assessment Required)

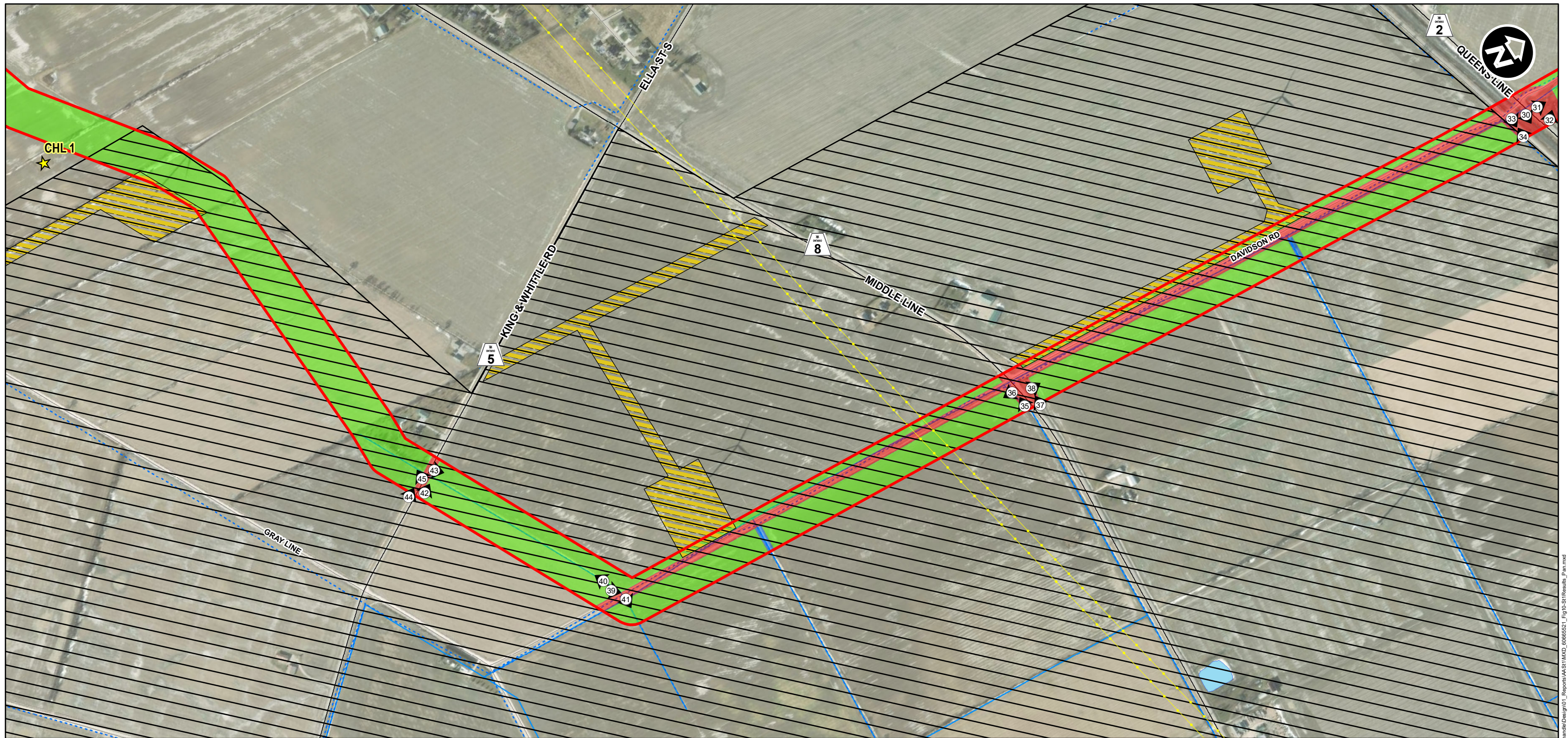
Previously Assessed Areas

- ▨ Stage 1 Archaeological Assessment Complete (ASI 2011)
- ▨ Stage 2 Archaeological Assessment Complete (ASI 2011)



<p>Stage 1 Archaeological Assessment Panhandle Loop and Leamington Interconnect Panhandle Regional Expansion Project Essex and Kent Counties, Ontario</p>	
<p>Results of the Stage 1 Archaeological Assessment Panhandle</p>	
<p>0 50 100 200 300 400 500 600 Meters</p>	
<p>DATUM: NAD 1983 UTM Zone 17N</p>	
<p>April 2022</p>	<p>1:8,500 * when printed 11"x17"</p>
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<p>AECOM</p>	
<p>Figure 10-1</p>	
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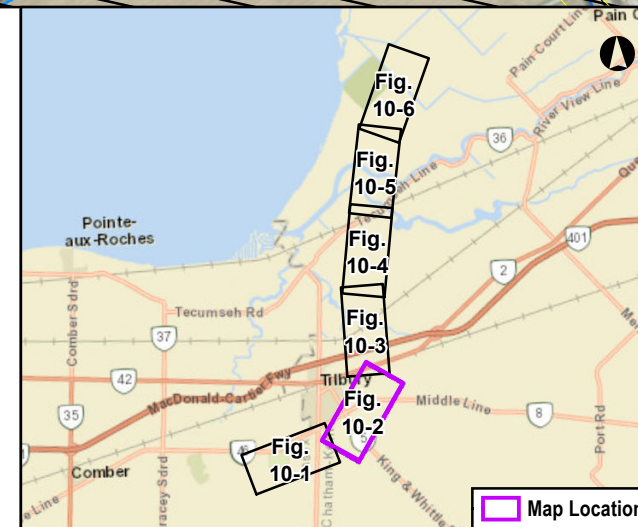


Legend

- Photo Location and Direction
- Cultural Heritage Location
- Hydro Line
- Constructed Drain
- Watercourse
- Waterbody
- Study Area
- Visually Confirmed Disturbance
- Stage 2 Archaeological Assessment Required
- Wet & Low-lying (No Assessment Required)

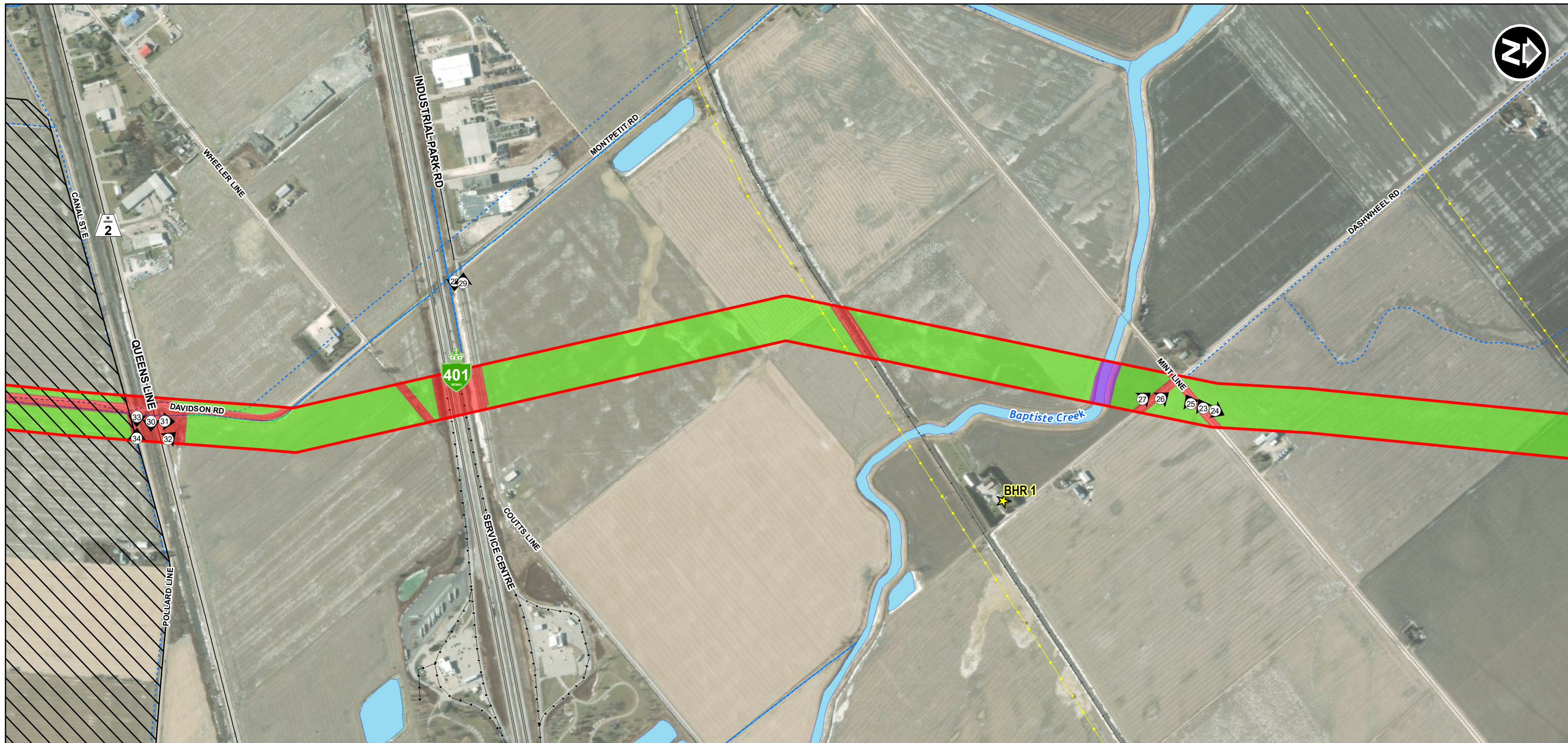
Previously Assessed Areas

- Stage 1 Archaeological Assessment Complete (ASI 2011)
- Stage 2 Archaeological Assessment Complete (ASI 2011)



<p>Stage 1 Archaeological Assessment Panhandle Loop and Leamington Interconnect Panhandle Regional Expansion Project Essex and Kent Counties, Ontario</p>	
<p>Results of the Stage 1 Archaeological Assessment Panhandle</p>	
<p>Meters</p>	
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<p>April 2022</p>	<p>1:8,500 *when printed 11"x17"</p>
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<p>AECOM</p>	
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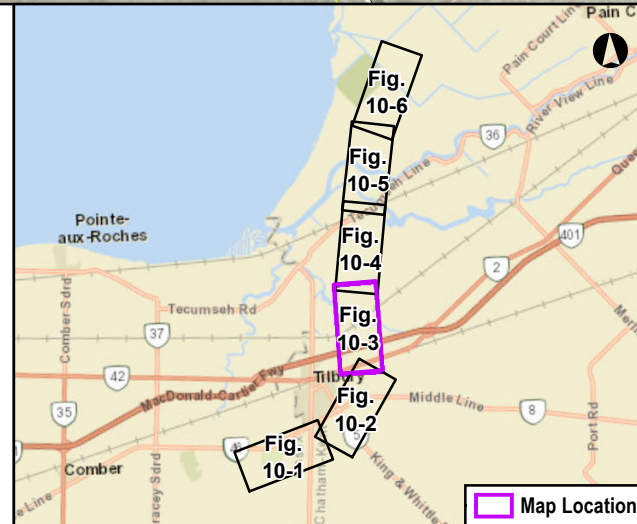


Legend

- Photo Location and Direction
- Cultural Heritage Location
- Hydro Line
- Railway
- Constructed Drain
- Watercourse
- Waterbody
- Study Area
- Visually Confirmed Disturbance
- Stage 2 Archaeological Assessment Required
- Retain Archaeological Potential for Marine Resources

Previously Assessed Areas

- Stage 1 Archaeological Assessment Complete (ASI 2011)



Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

Results of the Stage 1 Archaeological Assessment
Panhandle

0 50 100 200 300 400 500 600

Meters

DATUM: NAD 1983 UTM Zone 17N

April 2022

P#:60665521

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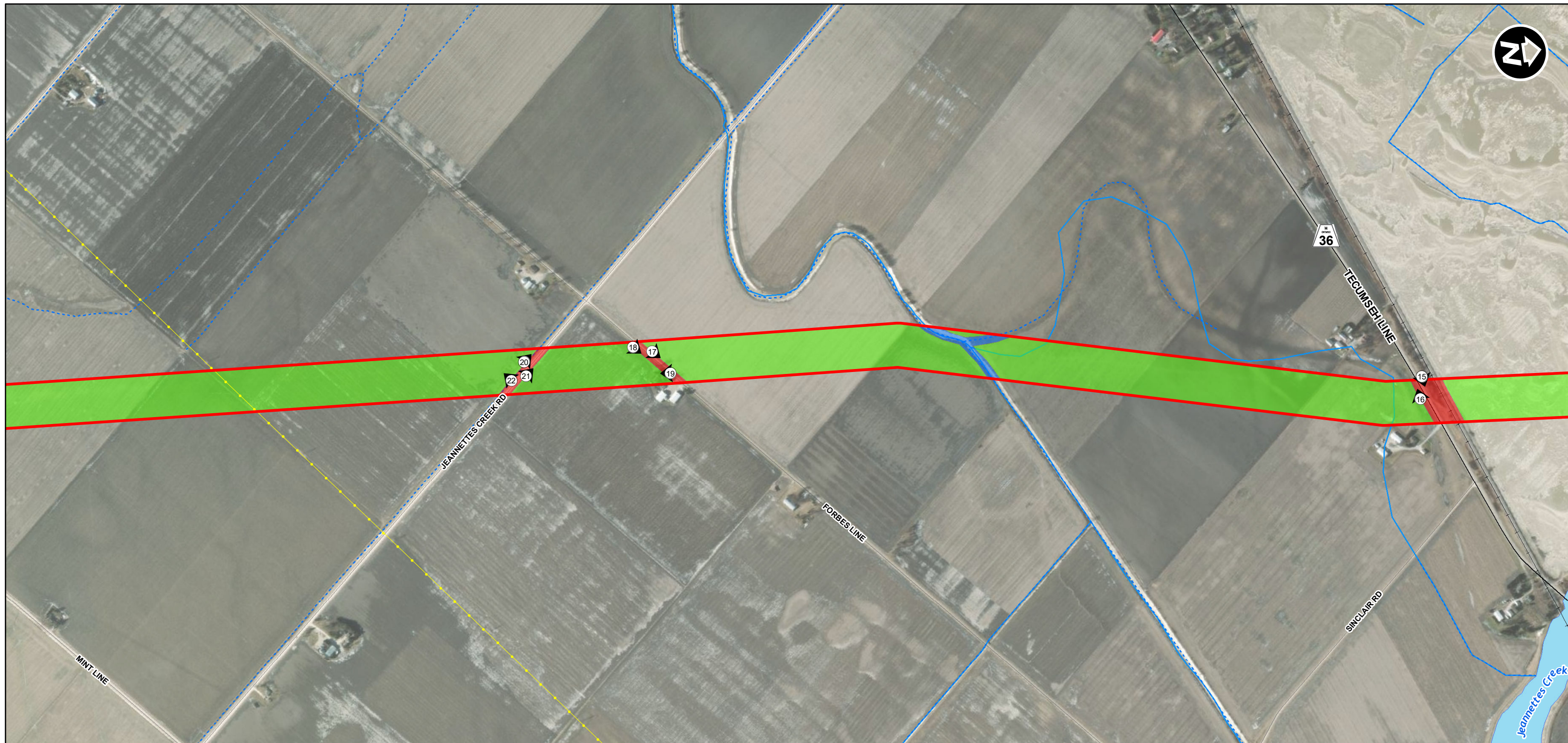
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V#:

Source: MNRF 2020
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 Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT

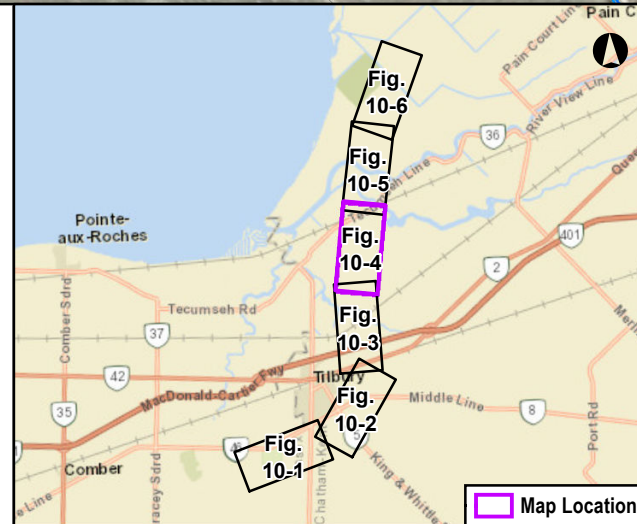
Figure 10-3

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Legend

- Photo Location and Direction
- Hydro Line
- Railway
- Constructed Drain
- Watercourse
- Waterbody
- Study Area
- Visually Confirmed Disturbance
- Stage 2 Archaeological Assessment Required
- Wet & Low-lying (No Assessment Required)



Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

Results of the Stage 1 Archaeological Assessment
Panhandle

0 50 100 200 300 400 500 600
 Meters
 DATUM: NAD 1983 UTM Zone 17N

April 2022	1:8,500 * when printed 11"x17"	Source: MNRF 2020 Image: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT
P#:60665521	V#:	

AECOM

Figure 10-4

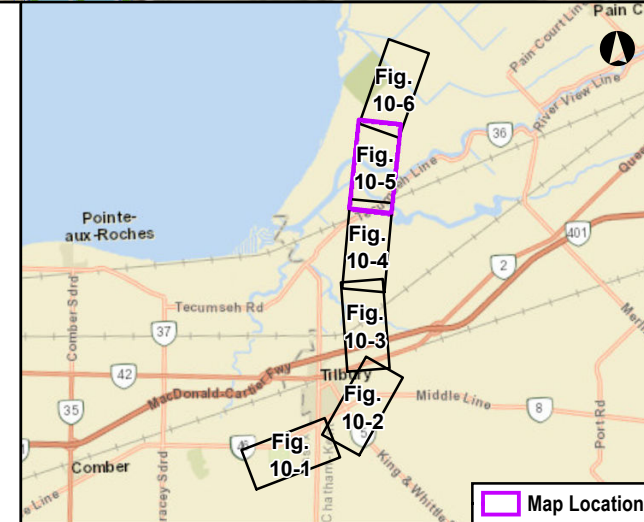
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Legend

- Photo Location and Direction
- Railway
- Constructed Drain
- Watercourse
- Waterbody
- Provincially Significant Wetland
- Study Area
- Visually Confirmed Disturbance
- Stage 2 Archaeological Assessment Required
- Retain Archaeological Potential for Marine Resources
- Wet & Low-lying (No Assessment Required)



Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario

Results of the Stage 1 Archaeological Assessment
Panhandle

0 50 100 200 300 400 500 600
Meters

DATUM: NAD 1983 UTM Zone 17N

April 2022	1:8,500 <small>*when printed 11"x17"</small>	<small>Source: MNRF 2020 Image: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT</small>
P#:60665521	V#:	

AECOM **Figure 10-5**

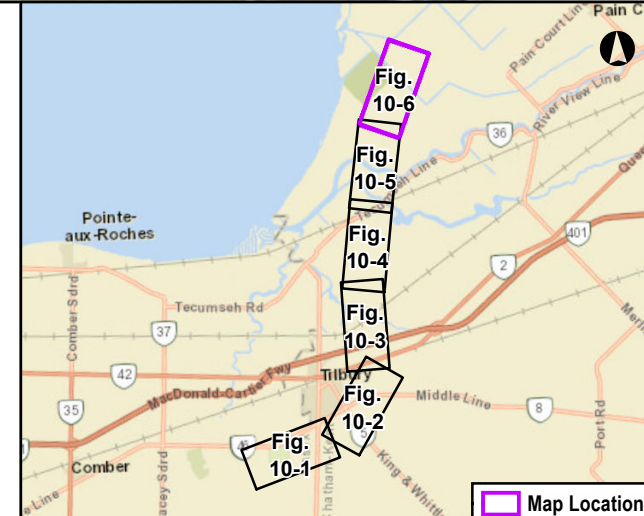
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Legend

- Photo Location and Direction
- Constructed Drain
- Watercourse
- Waterbody
- Provincially Significant Wetland
- Study Area
- Visually Confirmed Disturbance
- Stage 2 Archaeological Assessment Required
- Wet & Low-lying (No Assessment Required)



**Stage 1 Archaeological Assessment
Panhandle Loop and Leamington Interconnect
Panhandle Regional Expansion Project
Essex and Kent Counties, Ontario**

**Results of the Stage 1 Archaeological Assessment
Panhandle**

0 50 100 200 300 400 500 600
Meters

DATUM: NAD 1983 UTM Zone 17N

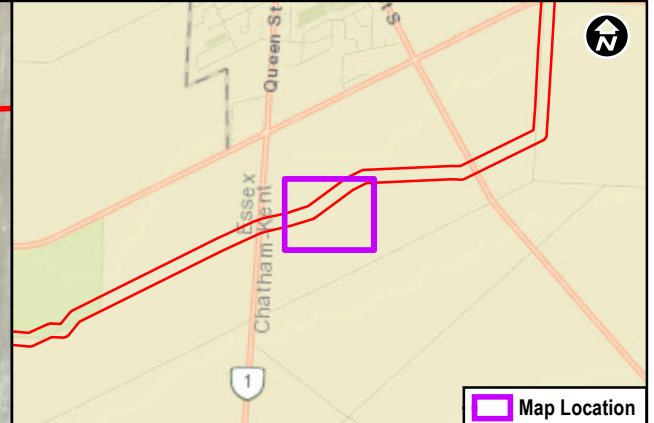
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P#:60665521	V#:	

AECOM

Figure 10-6

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Map location: \\na.aecom.com\BAMER\Katie\enr-CANON\GIS\Projects\60665521_Ebridge_Panhandle\Design\01_Report\AS\11\MO_06065521_Fig10-6_S1_Results_Pan.mxd Date saved: 4/26/2022 11:52:24 AM User Name: carla



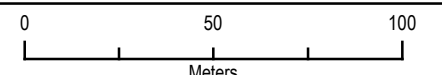
Map Location

Legend

- Study Area
- Malott Cemetery

Stage 1 Archaeological Assessment
 Panhandle Loop and Leamington Interconnect
 Panhandle Regional Expansion Project
 Essex and Kent Counties, Ontario

Limits of Malott Cemetery



Meters
 DATUM: NAD 1983 UTM Zone 17N

April 2022	1:2,000 *when printed 11"x17"	Source: MNR 2020 Image: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT
P#:60665521	V#:	

AECOM	Figure 11
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Appendices

Appendix A: Malott Cemetery Operator's mapping



Chatham-Kent Infrastructure & Engineering Services

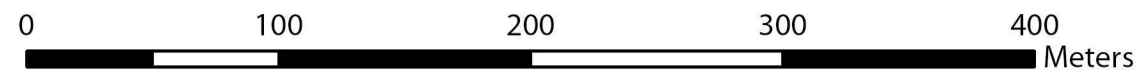
Area: CEM
Package: 6
Parcel #: 81530
Grade: B

Description: Cemetery- Malott Cemetery
Address: 3049 Gray Line, Tilbury East
Area: 0.82 acres



Legend

-  Parcel Fabric
-  Grass Cutting Parcel
-  Municipally Owned Parcel
-  Selected Parcel



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