



**Stage 1 Archaeological
Assessment: Highway 401
Planning Study from Cobourg to
Colborne, Ontario
GWP 4060-11-00**

Various Lots and Concessions, Geographic
Townships of Hamilton, Haldimand, and
Cramahe, now Township of
Alnwick/Haldimand and Town of Cobourg,
County of Northumberland, Ontario

February 20, 2019

Prepared for:

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ORIGINAL REPORT

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Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by the Ontario Ministry of Transportation (MTO) to complete a Stage 1 archaeological assessment for the Highway 401 Planning Study from Cobourg to Colborne, GWP 4060-11-00, located on various lots and concessions, Geographic Township of Haldimand, now Township of Alnwick/Haldimand, Townships of Hamilton and Cramahe, and Town of Cobourg, Northumberland County, Ontario.

The MTO has retained Stantec to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of structures, interchange modifications, future widening of the highway, and commuter parking lot expansions, from 2 km east of Nagle Road to 800 m east of Percy Street (approximately 18 km). The purpose of the study is to identify a Recommended Plan that addresses current and future transportation needs in the study area as part of the Ministry's ongoing review of safety and operational needs for the provincial highway network.

This study is a "Group B" project under the *Class Environmental Assessment (EA) for Provincial Transportation Facilities* (2000) and includes undertaking environmental and engineering field investigations and seeking input from stakeholders. This study will include reviewing existing conditions, developing and evaluating alternatives, identifying appropriate improvements, and developing environmental protection/mitigation measures. A Recommended Plan will be confirmed and designated (protected) at the completion of the study.

The background study indicated that the study area retained moderate to high potential for the recovery of pre-Contact, post-Contact, and Euro-Canadian archaeological resources due to proximity to water sources, quality of soils, and distance to historic roadways.

The property visit demonstrated that much of the study area beyond the existing Highway 401 retained archaeological potential as most of the study area is undeveloped wood lot, agricultural field, or scrubland. Areas identified as having no or low archaeological potential were limited to the footprints of existing roadways and buildings, existing poorly drained areas, and steep slopes. When the above listed criteria are applied to the study area, the potential for the recovery of pre-Contact, post-Contact, and Euro-Canadian archaeological resources is considered moderate to high.

The Stage 1 archaeological assessment, involving background research and a property inspection, resulted in the determination that the majority of the study area exhibits moderate to high potential for the identification and recovery of archaeological resources. As such, Stage 2 archaeological assessment is recommended for the study area.

The Stage 2 archaeological assessment will be completed during later study stages. Stage 2 archaeological assessment will include test pit survey at five metre intervals in areas not accessible for ploughing (i.e. woodlot, meadow), as outlined in Section 2.1.2 Standard 1f of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). The Stage 2 archaeological assessment will also include the systematic walking of open ploughed fields at five metre intervals as outlined in Section 2.1.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).



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Should any additional areas of disturbance or features indicating that archaeological potential has been removed, including permanently wet areas and steep slopes, not previously identified during the Stage 1 property inspection be encountered during the Stage 2 archaeological assessment, they will be documented as outlined in Section 2.1.8 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).

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 MTCS is asked to accept this report into the Ontario Public Register of Archaeological Reports.



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Project Personnel

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1.0 PROJECT CONTEXT

1.1 DEVELOPMENT CONTEXT

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The MTO has retained Stantec to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of structures, interchange modifications, future widening of the highway, and commuter parking lot expansions, from 2 km east of Nagle Road to 800 m east of Percy Street (approximately 18 km). The purpose of the study is to identify a Recommended Plan that addresses current and future transportation needs in the study area as part of the Ministry's ongoing review of safety and operational needs for the provincial highway network.

This study is a "Group B" project under the *Class Environmental Assessment (EA) for Provincial Transportation Facilities* (2000) and includes undertaking environmental and engineering field investigations and seeking input from stakeholders. This study will include reviewing existing conditions, developing and evaluating alternatives, identifying appropriate improvements, and developing environmental protection/mitigation measures. A Recommended Plan will be confirmed and designated (protected) at the completion of the study.

1.1.1 Objectives

The objectives of the Stage 1 assessment were to compile available information about the known and potential archaeological resources within the study area and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the provincial standards and guidelines set out in the Ministry of Tourism, Culture and Sport's (MTCS) 2011 *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011) the objectives of the Stage 1 Archaeological Overview/Background Study are as follows:

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

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

- A review of relevant archaeological, historic, and environmental literature pertaining to the study area;
- A review of the land use history, including pertinent historic maps;
- An examination of the Ontario Archaeological Sites Database (OASD) to determine the presence of known archaeological sites in and around the study area; and



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- A site visit to document existing ground conditions and confirm the presence or absence of features of archaeological potential.

Permission for Stantec staff to enter the property to conduct archaeological field work was provided by MTO. The site visit took place within the ROW for Highway 401 and was a visual inspection.

1.2 HISTORICAL CONTEXT

1.2.1 Post-Contact Indigenous Resources

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

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

The post-contact Aboriginal occupation of southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking communities by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17th century and beginning of the 18th century (Konrad 1981; Schmalz 1991). By 1690, Algonkian speakers from the north appear to have begun to repopulate Bruce County (Rogers 1978:761). This is the period in which the Mississaugas are known to have moved into southern Ontario and the lower Great Lakes watersheds (Konrad 1981). Members of the Three Fires Confederacy (Chippewa, Ottawa, and Potawatomi) were immigrating from Ohio and Michigan to southwestern Ontario in the late 1700s (Feest and Feest 1978:778-779).

By the turn of the 16th century, the region of the study area appears to have been abandoned of permanent settlement. It has long been the understanding of archaeologists that prior to the 16th century the north shore of Lake Ontario was occupied by Iroquoian-speaking populations (Birch and Williamson 2013; Birch 2015; Dermarker et al. 2016). Recently, the direct correlation in Ontario between archaeology and ethnicity, and especially regional identity, has been questioned (cf. Fox 2015:23; Gaudreau and Lesage 2016:9-12; Ramsden 2016:124). Recent considerations of Indigenous sources on cultural history has led to the understanding that prior to the 16th century the north shore of Lake Ontario was co-habited by more mobile Anishnaabeg populations (Kapyrka 2018) who have not been represented in previous analyses of the archaeological record and who most likely left a more ephemeral archaeological record than that of more densely populated agricultural settlements. The apparent void of permanent settlement along the north shore of Lake Ontario continued through the first half of the 17th century; however, this does not preclude the occupation of the region by mobile Anishnaabeg peoples.



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In 1649, the Seneca, with the Mohawk, led a campaign into the north shore of Lake Ontario and dispersed the Huron-Wendat, Tionontate (Petun) and Attiwandaron (Neutral) Nations and the Seneca established dominance over the region (Trigger 1978:354-356).

Early post-contact Aboriginal occupation is documented regionally by the 17th century Cayuga village of Ganaraske, along the Ganaraska River, located approximately 13 km to the west at Port Hope. From Ganaraske there was a portage route north that joined with the Trent River watershed. Approximately 25 km to the east, at Carrying Place, is a portage where watercraft were carried between the Bay of Quinte and Weller's Bay on Lake Ontario, over a small isthmus that joins current Prince Edward County to the larger mainland. Travel along the north shore of Lake Ontario and the connecting rivers occurred frequently.

By the 1680s, Anishnaabeg people had begun to re-enter the lower Great Lakes basin (Curve Lake First Nation n.d.; Konrad 1981; Rogers 1978). The Indigenous economy at the turn of the 18th century focused on fishing and the fur trade, supplemented by agriculture and hunting.

Europeans began exploring Ontario in the early 1600s. Shortly thereafter, numerous treaties and land purchases were negotiated and established between the Indigenous communities already residing on the land and the Crown in order to open the land for settlement for European immigrants.

Crawford's Purchases of 1784, 1787, and 1788 consists of three purchases between Captain Crawford and the Iroquois and Mississaugas. The first treaty, identified as "B" on Figure 2, was made between the Crown and the Iroquois. It included lands "reaching from Point Baudet on the north side of Lake St. Francis, up to the mouth of Gananoque River...includes the Counties of Leeds, Grenville, Dundas, Stormont, and Glengarry, Russell, Prescott, the eastern part of Carleton and the southern part of Lanark" (Morris 1943:16-17). The second treaty, identified as "B1", was made between the Crown and the Mississaugas. It included lands "from the mouth of the Gananoque River to the mouth of the Trent River...includes the southern portions of the Counties of Hastings, Lennox and Addington, and Frontenac" (Morris 1943:16-17). The 1787 treaty, sometimes known as the "Gunshot Treaty", was negotiated at Carrying Place. The third treaty, identified as "B2", was made between the Crown and the Mississaugas. It included lands "from the mouth of the Trent River to Toronto Purchase and back from Lake Ontario to Lake Simcoe and Rice Lake...included the County of Northumberland, excepting the northeast corner, Durham, the southern part of Ontario, and the east part of York" (Morris 1943:16-17).

The study area falls within the territory of the seven Anishnaabeg First Nations which are signatories to the Williams Treaties: the Mississaugas of Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation, Scugog Island First Nation, the Chippewas of Beausoleil First Nation, Georgina Island First Nation, and the Rama First Nation (Williams Treaties First Nations 2017). The Williams Treaty of October 31, 1923 between the Crown and the Chippewas in this area was part of "[t]hree separate and large parcels of land in southern and central Ontario...acquired by the Government of Canada in 1923" (Surtees 1986:1). This particular parcel includes:

parts of the Counties of Northumberland, Durham, Ontario and York...[c]ommencing at the point where the easterly limit of that portion of the lands said to have been ceded...[as part of Treaty Number 13] intersects the northerly shore of Lake Ontario; thence northerly along the said easterly and northerly limits of the confirmed tract to the Holland River; thence northerly along the Holland River and along the westerly shore of Lake Simcoe and Kempenfeldt Bay to the narrows between Lake Couchiching



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and Lake Simcoe; thence south easterly along the shores of Lake Simcoe to the Talbot River; thence easterly along the Talbot River to the boundary between the Counties of Victoria and Ontario; thence southerly along that boundary to the north west angle of the Township of Darlington; thence along the northern boundary of the Township of Darlington, Clarke, Hope and Hamilton to Rice Lake; thence along the southern shore of said Lake to River Trent, and along the River Trent to Bay of Quinte; thence westerly and southerly along the shore of the Bay of Quinte to the road leading to Carrying Place and Wellers Bay; then westerly along the northern shore of Lake Ontario to the place of beginning.

(Morris 1943:62)

1.2.2 Euro-Canadian Resources

1.2.2.1 Northumberland County

In 1791, the Provinces of Upper Canada and Lower Canada were created from the former Province of Quebec by an act of British Parliament. At this time, Colonel John Graves Simcoe was appointed as the Lieutenant Governor of Upper Canada and was tasked with governing the new province, directing its settlement and establishing a constitutional government modelled after that of Britain (Coyne 1895). In 1792, Simcoe divided Upper Canada into 19 counties consisting of previously-settled lands, new lands opened for settlement, and lands not yet acquired by Crown. These new counties stretched from Essex in the west to Glengarry in the east. By 1798, population levels in Upper Canada had increased to a point where it was desirable to create smaller administrative regions and thus, the counties of Northumberland and Durham were partitioned off of the Home District and joined as the Newcastle District (Armstrong 2004). In 1837 the northern part of Newcastle District was used to form the Colborne District (later Peterborough County)

In 1850, the Newcastle District was dissolved and the constituent counties joined as the United Counties of Northumberland and Durham (Armstrong 2004). This larger county was subsequently dissolved in 1974 when half of the original Durham County was merged with the former Ontario County to establish the Regional Municipality of Durham. The Township of Hamilton was retained by Northumberland County during this municipal re-alignment and is bounded on the north by Rice Lake; on the west by the Township of Hope (in the County of Durham, now Regional Municipality of Durham); on the south by Lake Ontario; and on the east by the Township of Haldimand.

Hamilton Township

The township was named after Henry Hamilton, who had been Lieutenant-Governor of Quebec from 1782 to 1785. Survey of the township began in 1791 by Augustus Jones, and was completed by William Hambly and a Mr. Root in 1796. The Township of Hamilton was first settled in 1789 by Elias Nicholson in the Town of Cobourg (Dodds & Bro. 1880:284). Shortly thereafter, the families of Asa Burnham, Elias Jones, Nathan Williams, David Lent, Jeremiah Lapp, Ruttan Buck, McCarty Hagerman, and other United Empire Loyalists, began to settle in the region. In 1810 the Township had a population of 560, and by 1850 the population had exceeded 2000 (Dodds & Bro. 1880:285).

Survey records obtained from the Ministry of Natural Resources (MNR) were examined for evidence of Aboriginal and early Euro-Canadian settlements (Jones 1792). The original survey map of Hamilton Township indicates no specific historical features within the study area. Lots 2, 8, 15, 25 and 31 of Concession 1 within the study area are indicated



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as clergy reserve lots (Jones 1792). When townships in Upper Canada (Ontario) were originally laid out the Crown and the Anglican clergy each received one-seventh of the lots to sell. Unlike Lower Canada (Quebec), where the set asides were typically found in large blocks, Lieutenant-Governor John Graves Simcoe directed that the Crown and clergy lots in Upper Canada be interspersed with other privately-owned lots (Wilson, 1969). However, in the early 1800s the continuing practice of free land grants depressed the sale prices of these lots and a program to lease the lands was established. Originally, leases were for 21 years, renewable every 7 years on new rates (Wilson, 1969). The clergy was a matter of much friction with other Protestant denominations, which also wished to benefit from these lots. By 1840 an act was passed such that one half of the revenues of clergy lot sales were distributed between the Church of England and the Church of Scotland and the remaining half was divided between the remaining denominations, including the Catholic church. Eventually the matter was resolved by secularizing the clergy lots in 1854 so that they reverted back to the Crown, from which they were subsequently distributed (Lee, 2004). Later additions to the map show that the lots associated with the study area, and much of the township, had been granted during the early part of the 19th century. Due to degradation of the map, many of the landowner names are illegible.

The map of Hamilton Township in the 1878 *Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont.* (Belden & Co. 1878) depicts a well-developed agricultural landscape with numerous farmsteads, homesteads, orchards, a local road and railway system, and a number of villages and hamlets, including Baltimore, Cold Springs, Harwood, Gore's Landing, Bewdley, and the City of Cobourg (Figure 3). Table 1 summarizes applicable land owner information from the 1878 map of Hamilton Township relevant to this report.

Table 1: Property Owners and Historical Features Depicted in the 1878 Historic Map of Hamilton Township

Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features	
1	1	Southern Portion	T. Gillisie	No structures depicted on lot	
		Central Portion	H. Sinclair	One structure depicted setback from Northumberland Heights Road	
		Northern Portion	W. McKague	One structure depicted along Northumberland Heights Road	
2		Southern Half	J.Z. Lapp	One structure depicted along Danforth Road	
		Northern Half	W. McKague	One structure depicted along removed road	
3		Southern Three-Quarters	D. Parker	One structure depicted along Danforth Road	
		Northern Quarter	W. McKague	One structure depicted setback from Payne Road	
4		Southern Three-Quarters	J. Jaynes	One structure depicted along Danforth Road	
		Northern Quarter	P. Pettegrew	One structure depicted along Payne Road	
5		Southern Quarter	E. Parker	No structure depicted on lot	
		Central Quarter	J. Wells	One structure depicted on Danforth Road	
		Northern Half	W. Blezard	One structure depicted on Payne Road	



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Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features
6		Southern Three-Quarters	E. Parker	One structure depicted along Danforth Road
		Northern Quarter	W. Blezard	One structure depicted along Van Luven Road
		Southeast Quarter	W. Blezard	No structure depicted on lot
		Southwest Quarter	A. Ash	One structure depicted along Danforth Road
		Northern Quarter	A. Bourn	One structure depicted along Van Luven Road

Haldimand Township

Historically, the Township of Haldimand was bounded on the north by the Township of Alnwick, on the west by the Township of Hamilton, on the south by Lake Ontario and on the east by the Township of Cramahe. Survey of the township began in 1791 by Augustus Jones, and later by Aaron Greeley in 1793 (Haldimand's History Committee 1997:16). Haldimand Township was named in honour of Sir Frederick Haldimand, a Swiss-born general of the British army who served as Governor-in-Chief of Canada between 1778 and 1786 (Haldimand's History Committee 1997:16). As early as 1804, the township was home to 356 Euro-Canadian settlers, and by 1830 the population had risen to 1,699 (Haldimand's History Committee 1997:17). The growth of Haldimand Township continued throughout the 19th century and by 1855 the population of the township exceeded 4,600 (Dodds & Bro. 1880:332).

The first settler in the town plot of Cobourg was Eliud Nicholson, who erected a cabin in 1798 near the intersection of King and Division Streets. He was followed by Elias Jones, who opened the first store and built the first grist mill in Cobourg. The village was originally known as Amherst, for Lord Amherst, a commander in the British army (Belden 1878). It was renamed Cobourg in April 1819 in reference to the marriage of Princess Charlotte Augusta, daughter of King George IV, to Prince Leopold of Saxe-Cobourg-Saafeld. By 1827 Cobourg had a population of 350, with about 40 houses, 2 inns, 4 stores, a grist mill and several distilleries. A harbor was constructed on the shoreline of Cobourg in 1832, under the Joint Stock Company. Following its construction, Cobourg harbour became a centre for the transportation of goods and people. On July 1, 1837, Cobourg was incorporated as a town (Cobourg History n.d.).

The Cobourg and Peterborough Railway was completed through the township in 1854. The railway followed the footprint of a plank road constructed by the Rice Lake Plank Road and Ferry Company in 1846. The company, faced with financial difficulties and the failure of a bridge across Rice Lake, ceased operations by 1861. The line passed through the hands of a few companies before being purchased by the Grand Trunk Railway in 1893, which closed the line in 1898 (Cooper n.d.).

Survey records obtained from the MNRF were examined for evidence of Aboriginal and early Euro-Canadian settlements (Jones 1792). The original survey map of Haldimand Township indicates no specific historical features within the study area. Lots 2, 8, 15, 25 and 31 of Concession 1 and Lots 27 and 33, Concession 2 within the study area are indicated as clergy reserve lots (Jones 1792). Later additions to the map show that the lots associated with the study area, and much of the township, had been granted during the early part of the 19th century. Due to degradation of the map, many of the landowner names are illegible.

The map of Haldimand Township in the 1878 *Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont.* (Belden & Co. 1878) depicts a well-developed agricultural landscape with numerous farmsteads,



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homesteads, orchards, a local road and railway system, and a number of villages and hamlets, including Colborne, Grafton, Vernonville, Eddystone, Centreton, Burnley, and Fenella (Figure 4). Table 2 summarizes applicable land owner information from the 1878 map of Haldimand Township relevant to this report.

Table 2: Property Owners and Historical Features Depicted in the 1878 Historic Map of Haldimand Township

Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features	
1	1	Whole	D. Campbell	One structure depicted along an unopened road allowance	
2		South Half	J. Dudley	One structure depicted along Dudley Road and one structure depicted along McGregor Road	
3		Northeast Quarter	Mrs. J. Ferril	One structure setback in middle of lot	
		Northwest Quarter	A. McGregor	One structure depicted along McGregor Road	
4		Southern Portion	D. Simmons	Two structures depicted along Dudley Road	
		Central Portion	C. McGregor	One structure depicted along McGregor Road	
		Central Portion	J. Dudley	No structures depicted on lot	
		Central Portion	A. Mate	One structure setback in middle of lot	
		Central Portion	C. McGregor	One structure depicted on McGregor Road	
		Northern Portion	J. Haig	No structures depicted on lot	
		South Half	D. Simmons	One structure depicted along Dudley Road	
5		North Half	A. Rutherford	One structure setback in middle of lot	
6		Southeast Quarter	Cowey	One structure depicted on removed road	
		Southwest Quarter	Cowey	One structure setback in middle of lot	
		North Half	W. Rutherford	One structure setback in middle of lot	
		South Half	S.A. Boyce	Three structures depicted along Dudley Road	
7		Central Quarter	H.R. Boyce	One structure depicted along Heron Road	
		North Quarter	S. Boyce	No structures depicted on lot	
		Southern Three-Quarters	W. Alger	Two structures depicted along Dudley Road	
8	1	North Quarter	J. Johnson	One structure depicted along Heron Road	
		Southeast Quarter	S.A. Boyce	Two Structures depicted along Dudley Road	
		Southwest Quarter	C. Acer	One structure depicted along Dudley Road	
		Central Portion	S.A. Boyce	No structures depicted on lot	
		Northeast Portion	J. Johnson	No structures depicted on lot	
		Northwest Quarter	E. Macklin	No structures depicted on lot	
9		South Half	Mrs. Dorr	Two structures depicted along Dudley Road	
		North Half	E. Macklin	One structure depicted along Rutherford Road	



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Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features
10	1	South Half	G. Palen	Two structures depicted on Vernonville Road
		North Half	N/A	One structure depicted on Vernonville Road
11		South Portion	E. Gardner	One structure depicted along Vernonville Road
		North Portion	P. Hinman	One structure depicted along Telephone Road
12		South Half	E. Gardner	One structure along an unopened road allowance
		North Half	P. Hinman	One structure depicted along Telephone Road
13		South Half	Mrs. Rogers	No structures depicted on lot
		North Half	T. Roberts	One structure depicted along an unopened road allowance
14		South Quarter	Mrs. Rogers	No structures depicted on lot
		Central Quarter	L.M. Eddy	One structure depicted along Shelter Valley Road
15		North Half	M. Taylor	Four structures depicted along Shelter Valley Road
		South Half	G. Greenwood	Three structures and a grist mill along Shelter Valley Road
16		North Half	W. Mellis	One structure along an unopened road allowance
17		Whole	A.A. Burnham	One structure depicted along Shelter Valley Road
		Whole	A.A. Burnham	No structures depicted on lot
18		South Half	Russell	One structure depicted along Shelter Valley Road
		Central Portion	R. Standly	No structures depicted on lot
19		North Portion	G. Craig	No structures depicted on lot
		Southeast Portion	Tobin	One structure depicted along Highway 2
		Southwest Portion	Church	One structure depicted along Highway 2
		Central Portion	R. Standly	Three structures depicted along Cherry Hill Road
		North Portion	G. Craig	Three structures depicted along Cherry Hill Road
20	1	South Portion	Dudley	Eight structures depicted along Highway 2
		Central Portion	Illegible	One structure depicted along Cherry Hill Road
		Central Portion	R. Standly	No structures depicted on lot
		North Quarter	D. Campbell	No structures depicted on lot
21		South Portion	J. Kewin	No structures depicted on property
		North Portion	A. Moore Estate	One structure depicted on Clithroe Road
		Southeast Portion	H. Trotter	One structure depicted along Highway 2
22		Southwest Portion	J. Hinman	One structure depicted along Highway 2



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Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features
	23	North Half	Standly	One structure depicted on Clithroe Road
		South Portion	Grafton	Grafton Village plot
		Central Portion	T. Binglow	One structure depicted along Ard Street
		Central Portion	R. Tate	No structures depicted on lot
		Central Portion	J. McMorris	No structures depicted on lot
		Central Portion	A. Matthews	No structures depicted on lot
		Central Portion	R. Tate	One structure along unopened road allowance
		North Portion	E. Rogers	No structures depicted on lot
24		South Half	R.Z. Rogers	One structure depicted along Brimley Road
25		North Half	E. Barnum	No structures depicted on lot
26	27	Whole	R.Z. Rogers	Two structures depicted along Brimley Road
27		South Half	E. Barnum	One structure and toll gate along Highway 2
28		North Half	J. Barnum	One structure depicted along Barnum House Road
29		Southeast Portion	J. Barnum	No structures depicted on lot
30	29	Southwest Portion	R. McCollough	One structure depicted along Highway 2
31		North Portion	C.H. Lapp	One structure depicted along Massey Road
32		South Portion	W. Lean	No structures depicted on lot
30		North Portion	Rogers	One structure depicted along Gully Road
31		Southeast Portion	Hind Sisters	One structure depicted along Gully Road
32		East Portion	E. Barnum	No structures depicted on lot
30	30	Northeast Portion	J.Z. Lapp	No structures depicted on lot
31		West Half	Hind Sisters	No structures depicted on lot
32		South Portion	C. Hare	One structure depicted along Highway 2
30	31	North Portion	D. Hare	One structure depicted along Finley Road
31		South Portion	J.R. Clark	One structure depicted along Highway 2
32		Central Portion	G. Hare	One structure along unopened road allowance
32	1	North Half	W. Spear	One structure depicted along Danforth Road
32		South Half	D.C. Mallory	One structure setback from Highway 2
32	2	North Half	W. Spear	One structure along and one setback from Danforth Road
31		South Portion	T. Haskin	One structure depicted along Danforth Road
32		Central Portion	N. Grosjean	No structures depicted on lot
32		North Portion	W.P. Haskin	No structures depicted on lot
31		South Portion	T. Haskin	No structures depicted on lot
32		Central Portion	N. Grosjean	No structures depicted on lot
32		North Portion	W.P. Haskin	No structures depicted on lot



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Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features
33		Southeast Portion	W. Spear	No structures depicted on lot
		Southwest Portion	Minto	No structures depicted on lot
		North Portion	D. Craig	Two structures setback in middle of lot
34		Southeast Portion	Minto	One structure depicted along Danforth Road
		Southwest Portion	M. McKaney	One structure depicted along Danforth Road
		Northeast Portion	N/A	One structure setback in middle of lot
35		Northwest Portion	R. Hewill	No structures depicted on lot
		Southeast Portion	P. McKaney	One structure depicted along Danforth Road
		Southwest Portion	J. Gillice	One structure depicted along Danforth Road
		Central Portion	T. John	One structure depicted along Northumberland Heights Road
		North Portion	N/A	Two structures depicted along Northumberland Heights Road

Cramahe Township

Named after Hector Theophilus de Cramahé, a Lieutenant-Governor of Quebec, the initial survey of the Township of Cramahe began in 1791 by Augustus Jones and was later finished by Aaron Greeley in 1795-1796 (Township of Cramahe 1988). Thomas Keeler, who was the land agent for the township, was the first settler in 1793. The village of Lakeport, which Keeler founded, was the first settlement in the township (Argyris 2000). In 1817, one of the earliest transportation routes through the township was completed; the Kingston Road connected York (now, Toronto) to Fort Frontenac (now, the City of Kingston).

The town plots for Colborne were surveyed by Aaron Greeley in the early 1800s and the town was founded by Joseph Keeler, the son of Thomas Keeler. Joseph Keeler was the first postmaster in Colborne. By the 1850s Colborne was a thriving village and had a population of approximately 1,100 people (Argyris 2000).

Survey records obtained from the MNRF were examined for evidence of Aboriginal and early Euro-Canadian settlements. An early survey map of Cramahe Township shows that the lots associated with the study area, and much of the township, had been granted to recipients during the early part of the 19th century. Lot 31, Concession 3 is listed as Clergy Reserve and Lot 34, Concession 3 is set aside for the Crown (Ridout 1811).

The map of Cramahe Township in the 1878 *Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont.* (Belden & Co. 1878) depicts a well-developed agricultural landscape with numerous farmsteads, homesteads, orchards, a local road and railway system, and a number of villages and hamlets, including Brighton, Castleton, Colborne, Dundonald, and Morganston (Figure 5). Table 3 summarizes applicable land owner information from the 1878 map of Cramahe Township relevant to this report.



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Table 3: Property Owners and Historical Features Depicted in the 1878 Historic Map of Cramahe Township

Lot	Concession	Portion	Owner/Resident	Euro-Canadian Features
29	3	Southeast Portion	C. McCracken	One structure depicted along Purdy Road
		Southwest Portion	S. McCracken	No structures depicted on the lot
		Northern Portion	Estate of J. Honey	No structures depicted on the lot
30		Southeast Quarter	S. McCracken	One structure depicted along Purdy Road
		Southwest Quarter	W. Thompson	One structure depicted along Purdy Road
		Northern Half	P. Barry	One structure depicted along an unopened road allowance
31		Whole	Thomas Greer	One structure depicted along Purdy Road and one structure setback in middle of lot
32		East Half	W. Conklin	One structure depicted along Purdy Road
		West Half	E.H. Purdy	One structure depicted along Purdy Road
33		South Half	Henry Alger	One structure depicted along Percy Street
		North Half	W. Alger	One structure depicted along Percy Street
34		South Half	Henry Alger	One structure depicted along Purdy Road
		North Half	W. Alger	One structure setback in middle of lot
35		South Half	S. Dudley	Two structures depicted along Purdy Road
		Central Quarter	W. Alger	No structures depicted on lot
		North Quarter	S. Boyce	One structure depicted along Telephone Road

Highway 401

Highway 401 is the primary transportation route connecting Windsor to the Ontario/Quebec border east of Cornwall. In the 1930s congestion along Highway 2, the precedent main road to Highway 401, became an issue. Highway 2 was a two-lane highway that passed through every town along the shore of Lake Ontario from Windsor to the Ontario/Quebec border. Planning for the new four-lane highway began prior to the Second World War but the first section was not completed until 1947. Construction priority was given to areas where congestion was a problem, with the entire length of the highway completed by 1968 (Bevers 2018).

1.3 ARCHAEOLOGICAL CONTEXT

1.3.1 The Natural Environment

The study area falls within the Iroquois Plain and South Slope physiographic regions. The physiographic regions are detailed below. The Iroquois Plain region is described as:

The lowland bordering Lake Ontario, when the last Glacier was receding but still occupied the St. Lawrence Valley, was inundated with a body of water known as Lake Iroquois which emptied



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eastward at Rome, New York State. Its old shorelines, including cliffs, bars, beaches, and boulder pavements are easily identifiable features.... The Iroquois plain extends around the western part of Lake Ontario, from the Niagara River to the Trent River..., its width varying from a few hundred meters to about eight miles.

(Chapman and Putnam 1984:190)

The South Slope region is described as:

...the southern slope of the Oak Ridges Moraine but it includes the strip south of the Peel plain. ...it rises 300 to 400 feet in an average width of 6 or 7 miles. Extending from the Niagara Escarpment to the Trent River it covers approximately 940 square miles. The central portion is drumlinized...The streams flow directly down the slope; being rapid they have cut sharp valleys in the till...Bare grey slopes, where soil is actively eroding are common in this area.

(Chapman and Putnam 1984:172-174)

The study area consists of a variety of soil series: Bondhead loam and sandy loam, Brighton sandy loam, Colborne sandy loam, Dundonald sandy loam, Granby sandy loam, Guerin loam, Lyons loam, Matson silt loam, Percy fine sandy loam, Pontypool sand, and Trent fine sandy loam (Hoffman and Acton 1974) (Table 4). These soil types display a variety of slope and drainage characteristics, with all but the Granby, Lyons and Trent soils being good to excellent for agricultural use (Table 4).

Table 4: Soils within Study Area

Soil Type	Topography	Slope	Drainage	Use
Bondhead	Rolling	Gentle slope	Well-drained	Excellent for agriculture and livestock; makes excellent building sites
Brighton	Gently undulating	Gentle to steep slopes	Good	Excellent for fruit and tobacco
Colborne	Gently undulating	Gentle to steep slopes	Well-drained	Good for agriculture
Dundonald	Gentle to moderately rolling	Gentle to steep slopes	Well-drained	Good for agriculture and pasture
Granby	Flat or depressed	Relatively flat	Poor	Too wet for agriculture, but used for livestock
Guerin	Gently undulating	Gentle slope	Imperfect	Good for agriculture and livestock
Lyons	Flat or depressed	Relatively flat	Poor	Generally too wet for regular cultivation
Matson	Gently rolling	Moderate slopes	Imperfect	Excellent for agriculture
Percy	Gently rolling	Gentle slopes	Good	Excellent for agriculture
Pontypool	Rough	Moderate to steep slopes	Rapid	Excellent for pasture and livestock
Trent	Gently undulating	Gentle slopes	Imperfect	Good for pasture



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Water sources are abundant within the study area and surrounding region. In addition to large primary water sources, such as Lake Ontario, there are numerous other primary and secondary sources of potable water. Shelter Valley Creek, Massey Creek, Brook Creek, and several unnamed streams cross the study area.

1.3.2 Pre-Contact Aboriginal Resources

It has been demonstrated that Indigenous people began occupying southern Ontario as the Laurentide glacier receded, as early as 9000 B.C. (Ferris 2013:13). Much of what is understood about the lifeways of these Indigenous peoples is derived from archaeological evidence and ethnographic analogy. In Ontario, Indigenous culture prior to the period of contact with European peoples has been distinguished into cultural periods based on observed changes in material culture. These cultural periods are largely based on observed changes in formal lithic tools, and separated into the Early Paleo-Indian, Late Paleo-Indian, Early Archaic, Middle Archaic and Late Archaic periods. Following the advent of ceramic technology in the Indigenous archaeological record, cultural periods are separated into the Early Woodland, Middle Woodland, and Late Woodland periods, based primarily on observed changes in formal ceramic decoration. It should be noted that these cultural periods do not necessarily represent specific cultural identities but are a useful tool for understanding changes in Indigenous culture through time. The current understanding of Indigenous archaeological culture is summarized in Table 5 below (Ellis and Ferris 1990).

The following summary of the prehistoric occupation of Southern Ontario is based on syntheses in Archaeologix (2008), Damjkar (1990), Ellis and Ferris (1990), Jacques Whitford (2008), Ramsden (1989) and Sutton (1990).

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

Table 5: Generalized Pre-Contact Cultural Chronology for Southern Ontario

Cultural Period	Characteristics	Time Period	Comments
Early Paleo-Indian	Fluted Projectiles	9000 - 8400 B.C.	spruce parkland / caribou hunters
Late Paleo-Indian	Hi-Lo Projectiles	8400 - 8000 B.C.	smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000 - 6000 B.C.	slow population growth
Middle Archaic	Brewerton-like points	6000 - 2500 B.C.	environment similar to present
Late Archaic	Lamoka (narrow points)	2500 - 1800 B.C.	increasing site size
	Broad Points	1800 - 1500 B.C.	large chipped lithic tools
	Small Points	1500 - 1100 B.C.	introduction of bow hunting
Terminal Archaic	Hind Points	1100 - 950 B.C.	emergence of true cemeteries
Early Woodland	Meadowood Points	950 - 400 B.C.	introduction of pottery
Middle Woodland	Dentate / Pseudo-Scallop Pottery	400 B.C. - A.D. 550	increased sedentism
	Princess Point	A.D. 550 - 900	introduction of corn



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Cultural Period	Characteristics	Time Period	Comments
Late Woodland	Early Ontario Iroquoian Pottery	A.D. 900 - 1300	emergence of agricultural villages
	Middle Ontario Iroquoian Pottery	A.D. 1300 - 1400	long longhouses (100 m +)
	Late Ontario Iroquoian Pottery	A.D. 1400 - 1650	tribal warfare and displacement

By approximately 8000 B.C., evidence exists and becomes more common for the production of groundstone tools such as axes, chisels, and adzes. These tools themselves are believed to be indicative specifically of woodworking. This evidence can be extended to indicate an increase in craft production and arguably craft specialization. This latter statement is also supported by evidence, dating to approximately 7000 B.C. of ornately carved stone objects which would be laborious to produce and have explicit aesthetic qualities (Ellis 2013:41). This is indirectly indicative of changes in social organization which permitted individuals to devote time and effort to craft specialization. Since 8000 B.C., the Great Lakes basin experienced a low-water phase, with shorelines significantly below modern lake levels (Stewart 2013: Figure 1.1.C). It is presumed that the majority of human settlements would have been focused along these former shorelines. At approximately 6500 B.C., the climate had warmed considerably since the recession of the glaciers and the environment had grown more similar to the present day. Evidence exists at this time for an increase in population and the contraction of group territories. By approximately 4500 B.C., evidence exists from southern Ontario for the utilization of native copper (naturally occurring pure copper metal) (Ellis 2013:42). The known origin of this material along the north shore of Lake Superior indicates the existence of extensive exchange networks across the Great Lakes basin.

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

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



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By approximately A.D. 550, evidence emerges for the introduction of maize into southern Ontario. This crop would have initially only supplemented Indigenous peoples' diet and economy (Birch and Williamson 2013:13-14). Maize-based agriculture gradually became more important to societies and by approximately A.D. 900 permanent communities emerge which are primarily focused on agriculture and the storage of crops, with satellite locations oriented toward the procurement of other resources such as hunting, fishing and foraging. This period, known as the Late Woodland in southern Ontario, is associated with societies referred to as the Ontario Iroquois Tradition and is often divided into three temporal components; Early, Middle and Late Iroquoian. Early Iroquoian peoples continued to practice similar subsistence and settlement patterns as the Middle Woodland. Villages tended to be small, with small longhouse dwellings that housed either nuclear or, with increasingly, extended families. Smaller camps and hamlets associated with villages served as temporary bases from which wild plant and game resources were acquired. Horticulture appears to have been for the most part a supplement to wild foods, rather than a staple.

The Middle Iroquoian period marks the point at which a fully developed horticultural system emerged, and at which point cultivars became the staple food source. By approximately A.D. 1250, evidence exists for the common cultivation of historic Indigenous cultigens, including maize, beans, squash, sunflower, and tobacco. In this period villages become much larger than in the Early Iroquoian period, and longhouses also become much larger, housing multiple, though related, nuclear families. Food production through horticulture resulted in the abandonment of seasonal mobility that had characterized aboriginal life for millennia. Hunting, fishing, and gathering of wild food activities continued to occur at satellite camps. However, for the most part, most Iroquoian people inhabited large, sometimes fortified villages throughout southern Ontario.

During the Late Iroquoian period longhouses became smaller again, although villages became even larger. A number of Huron village sites have been discovered in the region that contain material culture associated with both Huron and St. Lawrence Iroquoians, suggesting that St. Lawrence Iroquoians who had abandoned their home territory along the north shore of the St. Lawrence River and found refuge in the Trent Valley and Kawartha Lakes area. The villages were abandoned in the 16th century and the region was used as a buffer between the Huron and the Six Nations Iroquois.

The Late Iroquoian period in the Trent River system and along the north shore of Lake Ontario is marked by the emergence of the Huron Iroquoian people, one of several discrete groups that emerge out of the Middle Iroquoian period. Huron settlements include large villages of several longhouses and camps for specialized extractive activities such as hunting and fishing. During the Late Iroquoian period Huron settlements along the north shore of Lake Ontario begin to move through the Trent Valley system and eventually coalesce with other Huron people into what is now Simcoe County and the area traditionally identified as "Huronia". However, both Huron-Wendat and Anishnaabeg traditional history indicate that the Huron-Wendat and Anishnaabeg cohabited the region (Kapyrka 2018).

1.3.3 Previously Identified Archaeological Sites and Surveys

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



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southern Ontario, each basic unit measures approximately 13.5 kilometres east-west by 18.5 kilometres north-south. In northern Ontario, adjacent to Hudson Bay, each basic unit measures approximately 10.2 kilometres east-west by 18.5 kilometres north-south. Basic units are designated by lower case letters. Individual sites are assigned a unique, sequential number as they are registered. These sequential numbers are issued by the MTCS who maintain the *Ontario Archaeological Sites Database*. The study area is located within Borden blocks BaGl, and BaGm.

Information concerning specific site locations is protected by provincial policy and is not fully subject to the *Freedom of Information and Protection of Privacy Act* (Government of Ontario 1990b). 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 MTCS will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

An examination of the *Ontario Archaeological Sites Database* (OASD) has shown that two archaeological sites have been registered within a 1 km radius of the study area as detailed in Table 6 (Government of Ontario 2018a). The Barnum Mill and Distillery site (AIGm-8) was documented in 1982 and dates between 1808 and 1843 (Government of Ontario 2018a). The Grafton site (BaGm-9) was discovered during a Stage 2 archaeological assessment in 1995 and has been identified as an Early Iroquoian ("Pickering") hamlet based on the ceramics recovered (Government of Ontario 2018a). According to the OASD the site retains cultural heritage value or interest.

Table 6: Registered Sites within One Kilometre of Study Area

Borden Number	Site Name	Cultural Affiliation	Site Type
AIGm-8	Barnum Mill and Distillery	Euro-Canadian	Distillery, Mill
BaGm-9	Grafton	Late Woodland	Hamlet

One archaeological assessment has taken place within 50 metres of the study area. Stantec (2018) conducted a Stage 1 assessment for the proposed Nagle Road interchange. The assessment noted that much of the study area retained potential for the recovery of archaeological resources and was recommended for further work.

1.4 EXISTING CONDITIONS

The Highway 401 Planning Study is approximately 18 kilometres long from 2 km east of Nagle Road in Cobourg to Percy Street in Colborne. The study area consists of the existing Highway 401 ROW and scrubland, woodlot, and agricultural field adjacent to the Highway 401 ROW.



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2.0 FIELD METHODS

The Stage 1 archaeological assessment compiled information concerning known and/or potential archaeological and heritage resources within the study area. A property inspection was conducted on July 10, 2018 under PIF P415-0161-2018 issued to Patrick Hoskins, MA, by the MTCS. The property inspection involved spot checks of the study area to identify the presence or absence of features of archaeological potential, in accordance with Section 1.2 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). The property inspection was conducted from publicly accessible roadways, including Highway 401 and Nagle Road. Individual properties off of the public roads were not visited. During the property inspection, the weather was sunny and warm, and visibility of land features was excellent. Field, lighting, and weather conditions were not detrimental to the identification of features of archaeological potential.

The study area is approximately 18 kilometres long, extending from 2 kilometres east of Nagle Road in Cobourg to just west of Percy Street in Colborne and includes the Highway 401 ROW and a 50 metre buffer from the ROW.

The photography from the property inspection (see Section 7.1) confirms that the requirements for a Stage 1 property inspection were met, as per Section 1.2 and Section 7.7.2 Standard 1 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).

The study area comprises the existing Highway 401 and several roads that cross or run parallel to the highway. The area parallel to the highway consists primarily of scrubland, meadow, and wood lot, with more agricultural fields present closer to the towns of Cobourg and Colborne. Additional areas of disturbance due to buildings and parking lots are found at the various interchanges along Highway 401. The topography of the study area is generally flat or rolling along the length of the study area. Areas of slope are primarily a result of highway construction where the slope was built upwards. Two of the sloped areas (shown on Figure 6-4) are a result of natural valleys.

The property inspection demonstrated that much of the study area retains archaeological potential. The property inspection was concerned with confirming areas of low or no archaeological potential identified on mapping (i.e. roadways, steep slopes, water bodies, etc.) (Photos 1 to 31 and Figure 6).



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3.0 ANALYSIS AND CONCLUSIONS

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Stantec applied archaeological potential criteria commonly used by the Ontario MTCS (MTCS 2011) to determine areas of archaeological potential within the region under study. These variables include proximity to previously identified archaeological sites, distance to various types of water sources, soil texture and drainage, glacial geomorphology, elevated topography and the general topographic variability of the area.

Distance to modern or ancient water sources is generally accepted as the most important determinant of past human settlement patterns and, considered alone, may result in a determination of archaeological potential. However, any combination of two or more other criteria, such as well-drained soils or topographic variability, may also indicate archaeological potential. Finally, extensive land disturbance can eradicate archaeological potential (Wilson and Horne 1995).

Distance to water is an essential factor in archaeological potential modeling. When evaluating distance to water it is important to distinguish between water and shoreline, as well as natural and artificial water sources, as these features affect site locations and types to varying degrees. The MTCS (MTCS 2011) categorizes water sources in the following manner:

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

There are several named and unnamed watercourses that cross Highway 401 and would have provided access to potable water along the length of the study area. Lake Ontario is located approximately four kilometres to the south.

Soil texture can be an important determinant of past settlement, usually in combination with other factors such as topography. Several different types of soils are present in the study area. Of the 11 soils identified, six either have good drainage or are well-drained and the remaining five have imperfect or poor drainage. Only three of the soils (Granby, Lyons, and Trent) were unsuitable for agricultural purposes.

For Euro-Canadian sites, archaeological potential can be extended to areas of early Euro-Canadian settlement, including places of military or pioneer settlements; early transportation routes; properties listed on the municipal register or designated under the *Ontario Heritage Act* (Government of Ontario 1990b); and properties that local histories or informants have identified with possible historical events, activities or occupations. The project area has been part of actively cultivated agricultural fields for over 100 years with the exception of the construction of Highway 401.

The property visit demonstrated that much of the study area, approximately 77%, beyond the existing Highway 401 ROW retained archaeological potential as most of the study area consisted of undeveloped wood lot, agricultural



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field, or scrubland. Areas identified as having no or low archaeological potential were limited to the footprints of existing roadways and buildings (21%), existing low and permanently wet areas (0.5%), and steep slopes (0.7%). When the above listed criteria are applied to the study area, the potential for the recovery of pre-Contact, post-Contact, and Euro-Canadian archaeological resources is considered moderate to high.

When the above listed criteria are applied to the project area, the archaeological potential for pre- and post-contact Aboriginal and historic Euro-Canadian sites is deemed to be moderate to high.



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4.0 RECOMMENDATIONS

The Stage 1 archaeological assessment, involving background research and a property inspection, resulted in the determination that the majority of the study area exhibits moderate to high potential for the identification and recovery of archaeological resources. As such, Stage 2 archaeological assessment will be required for the study area (Figure 6).

The Stage 2 archaeological assessment will be completed during later study stages. The Stage 2 archaeological assessment will include test pit survey at five metre intervals in areas not accessible for ploughing (i.e. woodlot, meadow), as outlined in Section 2.1.2 Standard 1f of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). The MTCS standards require that each test pit be approximately 30 centimeters in diameter, excavated to at least five centimeters into subsoil, and have all soil screened through six millimetre hardware cloth to facilitate the recovery of any cultural material that may be present. Prior to backfilling, each test pit will be examined for stratigraphy, cultural features, or evidence of fill. Approximately 343 hectares (73%) of the study area is recommended for test pit survey.

The Stage 2 archaeological assessment will also include the systematic walking of open ploughed fields at five metre intervals as outlined in Section 2.1.1 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011). The MTCS standards further require that all agricultural land, both active and inactive, be recently ploughed and sufficiently weathered to improve the visibility of archaeological resources. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing, and must be able to ensure at least 80% ground surface visibility. Approximately 23 hectares (8%) of the study area is recommended for pedestrian survey.

Should any additional areas of disturbance or features indicating that archaeological potential have been removed, including permanently wet areas and steep slopes, not previously identified during the Stage 1 property inspection be encountered during the Stage 2 archaeological assessment, they will be documented as outlined in Section 2.1.8 of the *Standards and Guidelines for Consultant Archaeologists* (MTCS 2011).

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 MTCS is asked to accept this report into the Ontario Public Register of Archaeological Reports.



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5.0 ADVICE ON COMPLIANCE WITH LEGISLATION

This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, 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 Archaeological Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act* (Government of Ontario 1990a).

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

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



**Stage 1 Archaeological Assessment:
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Advice on Compliance with Legislation
February 20, 2019

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**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Bibliography and Sources
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**Stage 1 Archaeological Assessment:
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7.0 IMAGES

7.1 PHOTOS

Photo 1: View of scrubland and wood lot north of Highway 401 ROW, facing east



**Stage 1 Archaeological Assessment:
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Images
February 20, 2019

Photo 2: View of meadow, facing south



Photo 3: View of wood lot and disturbed ROW, facing west



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images
February 20, 2019

Photo 4: View of scrubland, facing southeast



Photo 5: View of meadow, facing south



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images
February 20, 2019

Photo 6: View of wood lot, facing south



Photo 7: View of woodlot, facing east



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images

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Photo 8: View of scrubland and agricultural field, facing north



Photo 9: View of scrubland, facing southwest



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images

February 20, 2019

Photo 10: View of scrubland and agricultural field, facing north



Photo 11: View of meadow and agricultural field, facing northwest



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images
February 20, 2019

Photo 12: View of meadow and agricultural field, facing south



Photo 13: View of meadow and woodlot, facing northeast



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images

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Photo 14: View of agricultural field, facing north



Photo 15: View of pasture, facing south



**Stage 1 Archaeological Assessment:
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Images
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Photo 16: View of pasture/meadow, facing southwest



Photo 17: View of fallow agricultural field and woodlot, facing north



**Stage 1 Archaeological Assessment:
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Images
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Photo 18: View of pasture/meadow, facing southeast



Photo 19: View of low and permanently wet area, area of low archaeological potential, facing north



**Stage 1 Archaeological Assessment:
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Images

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Photo 20: View of agricultural field, facing south



Photo 21: View of scrubland, facing north



**Stage 1 Archaeological Assessment:
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Images

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Photo 22: View of pasture and commercial buildings, facing southwest



Photo 23: View of pasture and commercial buildings (area of low archaeological potential), facing southeast



**Stage 1 Archaeological Assessment:
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Images

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Photo 24: View of scrubland and commercial buildings (area of low archaeological potential), facing south



Photo 25: View of steep slope up from ROW, area of low archaeological potential, facing west



**Stage 1 Archaeological Assessment:
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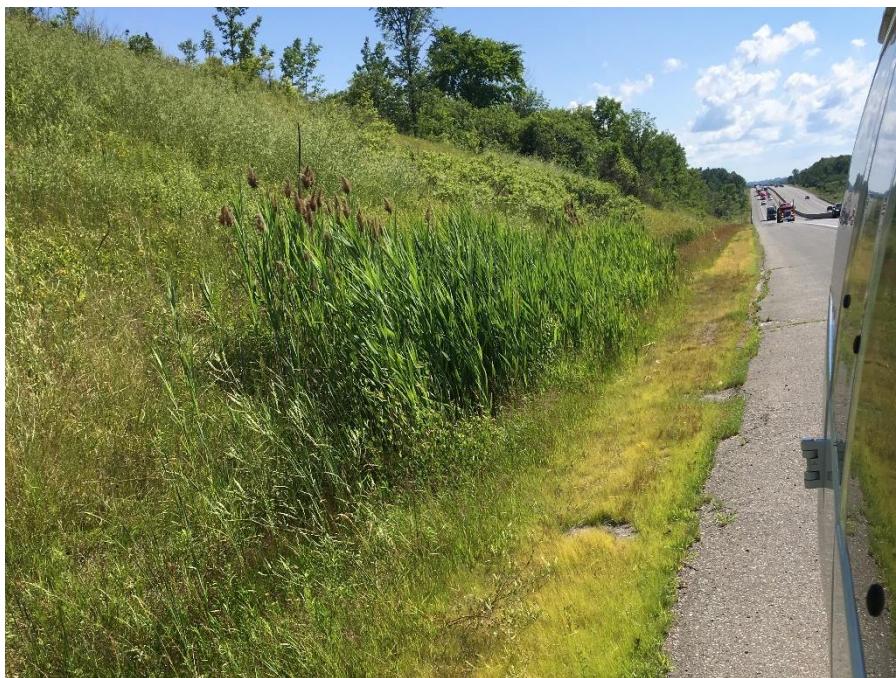
Images

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Photo 26: View of steep slope up from ROW, area of low archaeological potential, facing northwest



Photo 27: View of steep slope up from ROW, area of low archaeological potential, facing east



**Stage 1 Archaeological Assessment:
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Images

February 20, 2019

Photo 28: View of steep slope down from ROW, area of low archaeological potential, facing north



Photo 29: View of steep slope down from ROW, area of low archaeological potential, facing south



**Stage 1 Archaeological Assessment:
Highway 401 Planning Study from Cobourg to Colborne, Ontario GWP 4060-11-00**

Images

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Photo 30: View of permanently low and wet area, area of low archaeological potential, facing east



Photo 31: View of permanently low and wet area, area of low archaeological potential, facing south



**Stage 1 Archaeological Assessment:
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Maps
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8.0 MAPS

All maps will follow on succeeding pages.



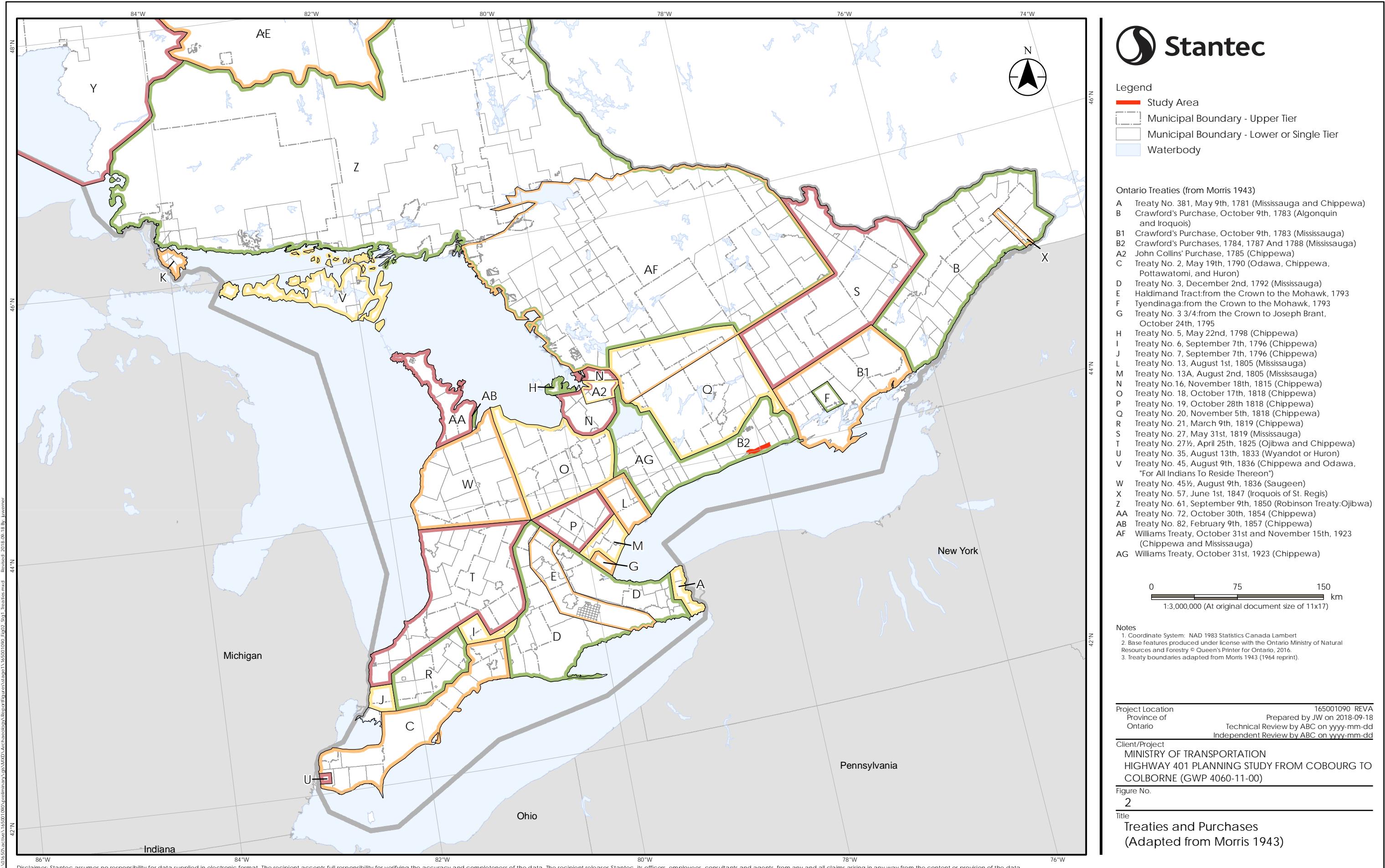
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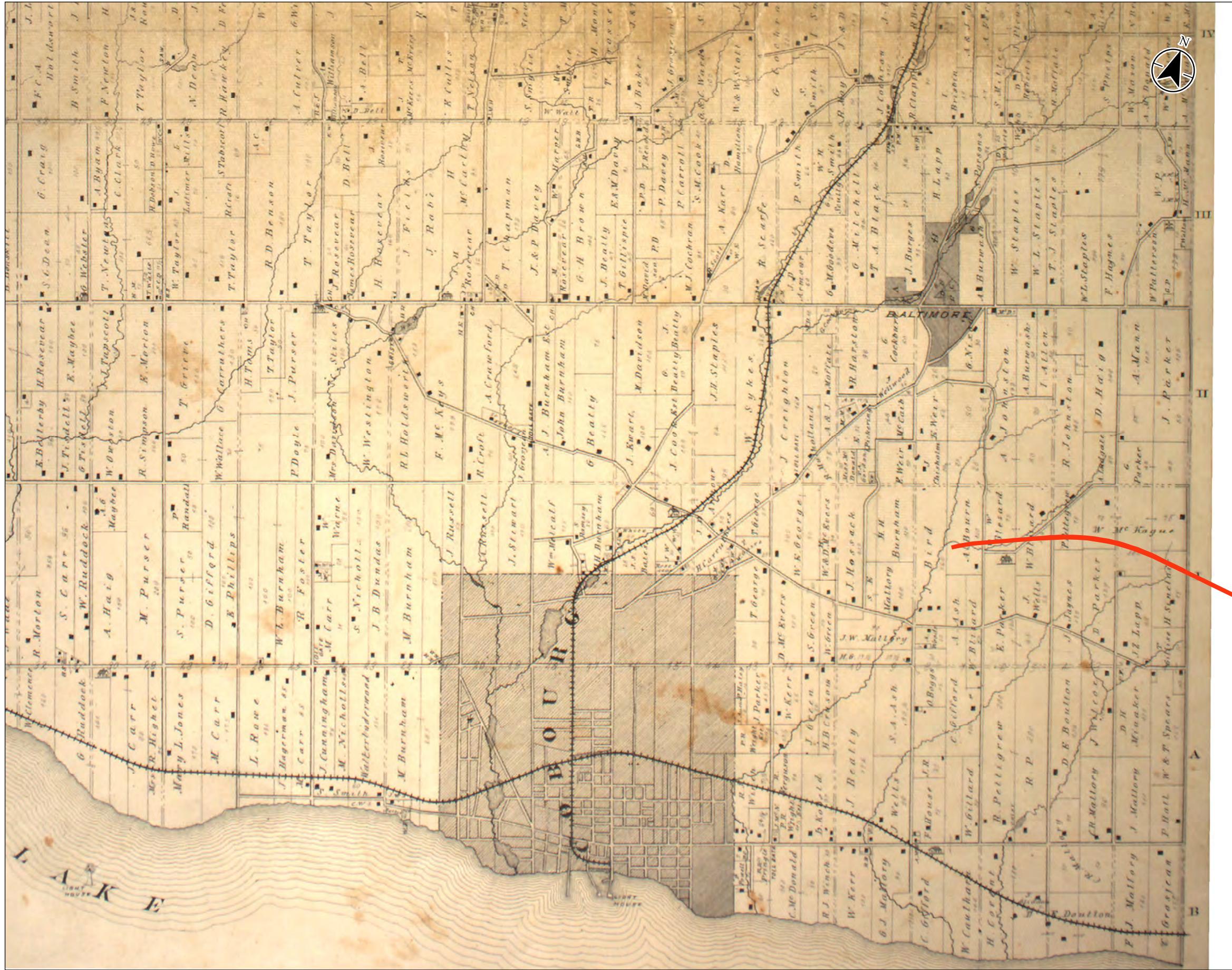
Maps

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Legend
Study Area (Approximate)

Notes

1. Historical image not to scale
2. Reference: Belden & Co. 1878. Illustrated Historical Atlas of the Counties of Northumberland and Durham, Ont. Toronto: H. Belden & Co.



Project Location
County of
Northumberland

Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOROUGH TO
COLBORNE (GWP 4060-11-00)

Figure No.
3
Title
Portion of the 1878 Map of Hamilton
Township



Legend

Study Area (Approximate)

Notes

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Figure No.
4

Title
Portion of the 1878 Map of Haldimand
Township



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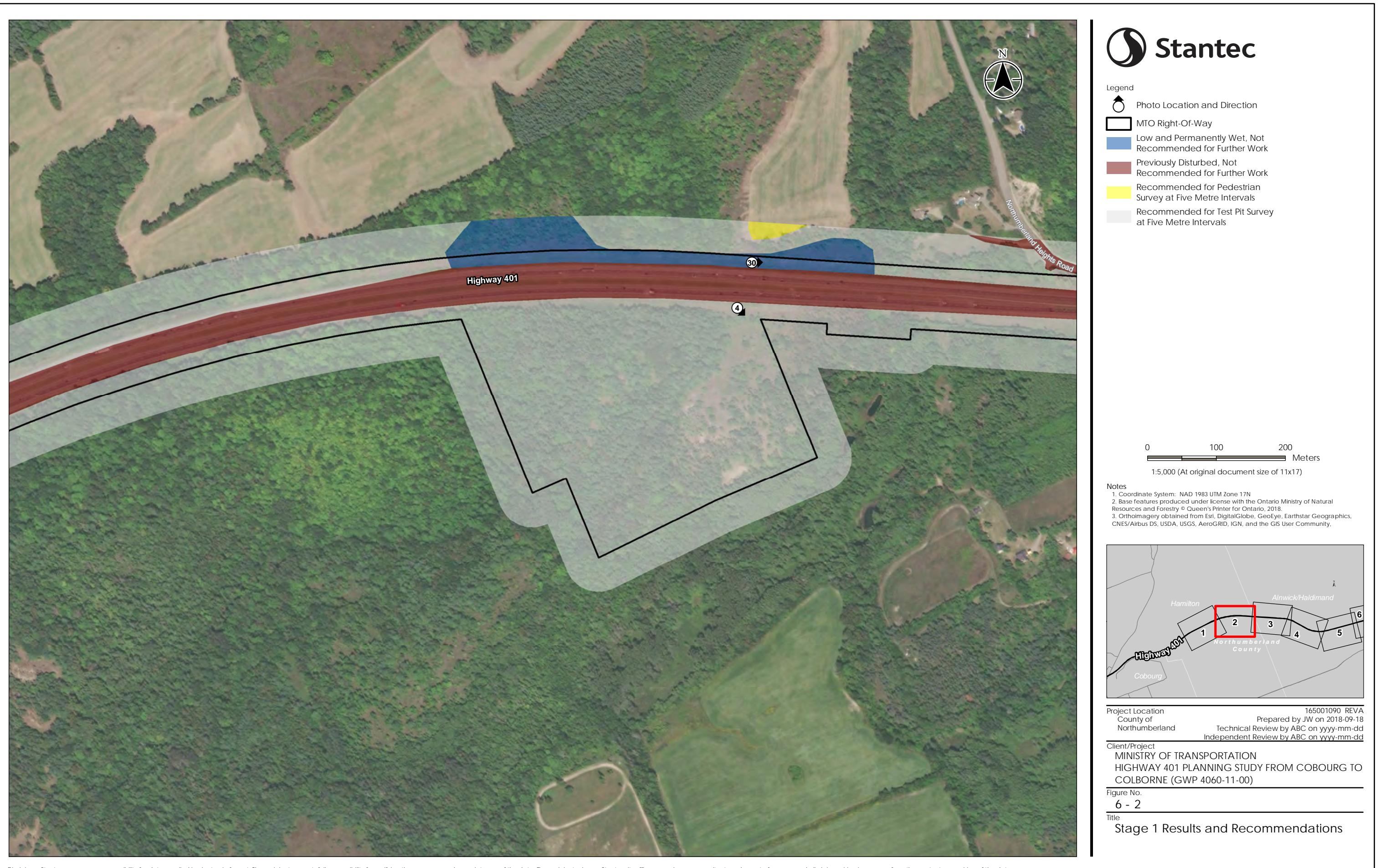


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Figure No.
 5
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 Portion of the 1878 Map of Cramhae Township







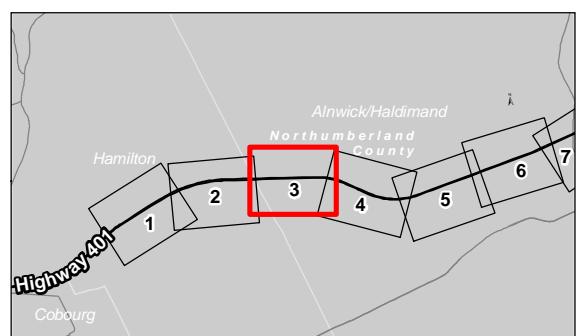
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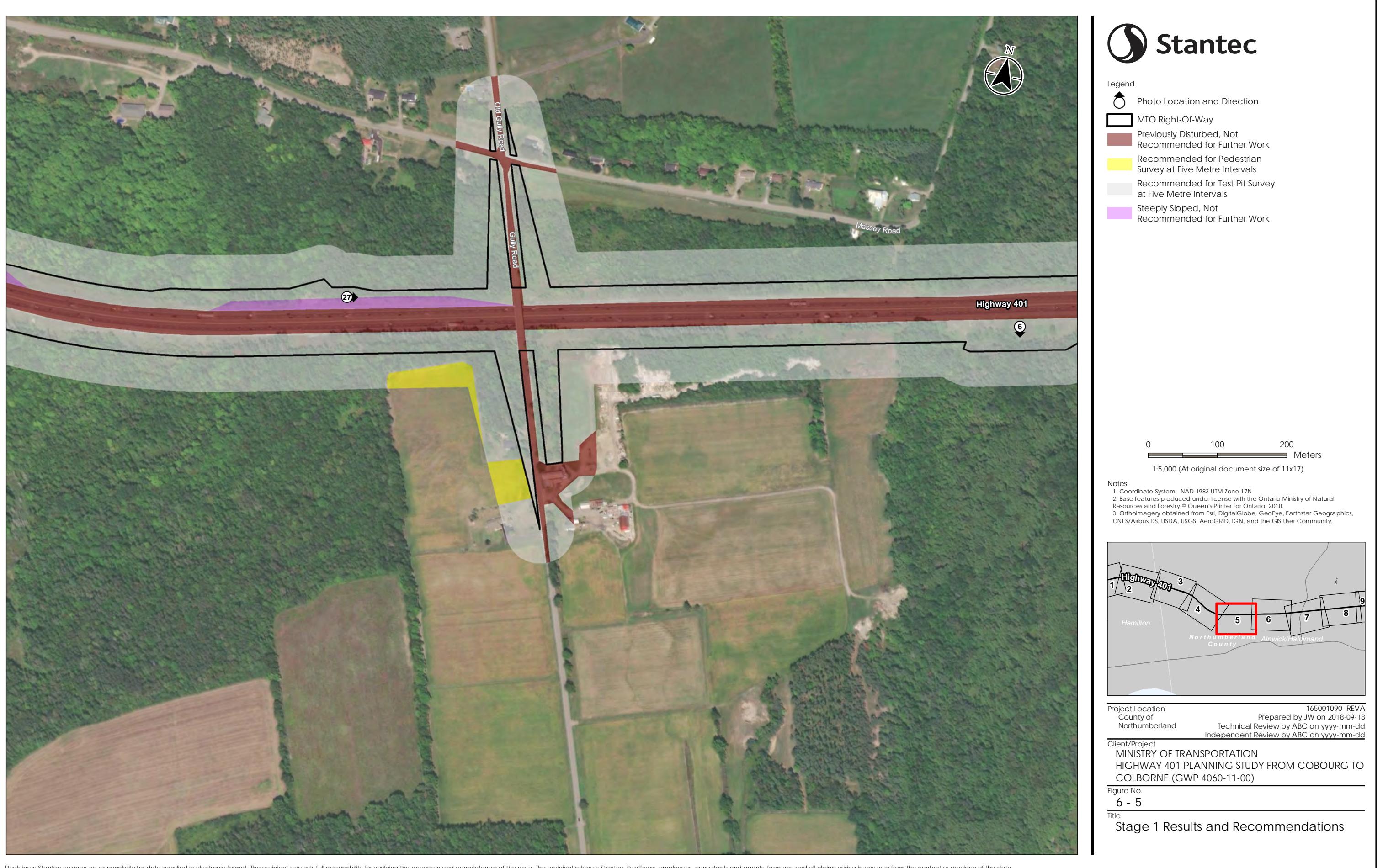
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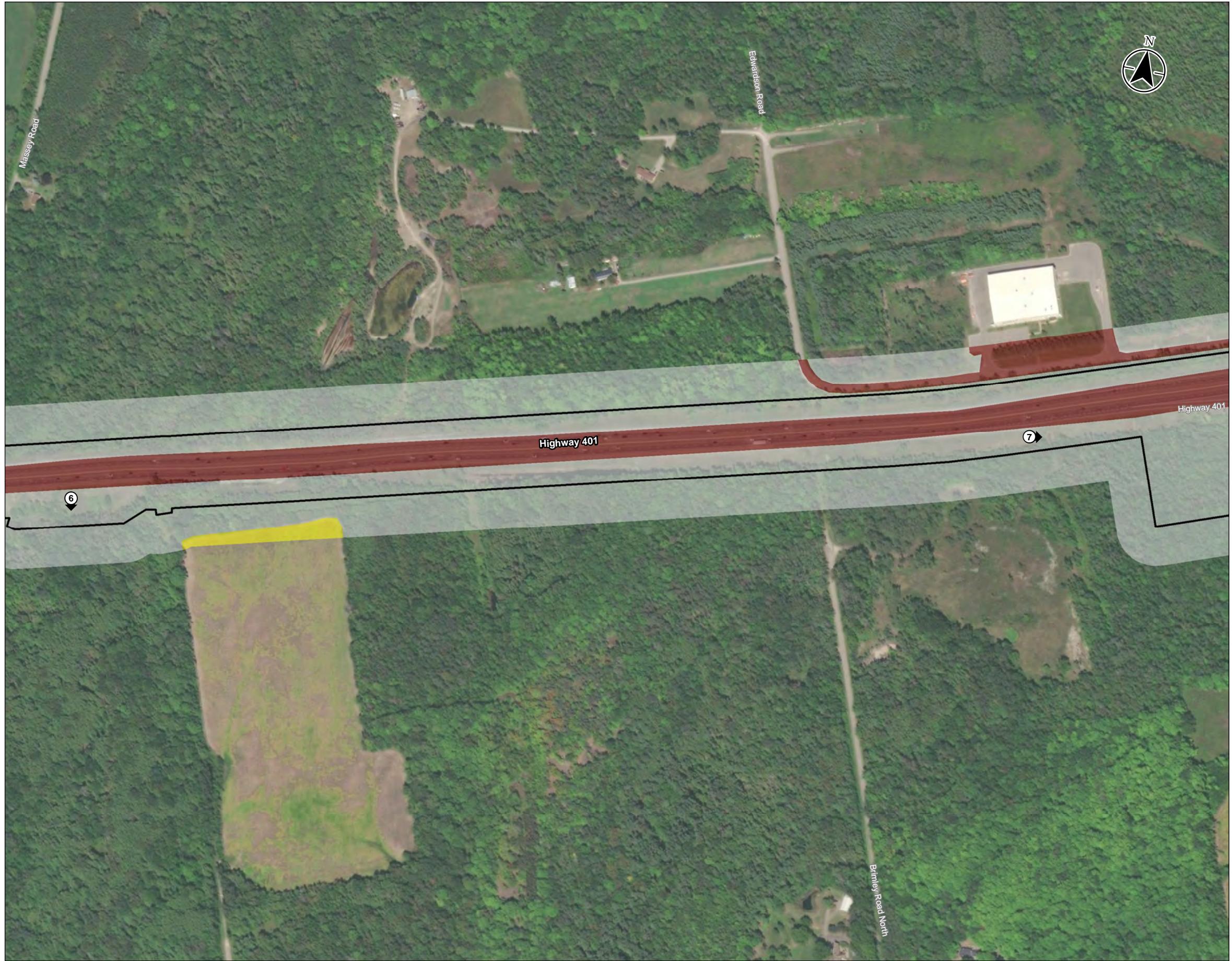
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Figure No.
6 - 3

Title
Stage 1 Results and Recommendations







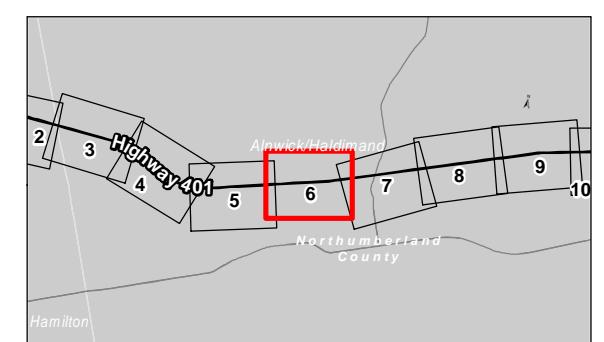
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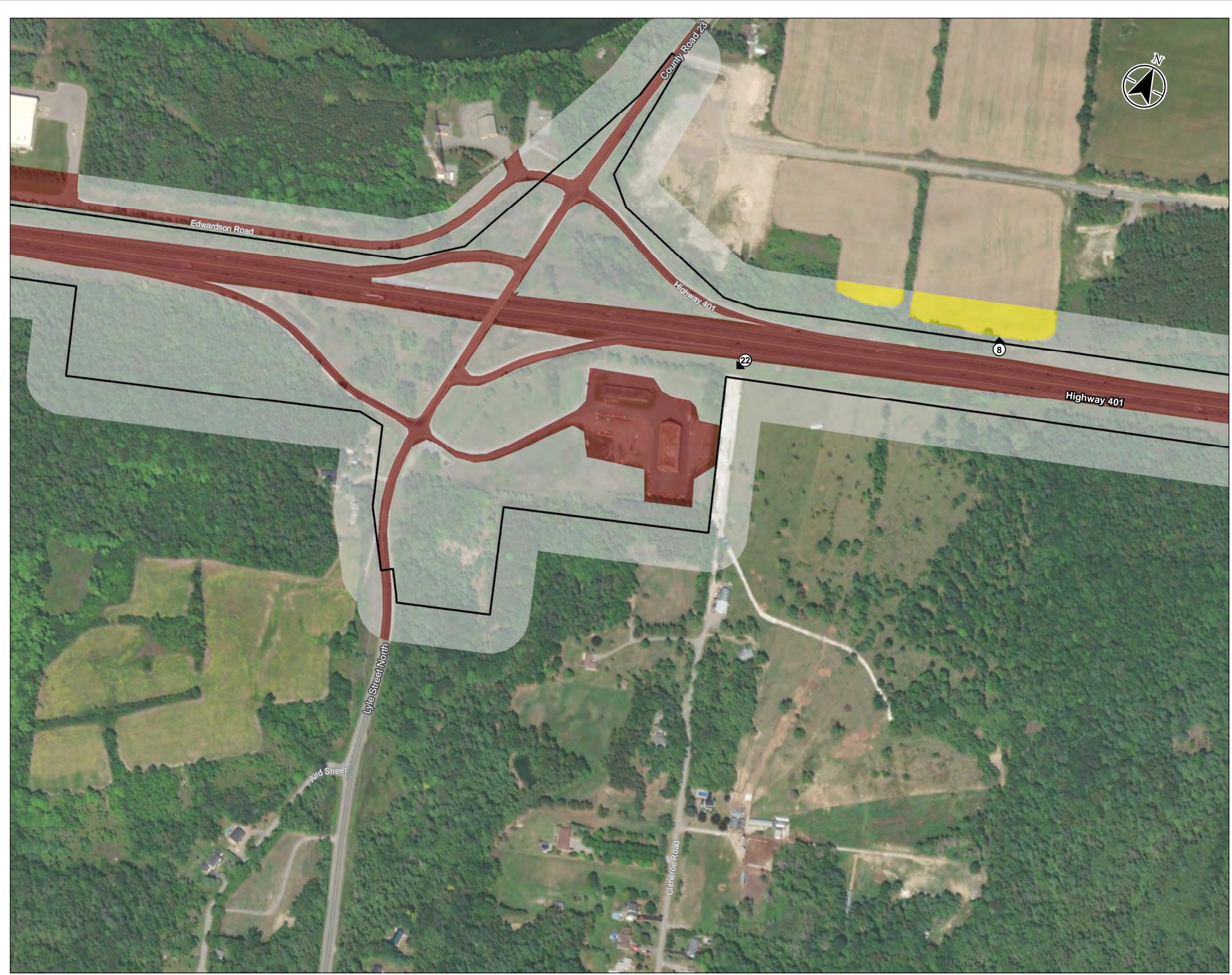


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Figure No.
6 - 6

Title
Stage 1 Results and Recommendations



Legend

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HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
6 - 7

Title
Stage 1 Results and Recommendations



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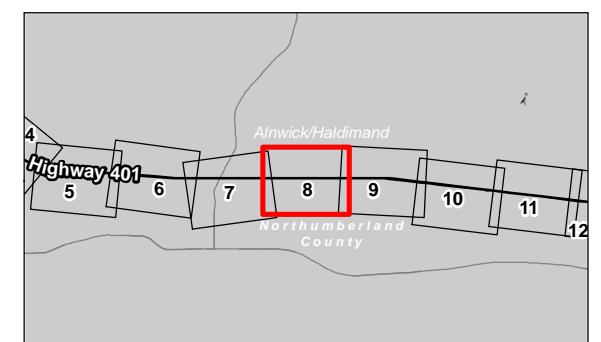
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Technical Review by ABC on yyyy-mm-dd

Client/Participant

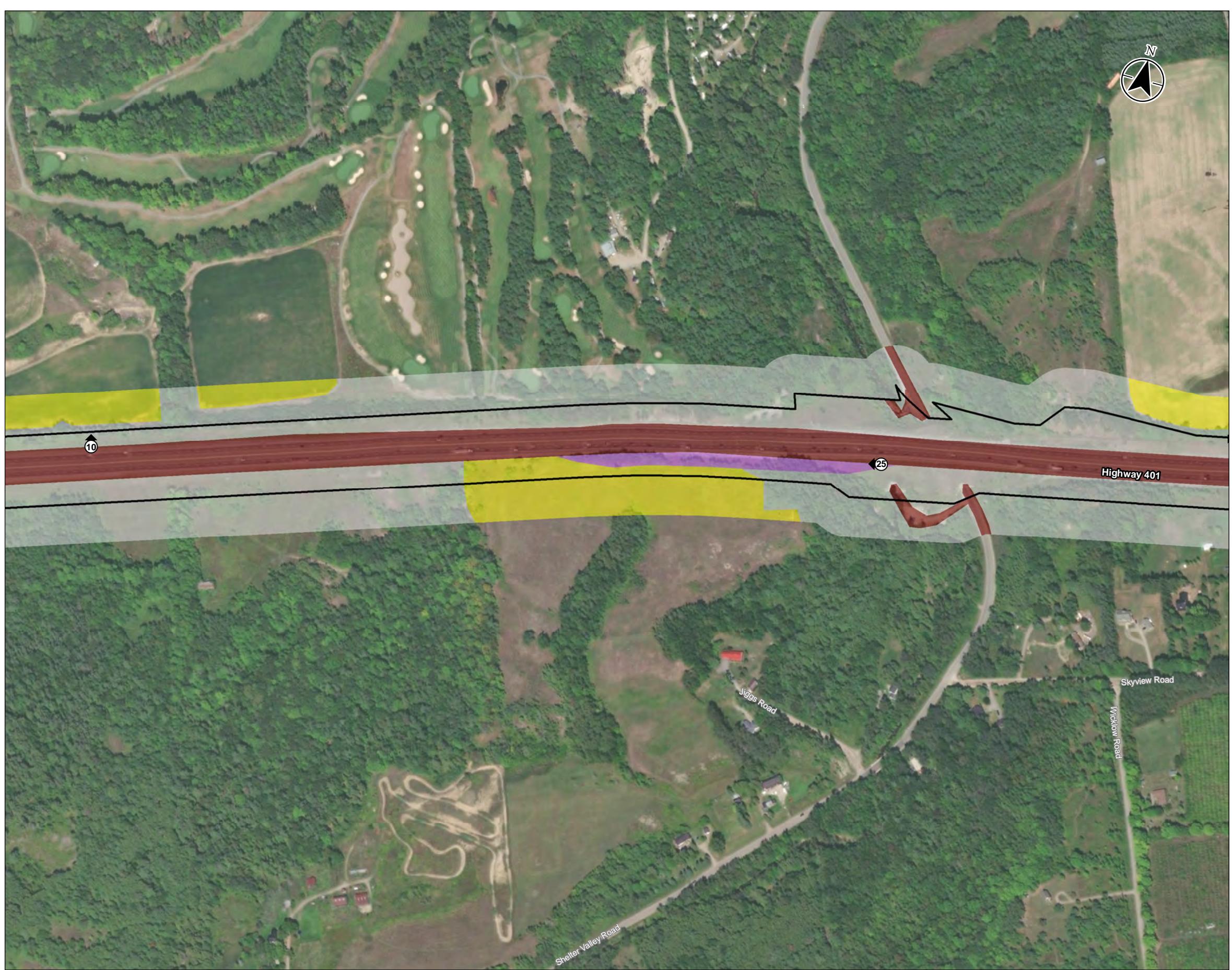
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HIGHWAY 401 PLANNING STUDY FROM COBOURG TO
COLBORNE (GWP 4060-11-00)

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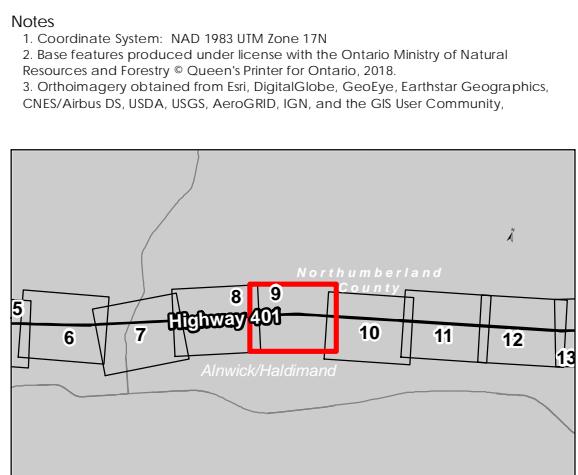
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Stage 1 Results and Recommendations



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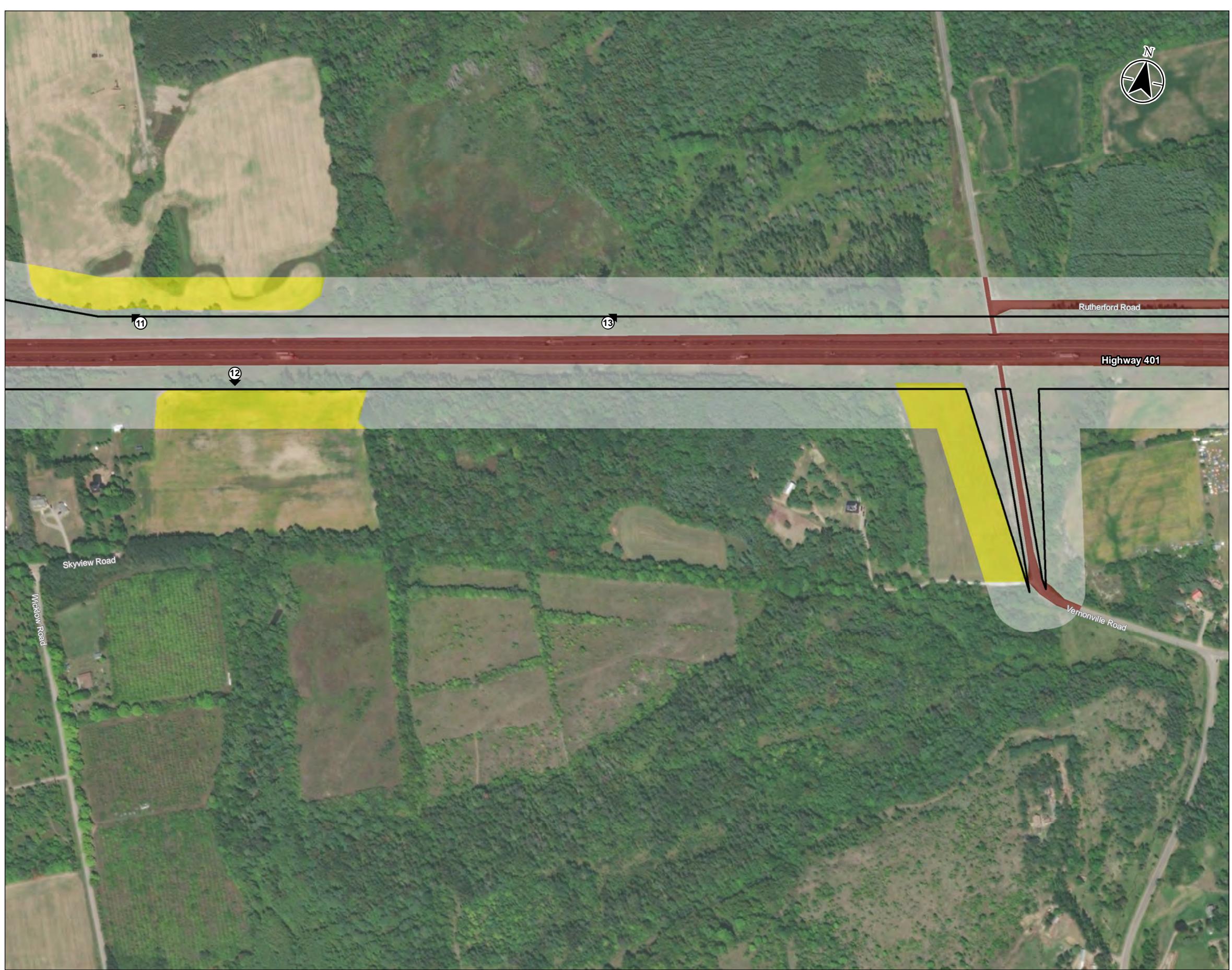


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MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
6 - 9

Title
Stage 1 Results and Recommendations



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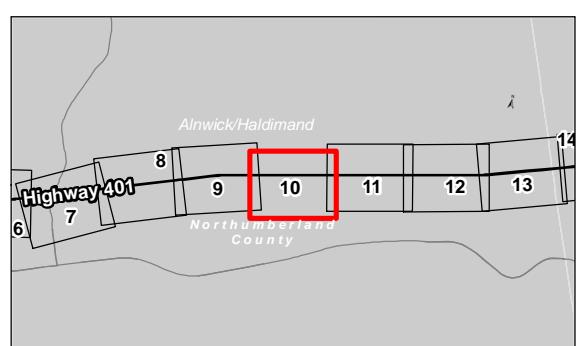
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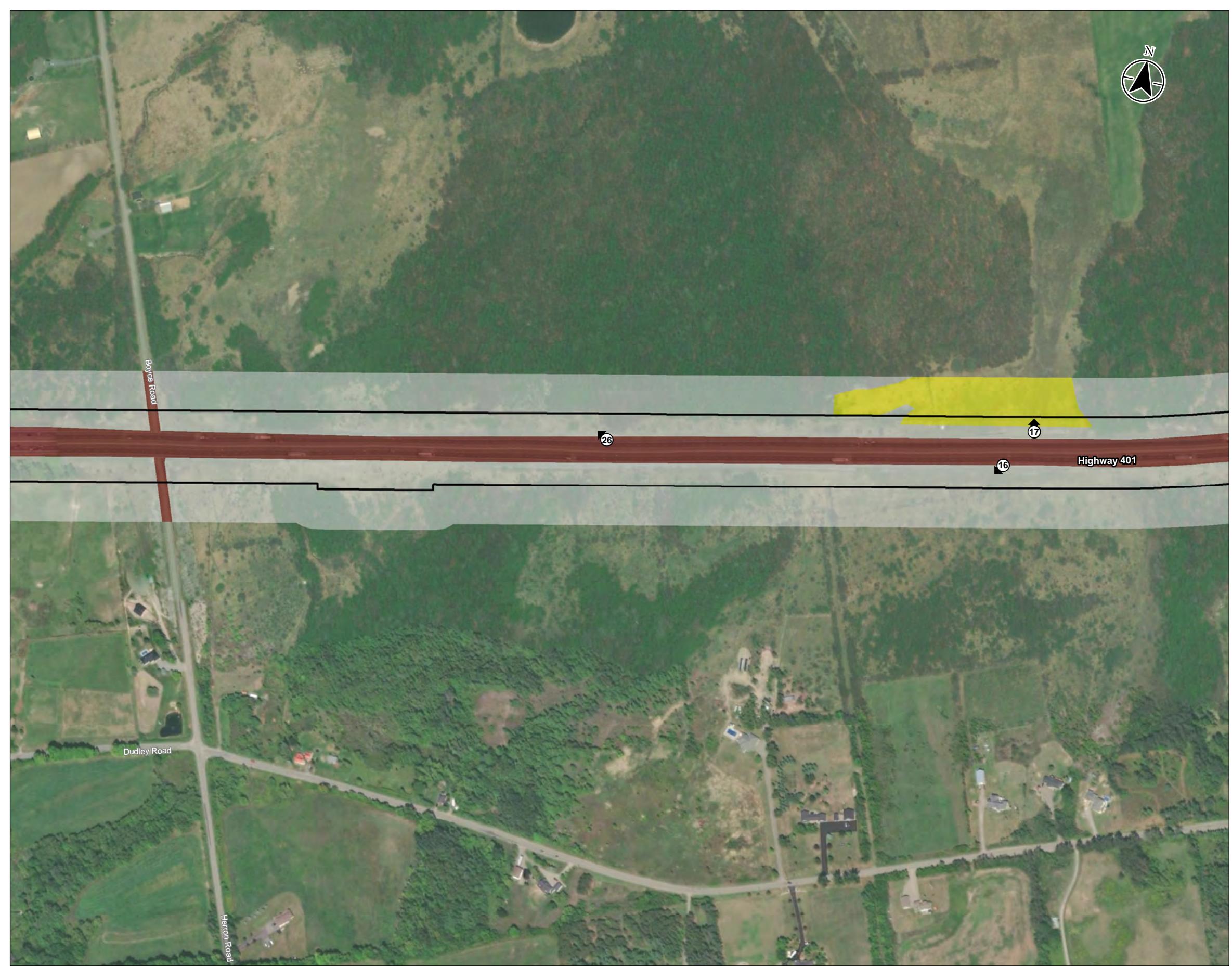


Project Location
County of Northumberland
Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
6 - 10

Title
Stage 1 Results and Recommendations



Stantec

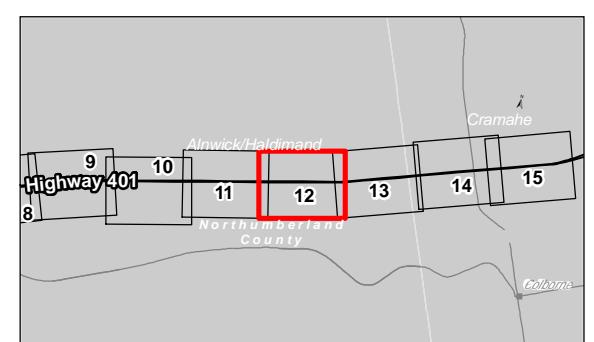
Legend

- Photo Location and Direction
- MTO Right-Of-Way
- Previously Disturbed, Not Recommended for Further Work
- Recommended for Pedestrian Survey at Five Metre Intervals
- Recommended for Test Pit Survey at Five Metre Intervals

0 100 200 Meters
1:5,000 (At original document size of 11x17)

Notes

- Coordinate System: NAD 1983 UTM Zone 17N
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Project Location
County of
Northumberland

165001090 REVA
Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO
COLBORNE (GWP 4060-11-00)

Figure No.
6 - 12

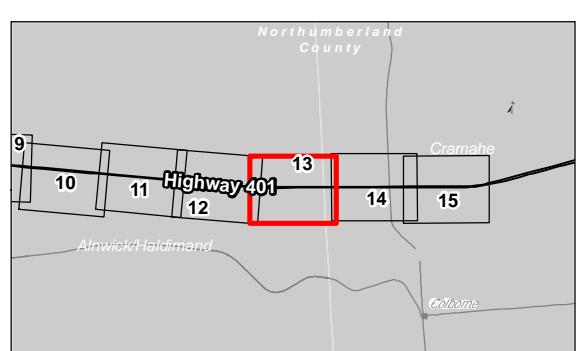
Title
Stage 1 Results and Recommendations



Legend

- Photo Location and Direction
- MTO Right-Of-Way
- Previously Disturbed, Not Recommended for Further Work
- Recommended for Pedestrian Survey at Five Metre Intervals
- Recommended for Test Pit Survey at Five Metre Intervals

165001090 REVA
Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

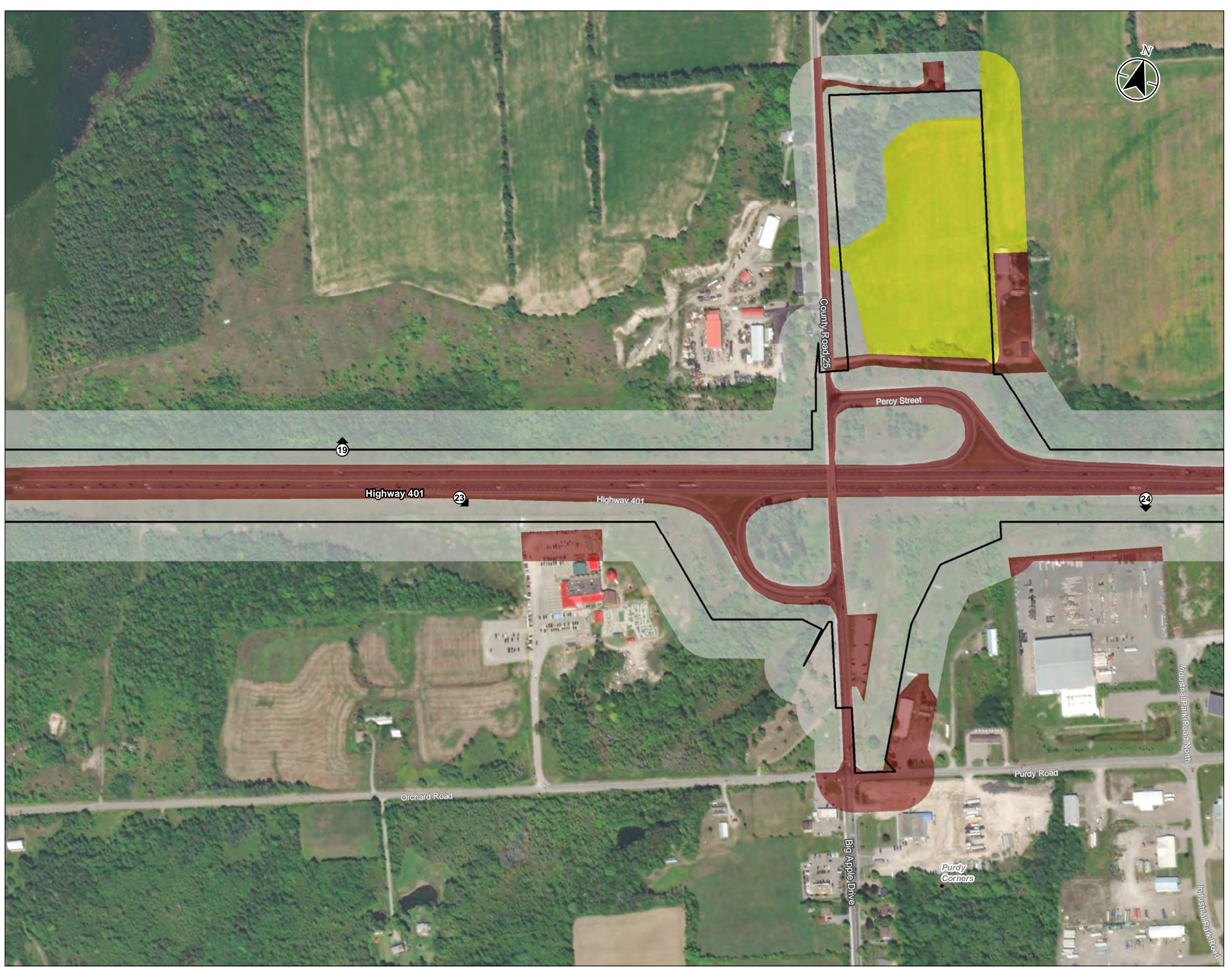


Project Location
County of Northumberland
Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COBORNE (GWP 4060-11-00)

Figure No.
6 - 13

Title
Stage 1 Results and Recommendations



Stantec

Legend

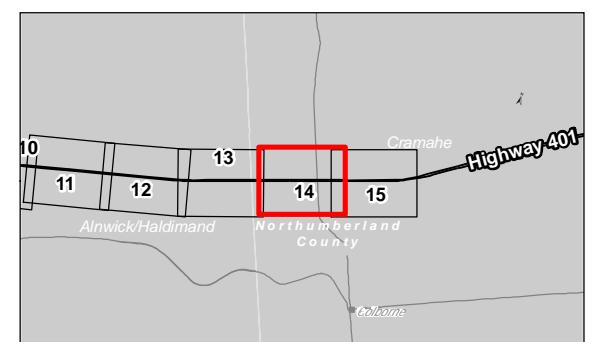
- Photo Location and Direction
- MTO Right-Of-Way
- Previously Disturbed, Not Recommended for Further Work
- Recommended for Pedestrian Survey at Five Metre Intervals
- Recommended for Test Pit Survey at Five Metre Intervals

0 100 200 Meters

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Notes

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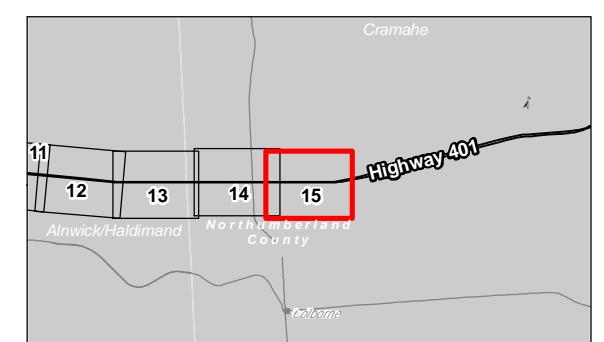
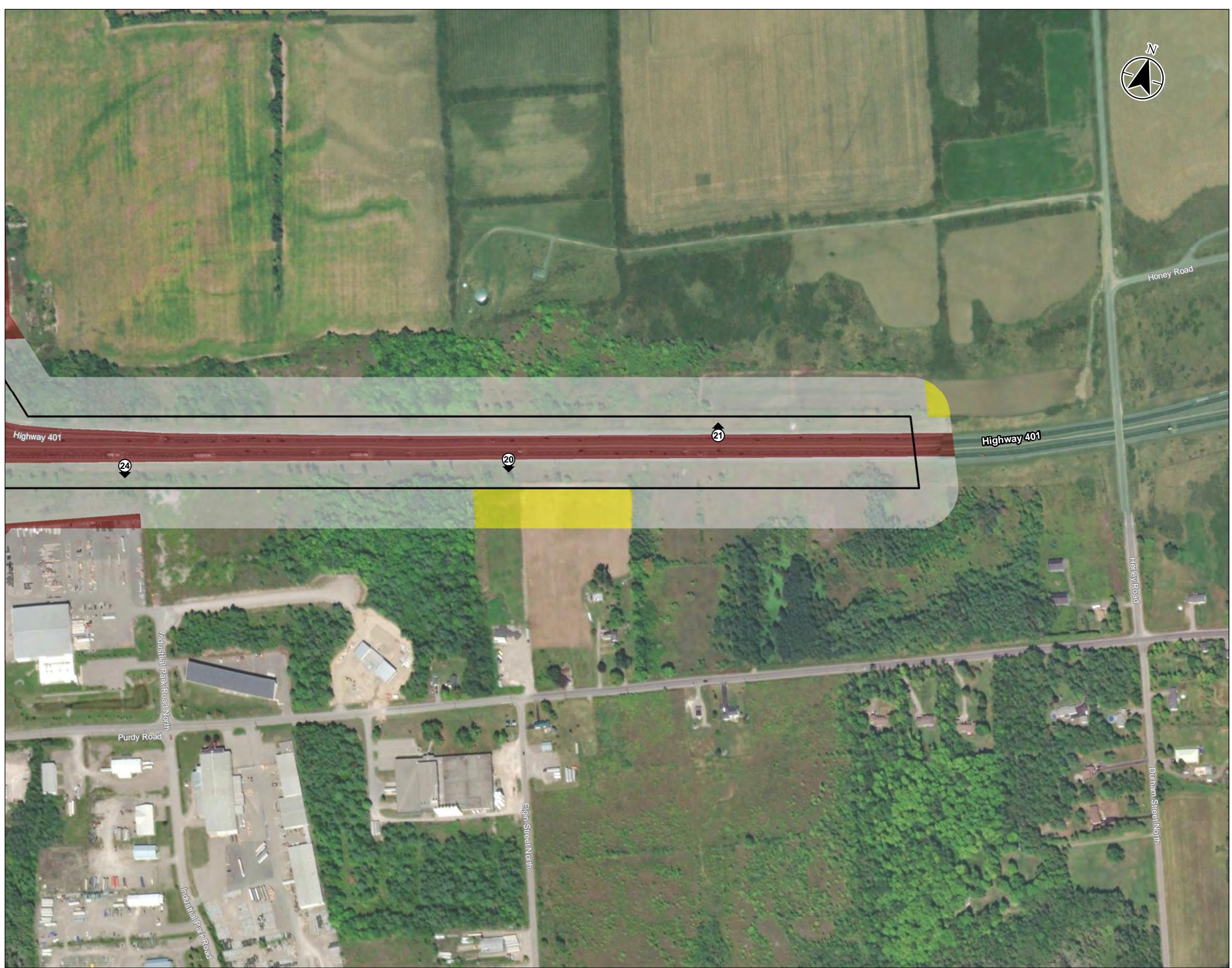


Project Location
County of Northumberland
Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO
COLBORNE (GWP 4060-11-00)

Figure No.
6 - 14

Title
Stage 1 Results and Recommendations



Project Location
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Prepared by JW on 2018-09-18
Technical Review by ABC on yyyy-mm-dd
Independent Review by ABC on yyyy-mm-dd

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MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO
COLBORNE (GWP 4060-11-00)

Figure No.
6 - 15

Title
Stage 1 Results and Recommendations

**STAGE 1 ARCHAEOLOGICAL ASSESSMENT: HIGHWAY 401 PLANNING STUDY FROM COBOURG TO
COLBORNE, ONTARIO GWP 4060-11-00**

Closure
February 20, 2019

9.0 CLOSURE

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

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

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

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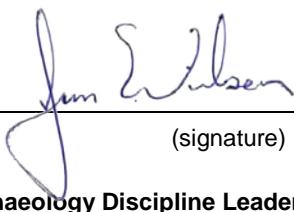
Quality Review



(signature)

Colin Varley, Senior Associate, Senior Archaeologist

Independent Review



(signature)

Jim Wilson, Principal, Archaeology Discipline Leader

