

**CULTURAL HERITAGE REPORT:
EXISTING CONDITIONS AND PRELIMINARY IMPACT ASSESSMENT**

**RECONSTRUCTION OF REGIONAL ROAD 45 (CREEK ROAD)
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT**

**TOWNSHIP OF WAINFLEET,
REGIONAL MUNICIPALITY OF NIAGARA, ONTARIO**

FINAL REPORT

Prepared for:

Parsons
4342 Queen Street, Suite 407
Niagara Falls, ON, L2E 7J7
T 905-356-7003

ASI File: 16EA-013

June 2021 (Revised August 2021)



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EXECUTIVE SUMMARY

ASI was contracted by Parsons, on behalf of the Regional Municipality of Niagara, to conduct a Cultural Heritage Report as part of the Reconstruction of Regional Road 45 Municipal Class Environmental Assessment (EA). The EA involves road widening, grading adjustments, and other improvements along Regional Road 45 (Creek Road) in the Township of Wainfleet. The project study area is centered on Creek Road, extending approximately 30 metres to each side of the right of way, between Canborough Road (Regional Road 63) in the west and the intersection of River Road (Regional Road 27) in the east. The study area is generally bounded by rural agricultural residences and the Welland River to the north, and rural agricultural residences to the south.

The purpose of this report is to present an inventory of known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs), identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures. The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural land use history dating back to the early nineteenth century. A field review was conducted for the entire study area to confirm the location of previously identified cultural heritage resources and to document newly discovered ones.

A review of federal, provincial, and municipal registers, inventories, and databases revealed no previously identified cultural heritage resources located within or adjacent to the Creek Road EA study area. One potential BHR and 16 potential CHLs were identified during background research and field review.

Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage resources.
2. Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage resource should be considered to mitigate any unintended impacts to all cultural heritage resources.
3. Post construction rehabilitation including planting with sympathetic plant species and the replacement of any impacted landscape features with potential cultural heritage value should be considered to mitigate any impacts.



4. Where feasible, review design opportunities to minimize impacts and to prevent or limit the potential removal of established trees, vegetation, and/or fencing during detailed design. Excavation, grading, and staging activities should be planned and executed to limit impacts to these potential cultural heritage landscapes. Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage resources should be considered to mitigate any impacts to these cultural heritage resources.
5. Where feasible, review design opportunities to minimize impacts to a small red barn at the southeast corner of CHL 7. Excavation, grading, and staging activities should be planned and executed to limit impacts upon the barn. Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews about the potential heritage value of this barn to mitigate any impacts.
6. Mitigation strategies were outlined in a stand-alone HIA prepared by ASI in 2016 should be considered and implemented, as appropriate, for the planned replacement of the pony truss bridge (BHR 1).
7. Indirect impacts to the residences at CHLs 4-6, 8, and 10-16; to a small red barn at the southeast corner of the property at CHL 7; and to the headstones in CHL 2 may occur through vibration stemming from construction work. To ensure the structures on these properties, as well as the headstones, are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or headstones will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.
8. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.
9. This report should be submitted by the proponent to heritage staff at the Township of Wainfleet, the Ministry of Heritage, Sport, Tourism, and Culture Industries, and any other relevant stakeholder with an interest in this project.

PROJECT PERSONNEL

<i>Senior Project Manager:</i>	Lindsay Graves, MA, CAHP Senior Cultural Heritage Specialist Senior Project Manager - Cultural Heritage Division
<i>Project Coordinator:</i>	Katrina Thach, Hon. BA Associate Archaeologist Project Coordinator - Environmental Assessment Division
<i>Project Manager:</i>	John Sleath, MA Cultural Heritage Specialist Project Manager - Cultural Heritage Division
<i>Field Review:</i>	John Sleath
<i>Report Production:</i>	Michael Wilcox, PhD Cultural Heritage Technician Technical Writer and Researcher - Cultural Heritage Division
<i>Graphics Production:</i>	Peter Bikoulis Archaeologist GIS Technician – Operations Division
<i>Report Reviewer(s):</i>	Lindsay Graves John Sleath



QUALIFIED PERSONS INVOLVED IN THE PROJECT

Lindsay Graves, MA, CAHP

Senior Cultural Heritage Specialist | Senior Project Manager - Cultural Heritage Division

The Senior Project Manager for this Cultural Heritage Report is **Lindsay Graves** (MA, Heritage Conservation), Senior Cultural Heritage Specialist and the Environmental Assessment Coordinator for the Cultural Heritage Division at ASI. She was responsible for: overall project scoping and approach; development and confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Lindsay is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over 15 years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of above ground cultural heritage resources. Lindsay has extensive experience undertaking archival research, heritage survey work, heritage evaluation and heritage impact assessment. She has also contributed to cultural heritage landscape studies and heritage conservation plans, led heritage commemoration and interpretive programs, and worked collaboratively with multidisciplinary teams to sensitively plan interventions at historic sites/places. In addition, she is a leader in the completion of heritage studies required to fulfil Class EA processes and has served as Project Manager for over 100 heritage assessments during her time at ASI. Lindsay is a member of the Canadian Association of Heritage Professionals.

John Sleath, MA

Cultural Heritage Specialist | Project Manager - Cultural Heritage Division

The Project Manager for this Cultural Heritage Report is **John Sleath** (MA, Anthropology) who is a Cultural Heritage Specialist and Project Manager within the Cultural Heritage Division with ASI. John has worked in a variety of contexts within the field of cultural heritage resource management for the past 13 years, as an archaeologist and as a cultural heritage professional. In 2015 John began working in the Cultural Heritage Division researching and preparing a multitude of cultural heritage assessment reports and for which he was responsible for a variety of tasks including: completing archival research, investigating built heritage and cultural heritage landscapes, report preparation, historical map regression, and municipal consultation. Since 2018 John has been a project manager responsible for a variety of tasks required for successful project completion. This work has allowed John to engage with stakeholders from the public and private sector, as well as representatives from local municipal planning departments and museums. John has conducted heritage assessments across Ontario, with a focus on transit and rail corridor infrastructure including bridges and culverts. As Project Manager for this project, John was responsible for day-to-day project management activities, including scoping of research activities and site surveys and drafting of study findings and recommendations. John was also responsible for conducting the field review and preparing the report.



Michael Wilcox, PhD

Cultural Heritage Technician | Technical Writer and Researcher - Cultural Heritage Division

The Cultural Heritage Technician for this Cultural Heritage Report was **Michael Wilcox** (PhD, History), who is a Technical Writer and Researcher within the Cultural Heritage Division at ASI. His current responsibilities focus on identifying and researching historical documents as well as background research, assessment, and evaluation of cultural heritage resources in Ontario. He has over a decade of combined academic and workplace experience in conducting historical research and crafting reports, presentations, articles, films, and lectures on a wide range of Canadian history topics. He was responsible for preparing and contributing to background historical research, reviewing existing heritage inventories, and technical reporting for this project.



GLOSSARY

Term	Definition
Adjacent	“contiguous properties as well as properties that are separated from a heritage property by narrow strip of land used as a public or private road, highway, street, lane, trail, right-of-way, walkway, green space, park, and/or easement or as otherwise defined in the municipal official plan” (Ministry of Tourism, Culture and Sport 2010).
Built Heritage Resource (BHR)	“...a building, structure, monument, installation or any manufactured remnant that contributes to a property’s cultural heritage value or interest as identified by a community, including an Indigenous community. Built heritage resources are located on property that may be designated under Parts IV or V of the <i>Ontario Heritage Act</i> , or that may be included on local, provincial, federal and/or international registers” (Government of Ontario 2020a:41).
Cultural Heritage Landscape (CHL)	“...a defined geographical area that may have been modified by human activity and is identified as having cultural heritage value or interest by a community, including an Indigenous community. The area may include features such as buildings, structures, spaces, views, archaeological sites or natural elements that are valued together for their interrelationship, meaning or association. Cultural heritage landscapes may be properties that have been determined to have cultural heritage value or interest under the <i>Ontario Heritage Act</i> , or have been included on federal and/or international registers, and/or protected through official plan, zoning by-law, or other land use planning mechanisms” (Government of Ontario 2020a:42).
Cultural Heritage Resource	Includes above-ground resources such as built heritage resources and cultural heritage landscapes, and built or natural features below-ground including archaeological resources (Government of Ontario 2020a).
Known Cultural Heritage Resource	A known cultural heritage resource is a property that has recognized cultural heritage value or interest. This can include a property listed on a Municipal Heritage Register, designated under Part IV or V of the <i>Ontario Heritage Act</i> , or protected by a heritage agreement, covenant or easement, protected by the <i>Heritage Railway Stations Protection Act</i> or the <i>Heritage Lighthouse Protection Act</i> , identified as a Federal Heritage Building, or located within a UNESCO World Heritage Site (Ministry of Tourism, Culture and Sport 2016).
Impact	Includes negative and positive, direct and indirect effects to an identified cultural heritage resource. Direct impacts include destruction of any, or part of any, significant heritage attributes or features and/or unsympathetic or incompatible alterations to an identified resource. Indirect impacts include, but are not limited to, creation of shadows, isolation of heritage attributes, direct or indirect obstruction of significant views, change in land use, land disturbances (Ministry of Tourism and Culture 2006). Indirect impacts also include potential vibration impacts (See Section 2.5 for complete definition and discussion of potential



	impacts).
Mitigation	Mitigation is the process of lessening or negating anticipated adverse impacts to cultural heritage resources and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the cultural heritage landscape and/or built heritage resource if to be demolished or relocated.
Potential Cultural Heritage Resource	A potential cultural heritage resource is a property that has the potential for cultural heritage value or interest. This can include properties/project area that contain a parcel of land that is the subject of a commemorative or interpretive plaque, is adjacent to a known burial site and/or cemetery, is in a Canadian Heritage River Watershed, or contains buildings or structures that are 40 or more years old (Ministry of Tourism, Culture and Sport 2016).
Significant	With regard to cultural heritage and archaeology resources, significant means “resources that have been determined to have cultural heritage value or interest. Processes and criteria for determining cultural heritage value or interest are established by the Province under the authority of the <i>Ontario Heritage Act</i> . While some significant resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation” (Government of Ontario 2020a:51).
Vibration Zone of Influence	Area within a 50 m buffer of construction-related activities in which there is potential to affect an identified cultural heritage resource. A 50 m buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the MHSTCI (Wiss 1981; Rainer 1982; Ellis 1987; Crispino and D’Apuzzo 2001; Carman et al. 2012). This buffer accommodates the additional threat from collisions with heavy machinery or subsidence (Randl 2001).



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1.0 INTRODUCTION

1.1 Report Purpose

ASI was contracted by Parsons, on behalf of the Regional Municipality of Niagara, to conduct a Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment (Cultural Heritage Report) as part of the Reconstruction of Regional Road 45 Municipal Class EA. The purpose of this report is to present an inventory of known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs), identify existing conditions of the project study area, provide a preliminary impact assessment, and propose appropriate mitigation measures.

1.2 Project Overview

The Reconstruction of Regional Road 45 Municipal Class Environmental Assessment involves road widening, grading adjustments, and other improvements along Regional Road 45 (Creek Road) in the Township of Wainfleet. The project study area is centered on Creek Road, extending approximately 30 metres to each side of the right of way, between Canborough Road (Regional Road 63) in the west and the intersection of River Road (Regional Road 27) in the east. The study area is generally bounded by rural agricultural residences and the Welland River to the north, and rural agricultural residences to the south.

1.3 Description of Study Area

This Cultural Heritage Report will focus on the project study area as described above and is therefore inclusive of directly adjacent properties to Creek Road between Canborough Road and River Road (Figure 1). This project study area has been defined as inclusive of those lands that may contain BHRs or CHLs that may be subject to direct or indirect impacts as a result of the proposed undertaking.



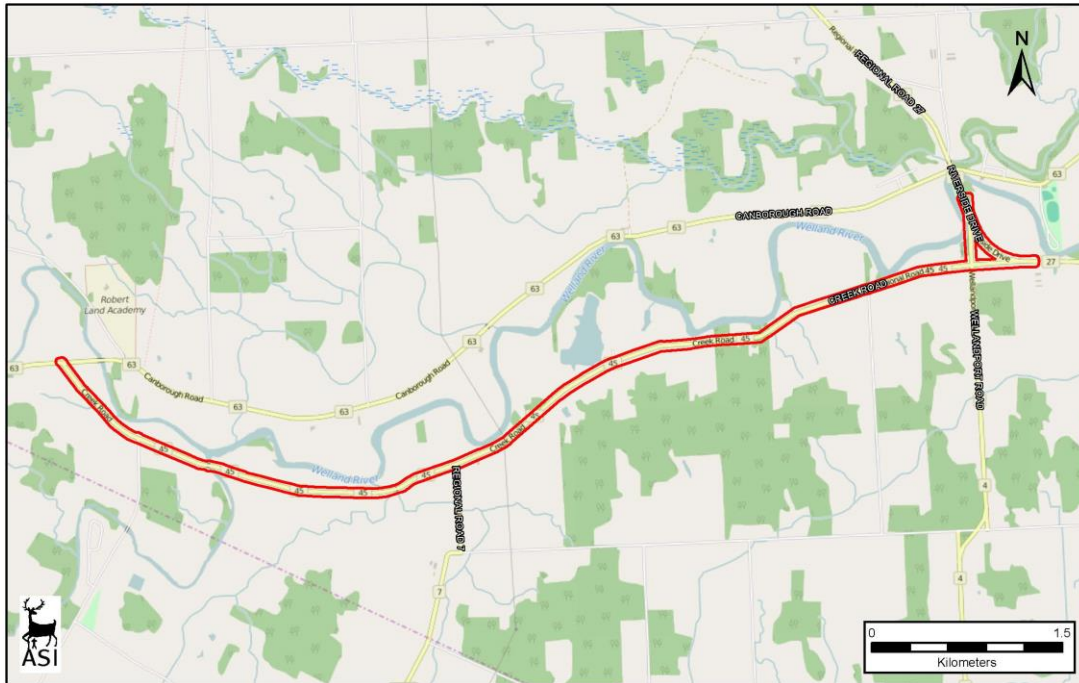


Figure 1: Location of the study area
Base Map: ©OpenStreetMap and contributors, Creative Commons-Share Alike License (CC-BY-SA)

2.0 METHODOLOGY

2.1 Regulatory Requirements

The *Ontario Heritage Act* (OHA) (Ministry of Culture 1990) is the primary piece of legislation that determines policies, priorities and programs for the conservation of Ontario’s heritage. There are many other provincial acts, regulations and policies governing land use planning and resource development support heritage conservation including:

- The *Planning Act* (Ministry of Municipal Affairs and Housing 1990), which states that “conservation of features of significant architectural, cultural, historical, archaeological or scientific interest” (cultural heritage resources) is a “matter of provincial interest”. The Provincial Policy Statement (Government of Ontario 2020a), issued under the Planning Act, links heritage conservation to long-term economic prosperity and requires municipalities and the Crown to conserve significant cultural heritage resources.
- The *Environmental Assessment Act* (Ministry of the Environment 1990), which defines “environment” to include cultural conditions that influence the life of humans or a community. Cultural heritage resources, which includes archaeological resources, built heritage resources and cultural heritage landscapes, are important components of those cultural conditions.

The Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) is charged under Section 2.0 of the OHA with the responsibility to determine policies, priorities, and programs for the conservation,

protection, and preservation of the heritage of Ontario. The Ministry of Tourism, Culture and Sport (now administered by MHSTCI) published *Standards and Guidelines for Conservation of Provincial Heritage Properties* (Ministry of Tourism, Culture and Sport 2010) (hereinafter “Standards and Guidelines”). These Standards and Guidelines apply to properties the Government of Ontario owns or controls that have cultural heritage value or interest (CHVI). The Standards and Guidelines provide a series of guidelines that apply to provincial heritage properties in the areas of identification and evaluation; protection; maintenance; use; and disposal. For the purpose of this report, the Standards and Guidelines provide points of reference to aid in determining potential heritage significance in identification of BHRs and CHLs. While not directly applicable for use in properties not under provincial ownership, the Standards and Guidelines are regarded as best practice for guiding heritage assessments and ensure that additional identification and mitigation measures are considered.

Similarly, the *Ontario Heritage Tool Kit* (Ministry of Culture 2006) provides a guide to evaluate heritage properties. To conserve a BHR or CHL, the *Ontario Heritage Tool Kit* states that a municipality or approval authority may require a heritage impact assessment and/or a conservation plan to guide the approval, modification, or denial of a proposed development.

2.2 Municipal/Regional Heritage Policies

The study area is located within the Township of Wainfleet, in the Regional Municipality of Niagara. Policies relating to cultural heritage resources were reviewed from the following sources:

- Township of Wainfleet Official Plan (Township of Wainfleet 2016)
- Regional Municipality of Niagara Official Plan (Region of Niagara 2014)
- Niagara Escarpment Plan (Niagara Escarpment Commission 2020)
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (Government of Ontario 2020b)

2.3 Identification of Built Heritage Resources and Cultural Heritage Landscapes

This Cultural Heritage Report follows guidelines presented in the *Ontario Heritage Tool Kit* (Ministry of Culture 2006) and *Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes* (Ministry of Tourism, Culture and Sport 2016). The objective of this report is to present an inventory of known and potential BHRs and CHLs, and to provide a preliminary understanding of known and potential BHRs and CHLs located within areas anticipated to be directly or indirectly impacted by the proposed project.

In the course of the cultural heritage assessment process, all potentially affected BHRs and CHLs are subject to identification and inventory. Generally, when conducting an identification of BHRs and CHLs within a study area, three stages of research and data collection are undertaken to appropriately establish the potential for and existence of BHRs and CHLs in a geographic area: background research and desktop data collection; field review; and identification.



Background historical research, which includes consultation of primary and secondary source research and historical mapping, is undertaken to identify early settlement patterns and broad agents or themes of change in a study area. This stage in the data collection process enables the researcher to determine the presence of sensitive heritage areas that correspond to nineteenth- and twentieth-century settlement and development patterns. To augment data collected during this stage of the research process, federal, provincial, and municipal databases and/or agencies are consulted to obtain information about specific properties that have been previously identified and/or designated as having cultural heritage value. Typically, resources identified during these stages of the research process are reflective of particular architectural styles or construction methods, associated with an important person, place, or event, and contribute to the contextual facets of a particular place, neighbourhood, or intersection.

A field review is then undertaken to confirm the location and condition of previously identified BHRs and CHLs. The field review is also used to identify potential BHRs or CHLs that have not been previously identified on federal, provincial, or municipal databases or through other appropriate agency data sources.

During the cultural heritage assessment process, a property is identified as a potential BHR or CHL based on research, the MHSTCI screening tool, and professional expertise. In addition, use of a 40-year-old benchmark is a guiding principle when conducting a preliminary identification of BHRs and CHLs. While identification of a resource that is 40 years old or older does not confer outright heritage significance, this benchmark provides a means to collect information about resources that may retain heritage value. Similarly, if a resource is slightly younger than 40 years old, this does not preclude the resource from having cultural heritage value or interest.

2.4 Background Information Review

To make an identification of previously identified known or potential BHRs and CHLs within the study area, the following resources were consulted as part of this Cultural Heritage Report.

2.4.1 Review of Existing Heritage Inventories

A number of resources were consulted in order to identify previously identified BHRs and CHLs within the study area. These resources, reviewed on 23 August 2016 during the completion of the Existing Conditions component of the report and 3 June 2021 when the report was updated with the Preliminary Impact Assessment, include:

- The *Ontario Heritage Act Register* (Ontario Heritage Trust n.d.);
- The *Places of Worship Inventory* (Ontario Heritage Trust n.d.);
- The inventory of Ontario Heritage Trust easements (Ontario Heritage Trust n.d.);
- The Ontario Heritage Trust's Ontario Heritage Plaque Guide: an online, searchable database of Ontario Heritage Plaques (Ontario Heritage Trust n.d.);
- Inventory of known cemeteries/burial sites in the Ontario Genealogical Society's online databases (Ontario Genealogical Society n.d.);



- Canada's Historic Places website: available online, the searchable register provides information on historic places recognized for their heritage value at the local, provincial, territorial, and national levels (Parks Canada n.d.);
- Directory of Federal Heritage Designations: a searchable on-line database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses (Parks Canada n.d.);
- Canadian Heritage River System: a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage (Canadian Heritage Rivers Board and Technical Planning Committee n.d.); and,
- United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Sites (UNESCO World Heritage Centre n.d.).

The Township of Wainfleet does not provide a heritage inventory on their website. The Township was contacted to gather any information on potential cultural heritage resources or concerns within and/or adjacent to the study area (email communication 24 August 2016 and 7 June 2021). A reply from the Township confirmed that there were no properties or structures within the identified study area as being designated under the *Ontario Heritage Act*.

Based on the review of available provincial and federal data, there were no previously identified resources within and/or adjacent to the Creek Road study area. However, there were three CHRs identified in the previously completed Desktop Data Review (ASI 2016).

2.4.2 Review of Previous Heritage Reporting

Attempts to review additional cultural heritage studies within parts of the study area did not yield any reports.

2.4.3 Stakeholder Data Collection

The following individuals, groups, and/or organizations were contacted to gather information on known and potential BHRs and CHLs, active and inactive cemeteries, and areas of identified Indigenous interest within the study area:

- Janet Hodgkins, Wainfleet Historical Society (email communication 1 and 10 September 2016). Email correspondence confirmed that there are no materials related to the history or cultural heritage of the study area.
- Sarah Ivins, Planner, Township of Wainfleet (email communication 7 June 2021). Email correspondence was completed to gather any information on potential cultural heritage resources or concerns within and/or adjacent to the study area. A reply confirmed that there were no properties or structures within the identified study area as being designated under the *Ontario Heritage Act*.
- The MHSTCI (email communication December 2017). Email correspondence was conducted by Parsons on behalf of ASI, and no additional previously identified heritage resources or concerns regarding the study area. The draft CHER/HIA for the Oswego Creek Bridge (BHR 1) was



submitted to MHSTCI on 15 December 2016. Following incorporation of MHSTCI comments, the final CHER/HIA was completed on 17 February 2017.

2.5 Preliminary Impact Assessment Methodology

To assess the potential impacts of the undertaking, identified BHRs and CHLs are considered against a range of possible negative impacts, based on the *Ontario Heritage Tool Kit InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (Ministry of Tourism and Culture 2006). These include:

- Direct impacts:
 - Destruction of any, or part of any, significant heritage attributes or features; and
 - Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance.
- Indirect impacts
 - Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
 - Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
 - Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
 - A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces; and
 - Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

Indirect impacts from construction-related vibration have the potential to negatively affect BHRs or CHLs depending on the type of construction methods and machinery selected for the project and proximity and composition of the identified resources. Potential vibration impacts are defined as having potential to affect an identified BHRs and CHLs where work is taking place within 50 m of features on the property. A 50 m buffer is applied in the absence of a project-specific defined vibration zone of influence based on existing secondary source literature and direction provided from the MHSTCI (Wiss 1981; Rainer 1982; Ellis 1987; Crispino and D'Apuzzo 2001; Carman et al. 2012). This buffer accommodates any additional or potential threat from collisions with heavy machinery or subsidence (Randl 2001).

Several additional factors are also considered when evaluating potential impacts on identified BHRs and CHLs. These are outlined in a document set out by the Ministry of Culture and Communications (now MHSTCI) and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (1992) and include:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and



- Diversity: the number of different kinds of activities to affect a heritage resource.

The proposed undertaking should endeavor to avoid adversely affecting known and potential BHRs and CHLs and interventions should be managed in such a way that identified significant cultural heritage resources are conserved. When the nature of the undertaking is such that adverse impacts are unavoidable, it may be necessary to implement alternative approaches or mitigation strategies that alleviate the negative effects on identified BHRs and CHLs. Mitigation is the process of lessening or negating anticipated adverse impacts to cultural heritage resources and may include, but are not limited to, such actions as avoidance, monitoring, protection, relocation, remedial landscaping, and documentation of the BHR or CHL if to be demolished or relocated.

Various works associated with infrastructure improvements have the potential to affect BHRs and CHLs in a variety of ways, and as such, appropriate mitigation measures for the undertaking need to be considered.

3.0 SUMMARY OF HISTORICAL DEVELOPMENT WITHIN THE STUDY AREA

This section provides a brief summary of historical research. A review of available primary and secondary source material was undertaken to produce a contextual overview of the study area, including a general description of physiography, Indigenous land use, and Euro-Canadian settlement.

3.1 Summary of Early Indigenous History in Southern Ontario

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years ago, or 11,000 Before the Common Era (B.C.E.) (Ferris 2013).¹ During the Paleo period (c. 11,000 B.C.E. to 9,000 B.C.E), groups tended to be small, nomadic, and non-stratified. The population relied on hunting, fishing, and gathering for sustenance, though their lives went far beyond subsistence strategies to include cultural practices including but not limited to art and astronomy. Fluted points, beaked scrapers, and gravers are among the most important artifacts to have been found at various sites throughout southern Ontario, and particularly along the shorelines of former glacial lakes. Given the low regional population levels at this time, evidence concerning Paleo-Indian period groups is very limited (Ellis and Deller 1990).

Moving into the Archaic period (c. 9,000 B.C.E. to 1,000 B.C.E.), many of the same roles and responsibilities continued as they had for millennia, with groups generally remaining small, nomadic, and non-hierarchical. The seasons dictated the size of groups (with a general tendency to congregate in the spring/summer and disperse in the fall/winter), as well as their various sustenance activities, including fishing, foraging, trapping, and food storage and preparation. There were extensive trade networks which involved the exchange of both raw materials and finished objects such as polished or

¹ While many types of information can inform the precontact settlement of Ontario, such as oral traditions and histories, this summary provides information drawn from archaeological research conducted in southern Ontario over the last century.



ground stone tools, beads, and notched or stemmed projectile points. Furthermore, mortuary ceremonialism was evident, meaning that there were burial practices and traditions associated with a group member's death (Ellis and Deller 1990; Ellis et al. 2009).

The Woodland period (c. 1,000 B.C.E. to 1650 C.E.) saw several trends and aspects of life remain consistent with previous generations. Among the more notable changes, however, was the introduction of pottery, the establishment of larger occupations and territorial settlements, incipient horticulture, more stratified societies, and more elaborate burials. Later in this period, settlement patterns, foods, and the socio-political system continued to change. A major shift to agriculture occurred in some regions, and the ability to grow vegetables and legumes such as corn, beans, and squash ensured long-term settlement occupation and less dependence upon hunting and fishing. This development contributed to population growth as well as the emergence of permanent villages and special purpose sites supporting those villages. Furthermore, the socio-political system shifted from one which was strongly kinship based to one that involved tribal differentiation as well as political alliances across and between regions (Ellis and Deller 1990; Williamson 1990; Dodd et al. 1990; Birch and Williamson 2013).

The arrival of European trade goods in the sixteenth century, Europeans themselves in the seventeenth century, and increasing settlement efforts in the eighteenth century all significantly impacted traditional ways of life in Southern Ontario. Over time, war and disease contributed to death, dispersion, and displacement of many Indigenous peoples across the region. The Euro-Canadian population grew in both numbers and power through the eighteenth and nineteenth centuries and treaties between colonial administrators and First Nations representatives began to be negotiated.

The study area is within Treaty 3, the Between the Lakes Purchase. Following the American Revolutionary War, the British Crown needed to find lands on which to settle United Empire Loyalists, including approximately 2,000 members of the Six Nations confederacy who had fought alongside British troops. Led by Sir Frederick Haldimand who was the governor of Quebec at that time, the Crown was initially planning on providing lands for Loyalist settlers in Quebec and Southeastern Ontario, including providing land in the Bay of Quinte for Six Nations refugees. This was not suitable for many of the members of Six Nations and a contingent of approximately 1,800 community members, led by Chief Joseph Brant, requested land north of Lake Erie along the Grand River. Brant felt that the location in the Bay of Quinte was too isolated and that his followers could be better served by being closer to the Six Nations communities that chose to remain in the United States in western New York (Surtees 1984:21).

Recognizing that under the terms of the Royal Proclamation the land needed to be purchased prior to settlement, Colonel John Butler was sent to negotiate with the Mississaugas of the Credit for lands east of Lake Ontario and north of Lake Erie. On May 22, 1784, the Mississaugas of the Credit agreed to cede approximately 3,000,000 acres (1,214,057 ha.) of land containing all or part of Brant, Elgin, Middlesex, Oxford, and Wellington Counties as well as the Regions of Haldimand-Norfolk, Halton, Hamilton-Wentworth, Niagara, and Waterloo. In exchange for these lands, the Mississaugas received £1180.74 worth of trade goods (Crown-Indigenous Relations and Northern Affairs 2016; Surtees 1984). Of the 3,000,000 acres (1,214,057 ha.), approximately 550,000 acres (222,577 ha.) was set aside for the settlement of Six Nations people (see Haldimand Tract).



However, due to uncertainties with the description of the lands in the original surrender, Treaty #3 was renegotiated on December 7, 1792, to clarify what was ceded. This largely revolved around the northern boundary of the Treaty area and in particular the area set aside for Six Nations settlement along the Grand River (see Haldimand Tract and Treaty #4). The signees on the side of the British included Lieutenant Governor John Graves Simcoe, John Butler, Robert Kerr, Peter Russell, John McGill, and Davie William Smith. The signees on the side of the Mississauga included Chiefs Wabakayne, Wabanip, Kautabus, Wabaniship and Mottotow (Crown-Indigenous Relations and Northern Affairs 2016; Surtees 1984; Mississaugas of the Credit First Nation 2017).

The original text stipulated that the north-west boundary of the parcel was an imaginary line between Burlington Bay and the Trent River, which is inconsistent with the geography of the area. The boundaries of the parcel were corrected to create a polygon encompassing the Niagara peninsula up to Burlington Bay and then up north to the present-day town of Arthur then south to the present-day town of Woodstock to finally meet Lake Erie at Port Bruce. Treaty #3 lands exclude a corridor along the Grand River set aside for Six Nations (Crown-Indigenous Relations and Northern Affairs 2016; Native Land Digital 2018).

3.2 Historical Euro-Canadian Township Survey and Settlement

Historically, the study area is located in the Township of Wainfleet, County of Welland in part of Lots 39-57, Concession 7.

3.2.1 Physiographic Setting

The study area is situated within the Haldimand Clay Plain physiographic region of southern Ontario (Chapman and Putnam 1984). The Haldimand Clay Plain physiographic region is among the largest of the 53 defined physiographic regions in southern Ontario, comprising approximately 3,500 square km (Chapman and Putnam 1984:156–159). Generally, this region is flat and poorly drained, although it includes several distinctive landforms including dunes, cobble, clay, and sand beaches, limestone pavements, and back-shore wetland basins. Within this part of the Niagara peninsula, a number of environmental sub-regions have been described, including the Niagara Slough Clay Plain, the Fort Erie Clay Plain, the Calcareous Rock Plain (Onondaga Escarpment), the Buried Moraines, the Lake Erie Coast, and the Niagara River Valley (MacDonald 1980). The distribution and nature of these sub-regions, and the specific environmental features they contain, have influenced land use in the region throughout history and pre-history.

The Chippewa Creek, or Welland River, was an important navigable stream used for shipping goods and produce to the merchants at Chippewa during the nineteenth century. The creek averaged 300 feet in breadth, and between fifteen and twenty-five feet in depth. It provided an easy means of communication and access to markets for the early settlers and in 1817, Robert Gourlay described it as “a complete water conveyance” (Raymond 1972). Following the construction of the Welland Canal in the 1820s, and the railways during the 1850s, the importance of Chippewa Creek as a means of transportation declined considerably.



3.2.2 Township of Wainfleet

In January 1800, the Niagara District became a separate administrative district having been separated from the Home District, with Lincoln and portions of Haldimand joined as a United County. In 1841, a legislative body known as the Niagara District Council was established, and in 1845 provisionally created Welland County and reeves and deputy reeves who sat on the Niagara District Council in order to organize the new county. Welland was officially elevated to County status in the spring of 1856 (Armstrong 1985:152).

Wainfleet Township was surveyed around 1791 as part of the old District of Nassau, included within Lincoln County as part of the Home District when Upper Canada was reorganized by Simcoe in 1792 (Armstrong 1985). Lots and concessions were laid out in 1811 (Wainfleet Historical Society 1992:339). The first settlers were disbanded Loyalists and late Loyalists. In 1805, D'Arcy Boulton was pleased with this township which he described as possessing "a most delightful situation...particularly well situated with water, having lake Erie in front, and the Welland river to the north" (Boulton 1805:89). The line of the Welland Canal feeder was cut across the centre of the township, and the canal officially opened in 1829. By 1833, most of the land had been settled along the Chippewa Creek, now the Welland River (Wainfleet Historical Society 1992:411). By the 1840s, the population was comprised mainly of Canadian, Irish, English and Dutch settlers (Armstrong 1985; Rayburn 1997).

3.2.3 Town of Wellandport

The community of Wellandport was located between Beaver Creek and Chippawa Creek or the Welland River, on part Lots 14, 15 and 16 in Concession 1, Gainsborough Township. The original name for this village was "The Narrows" but it acquired its present name in 1841. In 1876, there was a mill located slightly west of the village on the Chippawa Creek, and a Fair Ground on the north side of Beaver Creek. The village was laid out on a small-scale plan in 1857, with just six streets. In 1876, it contained a population of about 200. It contained two shops, one harness maker, one blacksmith, two physicians, a drug store, a school, two churches, saw mill, "several mechanics shops," post office, and three hotels (Crossby 1873; Winearls 1991; Scott 1997; Rayburn 1997).

3.3 Review of Historical Mapping

The 1862 *Tremaine's Map of the Counties of Lincoln and Welland* and the 1876 *Illustrated Historical Atlas of the Counties of Lincoln and Welland* were reviewed to determine the potential for the presence of cultural heritage resources within the study area from the nineteenth century (Figure 2 and Figure 3). Historically, the study area is located on part of Lots 39-57, Concession 7 in the Township of Wainfleet, County of Welland.

It should be noted, however, that not all features of interest were mapped systematically in the Ontario series of historical atlases. For instance, they were often financed by subscription limiting the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases. The use of historical map sources to reconstruct or predict the location of



former features within the modern landscape generally begins by using common reference points between the various sources. The historical maps are geo-referenced to provide the most accurate determination of the location of any property on a modern map. The results of this exercise can often be imprecise or even contradictory, as there are numerous potential sources of error inherent in such a process, including differences of scale and resolution, and distortions introduced by reproduction of the sources.

The 1862 *Tremaine Map* (Figure 2) depicts Creek Road (RR 45) and Wellandport Road (RR 4) as historically surveyed roads. Canborough Road (RR 63) is present to the north of the Welland River, but does not continue on the south side of the river where it presently intersects with the study area. No structures are illustrated within the study area, although individual landowners are listed in each of the lots. The community of Wellandport is recorded as a small settlement at a curve in the Welland River, at the intersection of present day Canborough Road (RR 63) and Wellandport Road (RR 4). Overall, the study area is depicted in a rural agricultural context adjacent to the Welland River.

The 1876 *Illustrated Historical Atlas* (Figure 3) depicts the study area in a similar rural agricultural context to the earlier mapping, with the addition of farmsteads and orchards also noted. In addition to approximately 27 farmsteads adjacent to Creek Road, one church is noted on the northwest corner of modern day Creek Road and Wellandport Road, and a school at the southwest corner of modern day Creek Road and RR 7. Called the Killins School after the first teacher, Elisha Killins, school section No. 10 opened in 1856, and later relocated to a new building in 1889 (Wainfleet Historical Society 1992). Bridges carrying Canborough road in the east, and Wellandport Road in the west, are depicted crossing the Welland River. No bridge is depicted carrying Creek Road over Oswego Creek. A small creek is also depicted in the central portion of the study area, north of Creek Road, in the location of modern day Dils Lake.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs from the twentieth century were examined. This report presents maps and aerial photographs from 1905, 1934, 1954, 1965, and 1996 (Figure 4 to Figure 8). These do not represent the full range of maps consulted for the purpose of this study but were judged to cover the full range of land uses that occurred in the area during this period.

The 1905 topographic map demonstrates that relatively little residential development occurred in the late nineteenth century, with a similar number of farmsteads depicted as in earlier mapping (Figure 4). The community of Wellandport appears to have experienced modest growth, and was the site of both a telegraph office and a telephone office. Creek Road, Canborough Road, and Wellandport Road are shaded to indicate they are paved. School No. 10 is still visible in the approximate location as earlier mapping at the corner of Creek Road and RR 7. A single track of the Toronto, Hamilton, and Buffalo Railway is present in the western portion of the study area, crossing the Welland River by a wooden bridge in the community of Port Davidson, where a station stop is located. A road bridge is also depicted as carrying Creek Road across Oswego Creek, although the material from which it is constructed is not noted. The creek in the location of modern day Dils Lake is noted clearly, with a small island of topographical prominence located in the river. Finally, sections of the shoreline of the Welland River feature black marks, which appear to denote the presence of retaining walls or some form of bank stabilization in order to control erosion and reduce the meander of the watercourse.



The 1934 aerial photo depicts the study area as retaining a rural agricultural context well into the twentieth century (Figure 5). The community of Wellandport remains a similar size to earlier mapping, and farmsteads continue to surround the study area. The creek in the location of Dils Lake appears to have been channelized, with its course modified to improve agriculture and facilitate farmstead construction. The railway in the western portion of the study area remains visible, as do all major roadways.

The 1954 aerial photo demonstrates that the study area continued to feature rural, agricultural lands in the mid-twentieth century (Figure 6). Notable changes in the study area include the re-alignment of the intersection of River Road (RR 27) and Wellandport Road (RR 4) south of the community of Wellandport to its extant configuration. All other roadways are illustrated in their extant alignment. School No. 10 appears to be extant in the study area, surrounded by active agricultural fields.

The 1965 topographical map depicts the study area in a similar rural agricultural context as earlier mapping, with one notable exception (Figure 7). School No. 10 is absent from the map, as it was reportedly abandoned in 1961 (Wainfleet Historical Society 1992). Dils Lake is featured for the first time in this map review as a small waterbody to the east of a dam in the location of a former oxbow creek in Lot 47, Concession VII, creating the artificial reservoir called Dils Lake.

The 1996 topographical map confirms the study area is similar in its rural agricultural context as earlier mapping (Figure 8). Chippawa Creek Conservation Area is noted in the central portion of the study area, encompassing nearly all of Lots 46 and 47, Concession VII including Dils Lake and large wooded areas to the south and north of Creek Road. All roadways continue to be represented in their extant alignment, with bridges carrying Canborough Road (RR 63) and River Road (RR 27) over the Welland River. The Oswego Creek bridge is still depicted as carrying Creek Road (RR 45) over Oswego Creek.





Figure 2: The study area overlaid on the 1862 Tremain's Map of the County of Lincoln and Welland
Base Map: (Tremain and Tremain 1862)

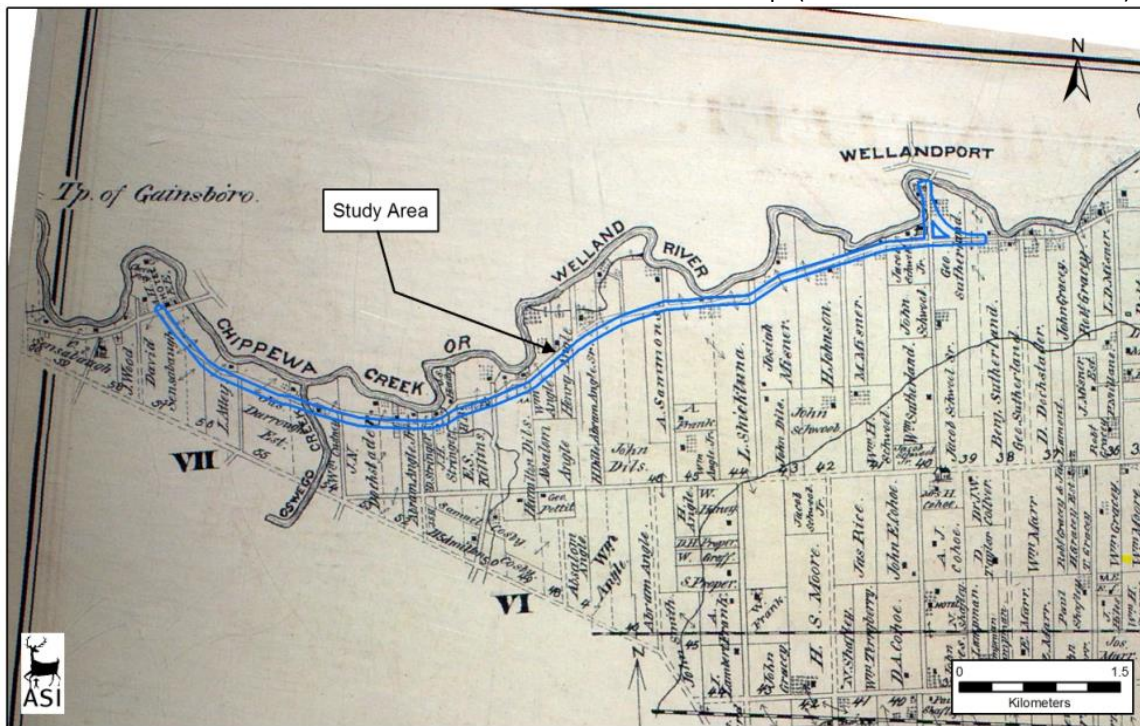


Figure 3: The study area overlaid on the 1876 Illustrated Historical Atlas

Base Map: (Page 1876)

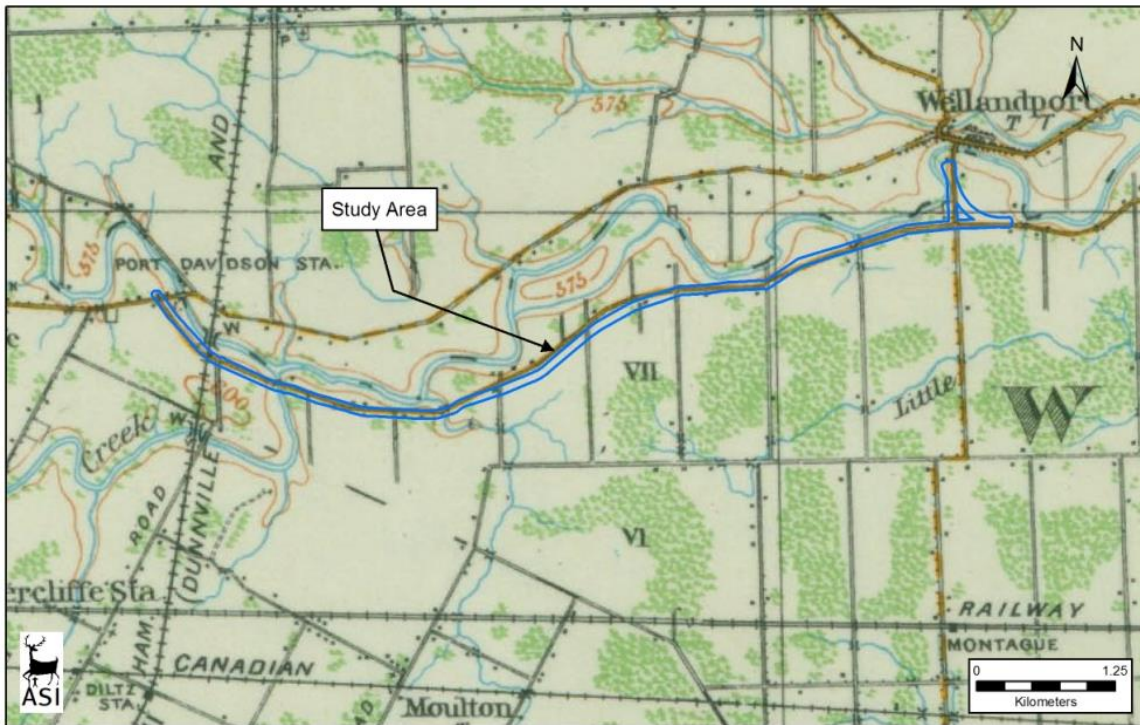


Figure 4: The study area overlaid on a 1905 topographic map of the Niagara Peninsula, Sheets 31-M and 30-L

Base Map: (Department of Militia and Defence 1905)

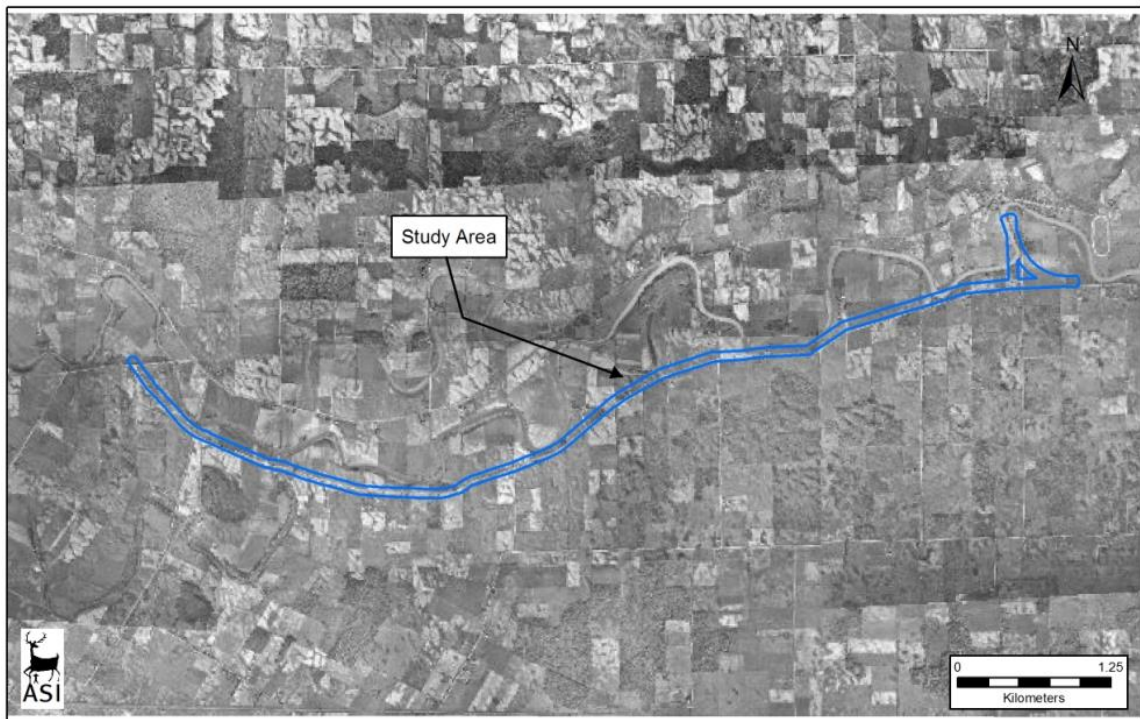


Figure 5: The study area overlaid on the 1934 aerial photograph of Niagara

Base Map: (Canada Department of Energy, Mines & Resources 1934)

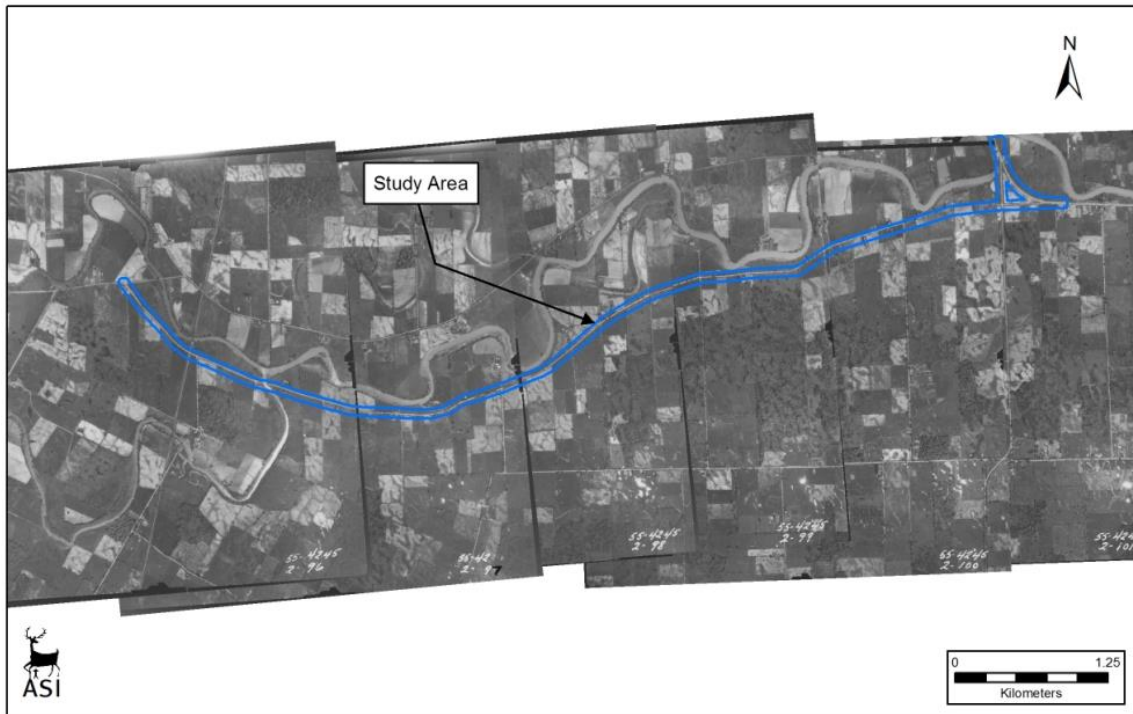


Figure 6: The study area overlaid on the 1954 aerial photograph of Niagara
Base Map: (Hunting Survey Corporation Limited 1954)

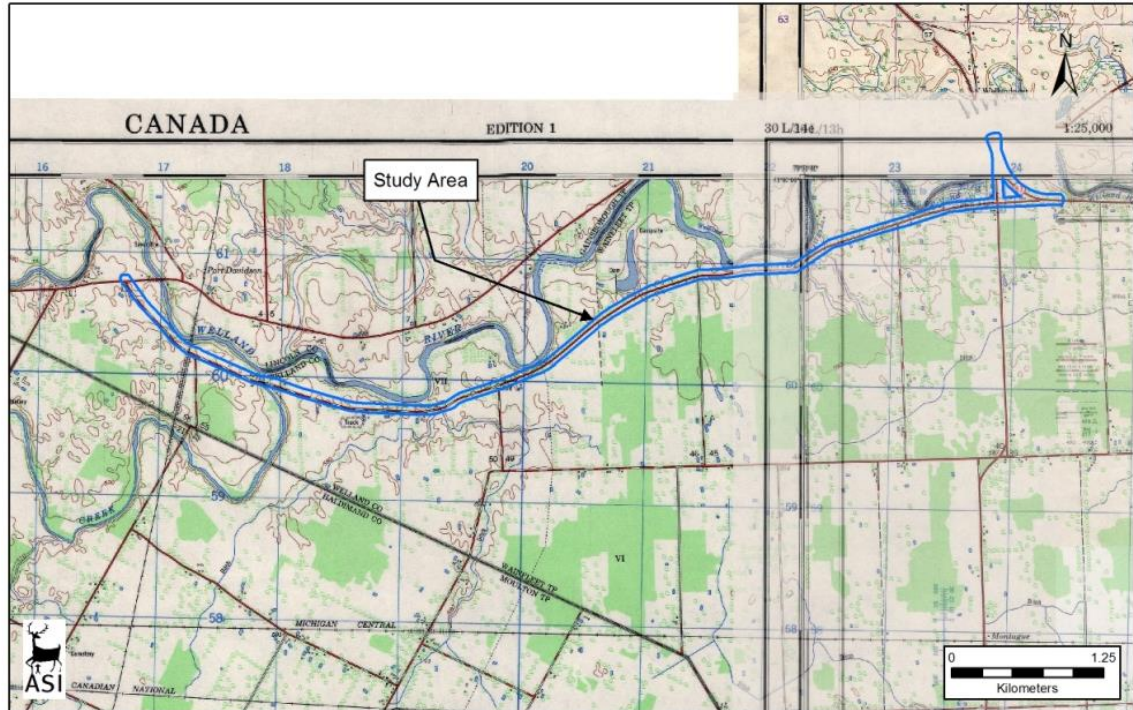


Figure 7: The study area overlaid on the 1965 NTS map of Niagara, Sheets 30/L-13, 30/L-14, and 30M/03
Base Map: (Department of Energy, Mines and Resources 1965)

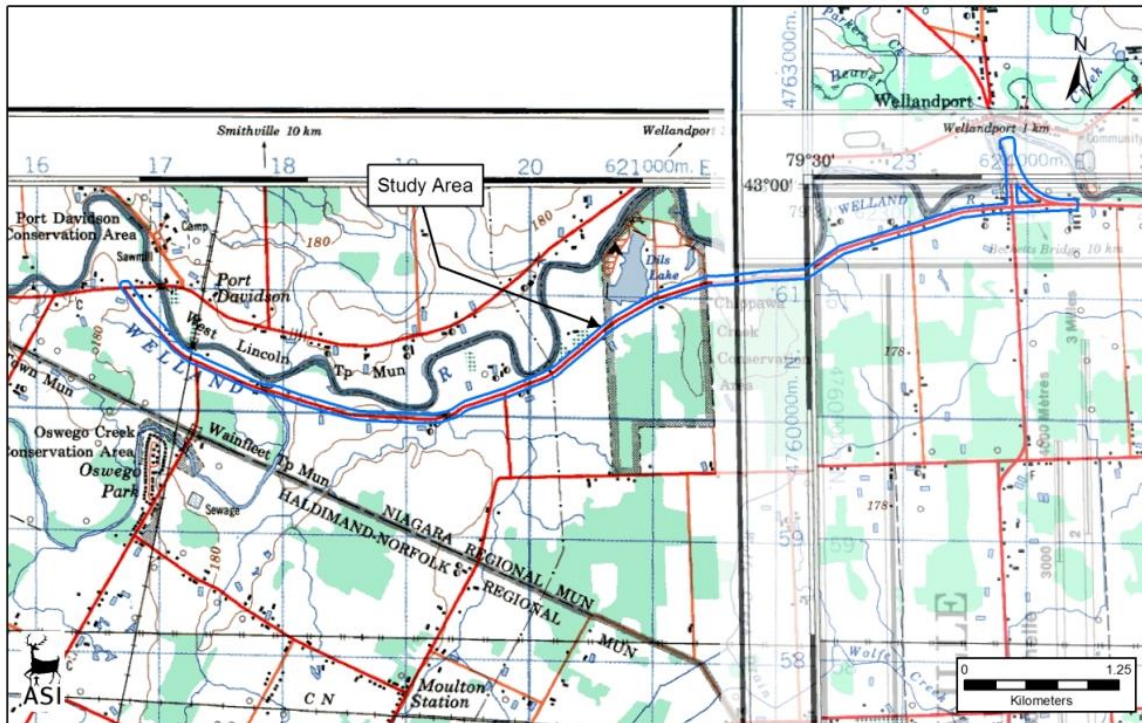


Figure 8: The study area overlaid on the 1996 NTS map of Niagara, Sheets 30/L-13, 30/L-14, and 30M/03
Base Map: (Department of Natural Resources 1996)

4.0 EXISTING CONDITIONS

4.1 Description of Field Review

A field review of the study area was undertaken by John Sleath of ASI, on 8 September 2016 to document the existing conditions of the study area from existing rights-of-way. The existing conditions of the study area are described below and captured in Plate 1 to Plate 12.

The study area is composed of the area around the current alignment of Creek Road (R.R. 45) Avenue extending approximately 30 metres to each side of the right of way, between Canborough Road (RR 63) in the west and the intersection of River Road (RR 27) in the east. The study area is generally bounded by rural agricultural residences and the Welland River to the north, and rural agricultural residences to the south. The roadway is comprised of two asphalt paved lanes with very narrow gravel shoulders and shallow ditches on both sides of the roadway in most of the study area. Within the study, Creek Road is carried over two main water crossings –Oswego Creek and a smaller, unnamed creek in the western third of the study area. Creek Road is carried over Oswego Creek by a Warren Pony Truss bridge, constructed in 1930, while the smaller watercourse passes under the roadway by means of a concrete box culvert.

The western portion of the study area begins at Canborough Road, where Creek Road follows a gently curving east-west alignment south of the Welland River. The study area features a school and agricultural fields on the southeast corner, residences on the northeast corner, and agricultural fields

on the west side (Plates 1-2). The study area continues east with active agricultural fields on the south, and rural residences on the north, passing over the former at grade crossing of the Toronto, Hamilton, and Buffalo Railway, now decommissioned with Creek Road paved over the former tracks. The rail corridor is still visible in the landscape with gravel bedding, overgrown treelines, and a bridge crossing the Welland River located to the north of the study area.

The study area continues east of the intersection of Diltz Road with farmsteads and agricultural fields on the north and south side of the road until intersecting with Oswego Creek. Creek Road narrows from two lanes to one lane and is carried across the watercourse by the Oswego Creek Bridge (BHR 1), a Warren Pony Truss Bridge (Plates 3-4). East of the bridge, the study area continues through active agricultural lands with intermittent rural farmsteads throughout.

A small watercourse is carried under Creek Road by means of a modern concrete box culvert before draining into the Welland River approximately 500 metres west of Regional Road 7. East of R.R. 7, the study area continues through a consistent rural agricultural landscape until passing through the heavily-treed Chippewa Creek Conservation Area (CHL 1, Plate 5). East of Chippewa Creek Conservation area, the study area returns to an agricultural context for a short extent, and then passes through a wooded area bound on both sides by closely spaced mid-twentieth century residences (Plate 6).

East of this small settlement area, the study area returns to a rural agricultural context, with occasional wind turbines and associated infrastructure within or adjacent to the study area (Plate 7). This agricultural context continues until just west of Wellandport Road, where rural residential lots are located on the southern outskirts of the community of Wellandport (Plate 8). The intersection of Wellandport Road and Creek Road was re-aligned in the mid-twentieth-century to improve traffic flow and facilitate the intersection of a third road, Riverside Drive. These three roadways intersect in a triangular configuration, with a stop for east and westbound traffic at Wellandport Road, and a yield at Riverside Drive. Northbound traffic on Wellandport Road has a stop before merging with Riverside Drive, which is aligned to ensure unimpeded traffic flow in both a north and southbound direction (Plates 9-10).

The intersection of Wellandport Road and Creek Road features two churches, with one on the northwest and one on the southwest corner, residences on the northeast corner, and an agricultural field on the southeast corner (Plate 11). Riverside Cemetery (CHL 2) is located directly north of the existing church on the northwest corner, and was associated with an early church congregation that was present as early as 1878 (See Figure 3).

The northernmost limit of the study area north of the intersection of Riverside Drive and Wellandport Road leads to the Wellandport Bridge over the Welland River, and the community of Wellandport (Plate 12).





Plate 1: The western portion of the study area, looking east along Creek Road from Canborough Road.



Plate 2: Agricultural field adjacent to the study area east of Canborough Road, looking east.



Plate 3: Oswego Creek and low-lying, treed floodplain, looking northeast.



Plate 4: Oswego Creek Bridge (BHR 1), looking east.



Plate 5: Chippewa Creek Conservation Area (CHL 1), looking east.



Plate 6: Residences in treed settlement area, looking northwest.



Plate 7: Wind turbine infrastructure on the north of the study area, looking northwest.



Plate 8: Residences on Creek Road, looking east from Wellandport Road.



Plate 9: Intersection of Creek Road and Wellandport Road, looking east.



Plate 10: Intersection of Creek Road (at left) and Riverside Drive (at right), looking west.



Plate 11: Wellandport Road, looking south towards Creek Road.





Plate 12: Intersection of Riverside Drive (at left) with Wellandport Road (at right) in the northern portion.



4.2 Identification of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes



Based on the results of the background research and field review, seventeen potential cultural heritage resources were identified within and/or adjacent to the Creek Road study area. The seventeen cultural heritage resources include one potential BHR and sixteen potential CHLs. A detailed inventory of these known and potential BHRs and CHLs within the study area is presented in Table 1. See Figure 9 to Figure 17 for mapping showing the location of identified BHRs and CHLs.







Table 1: Inventory of Known and Potential Built Heritage Resources and Cultural Heritage Landscapes within the Study Area

Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
BHR 1	Bridge	Oswego Creek	Potential BHR – Identified during desktop data review	<p>Historical:</p> <ul style="list-style-type: none"> -Associated with the historical development of the Township of Wainfleet. -Constructed in 1930 to replace an earlier wooden structure. <p>Design:</p> <ul style="list-style-type: none"> -Single- span, steel Warren Pony Truss bridge measuring 23 metres long and six metres wide. -Reinforced concrete abutments. <p>Context:</p> <ul style="list-style-type: none"> -Carries one lane of vehicular traffic in an east-west orientation over Oswego Creek. -Location of an historical bridging and likely a fording point. 	 <p>Plate 13: North elevation of the bridge, looking southwest.</p>
CHL 1	Conservation Authority	74646 Creek Road	Potential CHL – Identified during desktop data review	<p>Historical:</p> <ul style="list-style-type: none"> -Conservation authority lands acquired in the early 1960s by the Niagara Peninsula Conservation Authority. -Dils Lake, a 10 hectare human-made reservoir was constructed in the early-1960s as a recreational area. <p>Design:</p> <ul style="list-style-type: none"> -175 hectare conservation lands feature recreational area, natural heritage areas, and Dils Lake. -Area was formerly farmland, subject to reforestation efforts and natural regeneration creating the current wooded area. <p>Context:</p> <ul style="list-style-type: none"> -Important local recreational area and natural heritage area. -unique alluvial deposition from the Welland River supports rare Carolinian tree species such as Black Walnut, shagbark hickory, and tulip tree to thrive (Tourism Niagara 2012). 	 <p>Plate 14: Northern portion of conservation authority, with Dils Lake at rear, looking north.</p>



Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 2	Cemetery	84014 Creek Road	Potential CHL – Identified during desktop data review	<p>Historical:</p> <ul style="list-style-type: none"> -Associated with church depicted in 1862 mapping. -Known as the Wellandport/Riverside Cemetery. <p>Design:</p> <ul style="list-style-type: none"> -Historical and modern internments. -Bound by metal fencing and decorative plantings. <p>Context:</p> <ul style="list-style-type: none"> -Located on the west side of Wellandport Road, on the east bank of the Welland River. 	 <p>Plate 15: Cemetery featuring interment, decorative plantings, and metal fencing, looking west.</p>
CHL 3	Farmscape	74366 Creek Road	Potential CHL – Identified during field review	<p>Historical:</p> <ul style="list-style-type: none"> -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph. <p>Design:</p> <ul style="list-style-type: none"> -Farmscape features multiple outbuildings, including a large gambrel roof barn with multiple additions, and several other smaller outbuildings and concrete silos. -No farm house was visible from the right of way. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries. <p>Context:</p> <ul style="list-style-type: none"> -Located on the north side of Creek Road, an early transportation route. -Adjacent to the east bank of the Welland River and wooded floodplain. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features. 	 <p>Plate 16: Barn, outbuildings, and silos at center, treed Welland River floodplain at left, looking north.</p>



Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 4	Farmscape	75369 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is one and a half storeys with an offset intersecting gable roof and an L-shaped plan. -Farmhouse is frame constructed and clad in siding, with a shed dormer on the north and west elevations. -Farmscape features multiple outbuildings, including a gambrel roof barn and modern driveshed. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the south side of Creek Road, an early transportation route. -Reflects the late-nineteenth/ early-twentieth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 17: Farmhouse with established entrance drive and active agricultural fields at rear, looking south (Google Earth).</p>
CHL 5	Farmscape	75229 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is one and a half storeys with an offset intersecting gable roof and an L-shaped plan. -Farmhouse is frame constructed and clad in siding, with a shed dormer on the north elevations. -Farmscape features a single modern outbuilding, established entrance drive, and mature trees, adjacent to active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the south side of Creek Road, an early transportation route. -Reflects the late-nineteenth/ early-twentieth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 18: Farmhouse with established entrance drive at right, looking south (Google Earth).</p>


Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 6	Farmscape	75173 Creek Road	Potential CHL – Identified during field review	<p>Historical:</p> <ul style="list-style-type: none"> -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph. <p>Design:</p> <ul style="list-style-type: none"> -Farmhouse is a one-and-a-half-storey frame structure clad in siding with an offset intersecting gable roof and an L-shaped plan. -The north elevation features a covered porch, and a gable dormer. -Farmscape features multiple outbuildings, including two large gambrel roof barns with multiple additions, several other smaller outbuildings and concrete silos. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries. <p>Context:</p> <ul style="list-style-type: none"> -Located on the south side of Creek Road, an early transportation route. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features. 	 <p>Plate 19: Residence at front and silos at rear, looking south.</p>
CHL 7	Farmscape	85014 Creek Road	Potential CHL – Identified during field review	<p>Historical:</p> <ul style="list-style-type: none"> -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph. <p>Design:</p> <ul style="list-style-type: none"> -Farmhouse is a one-and-a-half-storey frame structure clad in siding with an intersecting gable roof and a T-shaped plan. -The east elevation features a gable roofed addition, possibly a summer kitchen. -Farmscape features multiple outbuildings, including a large gambrel roof barn, several other smaller outbuildings, and concrete silos. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries. <p>Context:</p> <ul style="list-style-type: none"> -Located on the north side of Creek Road, an early transportation route. -Adjacent to the west bank of the Welland River. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features. 	 <p>Plate 20: Residence at rear right, barn, outbuildings, and silos at center, looking north.</p>

Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 8	Farmscape	74978 Creek Road	Potential CHL – Identified during field review	<p>Historical:</p> <ul style="list-style-type: none"> -Structures and landscape features present in same location as 1934 aerial photograph. -Constructed <i>circa</i> 1903 according to occupant. <p>Design:</p> <ul style="list-style-type: none"> -Farmhouse is a two storey structure clad in red brick with a hipped roof and rectangular massing, located on the north side of Creek Road. -The roof features overhanging, bracketed eaves, and the south elevation features a covered porch. -Farmscape features multiple outbuildings, a work yard, and a modern outbuilding located at the end of a long drive on the south side of creek road. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries. <p>Context:</p> <ul style="list-style-type: none"> -Located on the both the north and south side of Creek Road, an early transportation route. -Reflects the early twentieth-century settlement along Creek Road through its style, scale/massing, set back and landscape features. 	 <p data-bbox="1855 802 2588 828">Plate 21: Residence on the north side of creek road, looking northeast.</p>
CHL 9	Farmscape	74830 Creek Road	Potential CHL – Identified during field review	<p>Historical:</p> <ul style="list-style-type: none"> -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph. <p>Design:</p> <ul style="list-style-type: none"> -Farmhouse adjacent to the roadway is a mid-late twentieth century residence, while majority of outbuildings are also recent constructions. -Farmscape features multiple outbuildings, including a late nineteenth-century structure that was converted into living quarters, according to the occupant. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries. <p>Context:</p> <ul style="list-style-type: none"> -Located on the north side of Creek Road, an early transportation route. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features. 	 <p data-bbox="1855 1568 2557 1594">Plate 22: Nineteenth-century outbuilding at left, looking northwest.</p>

Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 10	Farmscape	74241 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is a one-and-a-half-storey frame structure clad in siding with a gable roof. -The north elevation features a shed dormer and covered verandah. -Farmscape features multiple outbuildings, including a large gambrel roof barn and several other smaller outbuildings. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the south side of Creek Road, an early transportation route. -Reflects the early-twentieth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 23: Residence at rear right, barn, outbuildings, and silos at center, looking north.</p>
CHL 11	Farmscape	74221 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is a one-and-a-half-storey frame structure clad in siding with a center gable roof and a rectangular plan. -The north elevation features a Gothic gable with a small Palladian window and a covered verandah, east elevation features an addition. -Landscape features include established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the south side of Creek Road, an early transportation route. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 24: North elevation of residence with palladian window, covered verandah, and eastern addition, looking south.</p>

Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 12	Farmscape	74178 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is a two storey frame structure clad in siding with a hopped roof and a rectangular plan. -The west elevation features a single storey addition, while the south elevation features the main entrance and a bay window. -Landscape features south of Creek Road include an established entrance drive, derelict outbuilding and rubble from recently demolished outbuilding, and active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Residence located on the north side, and agricultural landscape on the south side of Creek Road, an early transportation route. -Reflects the late-nineteenth/ early-twentieth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 25: South elevation of residence with main entrance and bay window, looking south.</p>
CHL 13	Farmscape	74154 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is a one-and-a-half-storey frame structure clad in siding with a center gable roof and a rectangular plan. -The south elevation features a Gothic gable with a small rectangular window and a small covered porch. -North elevation features a single storey addition. -Landscape features include modern detached garage, outbuilding at rear of property, established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the north side of Creek Road, an early transportation route. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 26: South elevation of residence, looking north.</p>

Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 14	Farmscape	74033 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is a one-and-a-half-storey frame structure clad in siding with a gable roof and a rectangular plan. -The north elevation features a small porch, and the east elevation features a single-storey addition. -Tree cover adjacent to the road and the residence obscure view heavily. -Several modern outbuildings are present, and appear to be related to function as an equestrian stable. -Landscape features include fenced pastures and yards, established circulation routes, mature trees, and established, active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the south side of Creek Road, an early transportation route. -Reflects the late-nineteenth/ early-twentieth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 27: North and east elevation of residence, heavily obscured from view by trees, looking south.</p>
CHL 15	Farmscape	75422 Creek Road	Potential CHL – Identified during field review	<p>Historical: -Structures and landscape features present in same location as 1934 aerial photograph.</p> <p>Design: -Farmhouse is a one-and-a-half-storey frame structure clad in siding with a gable roof and a rectangular plan. -The south elevation features a half-timbered gable, and a small roofed doorway. -The west elevation features a deck, doorway, and bay window on the main floor and a shed dormer on the second floor. -Landscape features include established entrance drive, mature trees, and adjacent active agricultural fields with fenced/vegetation-lined boundaries.</p> <p>Context: -Located on the north side of Creek Road, an early transportation route. -Heavily obscured from view of the road by a dense trees. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features.</p>	 <p>Plate 28: South elevation of residence, looking north.</p>

Feature ID	Type of Property	Address or Location	Heritage Status and Recognition	Description of Property and Known or Potential CHVI	Photographs/ Digital Image
CHL 16	Farmscape	75546 Creek Road	Potential CHL – Identified during field review	<p>Historical:</p> <ul style="list-style-type: none"> -Farmscape present in similar location in 1878 Illustrated Historical Atlas map. -Structures and landscape features present in same location as 1934 aerial photograph. <p>Design:</p> <ul style="list-style-type: none"> -Farmhouse is a one-and-a-half-storey frame structure clad in siding with a gable roof and a T-shaped plan. -The south elevation features a covered verandah and a large gable dormer. -The east elevation features a bay window and entranceway on the main floor, and a gable dormer on the northern portion. -Landscape features include a large gable roof barn, silos, several additional outbuildings, established circulation routes, mature trees, and active agricultural fields with fenced/vegetation-lined boundaries. <p>Context:</p> <ul style="list-style-type: none"> -Residence is located on the north side and the barn and outbuildings on the south side of Creek Road, an early transportation route. -Reflects the nineteenth-century settlement along Creek Road through its style, scale/massing, set back and landscape features. 	 <p data-bbox="1867 802 2728 828">Plate 29: East elevation of agricultural structures south of Creek Road, looking west.</p>



16EA-013 Creek Road (RR 45) Reconstruction (Sheet 1)

Figure 9: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 1)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 2)

Figure 10: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 2)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 3)

Figure 11: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 3)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 4)

Figure 12: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 4)

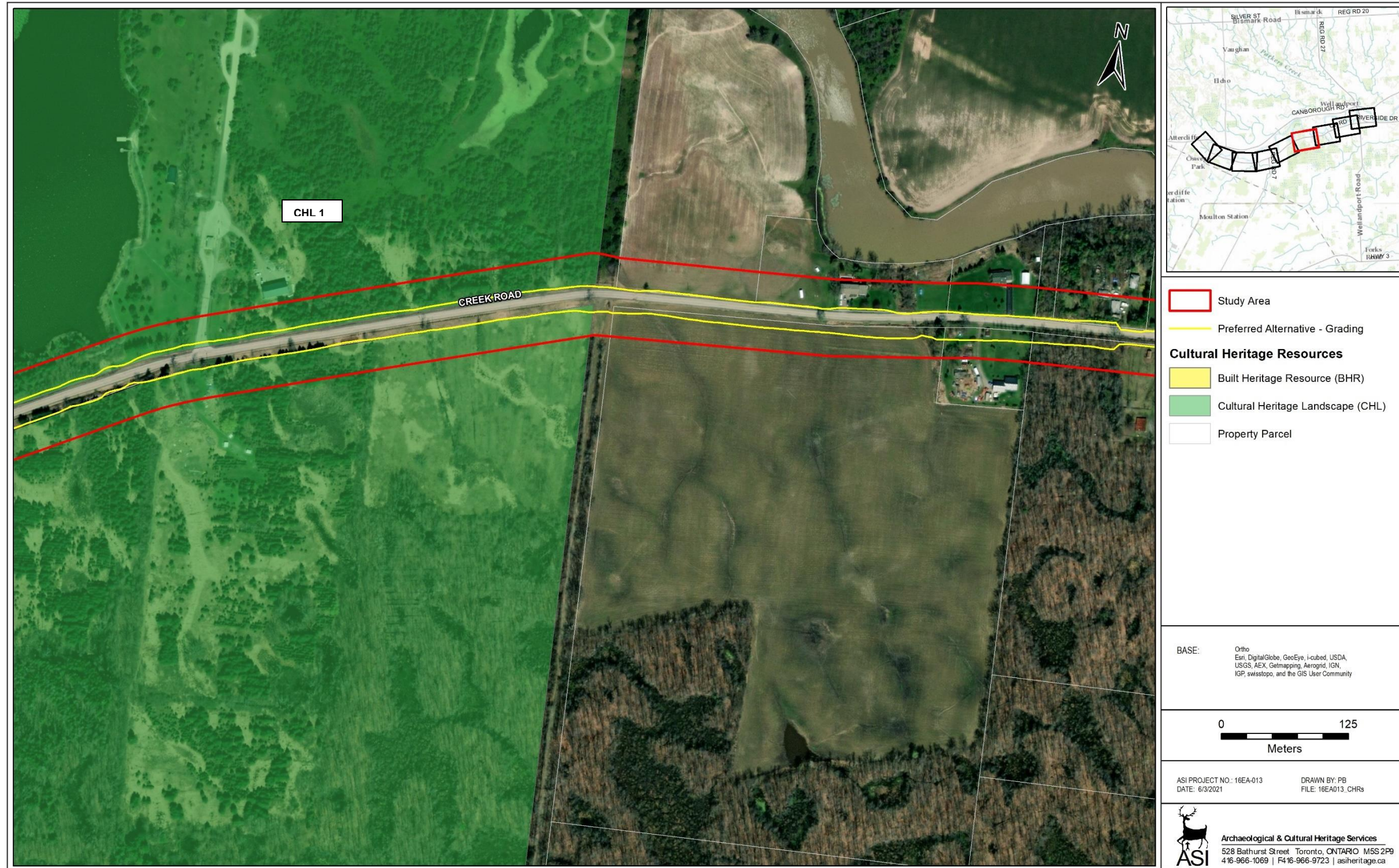




16EA-013 Creek Road (RR 45) Reconstruction (Sheet 5)

Figure 13: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 5)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 6)

Figure 14: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 6)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 7)

Figure 15: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 7)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 8)

Figure 16: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 8)





16EA-013 Creek Road (RR 45) Reconstruction (Sheet 9)

Figure 17: Location of Identified Built Heritage Resources and Cultural Heritage Landscapes in the Study Area (Sheet 9)



5.0 PRELIMINARY IMPACT ASSESSMENT

5.1 Description of Proposed Undertaking

The proposed undertaking for the Reconstruction of Regional Road 45 study area consists of road widening and other improvements along Regional Road 45 (Creek Road) in the Township of Wainfleet.

5.2 Analysis of Potential Impacts

Table 2 outlines the potential impacts on all identified BHRs and CHLs within the study area.



Table 2: Preliminary Impact Assessment and Recommended Mitigation Measures

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
BHR 1	Oswego Creek	<ul style="list-style-type: none"> Direct impacts to BHR 1 are anticipated to include the replacement of the pony truss bridge. A stand-alone HIA was prepared by ASI in 2016 to assess impacts to this structure and to propose suitable mitigation measures. 	<ul style="list-style-type: none"> Mitigation strategies outlined in the <i>Cultural Heritage Evaluation and Heritage Impact Assessment: Oswego Creek Bridge</i>, completed by ASI in 2016, should be considered and implemented, as appropriate.
CHL 1	74646 Creek Road	<ul style="list-style-type: none"> Minor indirect impacts to CHL 1 are anticipated to include grading within the subject property and the expansion of the existing ROW. These impacts are not expected to adversely impact any potential heritage attributes. Minor direct impacts to some landscape features, including the potential removal of established trees adjacent to the Creek Road ROW, are anticipated. While established trees, which are identified as potential cultural heritage attributes, may potentially be removed, the scale of tree removal is considered to be limited and will not significantly detract from the dense tree cover on the property nor influence its potential heritage value. No direct or indirect impacts to any structures are anticipated. 	<ul style="list-style-type: none"> Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 2	84014 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 2 are anticipated to include grading within the existing ROW adjacent to the subject property. No adverse impacts to potential heritage attributes are anticipated. • No direct impacts to any headstones or landscape features of potential cultural heritage value, including mature vegetation, trees, or fencing, are anticipated. • Indirect impacts to headstones may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
CHL 3	74366 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 3 are anticipated to include grading within the subject property and the expansion of the existing ROW. No adverse impacts to potential heritage attributes are anticipated. • No impacts to any structures or landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated. • No direct or indirect impacts to the subject residence or any other structures are anticipated. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 4	75369 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 4 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of established trees adjacent to the Creek Road ROW, are anticipated. While established trees, which are identified as potential cultural heritage attributes, may potentially be removed, the scale of tree removal is limited to the ROW and is not considered to have a significant net impact on the property's legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 5	75229 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 5 are anticipated to include grading within the subject property and the expansion of the existing ROW. No adverse impacts to potential heritage attributes are anticipated. • No impacts to any structures or landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 6	75173 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 6 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of fencing, established trees, and vegetation adjacent to the Creek Road ROW, particularly around the one-lane bridge ROW, are anticipated. While fencing, established trees, and vegetation are identified as potential cultural heritage attributes and may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property's legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species and reinstallation of the fence should be considered to mitigate any impacts. The proponent should consult with the property owner regarding the requirements of this fencing. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 7	85014 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 7 are anticipated to include grading within the subject property and the expansion of the existing ROW. • No adverse impacts to any landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated. • Indirect impacts to a small red barn at the southeast corner of the property may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 8	74978 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 8 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of established trees and vegetation adjacent to the Creek Road ROW, are anticipated. While established trees and vegetation are identified as potential cultural heritage attributes and may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property's legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
CHL 9	74830 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 9 are anticipated to include grading within the subject property and the expansion of the existing ROW. No adverse impacts to potential heritage attributes are anticipated. • No impacts to any structures or landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated. • No direct or indirect impacts to the subject residence or any other structures are anticipated. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 10	74241 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 10 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of established trees adjacent to the Creek Road ROW, are anticipated. While established trees are identified as potential cultural heritage attributes and may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property’s legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 11	74221 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 11 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of established trees adjacent to the Creek Road ROW, are anticipated. While established trees are identified as potential cultural heritage attributes and may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property’s legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 12	74178 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 12 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of fencing, established trees, and vegetation adjacent to the Creek Road ROW, are anticipated. Only the established trees are identified as a potential cultural heritage attribute. While some may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property’s overall tree coverage nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 13	74154 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 13 are anticipated to include grading within the subject property and the expansion of the existing ROW. No adverse impacts to potential heritage attributes are anticipated. • No impacts to any structures or landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 14	74033 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 14 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of fencing and established trees adjacent to the Creek Road ROW, are anticipated. While fencing and established trees are identified as potential cultural heritage attributes and may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property’s legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species and reinstallation of the fence should be considered to mitigate any impacts. The proponent should consult with the property owner regarding the requirements of this fencing. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 15	75422 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 15 are anticipated to include grading within the subject property and the expansion of the existing ROW. • Minor direct impacts to some landscape features, including the potential removal of established trees adjacent to the Creek Road ROW, are anticipated. While established trees are identified as potential cultural heritage attributes and may potentially be removed, their removal is limited to the ROW and is not considered to have a significant net impact on the property’s legibility as a farmscape nor influence its potential heritage value. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Feature ID	Location/Name	Type and Description of Potential/Anticipated Impact	Mitigation Strategies
CHL 16	75546 Creek Road	<ul style="list-style-type: none"> • Minor indirect impacts to CHL 16 are anticipated to include grading within the subject property and the expansion of the existing ROW. No adverse impacts to potential heritage attributes are anticipated. • No impacts to any structures or landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated. • No direct impacts to the subject residence or any other structures are anticipated. • Indirect impacts to the subject residence may occur through vibration stemming from construction work. 	<ul style="list-style-type: none"> • Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts to this cultural heritage landscape. • Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscape should be considered to mitigate any unintended impacts. • Post construction rehabilitation including planting with sympathetic plant species should be considered to mitigate any impacts. • To ensure this property is not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or landscape features on this property will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

Direct impacts to BHR 1 are anticipated to include the replacement of the pony truss bridge. Mitigation strategies were outlined in a stand-alone HIA prepared by ASI in 2016 and should be considered and implemented, as appropriate.

Minor indirect impacts to all CHLs are anticipated to include grading within the subject properties and the expansion of the existing ROW. Where feasible, excavation, grading, and staging activities should be planned and executed to limit impacts upon these potential cultural heritage landscapes.

Minor direct impacts to CHLs 1, 4, 6, 8, 10, 11, 12, 14, and 15 are anticipated to include the removal of established trees, vegetation, and/or fencing along Creek Road to accommodate the widened ROW. Where feasible, review design opportunities to minimize impacts to the established trees, vegetation, and/or fencing on these properties during detailed design and their potential removal adjacent to the ROW should be minimized where possible. Excavation, grading, and staging activities should be planned and executed to limit impacts to these potential cultural heritage landscapes. Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage landscapes should be considered to mitigate any impacts. Post construction rehabilitation including planting with sympathetic plant species and reinstallation of fencing (where necessary) should be considered to mitigate any impacts to established trees, vegetation, and/or fencing.

Indirect impacts through vibration stemming from construction work may occur to the residences at CHLs 4-6, 8, and 10-16; to a small red barn at the southeast corner of the property at CHL 7; and to the headstones in CHL 2. To ensure the structures on these properties, as well as the headstones, are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that the any structures will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction. Regarding CHL 7, where feasible, review design opportunities to minimize impacts upon this barn during detailed design. Excavation, grading, and staging activities should be planned and executed to limit impacts upon the barn. Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews about the potential heritage value of this barn to mitigate any impacts.

No adverse direct impacts to any structures or landscape features of potential cultural heritage value, including mature vegetation, tree-lined agricultural fields, or fencing, are anticipated upon CHLs 2, 3, 5, 9, 13, and 16.

6.0 SUMMARY OF COMMUNITY DATA COLLECTION

Consultation with the community will be undertaken through submission of this report for review and comment to municipal heritage staff, the MHSTCI, and any other relevant stakeholder with an interest in this project. This section will be updated following receipt of any feedback.



7.0 RESULTS AND MITIGATION RECOMMENDATIONS

The results of background historical research and a review of secondary source material, including historical mapping, indicate a study area with a rural land use history dating back to the early nineteenth century. A review of federal, provincial, and municipal registers, inventories, and databases revealed that there are no previously identified features of cultural heritage value within or adjacent to the Reconstruction of Regional Road 45 study area. Based on the results of the background research, data collection, and field review, seventeen cultural heritage features were identified.

Key Findings

- A field review of the study area confirmed that there are seventeen cultural heritage resources consisting of one BHR and sixteen CHLs immediately adjacent to the study area.
- Identified cultural heritage resources include fourteen farmscapes (CHLs 3-16), a twentieth-century Warren Pony Truss bridge (BHR 1), a conservation area organized in the mid-twentieth century (CHL 1), and a cemetery (CHL 2).
- Identified cultural heritage resources are historically, architecturally, and contextually associated with late-eighteenth to mid-twentieth century land use patterns in the Township of Wainfleet.

Results of Preliminary Impact Assessment

- The preferred alternative is anticipated to result in minor direct impacts to 10 potential cultural heritage resources (BHR 1 and CHLs 1, 4, 6, 8, 10, 11, 12, 14, and 15).
- The preferred alternative is anticipated to result in no direct impacts to seven potential cultural heritage resources (CHLs 2, 3, 5, 7, 9, 13, and 16).
- The preferred alternative is anticipated to result in indirect impacts through vibration stemming from construction work to 13 potential cultural heritage resources (the residences at CHLs 4-6, 8, and 10-16; to a small red barn at the southeast corner of the property at CHL 7; and to the headstones in CHL 2).
- Where feasible, review design opportunities to minimize impacts to established trees, mature vegetation, and fencing during detailed design to prevent or limit their potential removal. Excavation, grading, and staging activities should be planned and executed to limit impacts to all potential cultural heritage landscapes where direct or indirect impacts are expected. Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing specific instructions to construction crews related to cultural heritage features should be considered to mitigate any impacts to these cultural heritage resources.



7.1 Recommendations

Based on the results of the assessment, the following recommendations have been developed:

1. Construction activities and staging should be suitably planned and undertaken to avoid impacts to identified cultural heritage resources.
2. Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews to avoid the cultural heritage resource should be considered to mitigate any unintended impacts to all cultural heritage resources.
3. Post construction rehabilitation including planting with sympathetic plant species and the replacement of any impacted landscape features with potential cultural heritage value should be considered to mitigate any impacts.
4. Where feasible, review design opportunities to minimize impacts and to prevent or limit the potential removal of established trees, vegetation, and/or fencing during detailed design. Excavation, grading, and staging activities should be planned and executed to limit impacts to these potential cultural heritage landscapes. Suitable mitigation including establishing no-go zones with fencing, implementing tree protection zones, and issuing instructions to construction crews to avoid the cultural heritage resources should be considered to mitigate any impacts to these cultural heritage resources.
5. Where feasible, review design opportunities to minimize impacts to a small red barn at the southeast corner of CHL 7. Excavation, grading, and staging activities should be planned and executed to limit impacts upon the barn. Suitable mitigation including establishing no-go zones with fencing and issuing instructions to construction crews about the potential heritage value of this barn to mitigate any impacts.
6. Mitigation strategies were outlined in a stand-alone HIA prepared by ASI in 2016 should be considered and implemented, as appropriate, for the planned replacement of the pony truss bridge (BHR 1).
7. Indirect impacts to the residences at CHLs 4-6, 8, and 10-16; to a small red barn at the southeast corner of the property at CHL 7; and to the headstones in CHL 2 may occur through vibration stemming from construction work. To ensure the structures on these properties, as well as the headstones, are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design. Should this advance monitoring assessment conclude that any structures or headstones will be subject to vibrations, a vibration monitoring plan should be prepared and implemented as part of the detailed design phase of the project to lessen vibration impacts related to construction.
8. Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.



9. This report should be submitted by the proponent to heritage staff at the Township of Wainfleet, the Ministry of Heritage, Sport, Tourism, and Culture Industries, and any other relevant stakeholder with an interest in this project.



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APPENDIX A: PREFERRED DESIGN CONCEPT



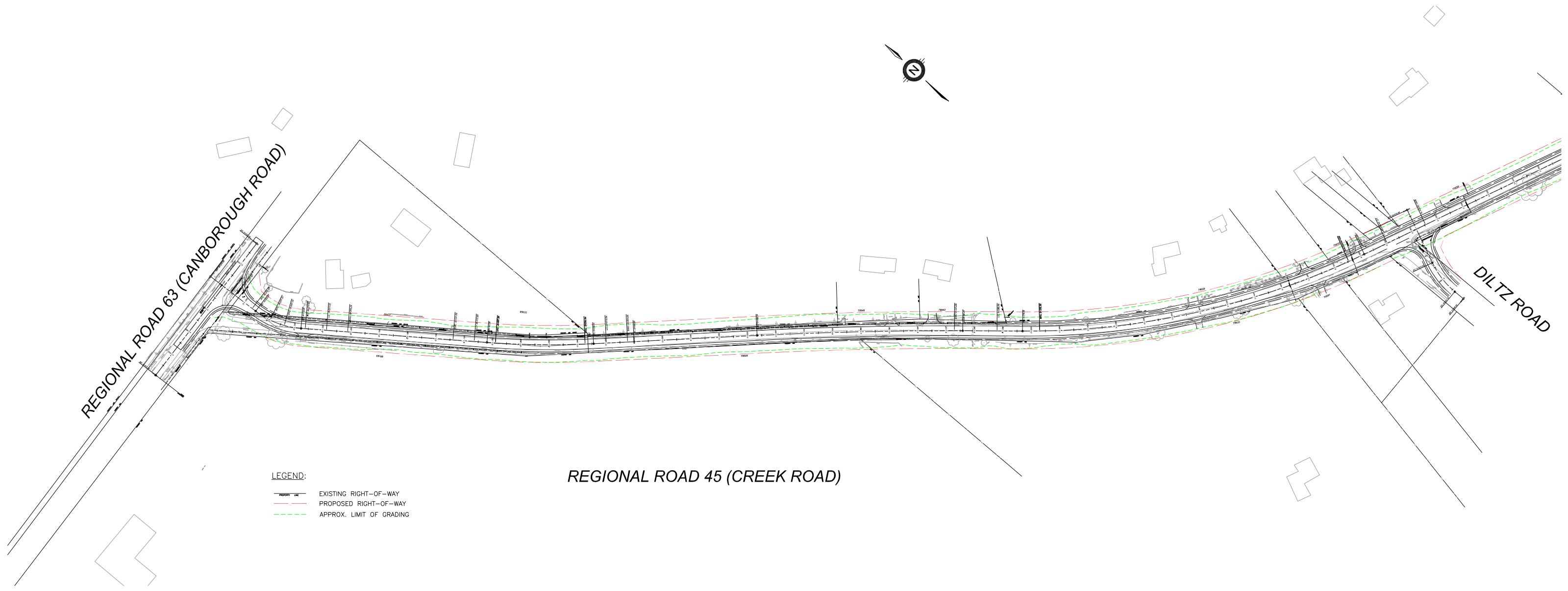


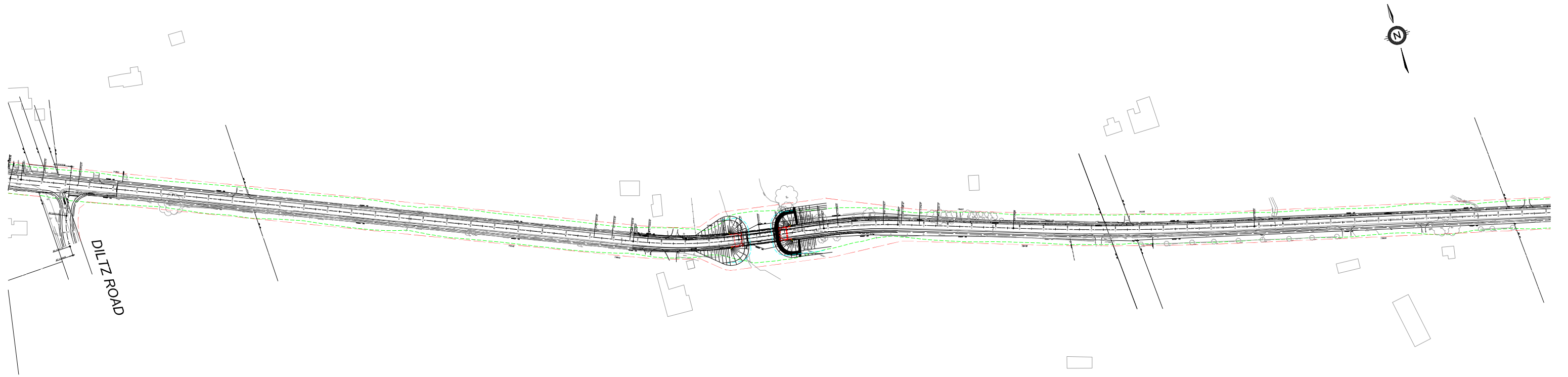
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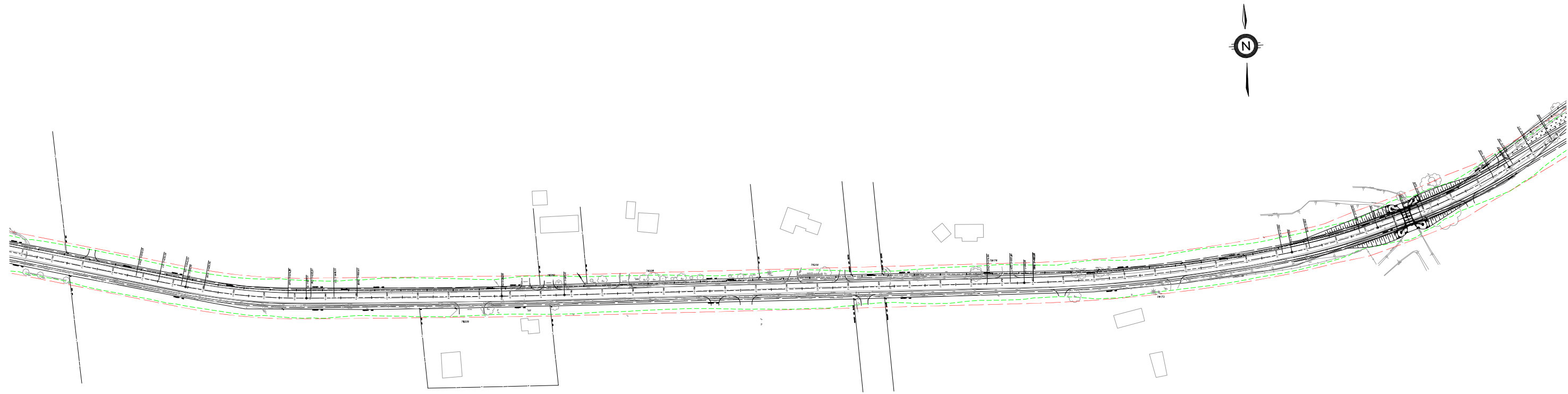
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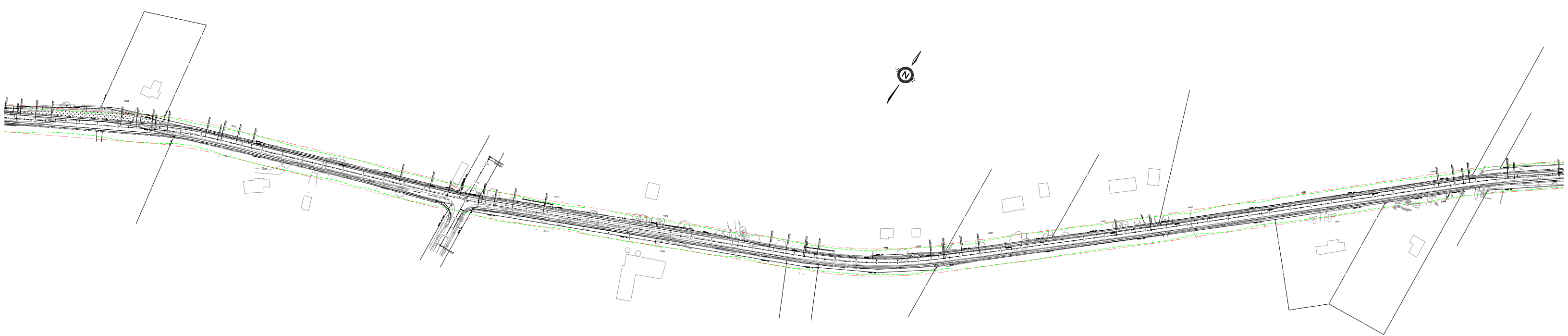
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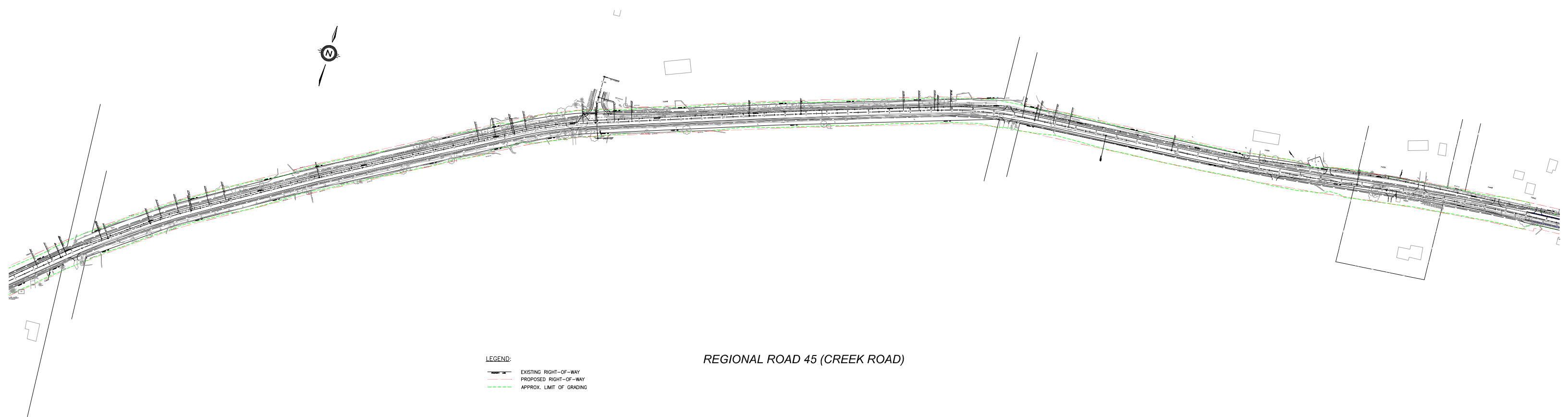
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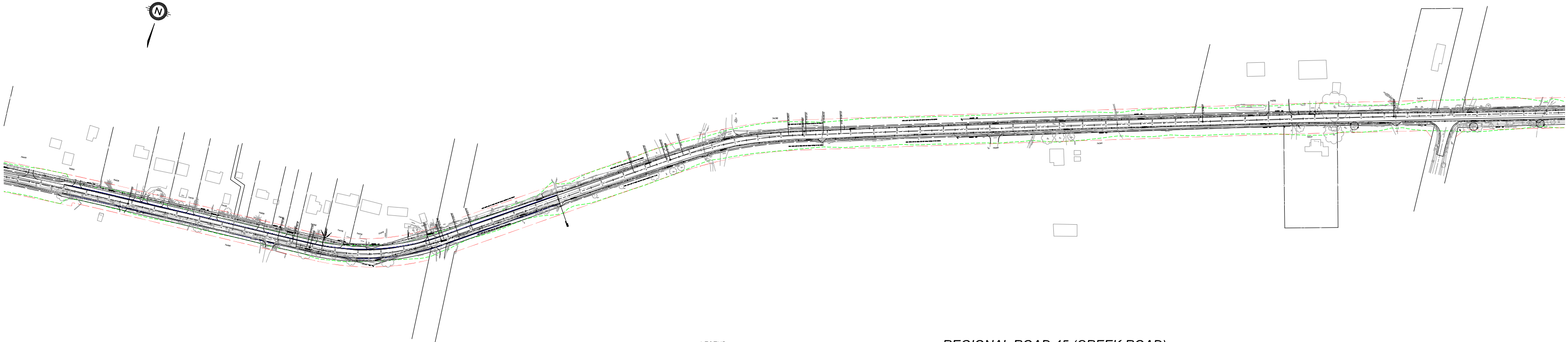
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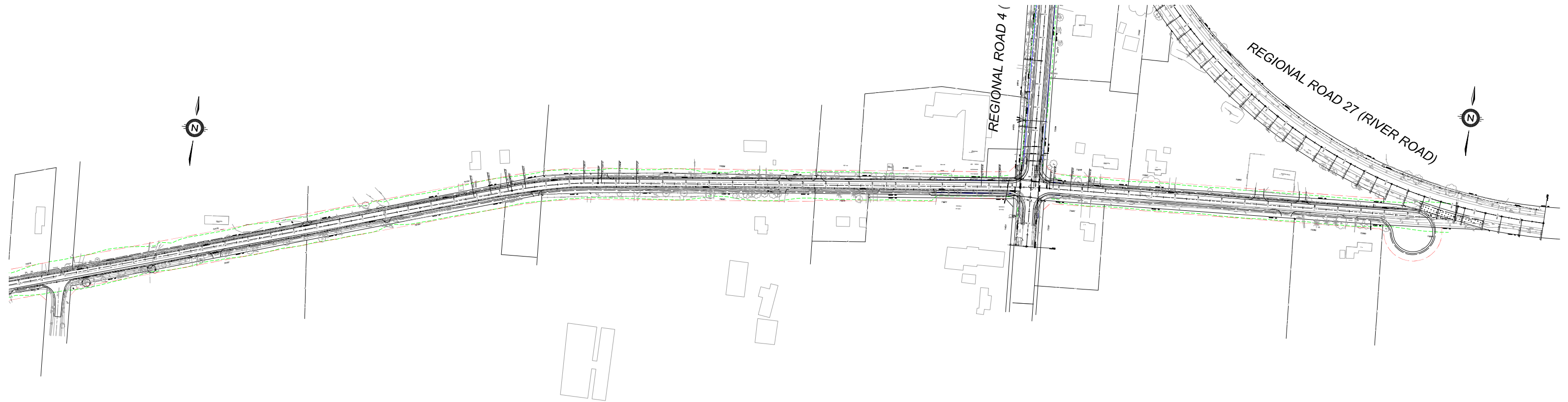
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